

CHAPTER 7

RNZN Electronic Warfare (Submitted)

The Electronic Warfare branch was a sub specialty of the Radio Operators branch of the Communications Branch of the RNZN. It followed in much the same path as the Royal Navy organisation and development and I would suspect the Royal Australian Navy.

What is Electronic Warfare?

The classic Electronic Warfare Tree breaks down (or did, though I believe the nomenclature has changed) into three branches:

Electronic Support Measures (ESM)

Electronic Counter Measures (ECM)

Electronic Counter Counter Measures (ECCM)

These terms and definitions are well know and used in reporting on such matters. In the simplest terms:

ESM – are the measures taken to gather all the information about electronic emissions and having that information available to allow detection, identification and analysis.

ECM – are those measures which are taken to impede the enemy's use of ESM. Such actions as Radar and Communication Jamming and Deception.

ECCM – are the measures taken to protect our systems against the enemy's use of ESM and ECM.

RNZN ships with EW fitted equipment used ESM against ships, aircraft and submarines to aid the detection of those platforms using Radar to detect and then provide a firing solution for their weapons. Ships fitted with Radar Jammers used ECM against ships, aircraft and weapon's radars to disrupt the flow of information in providing a firing solution. ECCM involved using authentication systems to ensure the sender and receiver of signals were talking to properly authenticated people, Communication Security Plans to reduce or stop any electronic radiations which might give away positions or provide information from analysis of such emissions

Timeline:

1955/56	First RNZN EW Training (informal) HMS Mercury (Bellona/Royalist)
1959	First formal training HMAS Cerebus/Harman Attendees: LdgTel Frank Hollbrook Tels Graham Cadwallader, Colin Moreby
1961	EW Conversion Course HMS Mercury for Taranaki
1961	EW Conversion Course (HMS Mercury) Attendees: LRO Maurice(Long John) Bruce RO's Mike Catlow, Casper Neil

1962	PEW Course HMS Mercury
1963	RO/EW Conversion Course (HMAS Cerebus Vic.) Attendees: LRO Don McMurray RO's Rocky Graham, Benji Hathaway, Dennis O'Rourke
1963	LEW Qualifying Course HMS Mercury Mike Catlow
1965	PO EW Qualifying Course (HMS Mercury UK) Attendees: LRO(S) Don McMurray LRO(S) Graham Cadwallader
1965/66	PO EW Course HMS Mercury (Waikato)
1966	Introduction of UA8 & 9 on Waikato(commissioning)
1966	EWI Course HMS Mercury (Maurie Bruce)
1967	First RNZN EW Conversion Course
1974	EWI Qualifying (HMS Mercury UK) Attendee: CEW Don McMurray

- 19?? First EWI's (Where and when and who)
- 19?? Introduction of UA8 & 9 on Waikato
- 1971 First RNZN Petty Officers Course
- 19?? Introduction of Basic EW Courses
- 198? Change to Seaman's Branch
- 19?? Introduction of ??????? on new frigates

Early Identities: (What were the proper titles??)

Were Some more in here:

- Frank Holbrook
- Colin Morbey
- Graham Cadwallader
- Casper Neil
- Mike Catlow
- Maurie Bruce (Long John) CPO Electronic Warfare Instructor
- Don McMurray WO Electronic Warfare Instructor
- Roger K Graham (Rock) LRO(W)
- Benji Hathaway RO
- Dennis O'Rourke POEW

All these personnel were trained in UK/Australia, and recruited from the ranks of Radio Operators. In August 1967 the first EW Conversion course was held at the RNZN Communications Training School to convert existing Able Radio Operators to potentially Leading Electronic Warfare Operators.

RNZN Electronic Warfare

Notes from Graham Cadwallader

During the Bellona/Royalist exchange period, September 1955 and April 1956 a number of volunteers were called for – from memory 5 – to attend a familiarization course at HMS Mercury. Qualification was somewhat basic morse reading by hand at 25 words per minute. Understand that this “course” was carried out in the still operating “W” section, a high security area within HMS Mercury. We were escorted in and out of the area and forbidden to move about the inner area. Little work was carried out on the equipment we were to meet on Royalist – QR, QS, FH3, B41, B40, and UA2.

High speed morse reading with an undulator! The tape would come off those machines and shoot 15 or 20 feet away! I was later to see these machines during my time at Irirangi working with GCSB (then NZCSO) staff on secondment. Reading the resultant tape was NOT a favoured task! (GC)

The first “formal” EW course was conducted in HMAS Cerberus and HMAS Harman, Australia during the period July 1959 and December 1959. Attendees were Frank Holbrook, Graham Cadwallader and Colin Morbey. Holbrook was already a 3 badge Leading Telegraphist (he may have been (S) qualified in the RN). Cadwallader and Morbey were Telegraphists. On completion of the course they assumed the rating of RO1(S) Holbrook assumed the rate of Leading Telegraphist(S). Cadwallader was rated A/LRO(S) in April 1963. This was later changed to A/LRO(W) in January 1964 Once again the course concentrated more on land based monitoring of Communication circuits, Radio Procedure, morse reading and an introduction to PRF tapes and the inevitable stopwatch. The tapes were not of actual recordings to my knowledge but manually generated. I have no knowledge of sea-borne equipment of any sort during this course. Harman was an active monitoring station and movement around the base was very restricted. (GC)

The first PO(EW) course was conducted in HMS Mercury and ran from August 1965 until February 1966. Once again there were restrictions on movement within the (W) section and access to equipment after hours for revision was not permitted without escort. Access to publications other than ACP’s was particularly difficult – we already had access to them at home! A fair amount of time was spent on “finger printing” of transmitters although the advent of the 600 series largely made this an already out-dated procedure. There was no instruction on the UA8/9 or the other equipment we were to meet on Waikato. At the end of the course I was posted back to Philomel and returned to Waikato September 1966. (GC)

The first RNZN course for PO(EW) was held in North Head Communications Training School HMNZS Philomel commencing August 1971 and ran in conjunction with PO(RS) course (GC)

Notes from Maurie Bruce

1961 Feb E.W. conversion course HMS Mercury.

LRO Maurie Bruce

RO Casper Neil

RO Mike Catlow

All three of us went onto Taranaki and completed work up at Portland/Portsmouth prior to returning to NZ via the States

1962 Attended HMS Mercury again for PEW course rejoining Taranaki March 1963

1966 Sept - Nov attended HMS Mercury to complete EWI course, Think Graham and Dennis O'Rourke there also, on Completion of course joined up with you both on Waikato.

