



# Wings

## AUTUMN 17

Volume 69 No 1  
Official Publication of the  
RAAF Association

### EDITOR

Editor Kylie McQueen  
Contributing Editor Lance Halvorson  
Contributions to editor@raafa.org.au  
Wings Editor  
PO Box 129, Bondi Junction NSW 1355  
Web www.raafa.org.au

### COVER



The Australian International Aerospace & Defence Exposition is scheduled from 28 February to 5 March 2017, at Avalon, VIC. The Trade and Industry days are held to Thursday 2 March, followed by the Air Show, open to the public, from Friday 1400 until Sunday 1630. As always, aircraft participating are subject to operational requirements - and the weather.

No 5 Squadron was formed at Shawbury, England, on 15 June 1917, as No. 29 (Australian Training) Squadron, Royal Flying Corps. One of four Australian training squadrons, it was established to train pilots for No 67 (Australian) Squadron, RFC (No 1 Squadron AFC) in the Middle East.

Cover: Phil Crowther  
Cover Photos: RAAF, Temora Air Museum

### FEATURE

The Avalon Air Show	14
No 5 Squadron	22
The Drone Wars	32
The Far East Air Force	42
RAAF and The Far East Air Force	54
Ardennes Pilgrimage	58
Iconic Vietnam Veteran Headed for Museum	59
GPCAPT Fred Knudsen	69

### REGULARS

National Council	11
Defence Topics	71
History	76
Briefing Room	83
Books in Review	83

### CLOSING DATES FOR MATERIAL

Autumn Issue - 14 January Winter Issue - 14 April  
Spring Issue - 14 July Summer Issue - 14 October

### ADVERTISING ENQUIRIES

Flight Publishing Pty Ltd ABN 66 086 424 259  
PO Box 606 Coogee NSW 2024  
Tel: (02) 9389 1481 Fax: (02) 9387 7143  
regallen@bigpond.net.au • www.flightpublishing.com.au

### DIVISION CONTACTS

ACT	0428 622 105	secactraafa@bigpond.com
NSW	02 9393 3485	admin@raafansw.org.au
QLD	TBA	raafaqldpres@gmail.com
SA	08 8227 0980	raafaad@internode.on.net
TAS	03 6234 3862	secretary@raafatas.org.au
VIC	03 9813 4600	office@raafavic.org.au
WA	08 9288 4710	enquiries@raafawa.org.au

### NATIONAL EXECUTIVE

<b>President</b>	Brent Espeland AM
<b>Vice President</b>	
Governance	Bob Bunney
Advocacy & Entitlements	Richard Kelloway OBE
Communications & Media	Lance Halvorson MBE
<b>Secretary</b>	Peter Colliver 03 9813 4600 natsec@raafa.org.au
<b>Treasurer</b>	Bob Robertson

### JOIN THE RAAF ASSOCIATION

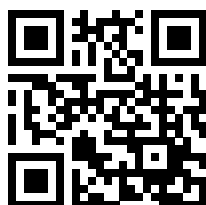
Visit [www.raafa.org.au](http://www.raafa.org.au) and select **"Become a RAAF Association Member"** and follow the prompts. Alternatively, call the telephone number for your State, listed above.

### SUBSCRIPTIONS

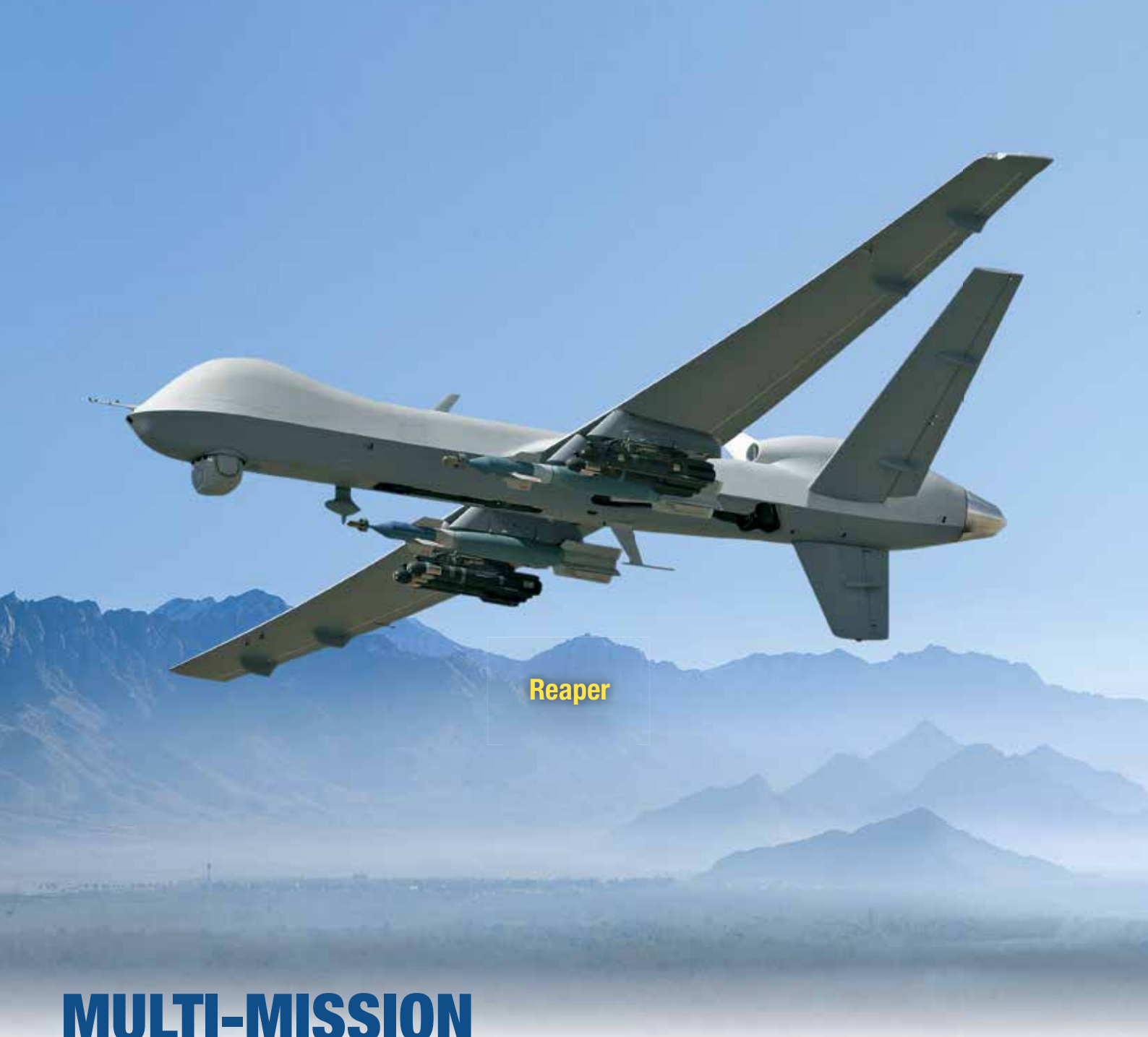
Contact the Editor at editor@raafa.org.au or subscribe online at [www.raafa.org.au](http://www.raafa.org.au), click on **"Wings Archive"** and follow the prompts; pay via BPay or funds transfer via your bank. A 12 month subscription is \$28.00, incl GST, within Australia and AUD36.00 for Asia and Pacific regional addresses.

### ADVERTISING AND PRODUCTION

*All content in this publication is copyright and may not be reproduced without written permission of the Editor. Views expressed are the opinions of the author/s and not necessarily those of the publisher, the RAAF Association, the Royal Australian Air Force or the Department of Defence, unless specifically stated.*



Scan with your QR app to access  
our web site



Reaper

# MULTI-MISSION SINGLE SOLUTION

- The most cost-effective and best-valued Remotely Piloted Aircraft System (RPAS)
- The best solution to equip and protect Australian forces
- Proven multi-role capability for long endurance Intelligence, Surveillance and Reconnaissance (ISR), and Response missions
- Modular design supports multiple and rapidly configurable mission payloads
- Proven interoperability with key Allies
- Provides for meaningful Australian industry support and innovation

ELECTRONIC WARFARE

# SEIZE THE SPECTRUM

Staying a step ahead of emerging threats. Protecting warfighters. Improving survivability. Raytheon delivers full-spectrum solutions that span a broad range of domains and capabilities. Seize the spectrum. Protect the mission.



[Raytheon.com/spectrum](https://www.raytheon.com/spectrum)



@Raytheon



Raytheon





**THE VALUE OF  
DELIVERING  
INNOVATIVE  
MARITIME SOLUTIONS  
TO ANY CHALLENGE.**

Australia's evolving ISR responsibilities cover an immense area—requiring truly innovative solutions. Only Northrop Grumman's MQ-4C Triton unmanned system flies at more than 50,000 feet with up to 24 hours of endurance. Featuring advanced capabilities for maritime and littoral surveillance, Triton integrates with existing systems to deliver critical intelligence and cost-effective performance. *That's why we're a leader in innovative autonomous systems.*

**THE VALUE OF PERFORMANCE.**

***NORTHROP GRUMMAN***

[www.northropgrumman.com/futureforce](http://www.northropgrumman.com/futureforce)





# Capability. Delivery. Support.

**A Defence capability consists not only of the hardware that is the most tangible element of the capability but also a supplier's ability to deliver and support all elements of that capability.**

This is where Mercedes-Benz stands out from the crowd.

Not only is Mercedes-Benz the only company able to supply the full range of protected and unprotected military logistics vehicles, with payloads from 0.5 to 110 tonne, but we also have an award winning record of delivering the capability that is required, not only that which is contracted.

Supplemented by a proven system that has supported our vehicles in the Australian Defence Force in peacetime and every major land operation since 1978, you have total capability delivery that you can rely upon.

Mercedes-Benz: a proven and reliable partner of the Australian Defence Force – Past, Present and Future.

For more information please contact Mercedes-Benz Australia/ Pacific on (03) 9566 9266 or [military\\_support@daimler.com](mailto:military_support@daimler.com)





 Crafted in Switzerland

PC-21



 **PILATUS** 

THANK YOU FOR FLYING PILATUS.  
YESTERDAY, TODAY AND IN THE FUTURE.

The Australian Defence Force competitively tendered for a new Pilot Training System under "Project Air 5428", from which the Pilatus PC-21 emerged as the winning aircraft. We are delighted and very proud that after 28 years of Pilatus PC-9 operations the Commonwealth of Australia has signed a contract for 49 PC-21s – the world class training system made by Pilatus.

[www.pilatus-aircraft.com](http://www.pilatus-aircraft.com)





CONSULT  
DESIGN  
IMPLEMENT  
MANAGE



INTEGRATED LOGISTICS  
&  
PROJECT SUPPORT

WWW.RUBIKON.COM.AU  
INFO@RUBIKON.COM.AU

# A Strategic Partnership That Delivers

The Australian Defence Force (ADF) has a vast expanse of air and sea space to monitor, highlighting the critical importance of the acquisition and sustainment of the right surveillance solutions to meet the country's needs.

The military-off-the-shelf maritime patrol and response aircraft were being procured through a government-to-government co-operative program. The ADF needed to secure expert support from industry to help deliver the project, and was acutely aware of finding the right partner that could seamlessly work as part of this international collaborative effort.

Defence was looking for a trusted strategic partner with an excellent relationship across the ADF which could provide:

- Broad and deep expertise across all acquisition and sustainment activities
- Low risk transition and assured delivery
- A cooperative and collaborative relationship focused on outcomes
- Efficient, transparent and flexible Strategic Support Partnership Contract (SSPC) management

Team Trident, led by RubiKon, was established in May 2016 to bring in partners to broaden its available skill sets, whilst retaining the customer focussed ethos already proven within the project office. The result was the creation of a single team with a single shared objective extending across both Team Trident and the ADF, with partnership working as the foundation.

The sense of being in this together and the importance of the relationship was even embodied in the contract as a core Key Performance Indicator.

To always ensure the ADF's objectives were met, Team Trident:

- implemented a 'Right Athlete' approach to create a competitive environment within the existing contract construct to guarantee that the ADF always gets the very best resources and value for money possible.
- enables scalable strength and depth through the addition of specialist acquisition and technical subject matter experts which can be accessed by the ADF through the Team Trident tier 2 partnerships.
- demonstrated confidence in the performance commitment to the ADF by placing 100% of profit at risk, guaranteeing timeliness, quality and relationship.

To date, this approach has ensured that every milestone has been achieved on time and on budget.

The first Airworthiness Board in September 2016 was achieved only 6 months after the SSPC commenced, and was especially significant as it was concluded without any Corrective Action Requests being issued, preparing the way for the historic delivery of the airframe in November 2016, on schedule.

The SSPC approach has provided the ADF flexibility in the contract management of its tasks and for RubiKon to proactively work with the ADF to jointly identify the work and priorities necessary to deliver the program schedule, in contrast to a traditional piecemeal task-by-task tendering approach. It has also enhanced communication across the entire project. Team Trident has members embedded in a US Navy P-8A sub contractor, the ADF acquisition and sustainment Systems Project Offices, as well as the end user at RAAF 92WG, enabling better coordination and facilitating working across traditional boundaries.

This unique partnering arrangement is proving to be a highly productive and value focused contracting solution.



# RUBIKON

G R O U P

CONSULT | DESIGN | IMPLEMENT | MANAGE



RUBIKON GROUP PROVIDES INTEGRATED LOGISTICS &  
PROJECT SUPPORT TO THE AUSTRALIAN DEFENCE FORCE  
AND DEFENCE INDUSTRY

[WWW.RUBIKON.COM.AU](http://WWW.RUBIKON.COM.AU)

[INFO@RUBIKON.COM.AU](mailto:INFO@RUBIKON.COM.AU)





# World-leading integrated defence systems

Wherever safety and security matter, we deliver

## SPACE-BASED DEFENCE SYSTEMS

Proven milsatcoms, surveillance, early warning, positioning, imagery and electromagnetic intelligence

## AEROSPACE DEFENCE

A comprehensive range of solutions to protect airspace against conventional and ballistic threats

## NAVAL DEFENCE

State-of-the-art sensors and C4ISR solutions enable naval task forces to be successful in every type of operation

## SECURE TELECOMMUNICATIONS & INFORMATION SYSTEMS

Real-time information superiority, better NATO/Coalition interoperability, efficient collaborative combat and force protection

## CYBER DEFENCE

Protect data from system design to operational management for mission critical systems and network centric operations up to Defence Top Secret

## LAND DEFENCE

Scalable and interoperable systems and platforms with a full range of sensor to effector solutions

Only Thales provides proven, fully integrated and interoperable defence solutions that span all of the key sectors of space, air, naval, land defence and Cyber Defence. We help more than 50 governments to protect armed forces, civilians, high-value assets and infrastructure. From sensor to effector, our integrated smart technologies provide end-to-end solutions, enabling decision makers to deliver more effective responses. Every moment of everyday, wherever safety and security are critical, Thales delivers.

**THALES**  
Together • Safer • Everywhere

# From the National President

## Gone But Not Forgotten

Over the course of the next few months I expect there will be a lot of discussion within Defence, Department of Veterans Affairs (DVA) and the veteran community about a range of issues related to the identification of Australian Defence Force personnel Missing in Action (MIA). It will cover matters such as the concerns and interests of the Next of Kin (NOK) and exhumation for the purposes of identification and, while the focus will be on the Korean War, there will be implications for other conflicts.

The Korean War is often referred to by Australia's Defence Family as the Forgotten War - a sentiment echoed by the 43 Australians Missing in Action. Of these men 18 were members of No 77 Squadron.

At the end of the Korean War there was an exchange of 4219 allied identified and unidentified remains between the Chinese PLA and the United Nations Military Forces – Operation Glory. Further to that, US Non – Glory exercises also recovered unidentified remains from South Korean battlefields, aircraft crash sites and South Korean cemeteries.

Of 867 unidentified Caucasoid and Negroid remains recovered and interred in 1956 at NMC Punchbowl, 119 have been exhumed and 72 have been identified as US Servicemen as at October 2016. From 1990 to 2005 a further 620 remains were recovered by the US Military JPAC unit from North Korea under diplomatic agreement. To date approximately 300 have been identified. Since 2005 further diplomatic negotiations have been unsuccessful.

The Australian Council of Korean Veterans Associations (ACKVA) has been concerned about the issue of Korean War Australian MIA for a considerable time and in a letter to the Secretary of the Department of Defence and the Chief of Defence Force in June 2009 wrote;

'On behalf of the Australian Korean War veteran community and in particular the families of those who died with no known grave I ask you to commit a dedicated function in the defence structure to progress the location and identification of the remains of Australian servicemen, who died in the Korean War and have no known grave.'

This representation, together with the concerted efforts and presentation of evidence by the spoke person for the NOK of Korean War Australian MIA led to the Army establishing the Unrecovered War Casualties Unit (UWC-A), an investigative unit responsible for matters associated with the identification and recovery of unaccounted for Australian Servicemen for all wars. In the case of Korea the work is known as The Korean War Project.

In this process the spoke person drew upon information he had sourced since 1993 and has continued to provide further information and evidence to UWC-A from his direct contacts with officials at JPAC, the South Korean Ministry of National Defense Agency KIA Recovery and Identification (MAKRI) and US Korean War MIA research organisations.

Such is the concern of the NOK to identify their loved ones that they have established private contact with the South Korean and the United States MIA recovery and analysis

organisations and have provided the latter with MIA family DNA samples and MIA dental records to prepare the pathway for the comparison of over 1603 remains still unidentified as Allied unknowns and held by JPAC in Hawaii (795 interred in numbered graves, 320 on shelves) and 568 Op Glory Unidentified Allied remains (not US Servicemen) as revealed on the US Korean War casualty report of January 1956.

As previously mentioned, ACKVA has been concerned about the issue of Korean War Australian MIA for a considerable time and in 2015, in concert with the RAR Corporation and the Air Force Association, brokered a process to bring all interested parties together to improve communication and understanding. Army HQ responded positively and in December 2015 the first working group meeting of navy, army and air force representatives with MIA responsibilities met with a number of interested ex-service organisations and several NOK.

With the support of Army HQ the focus of the working group has been threefold; improved communication including the development of fact sheets to provide better understanding, for UWC-A to expand its DNA data base with valid samples from the relatives of the MIA and, most importantly, to develop a Memorandum of Understanding (MOU) between UWC-A and their JPAC counterparts that will provide the best possible opportunity to establish whether any remains held by the US authorities are Australian.

This last endeavour is expected to be completed with the signing of an MOU later this year and provide much improved transparency and accountability to the NOK about the process of possible identification.

More recently the working group have been considering the circumstances around information concerning four unknowns at the UN Memorial Cemetery Korea (UNMCK). UWC-A is presently conducting an investigation into these unknowns, comparing their Records of Interment (ROI) and any other available data against comparable data for Australia's MIA. Army will then present its findings to the Office of Australian War Graves (OAWG) within the Department of Veterans Affairs which has the responsibility for carriage of any decisions that may flow from the results of that investigation. This has given rise to the need to clarify Australia's policy on exhumation for identification purposes.

It's a complex issue involving, in this instance, consideration of the relevance of the Commonwealth War Graves Commission (CWGC), the Additional Protocol to the Geneva Convention (Article 14) the Commission for the United Nations Memorial Cemetery in Korea, (CUNMCK) and, most importantly, the wishes of the NOK.

To have proper and full regard to the peace of mind and in turn the wishes of the families of MIA has featured in recent decisions made by successive governments in relation to identification and repatriation matters such as at Terendak, Vietnam & Fromelles.

Confirmation of this as an ongoing guiding policy principle would give great comfort to the NOK of past and future MIA Australian service personnel. I will keep readers informed as to how the Korean War Australian MIA matters progress.

**Brent Espeland**



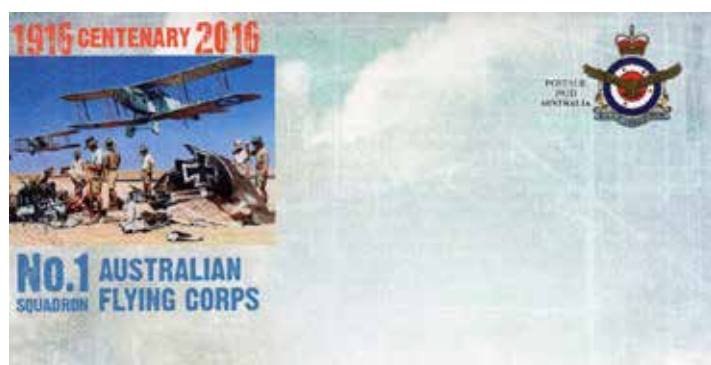
## Squadron Centenary Envelope Issue

Australia Post issued four pre-stamped envelopes to commemorate the Centenaries of Numbers 1, 2, 3 and 4 Squadrons in November 2016. The envelopes depict the squadrons of the Australian Flying Corps from paintings by Norman Clifford, which are part of the RAAF Heritage Collection, RAAF Museum.

The Editor of *Wings*, Lance Halvorson, convinced Australia Post that the production of stamps or envelopes to commemorate the Centenary of the four combat squadrons of the AFC was a fitting Centennial project.

Following approval from the RAAF Brand Manager, the RAAF Museum provided the Editor with selected graphics of Norman Clifford's paintings, in which he depicts aircraft of the squadrons in combat operations in Egypt and France. After a brief review of the photos, the Editor provided a short history of each squadron, before forwarding to Australia Post who produced the high quality envelopes to commemorate the Centenary of each Squadron. The envelopes should be highly collectable by enthusiasts in recognition of the squadrons, formed 100 years ago and still operational in today's Air Force.

The envelopes can be purchased online at [www.auspost.com.au/stamps](http://www.auspost.com.au/stamps) or at any Post Office.



The second squadron of the Australian Flying Corps (AFC) was formed at Kantara in Egypt, on 20 September 1916. It was Australia's first fighter unit, equipped with de Havilland-designed DH-5s. Its initial personnel were drawn from 67 (Australian) Squadron and were soon supplemented by volunteers from the light horse regiments and extra mechanics from Australia. The squadron proceeded to the United Kingdom for training in January 1917 and in September was deployed for operations over the Western Front.

The cover painting by Norman Clifford represents a flight of DH-5 fighters returning from close offensive patrol over the front line on the Western Front. Because the little aeroplane was slow and lacked manoeuvrability, success in action was moderate and consequently was only used by the Australians between 21 September and 6 December 1917. It was then replaced by the SE-5 fighter which No. 2 Squadron flew for the remainder of the war.

Adviser: Lance Halvorson, AFC and RAAF Association  
Cover design: Sharon Rodziewicz, Australia Post Design Studio  
Cover painting: Norman Clifford, RAAF Heritage Collection, RAAF Museum

This envelope is prepaid for one posting to any destination within Australia, delivered in accordance with the timetable applicable to the ordinary letter service at the time of posting, as published by Australia Post from time to time. When posted, the envelope is not to exceed 250 grams in weight or 5 millimetres in thickness. Full terms and conditions relating to postage prepaid envelopes and more information about the timetable are available at [auspost.com.au](http://auspost.com.au).