Remember the Caravan which was parked up in the hills north of Auckland, Dairy flat if memory serves me correctly. We reckoned we could have wrecked the exercise because the Air force insisted in using plain language all the time. (MB)

As a budding LRO was a little pissed off with all the POMs coming out to NZ and getting promotions so decided to have a go at this new branch of the Comms world called Electronic Warfare so I decided to put my hand up. Hell I was accepted and sent off the UK to do a EW Conversion course with two other young lads Casper Neil and Mike Catlow. We duely flew to the United Kingdom and joined up with the crew of Taranaki in Portsmouth and eventually went the HMS Mercury in Feb 1961 for our course which lasted until 3 months, then it was back to Taranaki in Portsmouth and continued on with the Work Up. This was a very interesting phase, as we had to prove ourselves as budding EW Operators especially to the Captain Neil Anderson. Once this was achieved it was all go. We eventually sailed for NZ.... in Sept 1962. While in the Far East was informed I was to fly out to the UK and do a Petty Officers course, again in HMS Mercury, this was completed in March 1963 and I returned to the Far East to rejoin Taranaki, and stayed with her until 1965. It was during this period I was promoted to RS(S) then RS(W) and eventually a PEW all in the space of 12 months.

On being transferred ashore for a change, was involved with Command Team Training at North Head, Radar school and helping out in the Port Wireless and Comms School .

Then it was back to the UK in Sept 1966 to do join the Blackpool and eventually do a Instructors course, again at Mercury carried out Sept-Nov 1966, In the meantime Blackpool had proceeded to the Far East station . On completion of the Instructors course I was supposed to rejoin the Blackpool, but at the last minute this was changed and I proceeded to join the Waikato in Portsmouth, where I teamed up with Graham Cadwallader and Dennis O'Rourke . This was a dream team and it was most enjoyable serving with them even though Graham lost his temp rank when I came onboard. Sorry G.

Over the next few years served in Philomel again back to Waikato for a short stint where Waikato had a major fire in the Boiler room and it resulted in the EW staff being transferred to Taranaki during LONGEX, transfer taking place at dusk. Not nice.

April 1971 was promoted to Chief Petty Officer and most of my time was spent in HMNZS Philomel. Doing Command Team Training. Carried out the 1st EW Conversion course to be held in NZ . A short stint up to the Pacific island to Muaroroa for the French Bomb Tests . Retired in Feb 1975 and joined up with the Police Dept in their Comms network for the next 24 years and then spent a couple more years in their watch house, all in Auckland, processing prisoners into their computer system before retiring yet again down to the Sunny Bay Of Plenty

Notes from Mike Catlow.

I converted to Electronic Warfare ('S' Branch as it was then) as an RO2 and attended the Conversion course in HMS Mercury waiting for completion of building of HMNZS Taranaki (Cdr Neil Anderson) at Cowes on the Isle of Wight 1961. My classmates were Maurice (Longjohn)Bruce(LRO) and RO2 Dave (Casper) Neil. The course was ESM orientated with RRX the emphasis with the current equipment at that time (UA3). ComSec was covered but as this was just listening and/or recording CW it was not much different from general duties. The course was eight weeks. We missed the Commissioning ceremony at Cowes so we went aboard Taranaki at Portsmouth for the workup at Portland.

After return to NZ, I was drafted to Iirangi 1962 (DO Lt Harry Alderton) general duties at NR2. I was married and lived in army housing in Waiouru so we were picked up by Iirangi transport van for watch duties (Brian Crengle POOW).

I had my A/LRO(S) rate confirmed in Philomel March 1963 having previously done a provisional. Shortly after I learned of my draft to Otago (Cdr Thorn) for Far East FESR. Drafted to HMS Mercury from Otago in Singapore for a qualifying LRO(W) course from 28th August to 15th November with five classmates from the RN. Course subjects were GCI, EW Proc Prac, EW Org paper, EW Tech Prac, Radio org, WT Proc paper, WT Proc prac, Crypto, Voice, RCE Tech paper, Radio tech prac, MMX, RRX, and MTX After completing top of the course, I was sent back to rejoin Otago in Singapore with a bit of kudos for RNZN.

Drafted to Royalist for 1964 Governor General (Fergusson) Pacific Islands cruise etc. Then Philomel for a few weeks LHOW duties in the Command W/T Station then back again to Royalist 1965 for another FESR (DO Lt Harry Alderton) . I was surprised to be the only EW drafted. Employed mostly as a general LHOW until the Indonesian Confrontation developed and confined to the EWO for all exercises and patrols. I had to commandeer two ORDs to do a quick course in a modified RRX etc and they did the best they could under the circumstances.. Other RO's were selected as required for ComSec duties we were asked to carry out. Jim Dell later wrote about this interlude with some tongue-in-cheek comments and with a certain amount of humorous levity for the facts!! I had been offered Waikato and PO course if I re-engaged but marriage and family conditions at the time meant this was not possible.

My final posting was 1966 back to ZLO Iirangi LHOW at NR2 but I did get a 3 month secondment to NR1 which was mostly intense morse reading (those foreign macro letters were a pain) While there I met up again with Tere Tahi who had been on Taranaki with me.. My engagement expired in 1967.

I eventually re-entered the Comms world by joining Telecom Wellington in PABX planning and support until 'downsized'. I was later twice re-hired by Telecom on a contract basis. When a Telecom contract ended I was kept on by BNZ full time to help manage their branch telephony network. With the change from PABX base to VOIP digital networking, it seemed a good time to bow out and do all the other things in life which you never got round to. I have now become an oil painting artist which was always an interest (tutor Ian Hamlin).

My postings

Tamaki	Sboy2 Sboy 1	17/01/57	17/03/57	Basic seamanship training
(Motuihe)	Boy Tel part 1	18/03/57	20/12/57	39 th WT POTELE Whale
Philomel	Boy Tel part 2	03/01/58	13/07/58	Comms School (by RNZNH)
Lachlan	J Tel	14/07/58	11/02/59	Pacific Island survey
Pukaki	Ord Tel and RO2	12/02/59	17/06/60	FESR (RO2 exam HMS Kranji)
Philomel	RO2	18/06/60	05/01/61	Port WT North Head
Maori		06/01/61	12/02/61	Advance party Taranaki
Mercury	RO2	13/02/61	22/04/61	EW conversion course
Taranaki	RO2(S)	23/04/61	18/12/61	Maiden voyage to NZ
Irirangi		19/12/61	18/11/62	NR2
Philomel		19/11/62	08/03/63	Prov LRO course and ABCD
Otago		09/03/63	29/01/64	FESR
Mercury		26/08/63	20/11/63	LRO(W) Qualifying course
Philomel	LRO(W)	30/01/64	09/04/64	Port WT and Manawanui
Royalist	LEW	10/04/64	08/10/64	Gov General Pacific Islands
Philomel		09/10/64	11/03/65	Command W/T LHOW
Royalist		12/03/65	17/01/66	FESR only EW Final Commission
Wakefield		18/01/66	19/01/66	Oops admin 1 day in office
Irirangi		20/01/66	13/01/67	NR2 LHOW and NR1
Philomel		14/01/67	17/01/67	Engagement expired

Notes from Dennis O'Rourke

I joined the Navy (CS13) at Tamaki (on The Rock) in January 1961 - that is nearly 50 years ago!!! Self, Ross Sanson, ??Robertson (ended up in the Police) & Eugene Rapana were the Sparkers. I will get on to the History project, I think it is a great idea and what is secret after 40 odd years!!! Not a lot I would suggest.