9 312650 578893

## Synergy

**What it means:** A collaborative, profitable venture.

**What it really means:** Nobody knows.

**Origin:** Ironically, this most unholy of business clichés began as a mid-17th-century theological doctrine: the idea that individual salvation is achieved through the combination of human will and divine grace. By the mid-19th century, synergy more broadly meant, “helping another in work.”

But it was not until 1957 that it entered the business lexicon via British psychologist Raymond Cattell who, in his book, *Personality and Motivation Structure and Measurement*, wrote that: “Immediate synergy through group membership [...] expresses the energy going into the group life as a result of satisfaction with fellow members.”

In the 1980s, “synergy” became the popular buzzword in mergers and acquisitions. *Investopedia* defines it as: “The concept that the value and performance of two companies combined will be greater than the sum of the separate individual parts.”

Today, it can mean just about anything that falls under the vague category of doing something that somehow yields some sort of positive result. Writing in the *Harvard Business Review*, Richard Bierck captures the horror that this cliché has wrought:

“Public speakers throw ‘synergy’ around with equal abandon. If work is done well—that is, precisely according to the master plan outlined by the speaker—synergies will be an inevitable result. The audience isn’t told how or why, and these synergies are rarely, if ever, enumerated, much less explained. All the employees know is that if they are sufficiently virtuous, synergies will ensue, as surely as their emails and voicemails pile up while they suffer protracted pronouncements from management. One plus one will somehow equal three.”

Business Review

## “Bang for the buck”

**What it means:** Getting the largest return possible on your investment.

**What it really means:** Most don’t know - but somebody in headquarters could have a gambling addiction.

**Origin:** The expression emerged during the early days of the Cold War, when the Eisenhower Administration sought to cut military spending while also achieving superiority over the Soviet Union, which had much larger ground forces in Europe. Instead of the costly approach of training and maintaining armies worldwide, the US would build more nukes and rely on the threat of massive retaliation—a strategy that came to be described as “more bang for the buck.”

**Bonus fact:** Nuclear weapons turned out to be more bang for much more bucks, costing the US a total of \$5.5 trillion between 1940 and 1996.

## Membership of the RAAF Association

Members and ex-members of the Royal Australian Air Force, aircrew of Australian and other Designated Services’ Navies and Armies and technical personnel specifically engaged in the maintenance of the aircraft of the above Services

Serving and former members of the Australian Air Force Cadets or the Australian Air League and its predecessors who are over the age of eighteen years and have given satisfactory service

Persons who being not less than eighteen years of age, are siblings, sons or daughters of members, or of deceased former members of this Association Spouses of Association members, deceased Association members or of deceased members of the Royal Australian Air Force

Persons who have an involvement or relationship with the uniformed or civilian areas of the Royal Australian Air Force, related industries or activities

Residents in a Retirement Estate or Village owned or conducted by the Association, Division or Branch.

Please contact your State Secretary for further details

### NSW

RAAF Association (NSW Division)  
Level 20 Defence Plaza,  
270 Pitt St SYDNEY, NSW 2000  
Tel: 02 9393 3485  
admin@raafansw.org.au • www.raafansw.org.au

### VIC

RAAF Association (VIC Division)  
24 Camberwell Rd, EAST HAWTHORN VIC 3123  
Tel: 03 9813 4600  
office@raafavic.org.au • www.raafavic.org.au

### ACT

RAAF Association (ACT Division)  
PO Box 111, Campbell ACT 2612  
Tel: 0428 622105  
secactraafa@bigpond.com • www.raafaact.org.au

### TAS

RAAF Association (TAS Division)  
RAAF Memorial Centre,  
61 Davey St, HOBART TAS 7000  
Tel: 03 6234 3862  
secretary@raafatas.org.au • www.raafatas.com

### SA

RAAF Association (SA Division)  
Torrens Parade Ground  
Victoria Drive, ADELAIDE SA 5000  
Tel: 08 8227 0980  
raafaad@internode.on.net • www.raafasa.org.au

### WA

RAAF Association (WA Division)  
2 Sleat Rd, APPLECROSS WA 6153  
Tel 08 9288 4710  
enquiries@raafawa.org.au • www.raafawa.org.au

### QLD

RAAF Association (QLD Division)  
12 Faraday St, Wulguru QLD 4811  
raafaqldpres@gmail.com • raafa-qld-div.wikidot.com



## Australian International Air Show – Avalon 28 Feb-5 Mar 17

The Avalon 2017 Australian International Air Show is scheduled from 28 February to 5 March at Avalon, Victoria. The Australian Defence Force will again partner with the Australian International Airshow at Avalon.



ADF Aircraft expected to participate at the Airshow include:

- F/A-18F Super Hornet
- F/A-18 A/B Hornet
- Hawk 127 lead-in fighter
- C-17A Globemaster III
- AP-3C Orion
- KC-30A Multi Role Tanker Transport
- PC-9/A
- KA350 King Air
- E-7A Wedgetail
- Air Force's Roulettes
- Navy's AS350B Squirrel and MRH-90 'Taipan' helicopters, and
- Army's ARH Tiger and MRH-90 helicopters

For more information, tickets and conditions of entry see [www.airshow.com.au](http://www.airshow.com.au).

Air shows capture the imagination of many; the participants, industry and the public. They are opportunities for manufacturers to show their air and space products, (and open their order books), aircrew to display the aircraft, both static and flying, and their capabilities. Maintenance and technical crews show their skills and the technologies available to them and the myriad of support businesses display and offer aviation related publications, shirts, mugs and other aviation objects d'art.

But, the main reason members of the public attend is to see and be enthralled by the 'big iron' - the aircraft. Not only current in-service military and civil aircraft types, but most importantly, the 'warbirds'. The RAAF Roulettes, flying Pilatus PC9s, are always an attraction with their precision close formation flying.

### Historic Air Shows

Over the years, air shows have had many titles and descriptions: airshow, air display, aviation pageant, aviation spectacular, aviation open day, international air exposition

and a few others. But, they were all about flying aircraft, and in some cases, air balloons and airships. The first Paris Air Show was held in 1909 at the Grand Palais, Paris.



The banner for the first Paris Air Show.

Following a directive from the Minister for Defence, the RAAF held its first air show at the Flemington Racecourse in Melbourne on 13 Dec 1924. A crowd of 7000 people paid to watch the show from within, plus many more who watched from outside the ground. All the Air Force's current types, except the Fairey IIID seaplane, were involved in displays of landing in confined areas, picking up and dropping messages, low-level bombing, formation flying, air drill, mock air combat, ammunition dropping, aerobatics and races.

Other than a DH-9 crash at the conclusion of the aerial combat display, the program went as planned. However, the real drama occurred three days earlier, when 20 aircraft flew from Point Cook to rehearse for the show. Three DH-9s and an Avro 504 were damaged in landing mishaps, with the Avro destroying a section of railing and ending up on the steeplechase course.



A display banner for the 1934 Airshow at Laverton  
Photo: RAAF.

For many years, the RAAF held air displays to coincide with Air Force Week and the Battle of Britain commemoration in September of each year. In the late 1960s, RAAF air displays were changed to coincide with the anniversaries of the formation of the RAAF, 31 March 1921.

Major RAAF air displays were held to commemorate the RAAF Jubilee in 1971. Displays were held at all major RAAF



Mammatus clouds - not ideal for an air display.  
Photo: Lance Halvorson



bases in Australia throughout March. A big drawcard at these displays were the Phantom aircraft, without doubt the biggest crowd pleaser the RAAF has had until the introduction of the F111 and the F/A 18 aircraft in 1973 and 1983.

The inaugural airshow at Avalon was held in 1992. Heavy spring rains in the weeks before made the airfield a muddy quagmire and because of rain up until the eve of the show, cancellation was a distinct possibility. However, the rain eased and the show went on. Had it rained heavily on one of the days, the airshow would probably have been abandoned. The sodden state of the airfield created many problems during the airshow, mostly to do with facilities and infrastructure.

More recently, in the USA, the McDonnell-Douglas F-4 Phantom II flew its final USAF display on 12-13 November at the 2016 Aviation Nation Airshow at Nellis AFB, Las Vegas, Nevada. According to Nellis AFB public affairs, the airshow was attended by an estimated 300,000 people.

In addition to the highlight of the airshow, the last USAF F-4 Phantom II to fly at Aviation Nation Nellis AFB, a flypast of aircraft from the P-51 Mustang to the F-86 Sabre and T-33 trainer, to the F-4, then the F-15, F-16 and finally the new F-35 Lightning II - it was a spectacle unlikely to be repeated. Because of this historic combination of aircraft and the last flight of a USAF F-4 in an air show, the photo areas were packed.



# Our answer to your most challenging training needs? Yes.



Effective training requires flawless execution. Visual systems that never blink. Flexible, open architectures. Laptop, tabletop or full mission simulators that are concurrent with subsystem design to produce affordable, real-time training. Our collaborative approach and forward thinking have met the toughest training challenges of F-35 Lightning II, Black Hawk, MRAP, E-2D, KC-46, T44 and Stryker. From high-end simulation to hands-on maintenance training, every critical detail is addressed.

**Visit us at Avalon 2017, hall 3, stand F7.**

*Fully correlated databases*

*Concurrency between subsystems  
and training*

*Transportable, modular solutions*

*Industry leading simulation  
and visual systems*

[rockwellcollins.com/simulation](http://rockwellcollins.com/simulation)

© 2017 Rockwell Collins. All rights reserved.

**Rockwell  
Collins**

Building trust every day



The F-4E Phantom taxis past, following its last display  
Photo: Tom Demerly, Airshow Insider

The F-4 Phantom II is the only jet aircraft that was used by both the USAF Thunderbirds and USN Blue Angels Air Demonstration teams, at the same time.



Phantom F-4E aircraft of the USAF Thunderbird and the F-4C  
USN Blue Angel Flight Air Demonstration Teams.

Photo: Tom Demerly, Airshow Insider

## Display Flying

One activity all airmen enjoy is participation in an air display. It is the chance they have to show their pride in the aircraft, their Service and their competence in flying a warbird, fast jet, large transport aircraft or the highly capable civilian aircraft, both aerobatic and transport/utility.

The differences between normal operations and flying in an air display result from pressure generated by the air show environment. A pressure brought on by flying in front of a large number of spectators, by the need to give a performance which compares favourably with others on the program, and by the sheer excitement generated by the often carnival-like atmosphere.

**Lance Halvorson**



## Air Force Association

Want to help the Air Force Family?



**AN INVITATION TO RAAF MEMBERS  
PAST - PRESENT - FUTURE**

Branches in  
all States

Following your period of service, you can help your loved ones and the Air Force Community in advising veterans and ex-members on entitlements, advocacy and welfare. You can also work with organisations and Government to assist veterans.

Visit [www.raafa.org.au](http://www.raafa.org.au)  
to join online or request State information.  
email: [natsec@raafa.org.au](mailto:natsec@raafa.org.au)

ADVICE
HERITAGE
SOCIAL





# AUSTRALIAN AIRPORTS ASSOCIATION

## ADVOCACY MEMBERSHIP EDUCATION EVENTS

### PAVEMENTS AND LIGHTING FORUM

Tuesday 2 May and Wednesday 3 May 2017

### PAVEMENTS WORKSHOP

Monday 1 May 2017

Hyatt Regency Darling Harbour, Sydney

### AUSTRALIAN AIRPORTS ASSOCIATION (AAA) 2017 NATIONAL CONFERENCE, ADELAIDE

Monday 13 – Friday 17 November 2017

Like more information about AAA Events  
email [events@airports.asn.au](mailto:events@airports.asn.au)

The Australian Airports Association (AAA) is a non-profit organisation that was founded in 1982 in recognition of the need for one coherent, cohesive, consistent and vital voice for all aerodromes and airports across Australia.

The AAA represents the interests of more than 260 airports and aerodromes Australia wide – from the local country community landing strip to major international gateway airports. There are a further 130 corporate members representing aviation stakeholders and organisations that provide goods and services to the airport sector.

The AAA facilitates co-operation among all member airports and their many and varied partners in Australian aviation, whilst contributing to an air transport system that is safe, secure, environmentally responsible and efficient for the benefit of all Australians and visitors.

The AAA is an Associate Member of Airports Council International Asia Pacific.

### Contact us

02 6230 1110  
[www.airports.asn.au](http://www.airports.asn.au)  
[info@airports.asn.au](mailto:info@airports.asn.au)

Unit 2 / 4 Brindabella Circuit  
Canberra Airport ACT 2609

 @AusAirports

# Tasmania – experienced, defence capable and ready for land, sea and air



Tasmanian companies have been supplying products for Defence for many years, and have forged a proud reputation for quality and innovation.

To read more about some of the companies and products that built that reputation, visit [www.stategrowth.tas.gov.au/home/sectors/defence](http://www.stategrowth.tas.gov.au/home/sectors/defence)



# No 5 SQUADRON

While there is not currently a No. 5 Squadron, "Number 5" has featured regularly in RAAF history, with lineage traced to the 5th Squadron, Australian Flying Corps. The RAAF has formed, and disbanded, this squadron three times, with participation in the Pacific War, Southeast Asian conflicts, and Middle East peacekeeping.

## 5th (Training) Squadron AFC 1917-19

The squadron was formed at Shawbury, England, on 15 June 1917, as No. 29 (Australian Training) Squadron, Royal Flying Corps. One of four Australian training squadrons, it was intended to supply pilots to No. 67 (Australian) Squadron, RFC (1st Squadron, AFC) in the Middle East.

Typical of men sent to the squadron upon its formation was 2nd Air Mechanic Stanislaus (Stanley) Nunan. After service on the Western Front with the 5th Field Company, Royal Australian Engineers, Nunan applied for a transfer and was "thanking my lucky stars" when he reached Shawbury, "a ding dong place on the border of Wales", to commence flying training. The aerodrome was some miles out of town and its hangars and quarters were still being built.

Captain Andrew Lang, who had previously raised the 4th Squadron, AFC, was tasked with setting up the new squadron. Lang organised three flights, each responsible for training thirteen or so air cadets. One of his recalled that Lang "took great interest and care of his pupils when instructing, being a careful pilot himself. If one of his fledglings did anything wrong in flying, Andy's flow of Australian turned the air blue for at least ten minutes."

The squadron was equipped with Maurice Farman M.F.11 Shorthorns. The 1913-vintage "pusher" had its engine behind the nacelle accommodating instructor and trainee. Unfortunately, windswept Shawbury was often "rough and not very good" for instruction in the temperamental "Rumpty", so the squadron received some exceedingly gentle Airco DH.6 trainers.

Major Henry Petre DSO MC assumed command in August 1917. English-born Petre learned to fly in 1910-11 and was recruited to establish the Central Flying School at Point Cook. He later commanded the Half-Flight sent to Mesopotamia in 1915, and had later flown on the Western Front.

Service in a training squadron could seem mundane, however training was hazardous, as aircraft were older types and ground staff were busy repairing "pranged" machines. Fortunately, the squadron did not incur many deaths, although injuries were common. The first death was Gunner Walter Herford who passed away from illness on 4 October 1917.

To begin with, the squadron was responsible only for elementary flying training. Air cadets had to pass tests in wireless telegraphy and signalling, machine-guns, and airmanship. The squadron's war diarist explained:

"Before passing on for higher training the pupil must fly for a total of four hours solo on the aeroplane in use for

elementary training ... The procedure is for the Instructor to accompany the pupil in the Aeroplane (which is always fitted with dual control) until the pupil can fly quite satisfactorily without any intervention on the parts of the instructor. This takes on an average 3½ hours made up in flights of from 20 to 30 minutes."

The RFC then revised its training system. Instead of passing cadets from one instructor to the next, each cadet was allotted an instructor to "more readily follow the progress of each individual". In addition, aircraft were fitted with speaking tubes "to enable the instructor to speak to the pupil and explain to him the reason for any mistakes he makes". The intention was to reduce the number of training crashes and produce pilots more able to survive on the Western Front.

In early 1918, the squadron was retitled the 5th (Training) Squadron, AFC, and upgraded to an "all through" training squadron. One instructor attended the School of Special Flying to learn the latest instructional methods and then trained up the others. The squadron also received better aircraft, in the form of Avro 504s. Henceforth, air cadets soloed and then received instruction in forced landings, aerobatics, formation flying, aerial fighting, compass flying, and airmanship in clouds and rough weather.

In April 1918, the squadron, now commanded by Major R.S. Brown, was transferred to the 1st Wing, AFC, at Minchinhampton, Gloucestershire. It took its 504s and was issued an assortment of combat aircraft, including Pups and Camels, for advanced instruction. With the new aircraft, the squadron could supply the 4th Squadron, AFC, with pilots. Writing home, Lieutenant Fred Sexton explained that training in the different aircraft was "very trying on your nerves. I have had to knock off smoking, and a pilot is not allowed to take more than a couple of glasses of any strong drink a day".



Avro 504K, E1804, in high-visibility colour scheme, belonging to the 5th (Training) Squadron, AFC, Minchinhampton, 1918-19.

Source: AWM

The more challenging training resulted in more accidents, and men in the workshops experienced "a high pressure" to repair damaged machines. Possibly the most miraculous escape was on 27 July 1918 when 2nd Lieutenant H.A. Wilkinson spun his Camel in from 500 feet but became impaled on a couple of trees, climbed out of the cockpit,

and clambered to the ground, unscathed. One of the few fatal accidents was on 28 August when 2nd Lieutenant R.L. Cummings (instructor) and Lieutenant C.W. Scott (cadet) collided with an aircraft from another squadron, with both aircraft plunging to the ground and “reduced to small pieces”.



A crashed Sopwith Camel, F1343, of the 5th (Training) Squadron, AFC, Minchinhampton, 1918-19. Source: AWM

On 2 October 1918, Captain G.F. Malley MC took command, after a tour with the 4th Squadron. He received some Sopwith Snipes to enhance fighter training. Near the end of month, influenza broke out, compelling Malley to order preventative actions to minimise its spread. However, 1st Air Mechanic A.W. Cooper succumbed on 28 October.



Sopwith Snipe, E6150, in the main hangar of the 5th (Training) Squadron, AFC, Minchinhampton, 1919. Source: AWM

There was no let-up in training activity after the armistice on 11 November 1918. Partly, this was to keep men occupied. Flying continued to be hazardous, and on 4 February 1919 Cadet Charles Frederick was killed in one crash and an instructor, Lieutenant Jack Weingarth, was killed in another. Flying ended the following month.

On 5 May 1919, the AFC squadrons boarded the *Kaiser-il-Hind* and sailed for home. The 5th (Training) Squadron was disbanded after reaching Australia.

## No. 5 (Fleet Co-operation) Squadron RAAF 1936-38

The RAAF introduced a fleet co-operation capability in 1925 by forming No. 101 (Fleet Co-operation) Flight. On 20 April 1936, the Richmond-based flight became No. 5 (Fleet Co-

operation) Squadron. An RAF exchange officer, Squadron Leader C.B. Wincott, commenced a two-year posting as CO the following month.

The squadron operated Supermarine Seagull V (Walrus) amphibians. Designed as a fleet spotter that could be launched from warships, the Seagull V was a metal-hulled, “pusher” biplane, with a crew of three or four. A detachment with one Seagull V conducted catapult trials on HMAS *Canberra* and then gunnery spotting exercises. This experience paved the way for other detachments to be deployed on HMAS Australia and HMAS Sydney. The aircraft were used for reconnaissance, gunnery spotting, and mock attacks against warships.



Supermarine Seagull V, A2-17. Source: RAAF Museum

The squadron also undertook photographic survey work, including in Tasmania, southern Victoria, Queensland, Darwin, and Papua. In addition, it assisted the Council of Scientific Research with fisheries research. While flying over rugged terrain and out to sea was potentially hazardous, damage to airframes was generally minor, with detachments implementing repairs. The Richmond workshop completed major services.

A fatal accident occurred on 27 November 1938 when Flying Officer M.J. Wiber's Seagull V collided with high-tension wires strung across the Albert River, near Beenleigh, Queensland. The aircraft burst into flames on the riverbank, killing Wiber, AC1 E.A. Everett, AC1 A.E.D. Milner, and a police officer assisting with the survey flight, Constable G.R. Young.



Crashed Supermarine Seagull V, A2-15, Beenleigh QLD, 27 November 1938. Source: National Archives of Australia



The squadron continued operating until 31 December 1938. Next morning, the squadron was renumbered as No. 9 Squadron.

## No. 5 (Army Co-operation) Squadron RAAF 1941-46

On 9 January 1941, No. 5 (Army Co-operation) Squadron was re-formed at Laverton. The initial equipment was six CAC Wirraways, two-seater "general purpose" aircraft used for tactical reconnaissance, artillery spotting, dive bombing, and close air support. Flight Lieutenant M.V. Lewis temporarily commanded the squadron. He took two pilots and three observers to Canberra for a three-week army course on air support. There was little activity at Laverton. LAC Chas Haddon recalled that there was a hangar marked "5 Squadron" with several aircraft parked up inside.



Wirraways of No. 5 (Army Co-operation) Squadron, RAAF, in 1941. The aircraft wear the squadron's original single letter code 'E', subsequently changed to 'BF'. *Source: RAAF Museum*

In April 1941, Squadron Leader A.D. Charlton assumed command. The squadron stepped up training in tactical reconnaissance, artillery reconnaissance, dive-bombing, and cross-country flying. On 6 October 1941, the squadron suffered the first fatality, when a Wirraway crashed off Wilson's Promontory and its observer, Sergeant J.S. Padman, was trapped in the sinking aircraft.

Towards the end of October, the squadron participated in its first major exercise, the "Battle of Corangamite", involving the 3rd Division. Just over a month later, the Japanese entered the war. The "invasion scare" that took hold after the fall of Singapore saw the squadron undertaking anti-aircraft co-operation sorties during February and March 1942, testing the readiness of Melbourne's defences. March was to prove costly, however, with three aircrew killed in crashes.

In May 1942, No. 5 Squadron moved to Toowoomba, Queensland, supporting Australian and American forces training for the war in New Guinea. With the Army's No. 3 Air Liaison Section attached, it coordinated sorties with the various corps, divisional, brigade and regimental headquarters. The squadron deployed detachments across a wide area, as far south as Williamstown, New South Wales, and as far north as Townsville. During this period, four aircrew were killed in crashes and another man died from illness.

After missing out on deployment to New Guinea in November 1942, No. 5 Squadron moved to Toogoolawah, supporting army training with a mix of Wirraways and Tiger Moths. In early 1943, it moved again to Kingaroy, and soon became a source of reinforcements for No. 4 Squadron in New Guinea. Pilots and observers would be introduced to army co-operation theory and sorties at the School of Army Co-operation in Canberra, be posted to No. 5 Squadron to gain experience, and then be posted to No. 4 Squadron for an operational tour.

In mid-1943, the squadron was redesignated as No. 5 (Tactical Reconnaissance) Squadron and began receiving Boomerang fighters. Henceforth, Boomerangs pilots operating in pairs conducted most tactical reconnaissance and artillery spotting sorties. Training was stepped up, though at times shortages of Boomerangs presented "a severe handicap". The squadron also suffered several fatal accidents.