I was recruited by Maurie (Bruce) on joining the Taranaki after she came back from the UK Commissioning - my first sea posting. "Who wants to do some part-time EW?". Sounded interesting, so I put my hand up. Did some of the first Taranaki Commission up the Far East Fleet (FES) - then went to HMAS Cerberus (Melbourne); HMAS Harman (Canberra) and then HMAS Watston (Sydney) for an EW Basic Course with the RAN. Back to Auckland and a posting to HMNZS Pukaki as a Sparker and part-time (the only) EW Operator (UA3 in the Ops Room) and a trip to Aussie with a visit with the Ops Team to AJASS (Australian Joint Anti-Submarine School at HMAS Nowra) then a memorable ASW exercise off Jervis Bay. Posted to Irirangi then a Far East Deployment on Otago. Up and down off Vietnam and China (backwards and forwards Singapore/Hong Kong (life was hell) with taskings' from (it was a SECRET!!!), logging communications and radars. Getting checked out by USN anti submarine aircraft patrols and final checks by USN Phantoms on the deck and smoking!!!

Patrols in the Malacca Straits and a deployment off Borneo, for the Indonesian Confrontation. Monitoring Indonesian communications on inshore patrols for the RN Spooks at HMS Kranji.

Attachment to HMS Kranji for an LRO's Course then back to Irirangi (got in the poo there with the Skipper) so was posted forthwith and (life is hell) to the UK for a POEW Course at HMS Mercury before joining Waikato with Caddy as O/C EW. UA8/9 - intro to computers - gear that didn't originate in the Battle of the Atlantic - Wonderful stuff!

Did the first commission up the FES with Waikato, promoted to PEW (they kept changing the designations) then came back to Auckland at the end of the commission and got out (and that is another story) in January 1969 to join the Police and I am still there after 39 years (most of those as an Investigator with the CIB). My service involvement hasn't finished though, I joined the TF Army (Military Police) in 1982 and am STILL (I am seriously older than the General) a Warrant Officer Class I in the Army (God help me and all who sail in me - I am surely a slow learner). I reached mandatory retirement age in the Police 10 years ago - finished Friday (had a farewell) and started work again (same office - same bat cave - same files) on the next Monday and I am still there. It helps fund my lifestyle!

Mention of the monitoring of the Indonesian forces during the confrontation reminds me of the time when Otago was the lead vessel for the Malaysian minesweepers around Tawau, Borneo. Communications was conducted on a HF morse circuit around 3 or 4 Mhz I think. The Malaysians (some of who had been trained in India and Auckland) would get in a muddle with morse and suddenly there would be some Malaysian voice talking going on, then once it was sorted they would switch back to morse (DW)

Tasking

(EW) staff – particularly on Waikato's first cruise – closed up in the EWO on sailing. Tasking instructions were issued to the Captain and opened in his presence. Usually these tasks originated from GCSB, but now and again it would be an Australian authority. Later, towards the early 70's a task would have an NSA originator. Product was dispatched by sealed bag to the requesting authority at the next port of call. Of particular interest was the South Pacific, Far East and passages to and from Singapore and Hong Kong. This tasking was sometimes exhausting due to lack of staff with appropriate security clearances. It was not unusual to be on watch for periods of 16 to 20 hours without a break. EW staff were not generally sighted whilst at sea and they copped a considerable amount of flack because of it! (GC)

First EW Classroom

The first EW classroom as such was established in the old Buffers Store at North Head, adjacent to the RP School. The equipment list was:

1 X QR, 1 X QS, 1 X B40, 1 X B41, 1 X FH3, 1 X Wire recorder of uncertain parentage later replaced by 1 X REH3

All the above equipment was ~~stolen~~ relocated from various locations in the base or ships alongside. All installation was carried out by Holbrook, Cadwallader or Morbey. The room was painted several time in an effort to maintain its water-tight integrity and although the temperature inside never rose above 10 degrees we were unable to find a heater. The heater probably would not have worked as there was only 1 power point to which a 6-way junction box was connected. All equipment was fitted with 3-pin plugs. We had no aerials and I'm not aware of any classes being taught there! (GC)

RNZN EW Conversion Courses

The first RNZN EW Conversion course was basically a Leading Rates professional course and was run in conjunction with a Radio Operators and Signaller's Leading Rates course at the HMNZS Philomel, Communications Training School, North Head

Course Attendees

David Wistrand
Mike Anderson
Max Watt
Steve Ebrey
Ian? Clements
John King

Later courses included:

Peri Wehi
Lionel Tuhiwai
Henry Hawe
Jim Lyons
Pritchard
Grant (Red) Scanlan
Takiari
Roger Sheehan
Paul Craggs
Bud Abbott
Greg Knaggs
Simonson

The syllabus was basically the same for Radio Operators except for:

Electronic Warfare Equipment – was an addition (vaguely remember some RCE – perhaps up to synthesised equipment – Racal CJK's but not later fits?)
Electronic Warfare Voice Procedure – was an addition
Electronic Warfare Organisation – replaced Radio Communications Organisation
Radar Recognition Exercises

The same instruction was give for:

Automatic Teletype
Wireless Telegraphy Procedure
Voice Procedure
Typing/Morse
Cryptography

On completion of the first course Dave Wistrand and John King were posted to Otago (not sure about the others). At this time EW's were still part of the radio operator complement and only closed up in the EW Office for exercises. Otherwise kept watches in the Bridge Wireless Office (BWO – Whitby Class Frigates) and Main Communications Office (MCO – Leander Class Frigates).

HMNZ Ships EW Equipment Fits.

It is presently (Nov 2009) being organised with RN contacts that the RNZN Museum will obtain a copy of BR333 which will list all the parameters of most of the EW equipment employed on Whitby, Leander, Dido and Loch class ships.

Royalist

QR 19-165MHz used the ACH or AJD aerial

QS 150-400 MHz used the AQA and/or AJA aerial

FH4 1-24 MHz used the Bellini Tosi system - fore/aft loops intersected by port/starboard loops - with sense aerial attached. Can't remember the model number - sat on top of the foremast

UA3 7-11.5 GHz (GC Mentions a UA2 around 1955/56)

Pukaki

UA3 in Operations Room (DO)

Whitby Class Frigates (Otago, Taranaki and Blackpool) were fitted with the:

UA3 SHF DF Receiver

FH4 HF DF Receiver

QR VHF Receiver Frequency Range ?? Aerials ACH/APH

QS UHF Receiver Frequency Range ?? Aerials AQA/AJE

Tape Recorder REH3

(This fit was basically reproduced in the Communications School EW Classroom especially set up for the first EW Conversion class in August 1967).