Boomerang A46-126 of No. 5 (Tactical Reconnaissance) Squadron, RAAF, in Queensland during 1943-44. *Source: RAAF Museum*

In early November 1944, No. 5 Squadron was deployed to Bougainville. Squadron members were packing up the camp when the squadron suffered its last casualty in Queensland. Pilot Officer R.J. Granger crashed into a hillside while practicing tactical reconnaissance. The squadron's new base was at Torokina, and it quickly began supporting the 3rd Division. Squadron Leader B.M. Palmer forged a strong relationship with his Royal New Zealand Air Force counterparts, whose Corsair fighter-bombers were at Torokina. Boomerang pilots would often "lead in" (direct) bombing and strafing by Corsair pilots. It was not long before

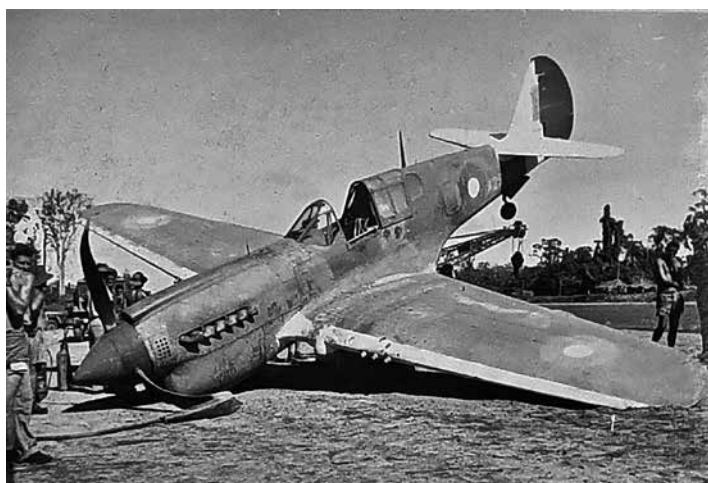


Boomerangs of No. 5 Squadron at Torokina, Bougainville, in 1945. *Source: Brian Yap*

losses occurred, as Flight Lieutenant W.R. Vernon was killed leading in Corsairs on 11 January 1945, and a month later Pilot Officer M.J. Oxley's Boomerang was seen to dive into the sea.

The squadron also dispatched detachments to Cape Hoskins in New Britain and Tadjil in New Guinea, supporting the 5th and 6th Divisions, respectively. Fortunately, it incurred only one more battle casualty in the three campaigns, however two other men died of illness after returning to Australia.

Flying activity wound down in early August 1945, and victory was celebrated on the 15th. The squadron monitored the movement of Japanese troops into prisoner of war assembly areas. The Boomerangs had not fared well in the tropics, and were becoming hard to maintain. In September, the squadron received four Kittyhawks, but by November few aircraft were serviceable.



One of No. 5 Squadron's four Curtiss Kittyhawks, after a mishap at Torokina in late 1945. *Source: Brian Yap*

Men were returned to Australia in batches, leaving a small cadre to be moved to Pearce, Western Australia, at the end of January 1946. Although there was a plan to rebuild the squadron, this did not eventuate, and it disbanded on 18 October 1946.

## No. 5 Squadron in Malaysia 1964-66

On 4 May 1964, Squadron Leader R.H. Martin, three other officers, six senior NCOs and five airmen were transferred from No. 9 Squadron at RAAF Fairbairn to form a new squadron. They brought four Bell UH-1B Iroquois helicopters and prepared to deploy to Malaysia as part of the Far East Strategic Reserve.

The RAAF received its first UH-1B utility helicopters in 1962, ostensibly as a search-and-rescue aircraft. However, "Hueys" would also be used for tactical airlift, medical evacuations, and fire support. The helicopters were flown to Richmond on 20 May 1964, ahead of being flown onto HMAS Sydney. The under-strength squadron and its aircraft reached Butterworth in mid-June. All ranks began adjusting to the tropics and aircrews began familiarisation flights. On 7 July, the senior aeronautical engineer, Flight Lieutenant K.J. Taylor, and three airmen visited Vung Tau, South Vietnam, to examine US Army Iroquois maintenance, returning "with valuable information and material for training aids".



Bell UH-1B Iroquois of No. 5 Squadron landing at a jungle clearing, Malaysia, 1964-65.

*Source: National Archives of Australia*

The squadron trained with the 28th Commonwealth Infantry Brigade in early July, and in mid-August commenced operations, supporting 3RAR and Malay and British units with airlift, resupply, search and rescue, and medevac sorties. On one occasion, troops were airlifted into a rugged area in fifteen minutes, whereas on foot it would have been a five-day march. Of seventeen sorties in August, eight were in the "special area" qualifying as active service. The squadron also flew a "flying doctor service", taking doctors to clinics in isolated villages.

In September 1964, the Confrontation with Indonesia started. No. 5 Squadron increased its number of guards and put men to work filling sandbags and digging slit trenches. Sorties over the Thai-Malay border continued, and in mid-September an Australian patrol missing in extremely thick jungle and rugged terrain was located, resupplied, and extracted. At the same time, the squadron began supporting forces countering Indonesian incursions.



Bell UH-1B Iroquois of No. 5 Squadron landing at Terendak, Malaysia, 1964. *Source: Wikipedia*

After Squadron Leader L.O. Hindley assumed command in January 1965, the squadron decreased its sortie rate, as equipment and spares shortages resulted in an unavoidably "very poor" serviceability rate. The return to normal operating conditions in June "was welcomed by all". The squadron also received recognition, winning the Duke of Gloucester's



Cup. The citation explained:

"No. 5 Squadron is located at Butterworth, Malaysia, and operates UH-1B helicopters in an air support role. During the period 1964 to 1965, the Squadron completed its operational and training tasks with a remarkable degree of skill and proficiency and thereby maintained a high standard of operational readiness. No 5 Squadron has demonstrated its efficiency and effectiveness in joint operations with Commonwealth Strategic Reserve forces along the Thailand/Malaysia border and in its readiness to meet the requirements of medical aid and air evacuation of servicemen and civilians in Malaysia. The accomplishment of these extracting tasks in difficult terrain and adverse weather conditions was largely attributable to the high level of morale displayed by air and ground crews of the Squadron. The performance achieved was noteworthy because it was the Squadron's first year of operational flying since it was re-formed on 4th May, 1964. No 5 Squadron's effort has brought great credit upon itself and the Royal Australian Air Force."

With operations winding down in early 1966, squadron members hoped to be deployed to Vietnam. However, on 12 April 1966, the RAAF orchestrated a unique renumbering exercise. No. 9 Squadron at Fairbairn (with detachments at Williamstown and Darwin) was renumbered as No. 5 Squadron, while the squadron at Butterworth became No. 5 Squadron Detachment 'C'. Next day, a new No. 9 Squadron was formed for service in Vietnam. No. 5 Squadron Detachment 'C' was disbanded the following month.

## No. 5 Squadron at Fairbairn 1966-89

Although not deployed to Vietnam, No. 5 Squadron played contributed to preparing forces for service there. It became essentially an operational training unit for RAAF, RAN, and RNZAF personnel being posted to No. 9 Squadron, with interchanges of personnel occurring until No. 9 Squadron's return in late 1971. There would be celebrations in No. 5 Squadron when returned aircrew or ground staff received news of a decoration or a mention in despatches. The squadron also supported battalions' pre-deployment



Servicing an Iroquois of No. 5 Squadron during an exercise somewhere in Australia. *Source: RAAF Museum*

training, and participated in army tracker dog trials ahead of dogs being sent to Vietnam in 1967.

With aircrews training for Vietnam, exercises could be hazardous, and on 29 January 1969 the squadron incurred fatalities when Flying Officer R.G. Enders and Flight Lieutenant W. Waterhouse, RNZAF, crashed on a training sortie. Another fatal accident occurred on 2 April that year when Flying Officer I.R. McLean and Pilot Officer E.C. Collett crashed while training. A year later, on 12 April 1970, LAC A.S. Buttery was killed on duty in a motor accident.

No. 5 Squadron's aircrews and ground staff operated across Australia and in New Guinea, often "pushed to the limit" with the multiple demands for military exercises; medevacs of injured soldiers and civilians, including victims of car crashes, in the days before civilian-operated life saver/rescue helicopter services; ferrying VIPs; search and rescue, including locating lost bushwalkers and boaties; and support for emergency services during bushfires and floods. For a time, the squadron operated a SAR detachment at Butterworth. On Christmas Day 1974, the Darwin detachment's personnel and families endured Cyclone Tracey, with the detachment's Iroquois damaged beyond repair. One year later, the squadron's history sheet noted that 1975 was: "A good Year for 5 Squadron with no major accidents, lots of interesting flying and a very good Squadron morale. ... Members of the Squadron were noticeably pleased that there were no natural disasters this Christmas period."



Iroquois of No. 5 Squadron over the Sinai with UNEF II, 1976-79. *Source: AWM*

There was no let-up the second half of the 1970s. In May 1976, the squadron had "a hectic time" with up to nine aircraft away. Short of aircrews, it organised an Assistant Crewman's Course, training five ADGs to participate in sorties. At the same time, the squadron was warned to prepare to send four UH-1Hs to the Middle East.

No. 5 Squadron Detachment UNEF (United Nations Emergency Force) was formed on 21 June 1976. It was to contribute to UNEF II, which monitored the buffer zone, between Israeli and Egyptian forces, established after the Yom Kippur War. The first commander, Wing

Commander H.R. Thomas, left Fairbairn on 10 June leading a reconnaissance party to Ismailia, Egypt, returning two days after the flight of nine pilots, four other officers, and 38 airmen was formed. That month was “extremely hectic” for all squadron members, as forming the detachment “imposed substantial strains on the Squadron’s manpower and equipment resources”, while normal requests for sorties also had to be met.



Aerospatiale AS350B Squirrel, A22-002, of No. 5 Squadron at Canberra, 1986. *Source: Wal Nelowkin*

Several C-130s were required to move the detachment. The first helicopter sortie was flown on 1 August 1976. A squadron member explained that the Sinai desert was “replete with wreckage from some of the biggest tank battles in history as well as that of many aircraft that had been shot down during the campaign. In addition there was the constant concern of minefields that seemed to be almost everywhere.” Over three years, the squadron contributed personnel on rotations. Accommodation was at the Sinai Palace Hotel, although “A palace it certainly was not. Nevertheless, with typical Australian ingenuity, it had been turned into a comfortable home away from home.”

During 1982-6, the RAAF returned to the Sinai with a specially raised Rotary Wing Aviation Unit, in which some squadron personnel served, contributing to the US-led Multinational Force and Observers peacekeeping force.



The final parade of No. 5 Squadron on the occasion of the disbanding of the squadron. *Source: RAAF Museum*

No. 5 Squadron remained at Fairbairn, and in 1984 received Aerospatiale AS350B Squirrels. Procured to replace the ageing Iroquois, the Squirrel was suitable for most of the squadron’s roles, including training. In 1986, the Chiefs of Staff Committee decided that rotary wing aircraft would be transferred to the Army. Accordingly, No. 5 Squadron was disbanded in 1989. Its training flight formed the basis of the Australian Defence Force Helicopter School.

## No. 5 Flight 2010 to Present

In a small way, “Number 5” was resurrected in January 2010, when No. 5 Flight formed at Amberley, with Heron UAVs, including with service in Afghanistan.



IAI Heron UAV of No. 5 Flight, RAAF. *Source: Australian Defence Force*



Malaysian Rangers move for cover after landing in a 5SQN UH-1H in the Thai-Malaya border region, 1965. The Rangers are ethnic Ibans from Sarawak, Borneo. *Photo: W. Smithers via AWM*

**John Moremon**





**BOSE**

# WHY I FLY.

**“To capture the beauty of flight.”**

Jessica Ambats, Pilot // Aviation Photographer

## **Why Jessica flies with the Bose® A20® Aviation headset.**

To capture that perfect shot, every moment counts. That's why Jessica relies on the Bose A20® Aviation Headset for clear communication. Noise and wind can interfere with critical dialogue between her pilots, sometimes causing safety concerns. The A20® headset offers 30% greater active noise reduction than conventional headsets, so Jessica can hear more of what she needs to hear. And with 30% less clamping force,\* she can stay focused on her flight.

**Call 1800 173 371 Visit [A20.Bose.com.au](http://A20.Bose.com.au)**

**Connect with us @ [BoseAviation](#) #WhyIFly #BoseA20**

©2017 Bose Corporation. \*When compared to conventional headsets.



**VISIT US IN THE U.S PAVILION AT THE AUSTRALIAN INTERNATIONAL AIR SHOW.**



# Defence Industries Queensland



## QUEENSLAND

### AUSTRALIA'S FRONT LINE FOR DEFENCE INDUSTRIES

Visit us at Avalon 2017 to learn more about  
Queensland's capability (Stand number 2F24, Hall 2)

Call 13 QGOV (13 74 68) or +61 7 3452 7241

Email [diqlld@dsd.qld.gov.au](mailto:diqlld@dsd.qld.gov.au)

Visit [www.defenceindustries.qld.gov.au](http://www.defenceindustries.qld.gov.au)

Twitter @DefenceIndQld





## Ten Years of High-Availability Computing—Guaranteed

SEL computers are the only industrial computers with a standard ten-year warranty and >100-year mean time between failures. They feature advanced thermal management and are built to work through 15 g of shock, large electromagnetic fields, radio frequency interference, and 15 kV of electrostatic discharge.

Powerful, reliable, and highly available SEL computers employ:

- A broad operating temperature range of  $-40^{\circ}$  to  $+75^{\circ}\text{C}$ .
- Multicore Intel® i7 processors.
- High-quality single-level cell SSDs and error-correcting code memory.
- Passive cooling technology.
- No moving parts.

For more details about what makes SEL computers powerful, reliable, and available, visit [selinc.com/computers](http://selinc.com/computers).

Phone: +61 3 9485 0700 | Email: [selmelb@selinc.com](mailto:selmelb@selinc.com)





# CONNECTING THE INDUSTRY.



**AIRSHOW  
MEMBERSHIP  
SPECIAL**  
Visit 1A9 - Hall 1  
Prices start at \$35

## INNOVATION



## DIVERSITY



## PARTNERSHIPS



[www.aviationaerospace.org.au](http://www.aviationaerospace.org.au)

A not-for-profit independent national membership association

Follow A/AA  

Follow Women in A/AA  

Follow NGN  

LOOKING FOR A  
SUPPLIER OR  
PARTNER?

AUSTRALIAN  
AEROSPACE  
INDUSTRY  
CAPABILITY  
DIRECTORY

NOW  
AVAILABLE  
ONLINE!

A/AA Partners



Women in A/AA Initiative Partners





# THE DRO

## It's a small world after all.

**U**NTIL recently, conducting surveillance and delivering munitions from the air was the sole province of nation-state air forces. Now, anyone with a drone can do the same.

Over the last decade, drones—or unmanned aircraft systems—have become cheaper, more capable, easier to fly, and ubiquitous. Even hobby machines can pose a military threat. Combined Joint Task Force-Operation Inherent Resolve Commander Army Lt. Gen. Stephen J. Townsend said ISIS has made extensive use of drones to observe bases and deliver explosives.

“It’s not episodic or sporadic,” he said during a press briefing in October. “It’s relatively constant and creative.”

On one occasion, ISIS packed a drone with explosives and then detonated it after it was retrieved by coalition forces, killing four.

Speaking at the Unmanned Systems Defense forum in October, Air Force Brig. Gen. Brian M. Killough, the director of strategy, concepts, and assessments, said even though drones haven’t yet posed a major military threat, they can still degrade mission performance. He compared their effectiveness to Germany’s use of V-1 and V-2 rockets during World War II. Though “highly ineffective militarily,” the rockets were nevertheless “incredibly effective psychologically.” He likened drone assaults to mortar attacks on a forward operating base.

The Army had a more sobering assessment in a counter-unmanned aircraft system strategy extract that was released in October.

“Analysis of the future operational environment and recent military operations around the globe clearly illustrates the seriousness of the UAS threat,” the report states. “As technology has progressed, both reconnaissance and attack capabilities have matured to the point where UAS represent a significant threat to Army operations from both state and nonstate actors.”

Russia, for instance, has been honing its UAS capabilities and techniques since it saw Georgian forces effectively use drones for intelligence, surveillance, and reconnaissance during the 2008 war.

USAF photo by SSgt. Andrew Lee

30 FEBRUARY 2017 ★ WWW.AIRFORCEMAG.COM



# THE NEW WARS

By Will Skowronski, Senior Editor

To catch up, they implemented a massive development program that has paid off in the ongoing conflict in eastern Ukraine. There, Russian-backed separatists have used the latest UAS models—including Russia’s Orlan-10, Granat-1, and Takhion and others from Israel, France, and China—to spot and monitor artillery targets, the report notes. One analyst considered UAS-guided artillery to be “the most significant difference-maker in a conflict between otherwise equal forces.”

In short, ISIS isn’t the only threat. Deployed troops and platforms also aren’t the only vulnerabilities.

At AFA’s Air, Space & Cyber Conference in September, Air Force Global

Strike Command chief Gen. Robin Rand said UASs had flown in the US “over some of the areas that we don’t particularly like them being over.”

The threat will only grow. The Army report says that while between 80,000 and a half-million drones were operating in US airspace in 2016, some 700,000 new drones were expected to be sold by the end of that year.

Meanwhile, technology will make UASs smaller, cheaper, and more capable, Dan Stamm, Battelle’s manager for counter-UAS programs and coinventor of a drone jammer, told *Air Force Magazine*.

“This is one of the very rare cases that I can think of where our adversar-

TSgt. Benjamin Hawkingson hand-launches an RQ-11B Raven unmanned aircraft system at Vandenberg AFB, Calif. Raven is equipped with a video camera that streams live footage to an operator on the ground.

FEBRUARY 2017 ★ WWW.AIRFORCEMAG.COM 31



ies are able to directly leverage the development that is in the best interests of industry and commerce,” he said.

“In other words, everything that the drone manufacturers are doing to make their drones more appealing to commerce, to the market, is directly applicable to advancing the capability of the adversary: greater ranges, more robust communications, greater payloads, longer flight durations, just name it across the board—lighter, faster, better.”

The Army strategy extract states that small UASs are particularly difficult to defeat and “less effectively countered by existing integrated air and missile defense capabilities” due to their proliferation and low/slow profile. They typically have smaller radar cross sections, infrared signatures, and electromagnetic footprints.

Though the military has used small UASs and the larger remotely piloted aircraft (RPA) for decades, the Defense Department is playing catch-up on countering the new threat posed by small drones.

The Pentagon’s Joint Improvised-Threat Defeat Organization (JIDO)—the same group that developed counterimprovised explosive device capabilities—began following the drone threat in late 2013, but just began testing counter-drone technologies along with the Army Rapid Equipping Force last summer, a DOD spokeswoman

said by email. JIDO is planning a Hard Kill Challenge to assess counter-UAS threats this spring.

### BRINGING DOWN ISIS DRONES

Combatants are receiving new capabilities. During an October briefing, Air Force Col. John L. Dorrian, spokesman for Combined Joint Task Force-Operation Inherent Resolve, said the DroneDefender—and other, unidentified advanced systems that can detect, identify, track, and defeat UAS threats—has supplemented the services’ in-theater capabilities.

Shortly after ISIS struck with its “Trojan Horse” drone, two Air Force remotely piloted vehicles brought down another ISIS drone that coalition forces spotted near Mosul, Iraq. Working together, the aircraft used electronic warfare capabilities to disable the drone in less than 15 minutes.

Air Force Secretary Deborah Lee James announced the successful downing during a Center for a New American Security event in October and called on the services’ rapid capabilities office to come up with a solution to the “emerging danger.”

The answer is “not necessarily the development of a new thing to defeat it,” she said. “It could be taking what we’ve got already and packaging it in a different way to go after the threat. But we need to do that type of work rapidly.”

At about the same time, the Air Staff stood up a working group to come up with a comprehensive plan.

“The working group cuts across functional areas and commands to integrate the Air Force’s best experts who have been empowered to act rapidly so they can continue to outpace the evolution of the threat and quickly deliver capabilities to the warfighter,” service spokeswoman Erika Yepsen said in an email. “While our airmen downrange innovate and act to defeat threats as they evolve, this cross-functional working group will build a strategy to anticipate and defend against current and future small unmanned aircraft systems.”

In late October, the service released a request for proposal to acquire a portable drone defense system to protect AFGSC facilities. The RFP calls for a handheld device that must be able to disrupt or manage the radio frequency link between a commercial UAS and the pilot and be able to passively detect RF signatures to aid the user in detecting and locating UASs. The system should also be able to disrupt satellite navigation signals, the RFP said.

At the AFA conference, Rand said fielding any capability to protect US nuclear infrastructure will require extensive discussions between military commands, law enforcement agencies, and other federal agencies, including the Department of Energy. “These discussions are happening ... but, you



The Battelle DroneDefender jammer system disrupts UAS operations using remote control interference and GPS disruption.

Battelle photo





USAF photo courtesy of Wright-Patterson AFB, Ohio

Airmen operate a Skate small unmanned aircraft system during field testing. The small aircraft offers real-time video streaming and infrared imagery. The Air Force is playing catch-up in this area, but is expected to put more emphasis on developing and fielding SUASs soon.

from either a proficiency or sufficiency standpoint, defeat the UAS threat.”

Stamm said he and Alex Morrow, co-inventor of the DroneDefender jammer, considered a number of ideas, including the use of kinetic solutions—lasers, nets, even trained falcons—before settling on the jamming used by Battelle for its ease of use and safety. Any hard kill option, he said, causes the drones to fall out of the sky, risking injury or damage on whoever or whatever is below it.

know, it’s not easy,” Rand said. “You have to be very judicious and prudent about how you apply changes.”

Neither the service or JIDO provided additional details on their counter-UAS efforts. In its report, the Army says more advanced sensors are needed so troops can reliably detect small UASs. The report suggests advanced identification technology should be used to enable forces to distinguish between friendly and adversary drones. To defeat the threat, the report calls for the integration of joint capabilities to destroy drones before and after they’re launched using both kinetic and nonkinetic means.

“There is no single, comprehensive materiel solution that will make the UAS problem disappear,” the Army report states, nor is there is an Army, joint, or multinational capability “that can,

Miraj Islamic News Agency



Kurdish Peshmerga forces with an ISIS drone shot down in March 2016 near Mosul, Iraq. The drone was used to observe and photograph Peshmerga troop positions.



Pieces of a Hezbollah drone shot down by the Israeli air force in 2006.

Israeli Air Defense Forces photo

DroneDefender resembles a rifle but with two antennas in place of a barrel. It allows the user to disable commercially available drones from up to about 400 yards away by severing the command and control link between the pilot and UAS, using complex disruption waveforms.

Once the link is broken, commercial drones will revert to a lost-link protocol. Generally, there are three: hover in place, land in place, or return



to the point of origin. A secondary DroneDefender capability can disrupt GPS signals, preventing the UAS from flying a waypoint mission or returning to its point of origin.

Stamm said interest in the DroneDefender has spiked alongside the recognized threat level.

“We have seen that shift just in the last few years, from kind of what is perceived as possibly harmless—or less harmful for sure—to, ‘Holy cow, this is now a really cheap guided weapon,’” he said.

Since booking the first sale in early 2016, Battelle has sold 105 units to the Defense Department, Department of Homeland Security, and foreign militaries. Stamm said Battelle is developing expanded, larger, more capable jamming systems and is looking into other spaces along the counter-UAS response spectrum: detection, identification, tracking, and defeat.