Otago and Taranaki (Blackpool had no EW capability) were later updated with a UA8/9/YAZ suite but not the Type 667/8 SHF Jammers.

Leander Class Frigates (Waikato, Canterbury and Southland?) were fitted with the:

UA8/9 SHF DF Receivers

FH5 HF DF Receiver

SHF Jammers Type 667 (667 suite as both E/F and I Band – 668 was I Band only)

QR VHF Receiver

QS UHF Receiver

Tape Recorder REP1

UA3

Relatively unsophisticated SHF receiver that operated in two frequency bands S and X (S Band later morphed in E/F band(s) and X Band become I Band). The operator could only watch one of the bands at any one time

UA3 E Band 2100 to 3400 MHZ (from memory)

UA3 I Band 7500 to 9600 MHZ

Bearing Accuracy Plus or minus 10%

The UA3 presented frequency only by Band, with any ARP (Aerial Rotation Period) being measured by a Stopwatch and the PRF (Pulse Repetition Frequency) being estimated by the operator listening to the sound of the intercept and then from experience estimating the PRF.

UA8/9

Was advancement on the UA3 in that separate operators could monitor both the E/F Band and I Band frequencies separately? The addition of a YAZ Analyser enabled the intercepted signal to be passed to the YAZ and analysed for PRF and Pulse width. The operator at the UA8 or UA9 could read off Frequency but still measured the ARP with a stopwatch.

UA8	2.5 to 4.1 GHz aerial AYM
UA9	7 to 11.5 GHz aerials AYC/R/T

The determination of the radar type was still based on the:
The frequency search range the UA8 or UA9 was tasked and the Bearing receiver tuned to the expected threat radars on either a Wide (540 MHz spread) or Narrow (110 MHz spread) frequency band search. The tasking was to a specific frequency and then **Narrow** or **Wide** as instructed by the EW Tasking for the occasion.

The parameters of Frequency, PRF, ARP, Pulse width.
Bearing Accuracy was still +/- 10%

PDP11/Radar Analysis

In the late 1970's the ship borne Digital PDP11 computer (on Waikato at least) was programmed with a NZ Defence computer based programme, which when the parameters determined by the UA8 or 9, were entered, searched the database (based on the primary radar database publication at that time) and provided a range of appropriate possibilities. This proved a good aid to identification but was hampered by some of the broad range of parameters for radars available from the publication (i.e.: Frequency Ranges of 8500 to 9200 MHz). I remember on the initial deployment on Waikato to Pearl Harbour the programme stopped working and a programmer had to be flown up to Hawaii to have a look. Turned out that I had been told verbally (there were never any written instructions) that we could load in only a limited amount of PRF fields and we had entered more than was allowed and it had crashed the PDP11. There were no written instructions given as to what to load, so we typed in all of the STIC's manual for the frequency range of the UA8 and 9. This just about summed up the support we got in the RNZN at that time. The PDP11 had a text based game about dwarfs (I think) going into caves and finding various treasures. Had to remember all the turns, tunnels and stairs off by heart for a number of pages to get any treasure. Also came in handy for one of the AEW's to write a novel (DW)

The Type 667/668 SHF Jammers.

They consisted of a receiver which was (with directional aerials) tuned to the detected radar on either the UA8 or 9 as appropriate, then the transmitter was aligned to the signal on the receiver and jamming commenced. Bearing accuracy increased with the directional area to + or - 2%.

RP School North Head – Solartron – Had a radar simulator which was able to send basic radar parameters to a UA3 in each of the ship mock ups.

For equipment photographs and explanations www.navygollies.co.uk Site also gives history of EW in the Royal Navy.

EW Caravan (Various Places)

1. The first caravan was owned and operated by the RNZAF. Defence took ownership of its operation in 1975. It was usually employed during exercises to monitor communication circuits (U/V/HF) analysing breaches of security. Usually the van was used for periods of up to 10 days. I was on one of these in the Wellington area in April 1972. I think Don McMurray was also there at the time. Occasionally we would be joined by an RNZAF type, but I was not impressed with their attitude or their ability/inability to read morse! I'm not aware of the van at North Head and I can't remember the Wellington van's fit-out although it was communications equipment and a recorder. Particular emphasis was placed on logs. (GC & DM)

A 2nd caravan was commissioned in 1977 (purchased by Defence (coloured Khaki) for use at singles service and joint exercises (Don McMurray was I/C during period 1976-82). The facility was also used during the 1981 springbok tour (assisting Police). (DM)

2. I remember doing a joint exercise with the air force once and we were land based using a caravan with HF/UHF/VHF listening devices. We were monitoring the air force frequencies and gathering "intelligence". If my memory serves me we ended up on a back road up at Silverdale somewhere on a high spot. May be the same caravan? (PC)

3. At some time after the caravan had left North Head I remember being on Inverell (which was laid up just prior to disposal) trying to monitor Irirangi ship shore, ZLP Broadcasts and 3192 KHz from Navradsta North Head. It didn't take long for word to spread and the odd indiscretion disappeared. But it has to be said procedure was usually good (but not very busy) (DW)

4. Was fitted with MF and HF receivers of unknown make and a very nice 1 – 1000 Mhz receiver with an oscilloscope fitted. Type unknown. I believe that this caravan was owned by the RNZAF. Monitored Naval communications in the base and the Hauraki Gulf. (BB)

5. On a Longex put a crew (myself and two or three other EW's) on Inverell to monitor the exercise communications. Had a HF Receiver and QR and QS but could only use one or two at a time (due to power restrictions). Inverell never got close enough to the exercise participants to intercept anything of worth. But the equipment was on loan from the RNZAF and suspect it came from the said caravan. (DW)

6. I also recall the Sparkers (Navradsta Auckland) had a van/truck that was setup for use on Waitangi Days. I was allowed (sorry instructed) to clean and blacken the tyres prior to its use at Waitangi. (DW)

Petty Officer Courses.

Prior to the RNZN conducting PO courses from 1971 (see Graham Cadwallader's notes) a one off course was offered in Australia to Dave Wistrand who turned it down (for various reasons) and then to Steve Ebrey who attended. From his comments this proved unsatisfactory as it was a bit of an adhoc arrangement. Steve was later commissioned and became a PWO and later disappeared at sea in the Far East while serving on an oil rig related type vessel.

The first course for POEW as held at the RNZN Communications Training School during 1971, again in conjunction with a PO Radio Supervisors Course. Course Members were:

Dave Wistrand

John King

??

??

Sometime after this Brian Burford transferred from the RN as a POEW. Later on Brian attended a EWI course in UK (mid 1980's).

Around about mid 1970's EW's were recruited into the Communications Sub Branch direct. Sometime years later WO Yeoman of Signals Jack Campbell (later admitted) as head of the Communications Training School, he recommended (in response to a paper) that EW's should amalgamate with the Seaman's Branch, which eventually came about. (DW)

Prior to May 1973 – the date of my discharge after 20 years – there had been talk of separating the EW branch from the Radio branch and aligning them with the RP's. This was probably about the time of that Principal Warfare Officers were being established. It was considered that the (EW) contribution in an action state was more appropriately utilized by the RP's. Whilst I agree with that, (EW) removal from communications negated any "after service" employment opportunities with the only really potential employer, the Government Communications Security Bureau. (GC)

Prior to the training and supply of EW Basics, frigates EW Manning was basically a Senior Rate, two Leading Rates and then Radio Operators seconded from the radio branch to make up the appropriate numbers

Golly(ies)

Back in the dim dark days of the fifties and sixties a popular pastime amongst the population in the UK was collecting the paper golliwogs inside each jar of Robinsons Jams. When you had collected ten of these paper golliwogs you wrote off to Robinsons head office enclosing your ten paper golliwogs and back would come an enameled golliwog badge of your choice. This of course you would proudly pin on your school blazer. The more paper golliwogs you collected allowed you a choice of either a silver or for even more saving, the ultimate a gold golliwog.

When the RN first formed the EW branch from the ranks of the communications branch in the early sixties promotion could be fairly rapid. This caused much angst among the communication fraternity and it was reckoned that each promotion was because the recipient had saved enough paper golliwogs and had written off to Robinsons for the next highest badge. (BB)

Via the internet various sites for Robertsons Jams and Golly Collectibles

The golly also became a British household image through the jams and marmalades of James Robertson & Sons. From about 1910 Robertson's, the company trade name, began to use the golly as the company's motif. According to Robertson's folklore, the company adopted the golly as its brand image after James Robertson's son saw children in the United States playing with a black rag doll. Robertson's have been credited with changing the name 'Golliwogg' to 'Golly' through its advertising slogan 'Golly it's Good!'.



Golly Figurines, Robertson & Sons, about 1960 (click image for larger version)

In 1928 the company began to produce enamel badges of their products for customers to collect. The 'Golly Golfer' was the first badge offered in exchange for tokens, a system that continued until the beginning of the 21st century. The intimate relationship between the motif and the manufacturer was cemented through the placing of the product's name on the waistcoat of the golly. During World War Two, as part of the war effort, Robertson's ceased production of the badges in response to the government need for metal conservation. In addition to the badges, the culture of collecting in this method extended to include such items as pencils, tea cloths, knitting patterns, cutlery and aprons. By 1992, 20 million gollies had been distributed by the company.

Robertson's continued to use the golly on its products despite the protests being made in Britain and the USA against the use of such caricature images of black people. This action was part of the black consciousness and civil rights movements that swept across the world from the 1950s onwards. In the 1980s an anti-golly campaign was launched by the Camden Committee for Community Relations and was supported by the Greater London Council. These ran alongside the National Committee on Racism in Children's Books, which started a campaign to ban the Golliwogg as a symbol and toy. The essence of the petitions against Robertson's was that the golly image was an affront to black people. Robertson's response to this criticism was that: 'The Golly is part of our national tradition. An attack on it is an attack on part of British culture' (In Jan Nederveen Pieterse, *White on Black*). They believed that the golly was simply a 'loveable' nursery character that symbolised warmth and had no

connection with black people. Yet the company had forgotten that the origin of the golly was a toy that was itself called a 'rigger doll' - a racist term today.

As a footnote: The use of "Golly" was first recorded in 1795 as a euphemism for "God" amongst the religious, who were not allowed to blaspheme.

Actual EW Posting Record (Simplified) (1963 to 1987) (Dave Wistrand)

As Radio Operator

Tamaki	JRO	22 Jan 1963 to 12 May 1963	(BCT on Motuihe Island)
Philomel	RO3	13 May 1963 to 30 Mar 1964	
Otago		31 Mar 1964 to 12 Apr 1964	
Irirangi		13 Apr 1964 to 12 May 1964	
Otago	ARO	13 May 1964 to 4 Oct 1965	
Wakefield		5 Oct 1965 to 31 Jul 1966	
Philomel		1 Aug 1966 to 29 Aug 1966	
Hickleton		30 Aug 1966 to Mid Sept 1966	(records do not record change to Santon to replace ARD on medical grounds)
Santon		Mid Sept 1966 to 9 Dec 1966	(return to UK)
Vernon HMS		10 Dec 1966 to 27 Dec 1966	(decommission Santon)
Philomel		28 Dec 1966 to 1 Feb 1967	
Haku		2 Feb 1967 to 24 Jul 1967	

As Electronic Warfare

Philomel		25 Jul 1967 to 29 Jul 1968	(Includes EW Conversion Course)
Otago	LEW	30 Jan 1968 to 05 Mar 1970	(One of two EW ratings)
Philomel		6 Mar 1970 to 12 May 1970	(Port W/T North Head)
Waikato		13 May 1970 to 02 Feb 1971	
Philomel		03 Feb 1971 to 21 Sep 1971	(Advanced EW Course)
Canterbury	PEW	22 Sep 1971 to 25 Feb 1973	(PO EW delivery voyage)
Philomel		26 Feb 1973 to 5 Dec 1973	(Communications School)
Waikato	CEW	6 Dec 1973 to 28 Sep 1975	
Philomel		29 Sep 1975 to 31 Jul 1977	(Communications School)
Otago		1 Aug 1978 to 5 Apr 1979	
Tasman		6 Apr 1979 to 23 Aug 1981	(Communications School)
Waikato		24 Aug 1981 to 17 Apr 1983	
Tamaki		18 Apr 1983 to 8 May 1983	(Communications School)
Waikato		9 Mar 1983 to 16 Nov 1983	
Tamaki	WO	20 Aug 1983 to 24 Apr 1987	(Communications School & Promoted W.O. & out of branch – RNZNVR TDC)

My Postings (EW) – Don McMurray

Jan-Apr 1963	EW Conversion Course (HMAS Cerebus/Harman)
Jun 1963	HMNZS Otago (FE Deployment) Staff Myself & Rocky Graham Equipment: UA3 plus QR/QS, B40/41
1964	Royalist SEATO Exercise

Staff: Myself, Graham Cadwallader, Frank Hollbrook (I think)
 (think we were the newspaper editors for this trip)