The Russian-backed rebels in eastern Ukraine have proved adept at bringing down drones through a variety of means. The Army Counter-UAS strategy extract says the Russians have used electronic warfare systems to “effectively neutralize Ukrainian UAS.” They’ve also grounded long-range surveillance aircraft controlled by the Organization for Security and Cooperation in Europe, the group tasked with monitoring the often-ignored cease-fire there. The OSCE report suggests several long-range drones have been disabled through a mix of surface-to-air missiles and signal jamming.

As potential adversaries pursue counter-UAS technologies, the US military

will need to develop means for its RPAs to defend themselves.

The Air Force employs a mix of larger RPAs—the MQ-1 Predator, MQ-9 Reaper, RQ-4 Global Hawk, and stealthy RQ-170 Sentinel—and small UASs, including the RQ-11B Raven, RQ-20A Puma AE, Wasp III, and RQ-12A Wasp AE.

Until recently, USAF has used small UASs for limited tactical objectives, but the service’s “Small Unmanned Aircraft Systems (SUAS) Flight Plan: 2016-2036,” released last May, suggested the small drones can play a much larger role.

## FOCUS ON THE FAMILY

“This intersection of unmanned technology maturation with widespread industry innovation” will drive the rapid advancement of a cheap, effective “family” of small UASs “focused on traditional Air Force roles and missions,” the report states. In spite of this, “the Air Force finds itself behind the power curve, having forgone the opportunity to embrace and operationalize these developments through a dedicated acquisition program, let alone an independent line of funding. We have reached the point where SUAS applications are greatly outpacing strategy and policy.”

The flight plan says small UASs will soon be capable of functions such as counter-UAS operations, security for large or strategic complexes, and even enhancement of anti-access, area-denial environments.

At the Unmanned Systems Defense forum in October, USAF Col. Brandon

E. Baker, director of remotely piloted aircraft capabilities, said the development of technologies—including the areas of command and control, antenna and sensor miniaturization, processing power, and power capacity—will allow the service to employ small UASs globally.

“We anticipate we’re going to be able to miniaturize more and more so that one day, we can—no kidding—darken the skies and apply mass against an enemy,” he said. “That overwhelming mass has made us successful as a military as long as we’ve existed.”

Baker said deploying large numbers of SUASs at one time is a protection in itself, but the service is also working to ensure communication links and reduce latency to allow its SUASs to operate in highly contested environments. Baker said such measures could include the use of new waveforms, aerial layer networking, and cognitive autonomy. The service’s SUAS flight plan calls for requirements to ensure sufficient data encryption and anti-jamming technology.

UASs need to be able to operate untethered to a network in case those are disabled, Baker said.

“I don’t want it to be a Hollywood movie, where if you can defeat the network, everything just drops out of the sky. That’s not going to make a lot of sense for us,” Baker asserted. “The platforms have to have a certain level of cognition: ... the ability to sense the environment, learn from the environment, and then make decisions.” ★

**A contractor recovers a Scan Eagle small unmanned aircraft system after a mission for Operation Inherent Resolve in Iraq. Advancing technology is making the UASs smaller, cheaper, more capable—and more dangerous in enemy hands.**

USAF photo by SrA. Jordan Castellan

34 FEBRUARY 2017 ★ WWW.AIRFORCEMAG.COM

Reprint courtesy of Air Force Magazine





Support Australian Innovation  
and Manufacturing

Ask for our latest  
BAC catalogue



DESIGN  
AWARD

**BAC STORAGE  
MODULES**

Designed in Australia  
Licence No. 85253  
Good Design Australia

Modular Workplace, Drawer Storage  
Systems and BAC 77 Racking

BAC Systems 193 - 195 Power Street Glendenning NSW 2761



[www.bacsystems.com.au](http://www.bacsystems.com.au)



+ 61 2 9832 2777



BUILT FOR SAFETY • BUILT FOR COMPLIANCE

# STORING DANGEROUS GOODS? STORE THEM WITH CONFIDENCE

From Australia's leading manufacturer of dangerous good storage, comes three outstanding products for the aviation industry and Defence workshop



LM850



PRLS06



SC030

SC100



Contamination-Free  
Dispensing Stations



Indoor Safety Cabinets



PR251

PR450



Relocatable  
Outdoor Storage

We will  
help you  
comply!



1300 134 233  
Speak with a  
Compliance Expert



Book your FREE onsite  
DG assessment today  
[storemasta.com.au](http://storemasta.com.au)

MANUFACTURERS OF

**STOREMASTA**  
QUALITY SAFE STORAGE SYSTEMS

**priority**  
GROUP



See  
us at  
Stand EX10



# Australian Commercial and Military Ground Support Equipment

Beak Engineering is world leader in the design and manufacture of ground support equipment including bespoke or standard Ground Power Units (GPUs). Beak supplies to government defence authorities, airlines, airports and emergency response organisations that:

- Operate in critical and secure environments;
- Demand reliability and a forward-thinking engineered solution;
- Need to know their equipment can be easily maintained, repaired and overhauled at any time or place.

Through Beak's global alliances, its innovative solutions are delivered throughout Asia, the US, Canada, Middle East, Europe and the UK. Beak's GPUs are designed for modern military and civilian aircraft that require high quality 90kVA to 180kVA power with a fuel endurance of up to 15 hours at continuous full load.

*"We have been using Beak GPUs for more than 10 years and they are a very reliable unit that is built tough to withstand everything we throw at it. Plus it is very easy to use."*

**Chief Engineer, Royal Australian Air Force.**

Why choose Beak GPUs?

- Superior quality, reliability and performance.
- Operate in extreme environments, eg Antarctica and Middle East.
- Built with 32 pole alternators for operational benefits.

Customers include the Australian and New Zealand Defence Forces, Qantas, Boeing, Emirates, Alliance, Cobham, Jetstar and Malaysia Airlines.

[www.beak.net.au](http://www.beak.net.au)



# Providing the Worlds Most Advanced Expendable Countermeasures



Sensors & Electronics | Countermeasures | Energetic Systems

Chemring Australia provides the ADF with worlds most advanced expendable Countermeasures for protecting air, sea and land platforms against guided missile threats. In addition, utilising its world leading manufacturing facility, Chemring Australia is being qualified by the US Government as the Global Second Source for the MJU68/B Countermeasure for the protection of the F-35 Joint Strike Fighter.

Chemring  
Australia |



## PROUDLY WORKING IN PARTNERSHIP FOR CAPABILITY OUTCOMES

Nova Systems has over a decade of history and experience in partnering with Army Aviation to deliver capability outcomes across its platforms. Our team of dedicated specialists have delivered results for the acquisition and sustainment of capabilities for the S-70 BlackHawk, ARH Tiger, MRH90 Taipan, Shadow 200 TUAS and CH47 Chinook through their drive, passion, deep knowledge and experience. Because Nova Systems have been able to provide agile Capability Assurance services, our clients can deliver operational outcomes and capabilities with confidence. Nova Systems – solving the problems that really matter.



Nova Systems

Nova contact: General Manager, Aerospace & Surveillance – Jeff Perry | Telephone: +61 8 8252 7100

[www.novasystems.com.au](http://www.novasystems.com.au)



# The Far East Air Force

FEAF, the Far East Air Force, was based in Malaysia and Singapore from 1949 until 1971. It was a product of the Cold War, part of the West's opposition to Communist regimes seeking world domination in the post-war era.

FEAF operations were often as much political as military. The surrounding region was much changed by the Pacific War and constantly re-shaped by rapid and unpredictable post-war change. Maps were frequently redrawn as political boundaries and alliances shifted one after another.

It was a time when few grand plans reached fruition. Japan, in particular, had bitten off more than it could chew in WWII. By 1945 it was obviously losing, but still fighting tenaciously with no sign of giving in. Unable to see an end to fighting until at least 1947, the Allies planned accordingly.

This planning did not take into account the atomic bombs, the existence of which was known to very few. The bombs dropped in August and Japan surrendered on 3 September 1945 - at least 18 months earlier than most Allied planners expected. As a result, when Japan surrendered, Allied plans were much more about continuing the fight, than about managing the peace.

The WWII Allies knew, of course, that they would one day have to manage the peace, and drew up plans based on meetings like Potsdam and Yalta. These plans outlined general agreement about who would do what and where, but with few specifics.

Not surprisingly, when the war ended so unexpectedly and abruptly, the smooth transition to peace the Allies had hoped for didn't happen. Instead, there were widespread decolonisation struggles and Communist take-over attempts – sometimes as separate things, more often as a blend of both, and often violent.

The British return to Malaya and Singapore in 1945 had to cope with both. The return, with its promise of freedom, trade and rebuilt infrastructure, was generally welcomed, but the Malayan Communist Party had other ideas. Having fought with British support against the Japanese occupiers during WWII, they now turned their attention to the British 'colonial oppressors.'

In *The Royal Australian Air Force, an Illustrated History*, George Odgers tells us that in time they:

*mounted a terrorist campaign from the jungles of Malaya in a bid to add that country to the Soviet Bloc by the expulsion of British control....Armed violence became an every-day occurrence in the Peninsula. Terrorists attacked police stations, rubber plantations, tin mines and communications in a bid to create turmoil and destroy law and order. Europeans and Chinese were slaughtered mercilessly to undermine confidence.*

The British initially responded with police and troops to maintain law and order in populated areas and restrict terrorist movement. At first, most aircraft used to oppose the Communist Terrorists (CTs) were transports. The British

plan, however, included all uses of airpower and in 1946 the forerunner of FEAF, the RAF Air Command Far East, was formed to manage the air effort.

The situation in Malaya was, in many ways, simply a microcosm of bigger things elsewhere. Although not yet labelled as such, these activities were part of the Cold War already underway as WWII drew to a close. Communism was on the march out of Russia and the Soviet Union, as some East European countries had already found to their detriment.

Early post-war Soviet expansion in Europe was checked when the Berlin Airlift prevented a complete take-over of the city in 1948, but support for Communists in China, Korea and elsewhere - and an oft-stated wish to spread Communism world-wide - continued unabated.

Things came to a head in Malaya on 16 June 1948 when a band of CTs set upon three English rubber-planters and viciously cut them to pieces with machine guns. What became known as the Malayan Emergency had begun.

It would last twelve years, involve over 500 000 police and military personnel and cost 12 000 lives – all to suppress a CT force that never numbered more than about 8 000. Such is the tactical advantage of terrorists and guerrillas with jungle to hide in and some support from civilian sympathisers.



(Of note, it was called an Emergency and conducted as a police action because most insurance policies covered only property damaged or destroyed in a civil emergency, but not in a war. This created complex command arrangements to avoid putting the military in overall charge.)

Malaya was in no way unique in the region. The British were also facing nationalist de-colonisers in India and Burma. The Dutch in Indonesia and the French in Vietnam, Laos and Cambodia, had similar problems.

With scant Allied planning to guide them the Dutch and French acted independently and soon struck trouble. The Dutch were the first to go. On return to their former colony, they were met by well entrenched anti-colonial Indonesians and after four years of sporadic fighting conceded defeat.

Indonesia thereafter was run by the charismatic and erratic President Sukarno, some elected politicians, the armed forces and police. Officially non-aligned, their liking for Soviet weaponry made the neighbours uneasy and Indonesia became an unpredictable element in the region. Confrontation with the newly-formed Malaysia made Sukarno's Indonesia a major part of the FEARF story fourteen years later.

France too quickly returned to its pre-war colonies in Vietnam, Laos and Cambodia. But again, local anti-colonial and Communist elements had moved even quicker. On 3 September 1945, the day Japan formally surrendered, North Vietnam communists, led by Ho Chi Min, declared independence of the 'Democratic Republic of Vietnam'.

Though militarily weak, they had strong public support. Unhappy with arrangements for a peaceful transition to greater self-government linked to France, the Communists quietly mustered their forces.

Sporadic fighting began in 1947 and continued until 1954 when they defeated the French decisively at Dien Bien Phu. Division along the 17<sup>th</sup> parallel resulted, followed in later years by the invasion of the non-communist south by the communist north.

FEARF was not directly part of the ensuing Vietnam conflict, but two of its members, Australia and New Zealand, were. Both routinely used FEARF infrastructure during the conflict and Australia's contribution, in particular, would have been much more difficult without easy access to FEARF airbases in Malaysia and Singapore.

And while all this strife was brewing, two major events changed regional power balances for decades to come. In 1949 the Communists won in China and Russia exploded an atomic bomb. Both events emboldened Communists everywhere and added fuel to the Cold War, especially in Asia.

Now the Cold War is long gone, it is easy to forget how serious it all was. Initially, the Communist countries were united in a quest to spread their chosen utopia world-wide and behaved accordingly. Seen as 'the Communist Bloc' in the West, they were often encouraged by idealistic Western sympathisers blind to the brutal reality of Communism in action.

British authorities, however, well understood the realities of Communism and were very concerned by its seemingly relentless spread. So much so, in fact, that they devoted up to 10% of their GDP – money they could ill afford after massive WWII costs – to armed forces well into the 1950s to help check the spread as part of what became known as The Western Alliance.

It was within this context that British military power built up steadily in Malaya and Singapore from soon after their return in late 1945. These were challenging times for the British, and plans to stop things getting out of hand in Malaya and the nearby region soon emerged.

The resultant plans included strategic planning by the UK, Australia and New Zealand under arrangements called ANZAM – Australia, New Zealand and Malayan Area - and requests for help from Australia and New Zealand, mainly for troops and aircraft. No one expected a quick victory; thinking was in years, not months.

In preparation for sustained air operations RAF Air Command Far East became the Far East Air Force (FEAF) on 1 June 1949. Requests for a squadron of RAAF Dakotas and some Lincoln bombers had already been made in early April. Both requests were soon granted.

No 38 Squadron, with eight Dakotas, (some with crews recently returned from Berlin Airlift duty) arrived in Singapore on 19 June 1949 and was based in Changi, an RAF transport base on the north eastern tip of the island. No 1 Squadron, with six Lincolns, arrived a month later on 16 July at Tengah, on the island's north western corner.

The decision on the Lincolns was made the day after the decision to commit No. 77 Squadron Mustangs in Japan to help South Korea fight the invading North Korean communists. This meant that only five years after WWII ended, Australia was at war again in two theatres and the RAAF was active in both.

The Emergency was fought mainly on peninsular Malaya in jungle areas and around Kampongs and regional towns. Air transport was an essential element, providing everything from regular courier services and one-of logistics tasks, to leaflet drops and supply drops to police and troops in remote, often mountainous jungle areas.

The supply drops were especially important. Without them, many remote anti-CT operations could not otherwise be re-supplied, making prolonged effort difficult, if not impossible. Even after the Emergency was declared over, in 1960, some CTs still operated in the mountain spine of the peninsular. The police units hunting them down worked from permanent camps – usually called forts – dependent on air supply drops until well into the 1970s.

It was difficult work for the Dakota crews who had to find small drop zones in mountainous jungle areas, often partly covered by cloud or mist. Good planning and map reading were essential, but circling around in the target area to find the drop zone was still often needed.

The altitude and humidity both reduced performance. To prepare for an engine failure at just the wrong moment, drops were always done downhill, usually along a river that



could be followed down to an airfield near the coast. This worked well, for although engine failures were rare, they did happen, but no aircraft were lost doing supply drops.

No 38 Squadron was also used for many regional tasks in places like Ceylon, Borneo, the Philippines and Japan. The associated flying rate was very high, and in response during November four aircraft and crews were deployed to Iwakuni, Japan, for medevac and other tasks supporting the Korean War.

In April 1951, the remaining four aircraft moved to Kuala Lumpur, closer to the action, where they joined with the RNZAF's No.41 Squadron Bristol Freighters to drop some 200 tonnes of stores per month to forces in nearby mountain jungles. Later that year, they joined with RAF Valettas for supply drops in support of a major operation near the Thai border.

In late 1952, overall RAAF transport capability was overstretched and, with other FEAF aircraft now able to do the tasks, the Malayan Dakotas were withdrawn to Richmond to join 86 Transport Wing. During the emergency they had carried 17 000 passengers and some 2000 tonnes of freight, dropped 800 tonnes of stores and evacuated 326 wounded troops.

The Lincolns of No 1 Squadron flew day and night sorties from Tengah to bomb and strafe CT camps in the jungle or near potential targets like plantations and railways. In almost 4 000 sorties, only 23 confirmed CTs were killed, but the main task, to continually harass and keep the CTs on the move, was much more successful.

Bombing sorties were of two kinds: pinpoint bombing against exposed and specific targets and area bombing of jungle areas containing CT camps. Pinpoint bombing required considerable skill and was used less often when the CTs found out how lethal it was, moved deeper into the jungle and camouflaged un-moveable targets.



RAF Base Changi, 1966. Photo: RAAF

As a result, most sorties did area bombing. This could be frustrating for the crews who usually had no idea of the results of their efforts. One pilot later recalled that he didn't know if he killed any CT's, but he does have unhappy memories of a direct hit on a young elephant not seen until too late.

Analysis, however, indicated it was definitely not all in vain. Because of the bombing, the CTs were kept on the move, forced to leave established camps and food sources and create new ones, and were at times driven into ambushes. Much of this was hard to quantify, but captured and surrendered CTs often testified to the difficulties and fears resulting from the threat of constant air attack.

The Lincolns returned to Australia in July 1958. This effectively saw the end of Lincoln bombers in the RAAF. They were replaced by the Canberra in Australia, and in FEAF on the new Butterworth airbase, near Penang Island.

Tropical operations at times had their challenges for both Dakotas and Lincolns, but Changi and Tengah proved to be as good as could be hoped in the circumstances. Both bases were well equipped, permanent airfields, with good facilities and accommodation.

The tropical weather aside, life on a Singapore RAF base in those times was pleasant, with gracious colonial buildings and seemingly endless numbers of local staff providing cooking, cleaning, laundry, gardening and everything else to ensure the Sahib did not raise any unnecessary sweat.

That said, many Australians quickly tired of military surrounds and stodgy mess food and could often be found in nearby villages eating Nasi Goering or Gulah Ayam in little cafes and Satay sticks from makan carts, washed down with Anchor or Tiger beer.

Girl watching too was popular, for in those days many still wore national dress – Indian saris, Chinese cheongsams and Malay sarong kebayas were commonplace – much to the delight of young Australian males reared in mono-culture, meat-and-three-veg Australia. Indeed, many found that the racial stereotypes they had been reared with were seriously challenged by simply sitting in a street café with a beer watching the local girls walk by.

It was exotic stuff to young Australians in those times. Many held fond memories for life of this simple fare and especially the passing fashion parade - sadly much diminished today with the adoption of western fashions and the abandonment of the form-fitting sarong kebaya (except by Singapore Airlines hostesses) in favour of the much more 'modest' dress today's Malay culture requires.

The emerging threat of Communism in the region was a growing concern to many countries. In response, Britain, Australia, New Zealand, the USA, France, Pakistan and Thailand, on 8 September 1954, signed the Manila Pact. This created SEATO, the South East Asia Treaty Organisation, to strengthen mutual defence against the spread of Communism by insurgencies, direct military force and such.

To further bolster anti-Communist forces, Britain, Australia and New Zealand created a Far Eastern Strategic Reserve force to be stationed in Malaya. On 1 April 1955, Australia

committed some naval units, an infantry battalion, a fighter wing of two squadrons, a bomber squadron and an airfield construction squadron.

To house the aircraft, the existing RAF airfield at Butterworth, near Penang Island was chosen for a complete upgrade and modernisation. An RAF base pre-war, it was used by the Japanese during the war and again by the RAF post-war, as a home for Mosquito and Hornet aircraft, Sycamore and Whirlwind helicopters and Valetta fixed-wing transports. The new base would be supported from Australia by courier services flown by the new C130 aircraft then on order.

When operational, Butterworth would allow good FEAF coverage of the Malay peninsula and Singapore and underpin Australia's air commitment to SEATO. Although not initially intended for the role, it would also provide invaluable maintenance, medevac, logistics, personnel and other support for Australia's Vietnam efforts.

Work on the upgrade began in late 1955. The job fell to the RAAF's No 2 Airfield Construction Squadron (ACS) who created a modern airfield able to accommodate all Commonwealth aircraft, including RAF Vulcans, on regular visits. This was no mean feat on swampy ground in a monsoon area, but the end result has stood the test of time and is still in daily use as an RMAF base.



RAAF Base Butterworth, Malaysia, on the left and Penang Is to the west (on right) 1966. Photo: Lance Halvorson

Butterworth would add two fighter squadrons, a bomber squadron and a Dakota transport flight to a FEAF that had grown steadily during the 1950s. A *Flight Magazine* article from 1957 tells us FEAF forces in Singapore included a transport wing with three RAF squadrons of Valettas and an RNZAF Bristol Freighter squadron; two squadrons of Venom fighters; the last Sunderland Flying boats in the RAF (later replaced by Shackletons); the RAAF Lincolns and numerous smaller aircraft like Austers and Pioneers.

This made Singapore a very busy place. As the air transport hub, Changi ran a transit hotel (Changi Creek) and supported the nearby FEAF HQ 'in handsome red roofed buildings a few miles from Changi airfield, cool and commanding a magnificent view across the straits'. The RAF Jungle Survival School, attended by many RAAF aircrew over the years, was also at Changi.

The Far East Strategic Reserve was building nicely. The fully modernised Butterworth air base was handed over on

1 July 1958, the same day that No 2 Squadron Canberra bombers arrived, and No 3 Squadron Sabres deployed in October and November that year.

The Canberras initially bombed suspected CT sites, usually at medium level (4500-6000 metres), either visually or with guidance from a ground radar site. Like the Lincolns before them, they found the thick jungle made bombing effectiveness hard to determine. Missions became fewer as CT numbers fell and the squadron reverted to low-level bombing practice in 1960.

The Sabres of 77 Squadron arrived the next year, the RAF helicopters and Valettas stayed on and a RAAF maintenance squadron, No 478, was now up and running. All in all, as the 1950s drew to a close, FEAF had become a very respectable regional force.

Butterworth soon became a sought-after RAAF posting. Unlike Singapore where the shorter postings were mostly unaccompanied, Butterworth was usually a full tour of two years or more and included families. From the lowest ranked airman to the Air Commodore OC, married personnel all had very good housing, a servant or servants (depending on rank) and good allowances - and everyone had the benefits of duty free shopping for everything from electronics to cars.

All dependants got full health care from fully equipped facilities on Penang Island or the excellent base hospital on the mainland. Schooling was provided in Commonwealth run schools and dependants had access to facilities like golf courses and swimming pools. In all, it was better than most RAAF people had at home, and this was well understood.

Add to that the exotica of Asia, especially for the majority housed on Penang Island. George Town, the island capital, was then a major port peopled mainly by Chinese, Indian and Malay communities whose dress, customs and wonderful food was all new to most Australians. For the majority, especially married couples with children now looked after by an Amah, it was a memorable experience.

But there was a down side for some. Single accommodation was good but not great, and the singlies mostly lived on the base, with all its restrictions, not on exotic Penang. But the worst problems were for those who had to work 'in the midday sun' or outdoors in the tropical conditions at any time of day.

Sunshades kept the sun out of cockpits and ground air-conditioner carts pumped cool air in before start-up, but Sabre pilots sometimes still had to use parasols when parked on high alert and Canberra cockpits routinely reached well over 50C during start-up and taxi. Maintenance crews forced to work outside without cover also suffered, and at times worked in shifts to cope with the heat and humidity.

But in most ways Butterworth was a success, both socially and operationally. From a FEAF point of view, a generally happy workforce was obviously a plus, but more importantly the Butterworth squadrons were soon up to speed and able to operate proficiently in the challenging environment.

In 1960 the Emergency was officially declared over, but that was only true in populated areas. CTs were still being hunted down in the mountains and along the Thai border



until well into the 1970s, but by the early 1960s Butterworth and surrounds were much safer. Strong security measures were still in place, but local incidents were rare.

Unfortunately, just as Malaya and Singapore were calming down, the neighbourhood was warming up. The Communists were gaining ground in Vietnam and Laos had fallen into civil war in the late 1950s. One side, the communist Pathet Lao, was backed by the Soviet Union and North Vietnam. Significantly, in late 1959 North Vietnam communists decided to switch from political to military action in South Vietnam and began to do so.

In 1960, major riots in the Laotian capital, Vientiane, broke out, raising concerns in the region that communism was strengthening its hold there and might spread further. Neighbouring Thailand in particular was worried and discussed this concern via SEATO. A number of contingency plans, including the deployment of RAAF Sabres and transport aircraft to Thailand if need be, were discussed.

In 1961 President Eisenhower expressed concern that should Laos fall, its free neighbours – Cambodia, South Vietnam and possibly Thailand and Burma – could fall like ‘a row of dominoes’. Never a war monger, he nevertheless went so far as to say that if the US sent ground troops into Laos they should be fully supported, including, in the extreme, by the use of tactical nuclear weapons.

Thankfully, it never came to that. But at the time the potential for serious developments in Laos and Vietnam was obvious to those ‘in the know’ – mostly government people. Communications were much poorer then, with no internet, satellite TV, 24/7 news etc. Most Australians knew nothing about happenings in these ‘faraway countries with strange sounding names’.

But the Australian government knew, and was worried. Following consultation with the Thai government, they decided to send a squadron of Sabres to Ubon, in South East Thailand near the border with Laos. From Ubon, the Sabres could help resist ground force intrusions from Laos and air attacks from Vietnam if need be.

The decision proved to be the easy bit. Malaysia was not a member of SEATO, wished to stay clear of regional disputes and did not support combat air operations from its bases into neighbouring countries.



79 Squadron Sabres and USAF F-4D Phantoms, Ubon Air Base, 1965. *Photo: Lance Halvorson*

Commonwealth Strategic Reserve combat aircraft could go to Thailand for SEATO training, but only via Singapore where they had to spend a week before going on. Transport aircraft, on the other hand, could fly troops to Thailand if fighting broke out.

No 79 Squadron was formed from eight Sabres in Butterworth and on 2 June 1962 took off for Ubon via Singapore. It remained in Ubon until August 1968. By then, the anxious Thais had allowed the USAF to form six major bases in their country, stocked with hundreds of combat aircraft and more USAF personnel than in Vietnam at the height of the war.

SEATO exercises in Thailand were also a regular event during the 1960s. FEAF was a major contributor, at times with combat aircraft, but more often with transport aircraft, flying troops and planning staff around and reassuring the worried Thais that any trouble from across its borders could, and would, get a rapid response from their FEAF allies.

Logistics support to Ubon via RAAF C130s and occasional Butterworth Dakotas was routine throughout 79 Squadron's time there - although sometimes routed via Bangkok to preserve diplomatic niceties. Interesting times indeed, made more interesting by Australia's reaction to Communist gains in Vietnam that eventually saw nearly 50 000 Australians serve there.

The Commitment began in 1961-2 with army instructors and then grew as follows (with a RAAF emphasis):

1964: Caribous – some direct from Canada to form a training flight, become known as Wallaby Airlines and later become 35 squadron.

1965: Combat forces.

1966: Task Force, including 9 Squadron helicopters at Vung Tau to join the Caribous already there.

1967: 2 Squadron Canberras to Phan Rang from Butterworth.

Although not part of FEAF, the RAAF in Vietnam was well supported by use of FEAF facilities, much to the benefit of other Australian forces as well. C130s and Dakotas flew regularly from Butterworth to Vietnam, carrying cargo both ways and personnel back and forth on posting and leave.

The personnel often included 2 Squadron maintenance people and spares supporting a Canberra being ferried to Butterworth for intermediate level maintenance at 478 Maintenance squadron, or returning to Vietnam when the servicing was complete.

Such activities are well remembered, but less so is the vital work done at Butterworth by No 4 RAAF Hospital in readying medevac patients for the long flight back to Australia. Most patients came from a front-line hospital in Vung Tau where they were prepared for the flight to Butterworth, usually by C130.

The recently acquired C130E could fly direct Butterworth to Australia. Medevacs could now be flown in a single flight, albeit a long one. To better care for serious cases on these long flights, the C130E could be fitted with a special intensive care capsule made by the aircraft depot at Richmond.

Specialist staff at 4 RAAF Hospital readied patients who needed to travel in the capsule and sometimes flew home with them. It was pioneering stuff in the history of medevacs - and no doubt well remembered by those who made it home thanks to 4 RAAF hospital staff and the capsule.

But well before these pioneering flights took place something memorable happened to FEAF. It was at once bizarre and serious, and today is remembered as Confrontation with Indonesia - or as known by many, *Konfrontasi Indonesia*.

RAAF forces involved included the fighter and bomber squadrons already in Butterworth and the formation of No 5 Squadron with four Iroquois helicopters from No 9 Squadron in Canberra.

We know what happened, but just why it happened is a bit obscure. Some facts, however, are clear. What was then Malaya (essentially the peninsula states), Singapore and the North Borneo states now known as Sarawak and Sabah all agreed to unite as a new country, the Federation of Malaysia.

This threatened no one, but some neighbours were unhappy. The Philippines objected, citing long-past sovereignty over a part of Sabah and the nearby Sulu Sea, but took no aggressive action. Indonesia was less reserved. Some senior figures there described the plan as 'neo-colonialism' and their opposition to it as 'Confrontation'.

The thinking behind the declaration of Malaysia as a new form of colonialism is hard to understand – in fact, it seemed the exact opposite: a transfer of power from the colonial ruler to a new self-governing state. Malaysians today seem to agree and celebrate the occasion each year as Merdeka, or Freedom Day.

But it doesn't matter what others thought. What matters is that some powerful Indonesians saw it otherwise and were



Sabres on standby at Butterworth, 1965. Photo: Dave Rogers

strong enough to influence events. A good account of this confusing time can be found in Alan Stephen's book, 'Going Solo', in which he wrote:

*'Konfrontasi was an untidy policy directed by Indonesia's mercurial President Sukarno against the proposed Federation of Malaysia...Sukarno's aggression appears to have been motivated by a combination of political opportunism and genuine anti-colonial sentiment. Some elements of the political forces he had to balance to retain power in Indonesia were strongly opposed to the Federation.'*

Knowing their armed forces had only limited capability, Indonesia avoided an all-out war and relied instead on political and diplomatic manoeuvres, and small scale military action to keep tensions high.

Alan Stephens tells us that these actions: *'included parachute drops near Johore; small unit raids and armed skirmishes throughout the new state, but especially Borneo; the incitement of riots and civil disobedience and deliberate incursions of Malaysian airspace.'*



60SQN RAF Javelins (on left) and 77SQN Sabres, Butterworth, 1965. Photo: Lance Halvorson



The incursions into Malaysian airspace were a big worry for FEAF, especially the air defence forces. Just what they might lead to was impossible to tell. FEAF HQ was taking no chances and in July 1963 ordered air defence coverage to be increased to 24 hours a day. Bob Richardson was a Sabre pilot on 77 Squadron at the time and later wrote:

*In October two Sabres armed with Sidewinder missiles and 30mm cannon were placed on 5 minute scramble alert from dawn to dusk from operational readiness pads at either end of the Butterworth runway. Two seven hour shifts were used, changing at noon.*

Rules of Engagement required clearance from FEAF HQ before any shots were fired, but no intruders arrived and clearance was never needed. If the Indonesian aim was to create considerable reaction at Butterworth without firing a shot, they had achieved it.

They then upped the ante in early 1964 by restricting RAAF flights over Indonesian territory. This forced the regular Australia to Malaysia C130 courier flights to go via Cocos Is and around the tip of Sumatra, adding further to the RAAF effort and cost.

The RAF had twin-seat Javelin night fighters in Singapore and Butterworth, and Hunter ground attack aircraft that could quickly take on an air defence role.

In combination with the Sabres, this meant FEAF was well placed at both ends of the peninsular to counter any Indonesian air threat. But for months little happened, and Bob Richardson recalls that:

*For the first 12 months or so RAAF involvement was light and sporadic, being confined to what we pilots felt was rather a nuisance of being rostered on regular pre-dawn or afternoon shifts on a seven day per week basis. Those of us who lived on Penang Island had to spend quite a few nights in the Butterworth mess....*

*Several RAF Vulcan bombers were also deployed to Butterworth...and were surrounded by special RAF guards and brightly lit at night, leading us to speculate about some very big armament indeed.*

Events came to a head on 2 September 1964, at night, when three Indonesian C130 aircraft tried to drop paratroops into Johore state, just north of Singapore. The drop was something of a shambles, with some troops dropped in the wrong place and one aircraft believed to crash en-route, but this was the most aggressive act to date and a clear indicator of intent.

Bob Richardson remembers:

*We pilots were later told that a RAAF Javelin ...had shot down an Indonesian C130 that night, that a complete security lid had been put on this incident, and that the pilot concerned had promptly been returned to the UK. In hindsight...it was wise to restrict public knowledge of it... to avoid escalation into a much wider conflict.*

A state of emergency was declared in Singapore at 2200 hours, 2 September 1964, and the Butterworth Sabre pilots were all recalled to duty asap. The aircraft were serviced, armed and ready to go at dawn. Nothing happened, but

a few days later intelligence advised of a high likelihood of an attack on the base by Badger bombers from Medan, in nearby Sumatra.

A state of heightened alert was declared. Canberra navigator Lance Halvorson later wrote (*Wings, Spring 2016*):

*2 SQN Canberras were 'bombed up' with 6 x 1000lb bombs on numerous occasions ...for attacks on the Indonesian Air Base at Medan....Low level bombing tactics were to be employed with multi-aircraft co-ordinated strikes with 30 seconds between each aircraft over the target.*

No bombing missions against Medan were flown, but a good deal of effort was put into preparing to do so if need be. The Sabre force, on the other hand, did fly to defend the base. But they did so without radar detection and guidance where it was most needed.

The air defence radar was then on the mainland, not on top of Penang Hill as in later years. This created a large radar shadow area to the west of Penang Island, the very area the Sabres needed to operate in to intercept bombers from Medan. The need to switch off the Butterworth non-direction beacon, that could otherwise have been used by Sabre pilots to locate the airfield, added to the difficulties.

Still, something had to be done, and a system of low-level combat air patrols was developed. Bob Richardson recalls that:

*This involved several pairs of Sabres with external tanks being vectored about 50 miles seaward of Butterworth before first light to patrol across likely Badger attack routes. This was pretty hair raising, because the weather at the time was bad, with frequent heavy showers and thunderstorms....We had to fly out to sea at low altitude in pitch darkness in pairs to a given point, separate ourselves by 1500 feet vertically, then fly timed legs back and forth...*

No one had trained for such work, nor had they trained for similar challenges, yet to come, in North Borneo a year later. Soon after the Badger scare - that happily came to nothing - the Sabre force contributed, almost full time, to the air defence of Singapore as well as Butterworth.

Meanwhile, the 5 Squadron helicopters had been busy. Originally sent to Butterworth to support army activities against the CTs, they now flew army units to coastal areas where Indonesians were thought to have landed, or might land.

This presented few new dangers – flying helicopters in hilly tropical areas is always a challenge – but the unexpected was always on the cards. Laddie Hindley, then CO of 5 Squadron, describes one particularly bizarre event in his biography, *Hostage to Fate*:

*One task took us to Singapore to take 24 Singaporean/Malaysian troops to a small island nearby where Indonesian forces were thought to have landed. We dropped them in a small grassed area and arranged to return next day to pick them up. What happened next was something of a tragedy.*

*Fifteen Indonesian troops were indeed on the island. They waited until the helicopter had left and then challenged the Malaysian troops to throw down their arms and surrender.*

*The Malaysian NCO in charge responded unwisely, shouting for his troops to open fire despite being out in the open with the enemy hidden in the jungle. Seven Malaysians were killed.*

*Things then took a bizarre turn. Realising that they had no way of getting off the island, and that if Malaysian radio calls were not sent back to Singapore more troops would arrive, the Indonesians surrendered. News of the surrender was radioed back to Singapore and we went back the same day and flew the Malaysians and Indonesians back to Singapore.*

In many ways this incident demonstrates the confused nature of Confrontation and the lack of commitment some Indonesians, at least, had to the whole idea. This confusion is further demonstrated by the fact that diplomatic and trade ties with Australia continued throughout Confrontation.

Australian attendance at Indonesian military staff colleges also continued - because, as an Australian Army officer attendee in those times told me: 'The Indonesians understood that we would wish to support our friends, that Confrontation would end one day, while the geography that made us neighbours would last forever.'

But that said, Confrontation was still on. The mixed messages from Indonesia and strange happenings on the ground near Singapore didn't affect Butterworth's Sabre force. For them, high-threat responses, like daylight combat air patrols and scramble alerts were still required.

For these activities, the pilot was either in the aircraft ready to go, or close by ready to jump into a combat ready machine in just minutes. The scramble alerts were very demanding on pilots who had to wear g-suits and life jackets during high states of readiness, and often could last only an hour at most until serious heat-stress set in.

Again, despite the potential for serious trouble, none eventuated. Then, in 26 October 1965, a detachment of six 77 Squadron Sabres was sent to Labuan, North Borneo, to replace an RAF Hunter squadron providing air defence against Indonesian forces in Kalimantan posing a potential threat to Sarawak and Sabah.



Labuan Airfield, 1965. Photo: Lance Halvorson

Intelligence reported that Indonesian Mustangs were harassing UK and Australian army elements in the border regions. The Sabres deployed via Singapore and on arrival Bob Richardson and the other pilots found:

*Our area of operations along the Kalimantan border was 'tiger country' by anyone's definition. There were no reliable maps...and we were also required to patrol southward some 100 miles along the Sarawak border. This area is mountainous and covered in the tallest and densest rainforest in the world.*

The Hunter pilots gave them some hand-drawn maps, which they constantly updated. Patrols were done with drop-tanks fitted, at only around 180 knots, 200 to 500 feet above the jungle canopy. This gave them little time to react to an enemy or an emergency - but fortunately, despite all the things that could go seriously wrong, nothing did and they all survived.

Although they didn't know it, Confrontation was almost over. A failed coup by local Communists led to a regime change, the killing of many thousands of Indonesian communists, a rapid fall-off in Indonesian activity and the official end to Confrontation in August 1966. Transit by RAAF aircraft over Indonesia was again approved and readiness states in Butterworth and Singapore were relaxed.

The FEAF order of battle soon after changed significantly. In Singapore the Hunters and Javelins were replaced by super-fast Lightnings. In Butterworth, the 2 Squadron Canberras went to Phan Rang, Vietnam, and two squadrons of Mirages, Nos 3 and 75, replaced the Sabres.



75 SQN Sabres and escort Canberra of 1(B) OCU, at RAF Tengah, 1967. Photo: Bob Howe

In 1971, as part of a UK policy to withdraw all forces stationed 'East of Suez', FEAF ceased to exist. In its time it certainly made a difference, providing air support during the Emergency, a major contribution to SEATO and enough combat air power in Singapore and Butterworth to deter the Indonesians behind Confrontation from doing even sillier things.

Gone but not forgotten, it's legacy lived on - most importantly in the FPDA, the Five Power Defence Arrangements, under which UK aircraft returned regularly for exercises and RAAF aircraft still deploy today; by a continued RAAF fighter presence at Butterworth, well after it became an RMAF base in 1970; and IADS, the Integrated Air Defence System staffed mainly by Australia, Malaysia and Singapore.

It also lives on in the memories of all who served it during the turbulent and worrying Cold War times - times now long gone thanks in part to FEAF and its contribution to the fight against Communism, and with it the much better world to Australia's near north today.

**By Doug Hurst**



## AIRBUS HELICOPTERS REQUIREMENT? THINK OF US FIRST



**HELICOPTER SALES  
PARTS & COMPONENTS  
ENGINE PARTS/MODULES  
REFURBISHMENTS  
HEAVY MAINTENANCE**

**AIRBUS HELICOPTER OWNERS IN AUSTRALIA TRUST *PACIFIC CROWN*  
HELICOPTERS TO DELIVER A MACHINE THAT STANDS OUT FROM THEIR  
COMPETITORS EVERY YEAR. Now 14 YEARS AND COUNTING...**

**SALES@PACIFICCROWN.COM | +61 7 5438 1299 | PACIFICCROWN.COM**

**FDC/aerofilter**



**TECH-TOOL PLASTICS**  
EXCELLENCE. ELEVATED.



**GARMIN**  
AUTHORIZED RESELLER



**BendixKing**  
by Honeywell

**MidContinent**  
INSTRUMENTS+AVIONICS

**Flightcell**  
INTERNATIONAL



We asked Aviation OEM's & MRO's around the world for their key concerns:

Increased efficiency  
Improved safety  
Reduced waste  
Eliminate re-working



In addressing these needs we manufactured wipers to such high standards, some are compliant with Airbus AMS 3819C & Boeing BMS 15-5F servicing requirements.

**FOCUS ON: JACKSON SAFETY\***  
**G29 Solvent Protection Gloves**

Neoprene nitrile gloves protecting hands against harsh solvents like Skydrol. Silicone and powder free gloves, 0.23mm thick x 295mm long for extra wrist protection. Chemical splash protection.

Improving worker comfort and productivity.



**USED IN CONJUNCTION WITH: KIMTECH\*** Aviation C4  
**Cleaning Wipers**

Tough general purpose wiper ideal for demanding cleaning tasks like solvent wiping, removal of debris after paint stripping, sealant removal.

Silicone and lint free to eliminate shedding.



For more information or free samples call Customer Care toll free on 1800 647 994



# acumen insurance



## Need Great Value Insurance For Your UAV?

- Quadcopters ■ Hexacopters ■ Octocopters
- Any Drone/UAV ■ Light Aircraft

---

**FOR A FREE QUOTE EMAIL**  
**[sean@acumeninsurance.com.au](mailto:sean@acumeninsurance.com.au)**  
**call US TODAY +61 2 8209 3482**  
**[acumeninsurance.com.au](http://acumeninsurance.com.au)**

General Advice Warning: The information provided is to be regarded as general advice. We recommend that you consider the suitability of this general advice, in respect of your objectives, financial situation and needs before acting on it. You should obtain and consider the relevant product disclosure statement before making any decision to purchase this financial product.

Acumen Insurance Pty Ltd ABN 40607665207 AFSL 481393



**INVENTORY  
CONTROL  
SYSTEMS**



**CRIBMASTER**

## ***Advanced RFID Tool Control***

### *Minimizing FOD Risks*

Control and visibility over your assets, tooling, calibrated tooling and consumables.

- Minimize FOD risk.
- Increase accountability & compliance.
- Track and trace tool use.
- 24/7 Automated access tooling, assets and consumable items.
- Reduction in usage of consumables and safety items.
- Automated replenishment.



CribMaster, extensive industrial vending and tool control solutions providing you:



#### **FOD Control**

CribMaster provides full visibility of all tooling, calibrated equipment, and other assets using advanced RFID tool control solutions to track every tool, reduce tool search time, and increase safety overall.



#### **Reduced Operational Costs**

Full visibility of MRO consumables achieve reductions of usage of MRO consumables ranging from 25-40%.



#### **Increased Productivity**

Implementation of CribMaster will automate access to tooling and other stock items, leading to increased worker productivity.



#### **Improved Compliance**

CribMaster gives you the ability to meet your compliance requirements, protect the well-being of each employee, and the quality of every product.



*"Inventory Control Solutions....Made Simple"*

For over two decades CribMaster has been a trusted Partner in delivering world-class inventory and asset management solutions. By providing best in class intelligent inventory and asset management solutions, we help our customers optimize their operations and exceed their operational objectives.

Contact ICS today for more information about CribMaster Inventory Control systems on **1300 CRIBMASTER (1300 274 262)** or visit our website **[www.icsys.com.au](http://www.icsys.com.au)**



# RAAF and the Far East Air Force

The RAF Far East Air Force (FEAF) evolved at the end of WW2 to reach its peak in the 1950s - a large force with strategic assets possibly greater than those of the RAAF.

The C-in-C FEAF was always a RAF Air Marshal. HQFEAF occupied two large three-storey buildings at Royal Air Force Base Singapore, based at Changi. HQFEAF had its own Officers Club, Fairy Point, on a hill with the Sailing Club on one side, and the Swimming Club on the other. The base housed 3000 personnel, No 4 RAF Hospital, No 14 Squadron (RNZAF), No 38 Squadron RAAF and a number of RAF transport squadrons. The base had all types of sporting facilities including a golf course, sailing club, swimming pools. A second Officers Mess at Temple Hill, separate to the Fairy Point Officers Club served RAF Base Singapore; the Changi Creek Transit Hotel was established for transit crews. The well-known Changi Beach, NAAFI and the neighbourly Changi Village, a delightful strip of shopping paradise, were close by.



One of the two HQ FEAF buildings, following refurbishment, Changi.<sup>1</sup> Photo: *RememberingSingapore* web site

A number of RAAF officers were posted to HQFEAF over the years from the late 1950s, through the 1960s. Some occupied junior and mid-level staff positions and others in more senior roles; all rotating with RAF officers. The most senior RAAF-occupied post in HQFEAF was that of Senior Air Staff Officer (SASO) who reported to the C-in-C FEAF. RAAF officers who held the SASO position were AVMs Hannah (1956-59), Candy (1959-62), A/AVM Gibson (1964-65), AVM Robey (1970-71).

Air Vice- Marshal F. Scherger assumed appointment as Air Officer Commanding (AOC) RAF Air Headquarters Malaya on 1 Jan 53. The appointment was the first British command given to an Australian air officer since the end of World War II. The mix of RAF and RAAF squadrons under his command was then engaged in anti-terrorist operations during the Malayan Emergency. The AOC was responsible for directing those operations under the overall authority

<sup>1</sup> After the withdrawal of the British in 1971, the building was briefly utilised as a venue of retreats and seminars by private companies and organisations. It was later taken back by the SAF to be their command headquarters. Now popularly known as the old Command HQ or former Commando Barracks, the dominant building was given the conservation status in 2002. The premises is now part of a hotel development at Fairy Point.

of the Commander-in- Chief Far East Air Force (whose command ranged from the Indian Ocean to Hong Kong).