1964-65 attached to NZSCO staff at Irirangi
 1965-66 Attended PEW Qualifying Cse at HMS Mercury)
 1967-68 Instructor Duties (Communications School)
 1968 HMNZS Waikato (Far East deployment)
 1969 Instructor duties (Communications School)
 1969-72 HMNZS Taranaki
 1973-74 Instructor duties (Communications School)
 1974 EWI Qualifying Cse (HMS Mercury)
 1975-76 COMAUCK (Drafting EW trade specifications)
 1976-82 Defence Communications Directorate
 (i/c Defence Monitoring Team/SO Communications Security)

Remembrances: (Anecdotes: True/Mis Remembered/Sometimes Relevant – Sometimes not)

Arriving in the UK as a LEW (PEW designate), to pick up Canterbury and during some training at HMS Mercury attending my first “Threat Lecture” on the Soviet threat. It may as well have been Yiddish until I sorted out what a “Threat Lecture” was and what was being said. Never once either the EW Conversion course or the Advanced EW course was we either trained or lectured on the “Threat”. (DW)

Only naval warlike Soviet radar I ever (nearly) knowingly came across was in the Indian Ocean of the Seychelles Islands (early 1980’s) when the middle watch apparently detected a Headnet from a cruiser we were half expecting in the area. Unknown to me they decided not to report or record it as it would be hard work. Only found out much later. I know who it was. (DW)

Otago being sent to Muarora to monitor the French tests and the crew were given the option of volunteering or not and from memory two of the three EW crew opted out As far as I can recall this was just to get out of more “sea time” and get some time ashore. There was basically no sea – shore ration in the late 1960’s and mid 70’s just constantly at sea or at the Communications Training School for Senior Rates (DW)

On Waikato about 1978 asked if the RNZN would supply us with a digital readout calculator with a stop watch facility to better measure ARP. After some months I was asked to investigate a product in Highbury, Birkenhead which was fine and cost about \$80.00 at the time (calculators were new). Recommended this and nothing happened. After a period the CO of Waikato was going to buy one from the Captains Fund but that never eventuated and the crew dubbed in and purchased one. Found out later that the Naval Staff had decided it wasn’t necessary and the old fashioned stopwatch was sufficient. Sorry folks the digital readout over ten sweeps was one of the better aids to Radar identification available. (No names no pack drill but never been fond of Ferris Wheels since then) not only that the swine drank one of my tots once. (DW)

Otago, sometime in the 1965/66 Far East deployment, one of the two Leading Radio Operators (W) demonstrated real power. Called a fake submarine radar and then we raced outside and watched two or three Royal Navy aircraft carriers and escorts do a mighty turn to port. Very impressive. (DW)

About this time in Hong Kong three Ordinary Radiomen (Powell, Scott & Wistrand) sat their Able Rates exam on HMS Bulwark (Helicopter carrier). Very imposing going from a frigate to one of those and having the RN Chief Radio Supervisor asking questions and checking out your morse code. Anyway all went well until tuning the HF Type 603 transmitter fitted with a 5ABA (?) same as Otago. We all failed until it was rumbled the components of the 5ABA were fitted differently from Otago (placed in a different order on the rack) but once that was sorted all was well. (DW)

Waikato around 1970ish (?) during a Longex exercise when it had an engine room fire and couldn't proceed with the exercise (was towed back to Devonport). Everyone was looking forward to getting some unplanned shore time. However the EW's had to muster and were transferred to Taranaki by seaboat (with Don McMurray) and complete the exercise. (DW)

Going somewhere overseas on an EW Course (late 1970ish), which was excellent and coming back and recommending that the course become part of the Senior Rates course and being told that the place and course did not exist. However, at least one of our EW's was seconded to the same place for some time. Had forgotten the password when discussing such matters. (DW)

At one time a ship signalled someone in Wellington that "Smith A. X99999 JEW" was not a volunteer or whatever was the subject. Signalled came back that "ratings were not to be referred to by their religion". Hopefully it was from a civilian. (DW)

An idea formulated in the late 1970's to provide UA8 & 9 fitted frigates with J Band warning/detection system based on a UA3. Simple aerial with no real DF capability but would warn of a J band detection (to counter Soviet Badger aircraft with Radars operating in that band). An initial cost of \$20,000.00 (Solartron dockyard maintainer) per unit was indicated to convert old UA3's and fit. Went no where. Far as I know never left Tamaki. Possibly because new equipment with a J Band capability was planned, but took years to eventually arrive to replace the UA8 & 9. (DW)

In the old days (Marchish 1963) CS42 visited the Communications Training School (from Tamaki on Motuihe Island) to get an idea of what they had signed up for as Radio Operators. During a lecture by one of the Chief Radio "I"s, one of the class went to sleep and the next thing a blackboard duster flew through the air missing (just) the poor tired BBT. But from then on everyone was alert. Can supply names after some bribery. (DW)

When New Zealand extended its Economic Zone to 200 miles in 1977 I was part of a boarding party (informing FFV's of the new laws) consisting of a Boarding Officer, Seaman and CPO EW. On a Russian fishing vessel were looking around the galley/messroom when a Russian approached saying "Primoyre Primoyre". To the uninformed Primoyre is/was a NATO codeword for a vessel fitting out as an Intelligence Gatherer (AGI) that basically intercepted electronic emissions for later analysis. Now several things went through my head – was this bloke telling me the fishing vessel was an AGI – hadn't noticed anything different in the aerial array on the way over to board. If it was, what was I going to do (the others were gunners I think and it didn't register). While all this was going on he grabbed me by the arm and dragged me over to a large map of the USSR on the bulkhead. He pointed out an area, roughly in the middle of the map "Primoyre Primoyre". That was when I found out Primoyre was a province or similar in the USSR as well as an AGI nickname. Several other non EW related but interesting things happened boarding Russian and other Foreign Fishing Vessels (FFV):