AVM Scherger quickly decided that his Air Headquarters should not be located in Singapore but alongside the Army's Director of Operations, General Sir Gerald Templer, in Kuala Lumpur. When Scherger's term ended after two years, the AOC post alternated between RAF and RAAF officers. Renamed No 224 Group in 1957-58<sup>2</sup>, the HQ relocated to Seletar, Singapore. Three more Australians were appointed from 1957 until the position was terminated in 1968 - AVM Hancock, AVM Headlam and AVM Eaton. Following the downgrading of AOC No 224 Group, RAAF Chiefs of Staff were AVMs Eaton (68-69) and Hennock (69-70).

The Group Captain Ops positions in HQ No 224 Group were held by RAAF officers, Douglas and Newstead, again on rotation. There were also many more RAAF officers and other ranks posted in to ADC/PA positions and administrative jobs.

The main fighter and strike squadrons were based at Tengah on the north-west of Singapore. RAF elements were also at Hong Kong (Kai Tak, Little Sai Wan, Sek Kong), Kuantan and Labuan, all under HQFEAF command. HQ FEAF was responsible for the strategic air route between Europe and the Far East. With the loss of its transit bases in the former British colonies in the 1950s on the Indian Sub-continent, HQ FEAF developed RAF Gan in the Maldiv Islands, in the Addu Atoll, 42 n miles south of the equator.

Gan was a major staging post for RAF aircraft transiting to the Far East and Australia. It handled all RAF aircraft, including V-Force bombers and strategic air transport. Fuel was provided by a Royal Fleet auxiliary (RFA) permanently moored at the atoll. During the Indo-Pakistan War in 1965, British civilair also transited through Gan; eg, British Eagle. British atomic tests at Monte Bello and Maralinga, as well as long range weapons testing at Woomera, relied heavily on this secure transport route. RAF Gan transferred to a civil ownership in the early 70s, with the RAF transferring its transit requirements to Diego Garcia, 400 n miles (740 km south).

## Operations in 224 Group

RAF Canberras from England and Europe deployed to Singapore and Malaysia for exercises and during Confrontation. Early in May 1965, fifteen Canberra B(I) 8 aircraft of No 16 Squadron deployed from Laarbruch in Germany to Tengah and Kuantan. The squadron returned to Germany in June 1966 via RAF Gan, and as they had no HF radio, with 'radio escorts' provided by 3 x 2SQN RAAF, 2 x 45SQN RAF and 2 x 14 SQN RNZAF Canberras. All the escort Canberras had HF radio to receive destination weather reports for each 16 Squadron Flight Leaders (in flights of three each, five minutes apart) at the destination, Masirah. Following receipt of good weather, the 16SQN Canberras continued to Bahrain and the escorting Canberras

<sup>2</sup> Alan Stephens, *Going Solo*, AGPS 1995



RAF, RAAF and RNZAF Canberras at Gan Is, June 1965.

*Photo: Lance Halvorson*

turned back to RAF Gan after passing the weather report or on reaching their Point of Safe Return (PSR) for Gan Is.

With the commitment of Australian forces to the Far East Strategic Reserve (FESR) on 1 April 1955, two RAAF fighter squadrons (3 & 77 SQNs), and a bomber squadron (2SQN) were to be based at Butterworth, near Penang. However, before the squadrons deployed the airstrip had to be upgraded. No 2 ACS re-built Butterworth to a standard suitable for modern jet aircraft in the Commonwealth and Allied Air Forces. A Mobile Control & Reporting Unit (114MCRU) and a helicopter squadron (5SQN) were to join FESR in 1959 and 1963.

In his book, *Going Solo*, Alan Stephens gives a detailed history of Commonwealth Air Forces in Malaysia and Singapore activities post World War II, and is an excellent read. The fighter and bomber squadrons were involved in many exercises and operations and postings to these units were career highlights for many RAAF members, not just in flying but in technical support, logistics, catering, medical, administration and other support positions.

A posting to No 2 Squadron at Butterworth was sought after by many from 82 Wing at Amberley, both air and ground crews. With the Canberra's long range, flights to many locations in SE Asia were common. Lone Ranger flights to RAF Kai Tak, Hong Kong, were particularly attractive as were the flights to Australia and on to Ohakea Base, New Zealand. The panniers in the large bomb bay were often full with parts and essential items for safety of flight.

The squadron maintained an operational state of readiness and operated with allied air forces in Singapore, India, and



View from the lounge room of the author's house in Tanjong Bungah. Sep 1966. *Photo: Lance Halvorson*



2SQN Canberras at RAF Kai Tak on exercise, February 1967.

*Photo: Frank Burt*

Philippines. Various deployments were conducted for SEATO and other air defence exercises: Exercises "Air Boon Choo" to Ubon, Thailand, Joss Stick and Cope Thunder exercises are examples. 2SQN operated with Royal Navy Venoms, RAF Hunters and B2 Canberras (45SQN) and RNZAF B12 Canberras (14SQN).



RAF, RNZAF and RAAF Canberras overfly Singapore on Battle of Britain Commemoration, 17 Sep 1965. *Photo: Lance Halvorson*

2 Squadron crews ferried aircraft to and from Australia for major servicing and on occasions, for anti-corrosion treatment at Parafield, SA. Because of Indonesian Confrontation, aircraft tracked via Nicobar Is, NW of Subang on the tip of Sumatra. On the odd occasion, one or two crews 'cut the corner' and flew within 20n miles of Subang, enroute to Cocos Is.



A 2SQN Canberra refueling at Cocos Is, 1966. *Photo: Peter Ekins*

RAAF Base Butterworth was handed over to the Malaysian Government on 31 March 1970 and following the British Government's decision to withdraw its forces east of Suez by 1971, the Far East Air Force was disbanded the same year. An 'integrated air defence system' was to take its place.

**Lance Halvorson**

With acknowledgment :

Alan Stephens, *Going Solo*. John & Adrienne Whitehead





- At InFlight Graphics...we've got it all covered!***



**www.inflightgraphics.com.au**



**Airport performance delivered,  
from approach to departure**

**ADB**   
**SAFEGATE**



# Ardennes Pilgrimage

By Peter Ryan

On 22 December 1944 at 1515 hours, heavily laden Halifax NP975 of 466 SQN RAAF lumbered into the air from RAF Driffield in Yorkshire. The target for that night was the vital German transport hub, Bingen in the Rhineland.

Crewed by six Australians and one Englishman, the aircraft struck a setback when it suffered an engine failure on the run to the target. Flight engineer FSGT Steve Chard feathered the propeller and NP975 continued at reduced airspeed to successfully attack the target. NP975 then turned for home with the crew looking forward to the traditional post-operation treat of bacon and eggs after landing back at base.



A painting of a Halifax NP975, with the No 1 engine feathered, before the attack. *Painting by Mark Edwards*

Neither the aircraft nor the crew made it home to Driffield that night. As the Halifax straggled homeward at 160kts and 12,000ft over the Ardennes, Luftwaffe night fighter pilot Richard Launer made contact with the straggler and attacked from beneath with a short burst from his "Schräge-Musik" upward firing 20mm cannon. That burst caused severe damage to the Halifax's control surfaces and systems. The aircraft captain, RAAF FLGOFF Ron Feilberg, held the badly battle damaged aircraft steady while his crew obeyed his order to bale out. All six crew were made PoW's and survived the war.

American troops undertaking the Ardennes "Battle of the Bulge" battlefield clearance in late February 1945 discovered the body of FLGOFF Feilberg in NP975's wrecked fuselage at the foot of a large feature in the forest. The thaw had come



The Hotton War Cemetery.

to that area bounded by Germany, Belgium and Luxembourg. Members of an American casualty unit then interred FLGOFF Feilberg, along with British and GI bodies recovered from the WWII battlefield in the US temporary cemetery at Foy in Belgium.

After determining FLGOFF Feilberg's remains rightly belonged to the British and Commonwealth authorities, he was disinterred and reburied at Bure before finally being laid to rest in the Commonwealth War Graves cemetery at Hotton.

Sixty nine years after that fatal flight, family members of some of the crew made the pilgrimage to Europe to pay their respects to FLGOFF Feilberg. Led by the daughter of NP975's navigator, FLTLT Len Walker DFC, Tiana Walker-Adair, FLGOFF Feilberg's niece, Robynne Mitchell and her partner, ACT division member Pete Ryan, travelled to the Ardennes. There they were guided by local war historian and US Army Gulf War I Veteran, Doug Mitchell (no relation) to the crash site.

Mr Mitchell had, after being contacted by Ms Walker-Adair, painstakingly researched all Bomber Command crash sites in the area until he, with the help of the local villagers, positively identified the NP975 crash site. The aircraft had come to rest near the foot of a heavily wooded and very steep slope close to the village of Winterspelt. The area is broadly in the small loop where modern day Germany, Luxembourg and Belgium meet.



Wreath at NP975 crash site.

While the area had been clear felled of the timber of 1944, the regrowth trees were typical of those of the WWII era.

Under the supervision of Roland Gaul, Military Historian and Curator of the National Museum of Military History, Diekirch, Luxembourg, the pilgrimage group discovered in the stubby grass and topsoil on the forest floor a number of small pieces of aircraft debris. These included riveted fuselage skin, rubber tubing, perspex fragments, instrument parts and panelling. When German authorities cleared the area of the majority of wreckage in the 1970s such material from this exact site was verified as being from a Halifax III aircraft and subsequent research shows the visited crash site is definitely that of NP975.

With the crash site positively identified, the pilgrimage group, together with Roland Gaul, paid their respects to FLGOFF Feilberg and all those lost on Bomber Command operations in WWII in the form of a small commemorative service deep in the Ardennes. As part of that service, Robynne Mitchell delivered an emotional tribute to her uncle and his crew. Robynne then placed a Roundel wreath at the base of a tree close to where her uncle's body was recovered, along with a photograph of the crew and two Australian flags. Pete Ryan then recited the "Ode", the party observed a minute's silence before departing the scene to complete the final elements of this pilgrimage.

Following the Battle of the Bulge, US Forces turned a Belgian farmer's field into the US temporary cemetery at Foy. After the remains were reinterred at official War Cemeteries this peaceful Foy site is once again a Belgian farmer's field. The party travelled to Foy and spent a few moments contemplating the sadness of events of years past. While the site is clearly marked for its WWII use, there is no evidence of any graves today.



The site of the US Cemetery, Foy.

The dead are now resting in official cemeteries that dot the Belgian landscape. Hotton is one such site. FLGOFF Ronald Frederick Feilberg now rests in eternal peace at Hotton War Cemetery. While his niece and her cousin had visited his gravesite in 2001, this 2013 Ardennes pilgrimage was the culmination of Robynne Mitchell's extensive research into her late uncle's RAAF service and eventual death on the night of 22/23 December 1944.



FLGOFF Feilberg's grave, Hotton War Cemetery.

# Iconic Vietnam Veteran Headed for Museum

A plan conceived by RAAF Veterans has seen a Vietnam War icon restored to its wartime configuration and fittingly displayed at the Caloundra, Queensland RSL.

Iroquois (Huey) helicopter A2-1022 was discovered in a state of disrepair in a park at Nyngan NSW by former members of the unit that operated the chopper in Vietnam, 9 Squadron, RAAF.

A2-1022 holds a special place in Australia's Vietnam war history as one of the two 9SQN choppers that flew the critical ammunition resupply into the beleaguered troops in the Battle of Long Tan, 18Aug1966.



A2-1022 as originally discovered at Nyngan by a 9SQN RAAF Veteran.

Long Tan Veterans Laurie Drinkwater and Bob Buick stated recently that but for that ammunition resupply by the two aircraft crewed that August 1966 evening by Cliff Dohle, Bruce Lane, Frank Riley, Bob Grandin, Dave Collins, George Stirling, Bill Harrington and Brian Hill of 9 SQN, none of D Company 6<sup>th</sup> Battalion Royal Australian Regiment would be alive today.

After its retirement from its long and distinguished operational life, A2-1022 was allocated by Department of Defence to the Bogan Shire to commemorate the 1990 helicopter flood relief operations.

Restoration group spokesperson Bob McInnes told **Wings** that when told of the state of the chopper in Nyngan, a plan was formed by a group of mainly Vietnam Veterans members of the Caloundra RSL Sub-Branch to restore the relic to as near as possible as it was in Vietnam and relocate it to the RSL Commemorative Garden.



# G550

MAX SPEED: MACH 0.885 · MAX RANGE: 12,501 KM · MAX ALTITUDE: 15,545 M



## MISSION READY

More Gulfstream aircraft perform government and military service than any other large-cabin business jets in the world. Though the missions vary, the requirements are resolute: unsurpassed performance and proven reliability. An efficient business-jet platform means crews fly high and fast for extended periods. Whatever your mission, Gulfstream delivers.

For more information, visit [gulfstreamg550.com](http://gulfstreamg550.com).

+61 3 9863 9550 | GARY SVENSEN [gsvensen@smsaircraft.com](mailto:gsvensen@smsaircraft.com) | Gulfstream Authorized Sales Representative

+65 6572 7777 | JASON AKOVENKO [jason.akovenko@gulfstream.com](mailto:jason.akovenko@gulfstream.com) | Regional Vice President

Theoretical max range is based on cruise at Mach 0.80 with eight passengers, four crew and NBAA IFR fuel reserves.  
Actual range will be affected by ATC routing, operating speed, weather, outfitting options and other factors.

**Gulfstream**<sup>™</sup>  
A GENERAL DYNAMICS COMPANY



Replacement Huey at Nyngan.

"We had a huge task ahead of us as the chopper had deteriorated badly. Some of the perspex panels were broken and replaced with iron sheeting. Critical parts were missing or incorrect for the aircraft model and some vandals had

attempted to set a fire in the cabin and the paintwork had suffered badly from the weather," Mr McInnes said.

A condition of the release of the historic chopper to the Caloundra RSL group by the Bogan Shire Council was the supply of a suitably depicted replacement aircraft. "That was the first major hurdle, and we fortuitously discovered a wrecked aircraft McDermott Aviation of Cooroy was prepared to donate once they understood the significance of the project. Our team arranged transport of the wreck to Caloundra airport in August 2010 and work began," said Mr McInnes.

Using largely donated and sometimes parts and equipment scrounged in the best traditions of the Services, a team of volunteer ex-service tradesmen and assistants, including RAAF Cadets of 223 Squadron logged more than 2,000 man hours restoring the wreck to a condition suitable for display at Nyngan in exchange for the original A2-1022.

Over the weekend 21/22 May 2011 the repaired and newly painted replacement aircraft was then transported to Nyngan and installed, hopefully above the vandals, on a pole in the same park as the Vietnam Huey originally sat.

That Vietnam Huey was then transported to Caloundra to be restored and preserved for display at the Caloundra RSL War Museum.

Then the aircraft underwent major refurbishment and, compliments of Dupont who donated the paint and Caloundra Heli-Centre who made their spray paint booth available, was finally painted in authentic Vietnam livery, ready for display.

"The installation and dedication of A2-1022 at the Museum was a red letter day for all those involved with this massive project as well as those who were associated with Huey operations in Vietnam, Australia or elsewhere squadron aircraft operated," stated Mr McInnes.

"Credit must go to those volunteers on the restoration and reconstruction, especially (the now late) Robbie Gee who acted as technical advisor. Robbie was also a key figure in the restoration of Huey A2-1019 for the sound and light display that is a highlight of Vietnam Gallery at the Australian War Memorial," added Mr McInnes. (The author was able to interview Rob Gee for this article, prior to his passing.)

Rob Gee took up the story, commenting that the aircraft is now depicted pretty much as it was in Vietnam circa late 1967.

"Scarcity of the correct parts meant depicting A2-1022 as it was at Long Tan was impossible. We just had to compromise,

but that is more than acceptable when you look at the final product," Mr Gee said.

"Those tradesmen, many would have worked on 1022 in RAAF service, have skill levels that have to be seen to be believed. We had blokes many years away from their trades fabricating and fitting components as though they had never left the job, and their enthusiasm was something again, almost contagious," commented Mr Gee.

Mr McInnes added that none of the project would have got past the dream stage had it not been for the massive support of the Caloundra RSL and the donations by businesses.

On Friday 16Mar2012 the project came to fruition with a short march by a large contingent of 9 SQN RAAF, joined by Army Vietnam Veterans, and a formal dedication service. Three Vietnam Veterans, all now Chaplains, conducted the dedication. Each had a connection with RAAF Iroquois Vietnam operations. Navy Veteran, Reverend Geoff Vidal was one of the Fleet Air Arm pilots who flew with 9 SQN in 1968 and 1969. Army Veteran, Reverend "Shorty" Brown was at Long Tan with HQ D6RAR and "almost under the ammunition as it crashed down through the canopy." Reverend MacIntosh was a squadron "original", flying with 9 SQN in the first tour in 1966 and with many 1022 hours in his logbook.

Former CDF, ACM Sir Angus Houston (Retd) delivered the key note address at the dedication service. ACM Houston took the opportunity to catch up with many old comrades over the weekend. As a WGCDR, he was Commanding Officer 9SQN RAAF when the squadron was disbanded and the squadron aircraft transferred to the Australian Army.

Lt Col Harry Smith SG, MC, (Retd) commander of D6RAR at Long Tan, led the Army contingent and spoke at the dedication on behalf of the Army Veterans. Many Army Veterans took the opportunity of the occasion to renew old acquaintances and enjoy the Caloundra RSL hospitality.

9 SQN Veterans gathered informally at the Club on the Friday night and after the dedication service on the Saturday. Apparently flying stories abounded and here the aircraft flew faster and lower/higher and carried record loads both internally and externally in conditions that would have normally grounded a Huey. Naturally the weekend produced stories of the groundies performing almost miraculous feats of engineering with rectifications and routine servicing completed at base and in the field in times never heard of before.

*Additional information for this story was supplied by Caloundra RSL. Caloundra RSL, Bob McInnes and the late Robbie Gee supplied the photos.*

Footnote: key restoration project member Rob Gee died suddenly in Canberra early August 2013. A large contingent of 9SQN Vietnam Veterans formed an honour guard at the funeral. The RAAFA (ACT Division) executive and members extend their condolences to Robbie's family, friends and former comrades.

**Peter Ryan**



# Academic Development enhances Military Career Opportunities

Massey University's aviation programmes are an innovative combination of practical and academic studies, designed to produce aviation professionals who are highly regarded in industry.

Aviation Defence Force personnel, like those in many other industries, face increasing 'academic inflation'. Senior aviation managers are increasingly required to demonstrate technical knowledge and expertise and advanced aviation qualifications and skills.

Massey University aviation students have a wide choice of academic paths they can follow ranging from a professional degree in aviation- (Bachelor of Aviation – ATP), undergraduate aviation management qualifications through to postgraduate aviation degrees to doctoral level.

Aviation papers may be studied part-time and via distance learning, whether students are based in NZ or off-shore.

Massey's graduates from the NZ Defence Forces report on the direct relevance of their Massey University aviation studies (most completed by distance learning) to their roles in the NZDF:

- Paper 'Environmental Impacts of Aviation' – "useful in relation to working on airport noise management committees"
- Papers 'Airport Planning' and 'Heavy Aircraft Performance' - "helped advance my specialist knowledge and to develop policy."
- Papers 'Managing Cultures in Aviation' and 'Cross-Cultural Communications' - "fostered understanding and communication with other organisations domestically and overseas"

Additionally, international defence force personnel find the flexibility of Massey's aviation programmes works well with military obligations.

## Major Stijn de Graaff, Royal Netherlands Air Force, Flight Safety Department

**Bachelor of Aviation Management. Graduating May 2017**

Stijn says "My reason behind enrolling in the Massey University BAvMan degree was to broaden my view of the aviation industry, outside the comfort zone of my military air traffic control career.

Apart from that I considered it important to add academic development to my working experience for career perspectives. The various aspects of the aviation industry, both military and civil, are touched on in the different courses throughout the program.

During the time I was studying my career moved from fulltime operations to the air force staff in the Safety Department of the Royal Netherlands Air Force combined with Air Traffic control duties. This made it possible to connect many of the content of the BAvMan program directly to my day - to - day work, for example in papers like Human Factors and Incident/Accident Investigation.

The flexibility to adjust the study program to the available time each semester made it suitable to combine it with my



full time job. Right now I am considering continuing for a Master of Aviation with Massey University, - again by distance learning to take the academic foundation of my working experience to the next level and improve my future career possibilities within the Air Force.

The wider view and influence of external education can be beneficial for both the organization and the individual."

A Massey University Aviation degree gives students the skills to work to a high level of academic achievement, work to deadlines under pressure and communicate their work effectively - essential skills required to work at a senior level in the wider aviation industry. [www.massey.ac.nz/aviation](http://www.massey.ac.nz/aviation)

**wings over illawarra**

**2 BIG DAYS - SAT & SUN!**

**6-7 MAY 2017**

**BUY TICKETS ONLINE NOW!**

**SEE THE ACTION. FEEL THE EXCITEMENT.**

FEATURING: \* CLASSIC WARBIRDS - RAAF FIGHTER JETS. HEAVY LIFT AIRCRAFT & THE ROULETTES ARMY AND NAVY HELICOPTERS - AEROBATICS BY SOME OF AUSTRALIA'S LEADING PILOTS - HISTORIC FLYING AND STATIC DISPLAYS CHILDREN'S RIDES

\*Displays subject to aircraft availability. Additional HARS fee payable to enter HARS static display aircraft.

Illawarra Regional Airport, Albion Park | GATES OPEN 9am | see website for details



NOW IN CONJUNCTION WITH THE NEW AVIATION EXPO

4-7 MAY 2017



Strategic partners



MAKING IT HAPPEN



Major sponsors



[www.wingsoverillawarra.com.au](http://www.wingsoverillawarra.com.au)



**APPLY  
NOW**

Aviation Degrees – 2017. Elevate your military career portfolio with an aviation tertiary qualification. Degrees in aviation management to postgraduate level available via distance learning. Courses relevant to both military and civilian roles. A global and dynamic industry awaits Massey University's aviation graduates. Learn from and with the best in New Zealand. Call +64 6 350 5701 or visit [massey.ac.nz/aviation](http://massey.ac.nz/aviation)



**MASSEY  
UNIVERSITY**  
TE KUNENGA KI PŪREHUROA

UNIVERSITY OF NEW ZEALAND

**I STUDIED  
A BACHELOR  
OF AVIATION  
MANAGEMENT  
I AM A  
HIGH FLYER**



Image: The Ministry of Defence, Netherlands



# A Prisoner of War Enigma

Various sources suggest that on the outbreak of World War II that over 500 Australians were already serving with the Royal Air Force. Many of these were flight crew enlisted on Short Service Commissions, having already completed initial flying training in Australia. To date, most interest has focused on air crew serving in the Battle of Britain where 33 Australians, of whom 14 who were killed, are recognized as participating in the Battle.

After the introduction of the Article XV agreement, many nominal RAAF Squadrons included British and other Commonwealth personnel. Likewise, many RAF Squadrons included personnel from the Commonwealth nations. A number of Australian personnel served with No 223 Squadron RAF in the Middle East.

The Battle of El Alamein was in full swing when on 2<sup>nd</sup> November 1942, Baltimore AG 852 of 223SQN RAF Middle East, with an all RAAF crew, was one of a formation of aircraft in an operation to bomb stores at Ghazal Railway Station. The attacking force of 18 x Baltimores and 28 x Kittyhawks, faced heavy anti-aircraft fire over the target.

Baltimore AG 852, piloted by FSGT/WOFF Alan Campbell Maclure was hit and exploded, damaging adjacent Baltimore AG851 piloted by SGT J G S Dalton. The other members of the latter crew included SGTs Richards, Haslen and Philip Doyle Havercroft RAFVR 1002352, who was injured. AG851 was able to return to Base. The damage sustained was to lead to later correspondence from relatives with the mistaken belief that there had been a collision between the two aircraft.

Not so fortunate was AG852; following the explosion, the aircraft was seen to leave the formation in flames. One of the crew was seen to bale out, but it was not possible to determine the identity of this crew member. The aircraft exploded following its crash. There was no further news of the aircraft or crew which did not return to base. [1]

The crew of AG852 was:

FSGT Alan Campbell Maclure 401133 (Pilot),  
FSGT Leonard Stewart Middleton 406400 (Nav)  
SGT Theodore George Richards 402006 (AG)  
FSGT Colin Maxwell Chenoweth 407198 (WOAG).

Two other Baltimore aircraft were lost within the adjacent time frame. 223 Squadron Baltimore III AG959 on 28 October was hit by flak during an operation to bomb Landing Ground 20. Whilst east of Qotaifiya it was damaged and began emitting smoke, prior to crashing and bursting into flames on impact. FLGOFF J Marriner 100091 and one other crew member were killed and the other two crew members were taken prisoners of war.[2] Their identity of these two prisoners has not been established.

Baltimore III AH109 from 55SQN RAF was also shot down on 2 November whilst attacking motor transport near Daba and the crew of five, including SQNLDR PD C Thomas DFC and intelligence officer of 232 Group LT J M Simpson SAAF, were all killed.

Gus Officer In his auto-biography, *Six O'Clock Diamond* (pgs99 & 101), published posthumously by his family, clearly details that whilst in captivity in an Italian Hospital tent on the day after Gus himself had been shot down on 3 November 1942, he encountered a badly burned fellow RAAF prisoner, the survivor of a Baltimore shot down on the day prior to his own loss. He personally attended to him overnight but this fellow prisoner succumbed from his injuries. As a man of principle, Officer made a point of contacting the family of this prisoner to inform them of his prisoner status and fate after he personally returned to Australia following the war.

In his book (pg99) Officer states: "The next day I was delivered to the Italian Hospital POW Tent at Mersa Matruh and it was here that I saw what war can do to men in the way of knocking their bodies about. There was an Australian WAG who had survived when his plane blew up. He was heavily bandaged on face, hands and legs. He was delirious and barely conscious, but was able to say that he was in a No 223 Squadron Baltimore, and the kite had been hit on the run in and the bombs had gone up. He told me his name, rank and number which I memorized and kept through the following long, long years. The day I was there the Italians dressed his face for the first time in five days. <sup>1</sup> There was nothing left. At 9.30 that night he was still and quiet. I felt his chest. It was icy cold. He had gone'. I crossed his arms over his chest, murmuring aloud, 'May God rest his soul in peace'. It was a sad, sad day."

A foot note states: As I recall, in the original version of his memoirs, the author had indeed memorised the air gunner's name, rank and number. After the war, when he had returned to Australia, he contacted this man's parents to inform them of the circumstances in which their son had died. Whilst in an early draft edition the name of the prisoner who had died may have been recorded, it is not given in the definitive publication. However the circumstantial evidence is most convincing. There is no other aircraft other than Baltimore, AG852, which is compatible. Which crewmember was the unrecorded prisoner of war?

The Crew of AG852

**Pilot:** WOFF Alan Campbell **MACLURE** 401133 of Hawthorn, Victoria

His body was never recovered and he is commemorated on Column 265 of the Alamein Memorial. As the pilot he was the least likely to have been able to evacuate the aircraft and Officer definitely describes a wireless operator/air gunner.

**Navigator:** FSGT Leonard Stewart **MIDDLETON** 406400 of Claremont Western Australia.

His body was recovered in 1947 and was reinterred in the El Alamein War Cemetery, Egypt. Grave reference XVI. E.11. He had been admitted to 62 General Hospital with a flesh wound to left arm on 23 May 1942 when the Baltimore in which he

<sup>1</sup> There is no evidence of the loss of a 223 Squadron aircraft five days earlier. Perhaps he intended a few days earlier.

was serving crash landed after being attacked by a Me 109. He was commemorated in the Australian War Memorial ceremony on 15 August 2013.

His family had a remarkable history of service. His brother, PLTOFF **Allan** Stewart Middleton 406028 had been killed serving with 423 Squadron six months previously. Four of five brothers had enlisted, **Maxwell** Stewart 22819 serving on *HMAS Stuart* and his father CPL **Raymond** WX2745 was captured at El Alamein whilst serving with the 2/28 Bn.

**Airgunner:** FSGT Theodore George **RICHARDS** 402006 of Mossman NSW. He has no known grave. The search for the remains of missing personnel was discontinued in 1946 because of the danger of land mines. He is commemorated on the Alamein Memorial on Column 265.

In his records (NAA: A705 163/157/221 1059597) there are repeated references in correspondence both to and from his mother, {25/68, 42/68, 44/68, 50/68, 51/68 & 52/68} indicating that from both a private and official sources, that one crew member parachuted from the aircraft. Mrs Richards was understandably concerned that it may have been her son. She had received a communication from the Commanding Officer of the Squadron stating that his position in the aircraft was the easiest to evacuate. There also is an allusion that in two of the aircraft may have collided, but this surely relates to the explosion which damaged the nearby aircraft.

It is possible, that as his mother hoped that he had escaped from the aircraft. His position may have given him the best opportunity to evacuate, but the disruption of the damaged aircraft due to the anti-aircraft fire and possible collision, may also have increased the opportunity for other crew members to evacuate. It does need to be taken into account that in the second part of his statement Gus Officer does refer to an air gunner. However the training of aircrew resulted in graduation as a Wireless-Air Gunner, so the roles were interchangeable.

**Wireless operator:** 407198 FSGT Colin Maxwell **CHENOWETH** 407198. of Minlaton S A, which incidentally was also the home of World War I aviator and pioneer commercial airman, Henry John Butler, AFC.

Chenoweth seems to be more likely to be the airman taken prisoner. It is likely that following his death during his internment in a temporary Italian tent hospital, his place of burial was not likely to have had any permanent marking, taking place during a campaign noted for the fluid nature of its activity. Chenoweth is commemorated on the El Alamein Memorial XVI E 11.

The only remaining Chenoweth relative in Minlaton, joined the family following the end of World War II and can provide no enlightenment as to whether the family had been contacted by Gus Officer. However the coincidence of losses and his identification as a wireless operator provide substantiation for such a claim.

Also, in addition Chenoweth's records (A705 163/96/187-1056219, on pages 31- 38), record that fellow South Australian FSGT (> FLTLT) Ronald Albert Siedel 407207 DFM, wrote to the family that Chenoweth had been taken prisoner. Siedel was a respected informant, later promoted, decorated and a member of the secret 201 Flight, dedicated to personnel and supply drops to behind the Japanese lines. His information was deemed to have come from Red Cross sources. His claim was later officially discounted, and the records indicate that strenuous measures were undertaken to ensure that Siedel was instructed to withdraw the claim.

In conclusion, on the balance of evidence, I therefore believe that in fact Chenoweth did survive the loss of AG 852. Also that he was severely burned and died of his injuries as a prisoner of the Italian Forces. He deserves recognition as such.

**By Thomas Roberts**

Acknowledgements:

National Archives Australia  
Australian War Memorial  
Gus Officer and son John  
Christopher Shores et al  
Alan Storr.

[1] Storr, Alan: p 60. *Australians in the RAF*. (2006)

[2] Christopher Shores, Giovanni Massimello with Russell Guest, Frank Olynyk & Winifred Bock *History of the Mediterranean Air War Volume Two (Feb 1942- March 1943 p411)*.



A Martin Baltimore flown by RAF Middle East.  
Photo: Baltimore Historical Group

**SEIZE  
THE SPECTRUM**

 [Raytheon.com/spectrum](http://Raytheon.com/spectrum)

Artist's rendering of the EA-18G GROWLER. © Cleared for public release SPR 2016-921. © 2017 Raytheon Company. All rights reserved.

**Raytheon**



# Professional Helicopter Services

## Helicopter Flight Training

Professional Helicopter Services (PHS) have now introduced Instrument Flight Training at our recently upgraded training facility at Moorabbin Airport.

Advanced Flight Training now available includes:

- Instrument Flight Training
- NVIS (NVG) Flight Training
- NVFR Flight Training
- Synthetic Flight Training (ELITE S.F.T.D)
- AS-355 (Multi Engine) Type Ratings

PHS is Australia's longest running and most experienced flight training school.

We are proud to offer these Advanced Training capabilities, and Ab-initio training courses.

To discuss your training requirements, please contact:

Roger Puehl    Brett Newman    Ben Hall

E: [headoffice@phs.com.au](mailto:headoffice@phs.com.au) Ph: 03 9580 7433



In addition to our Ab-initio Services, we offer private and professional pilot training to take you to the next level.

Type Rating, Differences Training, including AS-350 & EC-130, Sling and Low Level Training are all available at our newly refurbished Moorabbin Base or at our New Gold Coast Airport location.

Come in and speak to one of our Flight Training Team members or visit our website.

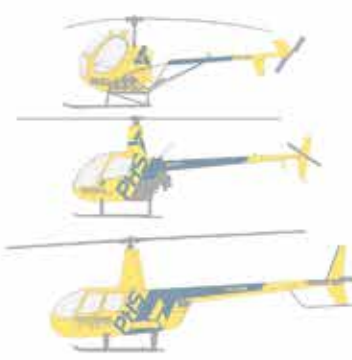
## Professional Helicopter Services

**Our name is what we deliver.**



**PHS**

Head Office: 44-46 Bundora Parade, Moorabbin Airport VIC Australia 3194  
Gold Coast, 44 Eastern Avenue, Gold Coast Airport, Queensland, 4225  
Phone: +61 3 9580 7433  
[www.phs.com.au](http://www.phs.com.au)



# Mildura Museum Presentation

## - Late GPCAPT Fred Knudsen AFC

At a ceremony at the Mildura RSL RAAF Air Museum at Mildura Airport on 11 December 2016, memorabilia of the late Group Captain Fred Knudsen AFC were presented by his brother, Syd, to the Museum President, Ken Wright. Fred Knudsen was the first Sunraysia District resident to be promoted to the rank of Group Captain and he passed away in October 2015. Syd Knudsen was keen for memorabilia to be on permanent display at the Museum in Mildura.

Pre-war, Fred herded cows for his father on leasehold land at Mildura on which No 2 Operational Training Unit was located in WW2; he returned in 1945 to complete training on the Mustang fighter aircraft. Born in London, his father Norwegian and his mother English, he arrived in Australia as a four year old and grew up in the former soldier settlement area Birdwoodton.

Fred left school at the age of 16 to work on his father's dairy farm and, to realize his ambition to learn to fly, he attended night school and enrolled for weekly flying lessons. His determination was rewarded when he achieved a commercial flying licence on a DH-60 Gypsy Moth operating from the Old Mildura Aerodrome which is now a recreational area.

Following the outbreak of World War 2, Fred Knudsen was one of the early enlistments in the Empire Air Training Scheme (EATS), graduating as a pilot at No 1 Service Flying Training School, Point Cook. After service at No 7 Bombing and Gunnery School, Port Pirie, on Fairey Battles, he joined 23 Squadron in Queensland flying Wirraways and Vultee Vengeance bombers. When posted to Nadzab, New Guinea, his squadron took part in attacks on villages south of Saidor and on barge hide-outs on the Wagor River near Madang.

Remaining in the RAAF after the war. Knudsen was a flying instructor at Point Cook and Williamstown throughout 1946 and, during 1947/48, he was a fighter pilot at 81 Wing, Iwakuni, British Commonwealth Occupation Force, Japan.

In 1951, he experienced a severe back injury when he attempted to land a damaged aircraft and this necessitated the welding of three vertebrae at both the top and the bottom of his spine. After three months in hospital, he returned to his duties as a test pilot for three years and, in 1954/56, was Chief Flying Instructor at the Central Flying School, East Sale.

Following a year at the RAAF Staff College at Point Cook as a student, Knudsen became an Air Accident Investigator for the next two years and then Squadron Commander at CFS, East Sale.

Then followed a prestigious appointment as Exchange Officer at the USAAF Academy in Colorado, United States, 1960/62.

Subsequent appointments included Commanding Officer of RAAF Flying Training, Point Cook; Senior Staff Officer 81 Wing, Butterworth; CO 79 Squadron, Ubon, Thailand; and, in 1968, Staff Officer HQ Support Command RAAF, Melbourne. During this period, he was awarded the Air Force Cross for

his dedicated services by the Prime Minister, Harold Holt.

GRPCAPT Knudsen's flying hours totalled 11,000, including 3,000 instructing, and, in all, he flew over 50 types of aircraft. He flew in several special missions, including the Berlin air lift into Tempelhof, Germany, during the Cold War with Russia.

In retirement he competed in swimming events in Queensland, winning age group titles at State Carnivals on three occasions. He later turned to the sport of triathlon and competed in National and International marathons all over the world, including the Hawaii Ironman, with great credit to himself and his country.



Ken Wright and Syd Knudsen with Fred Knudsen's medals.  
*Photo: Ken Wright*

At the conclusion of the Museum ceremony, Museum President Ken Wright said that the Museum was very grateful to receive the memorabilia of GPCAPT Knudsen who gave such great service to the RAAF, aviation, and the nation. Mr Wright, in particular, thanked Syd Knudsen for ensuring that GPCAPT Knudsen will be appropriately remembered in the district in which he grew up.

The Museum at the Airport is open to visitors 9.30 am to 12.30 pm on Tuesdays, Fridays, and Sundays.

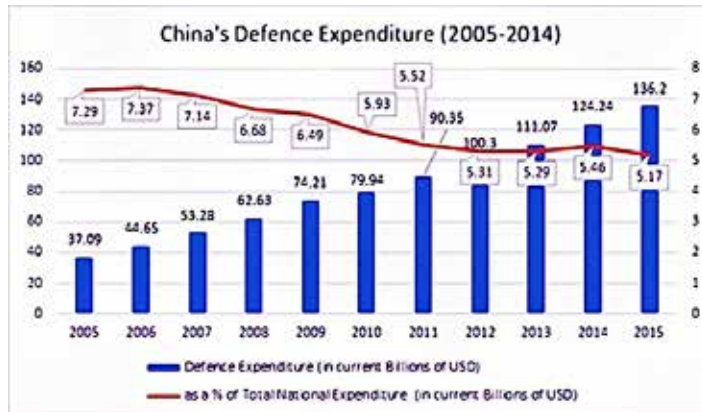
**By Ken Wright OAM,JP** President/Historian Mildura RSL RAAF Memorial and Museum and RAAF Pilot 1943-1945.



## China's Defence Expenditure

According to official data published by the National Bureau of Statistics of China, the expenditure on National Defence has been rising over the period 2005-2014. Since 2005, when expenditure was USD 37.09 billion (equiv), expenditure has more than tripled to USD 124.24 billion in 2014.

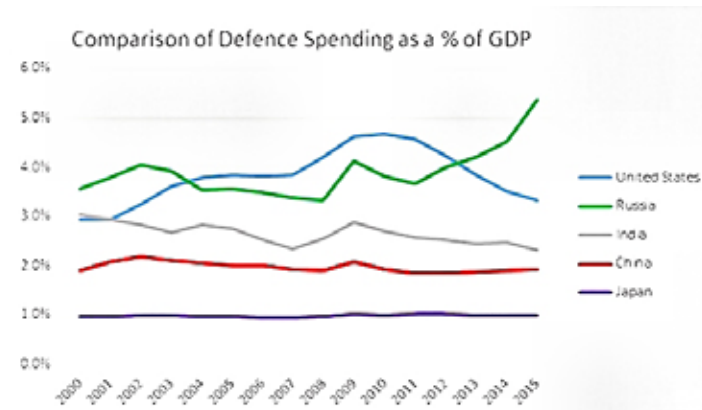
This trend was further reinforced in 2015, when defence budget reached USD 136.2 billion. However, the percentage (%) of the overall National Expenditure allocated for National Defence purposes, dropped from around the 7% figure on average over the period 2005-2009 to 5.5%, on average, over the period 2010-2014, to 5.17% in 2015.



**SOURCE:** National Bureau of Statistics

The official figures released and those of other sources reporting on defence spending (e.g. the Stockholm International Peace Research Institute (SIPRI)), vary considerably, and often China has been accused of not providing sufficient transparency on its spending in this direction. However, observers acknowledge that China's defence spending is the 2nd highest worldwide, only behind that of the USA. US defence spending has been falling each year since 2012, while China's defence expenditure continued to rise steadily over the same period. As a result, the gap between the two countries' defence expenditure is closing, although the gap is still large (estimates for US in 2015 was three times greater than that of China).

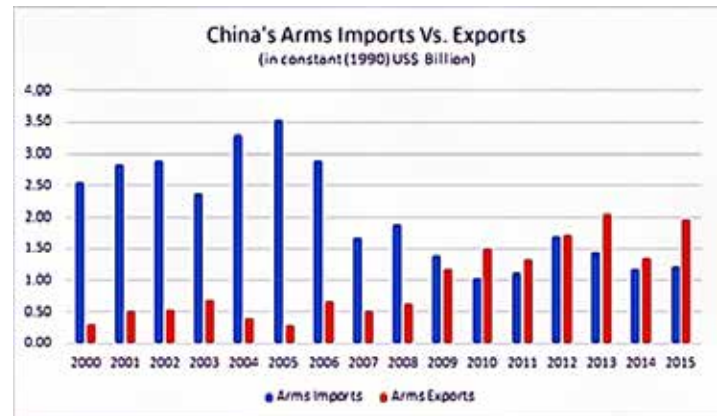
According to SIPRI data, the GDP % of China's defence budget has remained constant over the last 15 years (2000-



**SOURCE:** SIPRI

2015), and is still considerably below those of the United States, Russia and India, but still about double that of Japan.

According to the Stockholm International Peace Research Institute's (SIPRI), February 2016 Fact Sheet, "Trends In International Arms Transfers, 2015", Chinese exports of major arms increased by 88%, between the periods 2006-10 and 2011-15.



**SOURCE:** SIPRI

While China was by far the largest importer of arms worldwide in the early 2000s, it dropped to 3rd place in the period 2011-15. Since 2010, China's revenues from arms exports have exceeded the cost of imports, while the contrary was the case for at least the previous decade (2000-2009). More specifically, the country's arms imports decreased by 25% between 2006-10 and 2011-15.

Notably, China's share of global arms exports, rose from 3.6% (2006-10) to 5.9% (2011-2015). While China supplied major arms to 37 countries worldwide, 75% of these exports in the latter period were to countries in Asia and Oceania. Exports to these countries exhibited the largest growth over the period 2011-15, namely being 139% higher than the respective exports over the period 2006-10. Pakistan was the main recipient of Chinese arms exports over the period, accounting for 35%, followed by Bangladesh with 20% and Myanmar with 16%.

Nevertheless, according to SIPRI data, China still remains partly dependent on imports for some key defence items, including large transport aircraft and helicopters (mostly from Russia), and engines for aircraft, vehicles and ships. Characteristically, engines accounted for 30% of China's arms imports over the period 2011-15. In addition, in 2015 the country signed orders for 4 to 6 air defence systems (S-400 Triumph) and 24 combat aircraft (Sukhoi Su-35 multirole fighter jets) from Russia, indicating that it is not yet self-sufficient in these. Russia continued as the primary supplier over the period (2011-2015), with 59%, followed by France with 15% and Ukraine with 14%.

*National Bureau of Statistics of China*

*Stockholm International Peace Research Institute (SIPRI)*



The ACU-804 Series is a line of self contained, fully portable air conditioning units suitable for military and commercial single connection aircraft. The ACU-804 is robust and proven to perform in extreme conditions globally.

## Freightquip Pty Ltd and TLD (GSE) work together to supply the Australian and New Zealand market with world-class aviation ground support equipment.

Our business relationship with the Royal Australian Air Force (RAAF) was established over 15 years ago with the initial supply of TEK300D Pre Conditioned Air ground carts. A new generation higher capacity ACU-804 unit was introduced into the fleet some 7 years ago with the ability to fulfill AC requirements for the C130, C17 and KC-30A, and has since seen a gradual full fleet replacement occur of the older TEK300D's. (The TLD ACU804 Pre Conditioned Air is pictured above with the RAAF C17 at the 2013 Avalon Air Show).

Freightquip's most recent project has been supporting the supply of the new Aircraft Loader fleet and has provided the opportunity to showcase to the RAAF, Freightquip's ability to deliver local technical expertise and support. Combined with enhanced OEM support, Freightquip has led the training, delivery and on site equipment commissioning assisting with the fleets transition into service.

Freightquip and TLD have partnered together in delivering to the RAAF a new ACL fleet consisting of a single specification delivering fleet

continuity. Beyond the advantages of the equipment, Freightquip brings enhanced operator, maintainer and parts support and has also developed a compliant and accompanying RAAF approved Training Package for both Operators and Maintainers. These courses have been implemented as per contract commitment and we look forward to further assisting the RAAF when and where required.

We have seen to date the successful delivery and implementation of the full compliment of units into Richmond and Amberley Bases with the roll out of the remaining fleet into other bases on schedule.

The PFA50 was purpose built for military applications and includes many innovative features not previously seen or even considered on earlier generations of this type equipment. Fast and easy deployment and aircraft approach, air transportable on both C130 and C17, self-loadable, 22.7 tonne 5 pallet lifting capacity and a rugged design which is enhanced by it's variable ground clearance and ability to compensate for extreme ground conditions.

The feedback from all RAAF stakeholders has been extremely positive throughout the entire project. Through the culmination of all of the stakeholders input, the first units entered into limited operational service in November 2014. This in itself was a major milestone as this operational activation was well in advance of the original projections.

**Freightquip Pty Ltd and TLD is proud to be associated with the Royal Australian Air Force.**



Fleet of RAAF PFA50 Aircraft Loaders



## 2017 COURSES

PROVISIONAL VET STUDENT LOAN PROVIDER APPROVAL

AVI50415

# DIPLOMA OF AVIATION: INSTRUMENT RATING

(MINIMUM PREREQUISITE: PRIVATE LICENCE)

## 45 YEARS OF TRAINING EXPERIENCE

RAC UNDERSTANDS WHAT IT TAKES TO CREATE INDUSTRY-READY PROFESSIONALS.

## WE TRAIN PEOPLE, NOT NUMBERS

OUR CULTURE FOSTERS AN ENVIRONMENT OF PERSONALISED TRAINING AND MUTUAL RESPECT.

## NOT-FOR-PROFIT MEANS QUALITY

WE HAVE A REPUTATION FOR QUALITY AIRCRAFT, INSTRUCTORS AND FACILITIES.  
WE REINVEST TO IMPROVE FOR YOU.

CONTACT OUR TEAM TO DISCUSS YOUR NEEDS.



07 3203 1777

[WWW.REDCLIFFEAEROCUB.COM.AU](http://WWW.REDCLIFFEAEROCUB.COM.AU)







**912 iS**  
*Sport*

**STRONGER. FASTER. HIGHER.**

The new Rotax 912 iS Sport aircraft engine is a further improvement of the 912 iS and offers outstanding performance with low fuel consumption. Pilots will appreciate the improved take off performance which results in a better climb rate a shorter take off run and a higher cruise speed.