1. Usually there was a Captain and a person we called the KGB man who quite often spoke English and would sit with the Captain while we used language cards to try and communicate. On only one vessel was the Captain the KGB man and he set up a table in his cabin with Caviar and all sort of exotic goodies and a couple of bottles of Russian sparkling wine. I thought this was okay as it took a while to set up and the Boarding Officer wasn't saying no. I thought that if he wasn't going to accept it, he should have said at the beginning if we would not going to devour it. However when we were finally invited to start eating (and drinking) the ex RN Boarding Officer said (the quotes are deliberate) "Our government does not allow us to accept gifts". The Captain indicated again we should eat. "Our Government does not all us to accept gifts". The Captain was looking a bit touchy by this time and said words to the effect that in Russia it was the same, but everyone basically ignored such stupid orders. I thought this was the right attitude and was reaching over for a goodie when I heard "Our government does not allow us to accept gifts". About two minutes later we were off the ship with an angry Russian thinking Kiwi's may be somewhat idiotic. I did mention to the ex RN Boarding Officer that perhaps he should have turned the goodies down when they were first being bought out. The other Boarding Officer (RNZN) used to get me down to his cabin after boarding's for a small dram to steady the nerves. At that time boardings were done on a zodiac boat with a 35hp Johnson outboard. In the middle of the night with a driver and 3 boarding party on board it was often a struggle to catch up to the fishing vessel (trawling at about 6 knots) and often it looked like we were not making any progress at all.
2. On another Russian vessel we were on the bridge and invited for a coffee which was accepted and this petite blonde dressed in a mini black dress, flared with petticoats, black tights and white pinny appeared and served coffee. She looked straight out of a English coffee shop/club.
3. About this time various UFO's were reported in the daily papers and television news as being spotted off the Kaikoura Coast and towards the Chatham Islands over a period of months. Sorry folks they were squid boats with an amazing amount of candle power trained on the sea to attract squid. Reflections of the lights off the sea could be seen on clouds and this where the UFO sightings originated.
4. It was also worth noting that the Russians would drop a net and trawl for the requisite number of hours and pull up a net full of what they called Sun Fish. The Asian nation's fishing boats would drop a net but couldn't go as deep as the Russians and trawl for a time and then look at what ever mixture they had

managed to net. They took everything from as small as a sprat upwards. NZ Fishery Officers at that time could not identify what species the Russians were catching. While talking Fishery Protection, on a patrol on Haku in 1967 of the West Coast of Northland multitudes of dead snapper were floating on the surface – An Asian long liner was taking snapper of only a particular size and throwing the ones that were too big or small back into the sea. Also worth recording in the Bay of Plenty about that time Haku detected and arrested the first FFV for illegal fishing and escorted it to Mount Maunganui (couldn't get through the Whakatane bar). Turned out the fishery laws were so confused only the dory and catch were confiscated as a result of the trial. As a result of this I had to decipher the only signal I ever received in One Time Pad (the name will come to me) from Naval Staff saying "Well Done" to the C.O. I think it was shortly after this he put a hole in the bow going through the hole in the wall at Piercy Island.

5. Finally on Asian vessels invariably there was a very rigid divide where "Officers" and "Crew" were kept separate. Even on the worst kept, cockroach infested rust buckets, crew especially had no go areas. This was explained by the "Officers" because the crew were a bunch of "not very nice people" who might mutiny in response to conditions at sea. (DW)

Postman Duties

It became "normal" for the senior EW person to become the Postman and I assumed that task on Royalist and Waikato. I established such a rapport with the Overseas Branch, Chief Post Office, Auckland that not one bag of mail went missing after dispatch from those vessels. Postage in those days was 10c per letter and 25c per parcel of a reasonable size. Usually everything went with a 10c stamp on it – the additional postage was spent on a carton of cigarettes which I broke into the mail-bag prior to closing and sealing! (GC)

Postman was one of the better lurks – got to some funny places trying to find mail. Training consisted of "You're the Postman" and given a bag of lead seals and clipper, string and labels and instructions to give any registered letters to the jossman. Also the postman's fund. I was postman on Santon from Singapore to UK (1966) and paying off. Tried to return the Postman's Fund (7 pounds I think) to the Supply Officer but he said hang onto it. Well we were all broke and "Shukes" had a birthday in Portsmouth, so that took care of the Postman's Fund one lunch time. The next day when I was asked for it and had to admit to spending it at a pub. The PO Reg (Stan Harper) loaned me the seven pounds to pay it back to the Supply Officer and basically got out of jail free. (DW)

Again on the Santon, going from Singapore to the UK for decommissioning. Long story but by the time we got to Malta uniforms availability and condition was a bit in short supply. Had to do the postie run in 10a's with stockings but only had one long sock and one short one. Anyway I was accosted by this UK Army Warrant Officer who thought he was God and proceeded to call me all sort of versions of a colonial peasant (with good reason). Finally he become so exasperated he told me to F off, which was one of the lesser things he was going to do earlier in his tirade. On the subject of lack of uniform by the time we had been in UK for a few weeks (then I was delayed due to passport problems and didn't fly back with the rest of the crew) eventually made Singapore and at HMS Terror was assigned to escort an Aussie prisoner to the Services Jail at Tanglin. He was immaculate in whites and I was a scranbag in sandals. Got there and the guards unlocked the handcuffs and were marching me away to jail thinking I was the prisoner. Started protesting and must have been a second or two away from a thump or two when they noticed the Aussie laughing and grabbed him and told me to F off as well. (DW)

From Don McMurray

I was serving on Taranaki at the time using UA8/9. I remember that we always did our homework before leaving harbour for exercises. We were able to identify submarines I band Radar fairly accurately by measuring the Pulse Interval (unique to the platform) while in harbour. During exercises, on detecting a sweep of the radar we were able to indicate to the ops room/bridge not only that there was a submarine on the bearing, but we also provided the name of the submarine plus the name of its Captain (which we had previously got that off the bridge card). To this day, I don't think our ship COs at the time knew how we did it, nor did we volunteer the methods used.

The first memories of EW equipment was on HMNZS Rotoiti during the 1960 Far East deployment. A (UA2 a forerunner to the UA3) had been fitted in the Ops Room and a couple of sparkers were detailed off to man it during exercises. Didn't hear of any successes though. It was all fairly highly secretive at the time.

The main reason I had to transfer to the EW Branch in 1963 was because at the time I wanted off Royalist. It backfired, as 18 months later I found myself back on Royalist for another trip. Why they put ESM (UA3) equipment (used primarily for A/S work) deck. on a capital ship which was normally deployed as an Air Defence ship. Found the equipment was of little use against aircraft. So during this particular trip our staff were used full time to edit and produce the ships newspaper. I must admit that the EW office was air conditioned and a good place to sleep rather than the mess

The short EW career of James Dell:

Royalist 1960's - EWO - on 02 Deck - Port Side - forward of the UHF Office.

As you entered the EWO, there was a long bench running along the forward bulkhead for the whole width of the office. The office was wider than it was longer. To give the impression that this was somewhere secret, we had a dimming switch. At the far end of the long bench, was the: UA3 - Radar detector - an oscilloscope mounted in a chassis with a bearing ring around the scope. The analyser was the human part - you had to recognise the PRF in the headphones and the trace on the 'scope. Mike Catlow wouldn't let us go ashore in Hong Kong until we could pass a whole Radar Recognition Exercise (RRX) at 100%. With the fleshpots and the bars calling us, it didn't take long!

Along from the UA3, to the right, we had: REH3 - tape recorder - for listening to RRX tapes, taping radar PRF's and general signal intelligence recording. Next to that, we had: 2 x B40D's - HF general purpose receivers - used to use split phone monitoring. That way, we didn't need more than one person on watch. I think that's where I developed schizophrenia! 1 x B41 (I think)- LF/MF general purpose receiver.

HF Jamming equipment included:

1 Boy Scout whistle

1 Referee's whistle (have pea, will whistle!) 1 electric razor

Goon type noises as available from the RO on watch.

Complement was one LRO(W) - Mike (Sorry. I only work from 0800 until 1600 - Monday to Friday) Catlow. Then there was myself and Blue Simonsen seconded from the BWO for special CW monitoring duties. Blue and I spent about two weeks - four hours on and four hours off. We weren't allowed back down to the Mess, except to get our dhoby gear and a fresh change of clothing. We had a mattress under the bench which was used in the "hot bunking" arrangement - he got out and I got in.

At one stage, it was decided to increase the EW complement by another two RO's, but I can't remember who they were. In Hong Kong, Mike took us over to the **HMS Devonshire** to look at her setup. There were about four on watch (alongside) and it looked like the inside of a glow worm cave full of arcade games (for all we knew about EW equipment, it could have been!).

I actually got to use the Boy Scout whistle during an exercise with a Brit. submarine. The sub couldn't see us through its periscope, so it raised its radar and did one sweep only. I just happened to come back from the "This is bloody boring", yawning position, to find a trace on the UA3 and "ZIIP" coming through the headphones. Spurned (Jim's word - Freudian perhaps (DW)) on to action, I gallantly flipped on the Action Intercom, blew the shit out of the whistle and excitedly yelled out "Ops - EWO - Radar contact bearing ??!" I couldn't remember the bearing, but knew it was about the two o'clock position! Shortly thereafter, I saw the light (somebody turned the dimmer up) and I decided that being a Gollie was not for me and that I should work for a living. (JD)

I remember Eric Campbell being on my course. The course was run by Caddie and I remember trying to get off it once my draft to Iirangi had been squashed. Caddie soon put a stop to that one though. Can't remember who else was with us but I think it may have been Peri Wehi. (PC)

I was the P.O.Tel of the R.N. E.W. Squadron where we had a wide variety of aircraft including two Mosquitos and an old Anson. Most of my gollying days were in the R.N. when I worked largely out of an establishment in Gloucestershire and as you can guess the work I did there was pretty close to the top of the tree so to speak. I did take a team aboard (HMAS) Stalwart for Tasmanex one year at one stage, after a short workup at North head. We stuck to monitoring and I can safely say that we knew everyone's identities within half an hour of each callsign change and all the info we started with was a copy of the Herald published on the morning we sailed. (DD)

As an LEW posted to the NAVRADSTA at North Head in charge of a watch, we were assigned a "security guard" from the Philomel duty watch to protect us from the radicals (PYM Shadbolt-Clark-Goff) I think. When we got tired at night we would put the "guard" in charge and tell him to listen to 3192 KHz and if he heard any morse code give us a shake (threat of death or worse if he cocked up) and would bunk down for the night. This was the accepted practice for all the watches - Why else would they supply a bunkroom and bunks? Worked okay until one of the frigates couldn't get in contact and investigations ended with one of the sparkers doing some time at Ardmore for sleeping on watch. Come to think of it (memory not with standing) they were the same two as were involved with the sleeping/duster CS42 incident above. (DW)

At the time of the EW's becoming seaman I had to move from the Communications Training School to the RP School. Just went closer to the top of North Head. At one period they were training Wasp Helicopter Pilots and I was ordered to teach visual recognition training to the pilots. I did point out I had spend my life in a dark office in the middle of a steel ship, but such details did not seem to matter. Also indicated perhaps they should get a "Gunner" who spend some time as lookouts and were perhaps trained in such identifications. Nope I was it, probably because I knew the NATO codenames. I had just bought a Sinclair Spectrum computer (last trip to Singapore) so wrote a little programme to coincide with a photo slide machine and hooked it into a TV and up popped a photo and explanation of ships and aircraft. Lost interest once it worked and the pilots taught themselves, as one (RAN) had been in the UK training and knew it all anyway. This sort of confirmed my thoughts on the wisdom of such a change. (DW)

An early EW experience (ECCM) that comes to mind is on Otago as part of the Far East Fleet in 1965/66 when alongside in the Singapore Naval Base. Whenever a signal had to be decrypted on the KL7 machine, we had to patrol outside, around and above (internally) the Bridge Wireless Office to ensure no one (Indonesians I presume) had a recording device which could pick up electrical emissions from the KL7. Such emissions could supposedly radiate for some yards during encryption and decryption operations. The theory being that such recordings could then be used to "break" the codes. I cannot remember this patrol system lasting long or every coming across any nefarious looking characters with a tape recorder. One does wonder what type and how strong the radiations were and was it ever likely to be a health issue in later years. Perhaps now when the doctor says he has no idea what wrong with you, you could mention KL7 radiation poisoning, instead of jumping to the conclusion it may have been too much Rum, Bum and Baccy at an early age. (DW)

Electronic Warfare further reading:

1. Association of Old Crows – Google "Old Crows" and follow leads to EW Related Sites.
2. As above Google "Wild Weasel" – USAF EW Aircraft in Vietnam

Contributors:

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DM Don McMurray
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GC Graham Cadwallader
DD Dai Davies
BB Brian Burford
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General Observations:

After gathering this information together some conclusions may be drawn in general terms. These "conclusions" may be right or wrong but come from the "sense" of what information has been supplied.

1. PC indicates that he tried to get off an EW Conversion course once his posting to Irirangi was cancelled. I take from this he wasn't a huge initial volunteer but had some other reason. Similarly DW had a Commodores Inspection coming up on Haku he

wanted to get out of and the EW Conversion Course came up at the right time so he volunteered. Good plan but failed as the timing wasn't quite right and had to do the inspection anyway – which wasn't a real bother. DM also had alternative motives in getting off Royalist. How many others had nefarious reasons for volunteering?

2. GC indicates that their training in the UK and Australia was based around Communications interception until the mid 1960's when the Radar threat became more significant. Even when attending courses in the UK in preparation for the delivery of Waikato they received no SHF equipment instruction. Is this just the lag time from after WW2 and the expertise (Communications Intercept and Analysis) gained in that conflict, rolling over into peace time operations by those having expertise in that field? If it is accepted that the communications intercept is a more strategic issue (very little tactical advantage could be gained from any intercept or analysis given the level of manpower or facilities for analysis and interpretation on ships) then the tactical advantages of Radar detection, analysis and direction finding did not reach the fleet proper, until the mid 1960's in anything but a basic manner, nearly 25 years after Radar's deployment.

EW Equipment Parameters

Photographs of some UK/RN EW Equipment can be found on www.ukgollies.co.uk. Some of these items are referred to in the narrative as they applied to the RNZN.