**914 F/UL | 115hp**

The turbo charged Rotax 914 series offers more performance at high altitudes while keeping weight at a low level.



**912 S/ULS | 100hp**

In comparison to the 80 hp version of the Rotax 912 series the 100 hp product line offers more power while keeping the weight.



**582 MOD. 99 | 65hp**



**912 A/F/UL | 80hp**

## ENGINES YOU CAN RELY ON.

More than 170.000 units of Rotax aircraft engines have been sold in total. Since 1989 BRP-Powertrain has manufactured more than 40.000 units of the Rotax 912/914 engines family.

Distributed in Australia, New Zealand, South East Asia and Taiwan by:  
**Bert Flood Imports Pty Ltd** 17 - 18 Chris Drive Lilydale Victoria 3140 Australia  
Email: [gary@bertfloodimports.com.au](mailto:gary@bertfloodimports.com.au) Visit us at: [www.bertfloodimports.com.au](http://www.bertfloodimports.com.au)  
Tel: 03 9735 5655 Fax: 03 9735 5699



# Investment Opportunities

## Hangar / Aviation Industrial Sites at Warrnambool Regional Airport the Gateway to Victoria's Great Ocean Road

Warrnambool City Council has recently completed its \$5 million Warrnambool Regional Airport Aviation Park Project. This much anticipated upgrade encourages new aviation-related industries to locate on-site, facilitating private investment and helping to drive our region's expanding and diversifying economy.

### Key components of the project included:

- Extra taxi-ways, hangar access roads, drainage and essential services to facilitate in excess of 20 additional hangars (subject to configuration) on top of the existing 16 hangars, more than doubling airport hangar capacity
- Upgrades to the airport's grass runway to facilitate year round aircraft access



This development is designed to suit a variety of aviation activities including general aviation, pilot training, health service flights, charter, aerial agriculture, manufacturing and food export and tourism.

### Warrnambool

The City of Warrnambool is located in south west Victoria, 270 kms from Melbourne. It is Victoria's largest coastal city outside Port Phillip Bay and one of the state's fastest growing regional cities with a population of 34,000. Warrnambool is considered the economic, cultural, educational and social capital of Victoria's Great South Coast region and is a popular tourist destination attracting 2.7 million visitors annually.



For details on how to become part of this exciting phase in the growth of Warrnambool and its regional airport, please contact:

**Andrew Paton**  
Manager Economic Development & Investment

Warrnambool City Council, P.O. Box 198, WARRNAMBOOL Vic 3280  
E: [apaton@warrnambool.vic.gov.au](mailto:apaton@warrnambool.vic.gov.au)  
P: 03 5559 4800

[www.warrnambool.vic.gov.au](http://www.warrnambool.vic.gov.au)

## Opening of Learmonth RAAF Base Exmouth Gulf, WA

Learmonth, a RAAF bare-base airfield on the Exmouth Peninsula, WA, was officially opened on 15 December 1972. No 5 ACS had rebuilt the airfield to a modern base, complete with hard standing for strike, fighter and maritime patrol aircraft.

Originally called Potshot, the Air Board directed in August 1944 that the airstrip be renamed Learmonth, in honour of WGCDR Charles Learmonth DFC and Bar, who was killed in a Beaufort crash off the WA coast. Air Commodore (later Air Vice-Marshal) Fred Robey, who had flown with Learmonth in 1940, performed the Opening Ceremony.

Marjorie Le Souef, the widow of Charles Learmonth, flew from RAAF Base Pearce to Learmonth in a 2FTS Dakota on 15 Dec 72, and attended the ceremony with her husband Leslie. After the ceremony, Marjorie unveiled a memorial cairn which dedicated the airfield as RAAF Base Learmonth, in honour of her first husband, Charles, before attending a Dining-In Night at the Officers Mess. The following day, the guests toured the base and surrounds, concluding with the 30th Anniversary Ball of No 5 Airfield Construction Squadron.



Unveiling the memorial cairn following the Learmonth Airfield Dedication, 15 Dec 72. (L-R) Marjorie Le Souef, AIRCDRE L.H. Williamson, SASO HQOC and WGCDR John Lessels, CO 5ACS.  
*Photo: RAAF*

Plans to expand the wartime strip had existed for more than 20 years, after the purchase of land was finalised in 1950. In April 1964, Cabinet decided to further develop the airfield as tensions increased with Indonesia during Confrontation. Although deferred due to improvements in international relations and delays in delivery of the RAAF's F-111 strike aircraft, No 5 Airfield Construction Squadron began work in 1971.

Plans for extending the runway from 2140 to 2600 metres (later increased to 3000 metres) were implemented, and taxiways, hard standings and buildings and services were all upgraded.

Another plaque, unveiled at the Air Force Memorial Estate, Bull Creek by Air Marshal Valston Hancock in May 1988, was installed at the civil terminal by No 22 Squadron Association



Learmonth Air Base 1971 and in 2005. *Photos: RAAF*

members later that month. In his dedication speech, Sir Valston said "it was needed as a record to indicate to future generations why an important 'tourist' airport bears Charles' name..."<sup>1</sup>

### *Office of Air Force History*

**Lance Halvorson**

#### **Editor's Note:**

The Editor was the navigator on the Dakota for the flight to Learmonth on 15 Dec, returning to Pearce, via, Geraldton on 17 Dec 72. With the exception of the Dakota Captain, CO 2FTS, the crew stayed at the Norcape Lodge, Exmouth, maintaining a Air Force presence with some of the local visitors. The return flight to Pearce was, initially, at low level, overflying Ningaloo Reef and Coral Bay resorts to highlight the marine attractions, and the tropical climate, to the VIPs.

In the late 2000s, the local council in Exmouth proposed a name change from Learmonth Airport (civilian) to Ningaloo Airport. In their view, such a name change would highlight the geographic location to potential tourists. In their proposal, the Council overlooked that the base was a Defence asset and an operational RAAF Base (albeit a 'bare base'). The RAAF, the RAAF Association and many ex-service members objected to the name change and the proposal was dropped, and hopefully, not just shelved.

<sup>1</sup> *Wings of Destiny*, Charles Page, 2008



## No 3 BAGS formed at West Sale

On 12 January 1942, No 3 Bombing and Gunnery School (BAGS) was formed at West Sale, Victoria. The School was formed to carry out training of air gunners with a course of instruction in gunnery, and to train air observers in bombing and gunnery. The unit's first aircraft, a Fairey Battle, arrived on 2 February 1942 from No 1 Aircraft Park.

Training commenced on 8 March 1942 with 43 trainees arriving from Mount Gambier, South Australia. The casualty rate for No 3 BAGS was similar to other training schools, when both the pilot and crew (or trainees) were killed in training accidents. On several occasions, crew members survived when the pilot/s didn't, particularly as the pilot was trying to land the aircraft. The survival rate for trainees was higher as some were able to parachute out of the aircraft.

The School operated until 9 December 1943 when it became Air Gunnery School. The unit aircraft strength at that time was 67 Fairey Battles, 24 Avro Ansons, 33 Airspeed Oxfords, five Ryans and one Moth Minor. The Air Gunnery School operated until December 1945 when the airfield reverted to civilian use.



West Sale airfield, 1943. Photo: RAAF

## RAAF Bloodhound Surface-to-Air Missile Squadron

Responding to British expectations during the 1950s that guided missiles would replace manned fighter aircraft, particularly for point defence of high-value ground targets, the RAAF made plans to enter the 'missile age'. In 1959 the Australian Cabinet approved the acquisition of the British-built Bloodhound Mk 1 surface-to-air missile (SAM), which utilised a semi-active pulsed radar system and was suited to static defence against single and multiple targets travelling at altitudes up to 60 000 feet and at a range of up to 45 kilometres.



Bloodhound Mk1 missiles, Williamtown 1962. Photo RAAF

To operate the SAMs, the RAAF re-formed No 30 Squadron, a World War II Beaufighter unit which had previously been re-raised for target towing duty in 1948–56, on 11 January 1961. Stationed at Williamtown from February 1962, the unit became operational in January 1963. In June 1965 a detachment was sent to Darwin, where it remained until the squadron disbanded in November 1968.

In his book, *Going Solo*, Alan Stephens commented: 'Rarely has a professional judgment been proven so wrong so quickly. Even before the RAAF's Bloodhounds arrive, the RAF reportedly was experiencing 'serious technical difficulties' with the missile'.

Editors Note:

The RAF operated the Bloodhound MkII missiles at RAAF Base Butterworth during Indonesian Confrontation in the 1960s. The MkII missile, reportedly, rectified the technical problems of the earlier MkI missile. During the Editor's posting to Butterworth, none were fired 'operationally'.



33SQN RAF Bloodhound MkII missiles, RAAF Base Butterworth, 1965. Photo: Lance Halvorson

## Surplus World War War II Aircraft

In October 1947, the Charters Tower newspaper, *The Northern Miner*, reported that the Minister for Air, A. S. Drakeford, had announced that 500 RAAF aeroplanes at Oakey, and 163 at Amberley, were to be sold as scrap. The planes had a war-time capital value of approximately £11 million (about \$660 million in today's \$)

The aircraft at Oakey to be sold for scrap included 38 Boomerangs, 225 Spitfires and 240 Kittyhawks. Amberley aircraft were 26 Liberators, two Beaufighters, 32 Mitchells, 47 Spitfires, 41 Vultee Vengeances and one Ventura. There were also 10 Mosquitos and one C-47 Dakota at Amberley: no decision had been made whether they were to be retained, disposed of, or scrapped. Hopefully, they were retained.

Were all of the aircraft scrapped? 28 January 2011 The Australian press reporting here: <http://www.theaustralian.com.au/business/aviation/fact-or-fable-hunt-is-on-for-buried-spitfires/story-e6frg95x-1225995654752>

Source: Office of Air Force History



Spitfires awaiting disposal. Photos: RAAF



A wartime Blitz wagon, assisting in the demolition process.  
Photo: RAAF

## 6SQN Reconnaissance to Truk (Chuuk)

A Lockheed Hudson Mk IV bomber from No 6 Squadron took off from Kavieng, New Ireland, before 0600 on 9 JAN 1942 to carry out an armed photographic reconnaissance of Japanese forces in the Truk Islands (now the Federated States of Micronesia) to the north.

Arriving over the target, the pilot of the aircraft, FLTLT Robert Yeowart, made two passes, over 25 minutes, to photograph Toll Harbour and an island airfield, dodging anti-aircraft fire and enemy fighters sent up to intercept him. Returning first to Kavieng, he then flew to Rabaul and, after a brief stopover, flew to Townsville on 10 January. The 1240 nmile (2300 km) flown, to Truk and return, on the mission made this the longest sea reconnaissance undertaken by the RAAF in a land-based aircraft. The enemy shipping and aircraft observed at Truk confirmed expectations that New Ireland and New Britain would soon be attacked.



## Goodbye to the Tiger Moth

The last ten De Havilland Tiger Moth biplane trainers in service with the RAAF were flown from Point Cook to Tocumwal, on the Murray River, on 9 JAN 57, where they were put up for sale to private owners.

Australia's air force had been the first in the world to adopt the Moth type for training purposes. It purchased its first Gypsy Moths in 1927, before even the RAF acquired them. At the height of their use, in support of the Empire Air Training



Tiger Moths in the RAAF. Photo: RAAF



Scheme during World War II, the RAAF operated over 860 of these aircraft, including 732 delivered from De Havilland's factory at Bankstown, Sydney. The RAAF received its first Bankstown Tiger in May 1940 and its last in August 1942. With the departure of the last Moths from Point Cook, the RAAF bade farewell to the biplane age.

## B-29 Washington in Australia

The prototype Boeing B-29 Super Fortress had first flown on 21 September 1942, and during WW II, two USAAF B-29s -- 'Enola Gay' and 'Bockscar' -- dropped atomic bombs on Japan. The first atomic bomb was released over Hiroshima on 6 August 1945, followed by a second over Nagasaki on 9 August 1945.

88 B-29s were loaned to the RAF as Washington B Is and two, WW 353 and WW 354, were flown to Australia by RAAF aircrews. WW 353 arrived at ARDU Trials Flight (later ATU) on 26 September 1952 with WW 354 arriving in Australia on 12 December the same year.



WW353 at Tocumwal awaiting scrapping, c 1957. *Photo: RAAF*



Undated photo of WW354 and Meteor A77-2 at Woomera.  
*Photo: RAAF*

The aircraft were used on a number of Woomera trials for the UK Ministry of Supply (UKMOS) and by 1956 had flown a total of 174 hours in RAAF service. WW 353 flew the bulk of the hours with WW 354 held as a spare. During 1956 the

two aircraft were placed in storage pending disposal decisions from the UKMOS and the US Air Force. The engines were later removed and the airframes were sold for scrap in 1957.

## First female WOD

On 2 December 1992, Sergeant Sue Wood successfully completed a 14-week course at RAAF Base Williams (Laverton), Victoria, to become the RAAF's first female WOD (Warrant Officer Disciplinary).

Promoted to Warrant Officer rank on 3 December, she formally graduated alongside three male colleagues. Before undertaking the course, she was a general service instructor at RAAF Base Wagga Wagga, NSW. Subsequently, Sue filled a range of posts at Canberra, Darwin and Wagga, before ceasing full-time duty with the RAAF on completion of 20 years service in January 2002.



## RAAF Antarctic Flight

The 12-man RAAF Antarctic Flight providing air support to the scientific program conducted by the Australian National Antarctic Research Expedition (ANARE) suffered the loss of both its aircraft in a summer cyclone in December 1960. When blizzard conditions had been predicted for the afternoon of 8 December, the aircraft were tied down at Rumdoodle airstrip, located on a rock plateau in the Masson Ranges 24 kilometres from the main base at Mawson, to ride out the storm.

When personnel checked on the aircraft at 8.40 am next day they found the DHC-2 Beaver on its back against a wind fence with its wings ripped off. There was no sign of the Flight's Dakota. It was eventually located pushed against a heavily-crevassed ice cliff 13 kilometres away. As a result of these losses, the RAAF decided against providing an aerial presence for ANARE's operations during the 1961 season.



AIRCRAFT SUPPORT EQUIPMENT - MILITARY SHELTERS - SPECIALISED TRAILERS - VEHICLE BODIES & MODULES



ENGINEERING DESIGN - PRODUCT DEVELOPMENT - QUALIFICATION TESTING - PRODUCTION - THROUGH LIFE SUPPORT

## GLOBAL SUPPLIER OF INTEGRATED MILITARY SYSTEMS

[www.varleygroup.com](http://www.varleygroup.com)

T +61 2 4964 0400 E [defence@varleygroup.com](mailto:defence@varleygroup.com)



## Geelong and The Bellarine: A Great Escape

Just 20 minutes from Avalon Airport, Geelong has emerged from a hard-working wool centre and manufacturing town to be reinvented as a city with an enviable lifestyle. Incredible places to eat and drink dotted through precincts across the city combined with a fresh approach to culture and a sparkling event calendar makes Geelong an ideal destination to explore.

The Geelong Waterfront is at the heart of the city overlooking Corio Bay. Explore the waterfront trails, public art and parks before finding a restaurant or bar with epic views and food to match.

Around Geelong, the reinvention of the city has seen former industrial sites transformed into cool experiences. Little Creatures is in an old mill in South Geelong, now they brew and supply the whole East Coast of Australia with beer. The on site canteen and bar is the best place to grab a beer direct from the brewer and share some food. On the same site, their White Rabbit Brewery is an adventure in beer with open fermenters and imaginative combos. Across town in another old factory, Boom Gallery has incredible contemporary art alongside a wonderful gift shop and café.

Half an hour from the city in any direction leads to deliciousness. In the Moorabool Valley and across The Bellarine, farm fresh produce is grown in farm fresh air alongside some of Australia's most awarded wineries and vineyards. Many have fabulous restaurants attached serving produce from nearby and matched with a glass of their best.

There's adventure to be found in the space around the city too. The You Yangs Regional Park has mountain bike tracks, hiking trails, rock climbing and abseiling. On the Bellarine you can learn to surf or stand up paddle board, skydive onto the beach or take an adventure flight (with or without aerobatics). If you prefer keeping your feet on the grass when you're on holidays, there are five of Australia's top 50 golf courses within around 20 minutes of each other.



The Bellarine is a wonderful coastal escape for family fun too. There are water and adventure parks, a maze and mini golf to decide family bragging rights and some of the best beaches for boogie boarding and rockpooling.

Around The Bellarine, towns overlook bays and oceans. You'll find great coffee, secret shopping spots and fun activities, all with a fresh sea breeze. You needn't travel far to feel like you're a million miles away. This coast is the perfect escape, a place to enjoy days as action-packed as you want them to be, then relax and fall asleep to the sounds of the sea.

Plan your escape to Geelong and The Bellarine now:  
[www.visitgeelongbellarine.com.au](http://www.visitgeelongbellarine.com.au)



An aerial photograph of Geelong and The Bellarine coastline at sunset. The city of Geelong is visible on the left, with its dense urban area and industrial zones. The coastline curves along the right side, featuring a large harbor with many boats and a smaller, more sheltered area with a beach and a small pool. The sky is a mix of blue and orange, indicating the time is either early morning or late afternoon.

# Fresh AIR SHOW

This is where the fun stuff happens.  
Whether you like to play, browse, wander,  
relax, shop, eat or drink, Geelong and  
The Bellarine has got you covered,  
just 20 minutes from Avalon Airport.

[visitgeelongbellarine.com.au](http://visitgeelongbellarine.com.au)

VISIT **GEELONG**  
& **THE BELLARINE**

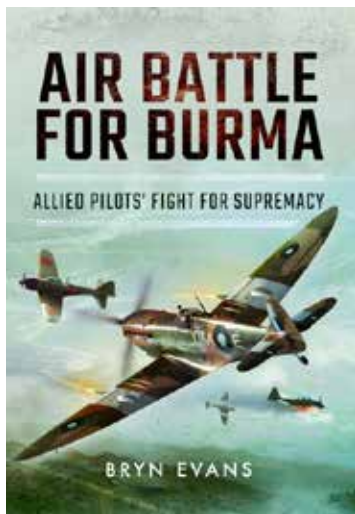
## No 5 Squadron Centenary Reunion

No 4/5 Squadron Association will hold a Centenary of Formation Reunion in Canberra on the weekend of 20 - 22 October 2017.

Ex-members and spouses/partners are invited to attend. To register your interest, please contact Dutchy Holland on [mholland@electriciansplus.com.au](mailto:mholland@electriciansplus.com.au) or telephone 07 55222255 or 0499 229911.

As more information becomes available, details will be disseminated through a range of sources.

Peter Cullerne  
Treasurer  
No 4/5 Sqn RAAFA Sub branch



## Air Battle for Burma

### Allied Pilots' Fight for Supremacy

Author: Bryn Evans

Hard cover: 279 pages, with eight plates of B&W photos and maps

Publisher: Pen & Sword Books UK, Nov 2016

Availability: From all good book stores, online from publisher author.

Tel: 612 94381939 Mob: 61 (0)407 694 968

Email: [bryn.evans@ozemail.com.au](mailto:bryn.evans@ozemail.com.au)

Price: \$34.95 + Postage

The Air Battle for Burma is an excellent account of the history of the Allied efforts to defend Burma from a seemingly invincible foe.

While the air battles that raged over Burma are the main focus of the book, the author has blended the strategic context of the battle for Burma with the frantic and desperate early dogfights between Hurricane fighters and the overwhelming and better equipped Zeros of the Japanese Army Air Force in the skies over Burma to the introduction of the Spitfire into the air campaign and the resultant reversal of fortune in the fight for air superiority.

The reader is lead to the Burma campaign through the defeats suffered by the British forces in Malaya and the United States at Pearl Harbour, recognising the vital need to support the Chiang Kai-shek's forces battling the Japanese across China. Update of the strategic context continues throughout the book.

Bryn Evans brings alive the epic aerial battles through the inclusion of numerous personal accounts of fighter pilots engaged in desperate dogfights that took an enormous toll of pilots and aircraft. The result is an excitement seldom found in historical accounts that is gripping, and provided in a way that enables an understanding by those experienced in military air operations as well as those who are much less familiar with the intricacies, fear, exultation and sacrifice experienced in aerial combat.

It is a wonderful blend of firsthand accounts of the air battle from the men in the cockpit who desperately fought and died and the challenges faced by the Armies below who fought daily, grinding battles in the jungles across Burma. The Air Battle for Burma reinforces an axiom oft forgotten regarding the vital essentiality of the attainment of air superiority over the battlefield to enable land forces to survive and to fight. Acknowledged by General Slim, Commander of the 14th Army, *"... there could have been no victory without the constant support of the Allied Air Forces ..."*.

But the book is much more than a battle history, as exciting as it is, the reader is able to relate to the men who flew the Spitfires, Hurricanes, and Thunderbolts in the dogfights; the transport force of Dakotas and the Curtiss Commandos tasked with the enormously challenging requirement of the air supply of large armies over remote and featureless jungles; fighter-bombers, Hudsons and B-17s bombers who blunted the Japanese land forces; and Catalina reconnaissance aircraft who enhanced the early safety of outnumbered naval forces at sea.

The main air forces engaged in the air battle for Burma were Britain's Royal Air Force (RAF), the American Volunteer Group, and the United States Army Air Forces (USAAF), and of the latter in particular the United States Air Transport Command.

Within the RAF was a mix of Australian, Canadian and New Zealand aircrew who fought alongside their RAF counterparts. Born in Moama, NSW, Wing Commander Noel Constantine, a RAAF pilot, an unsung and largely unrecognised Australian, who flew Hurricanes in the early desperate dogfights and survived to lead the most successful Spitfire squadron in Burma. His exploits and insights, along with those of many other pilots are blended into the history of the battle as it unfolds.

It is a well-written and researched history of the air war over Burma. An engaging and informative read - it is also an unexpectedly exciting account of the air battle and of the men who fought it.

**Review by AVM Bob Treloar (Retd)**



# RE-DEPLOY WITH A NEW CREW

MILITARY AIRCREW RE-SETTLEMENT

Fast Track First Officer A380 / B777  
testing (min. requirements)

CASA and EASA licence conversion

MCC and Type Ratings B737 / A320

Interview, aptitude and simulator  
skills development

**CREW**  
CAREER RECRUITMENT EVALUATION WORKFORCE



## Hot Bonding Controller

**The HBC-4301A is designed for elevated temperature curing of adhesives used in composite repairs used on civilian and military aircraft.**

[www.novatech.com.au](http://www.novatech.com.au)

**The features are:**

- 16 thermocouple inputs type K or J
- Three heater zone outputs
- Programmable heater temperature profile with vacuum control
- Automatic soak time adjustment based on the type of adhesive and lowest sensed temperature
- Two HBC-4301s can be cascaded for large jobs enabling six zones and 32 thermocouples



**Novatech**  
CONTROLS PTY. LTD.

**GMA COVER AUSTRALIA Pty. Ltd.**

[www.gmacoveraustralia.com.au](http://www.gmacoveraustralia.com.au)

[jmackenzie@gmacoveraustralia.com.au](mailto:jmackenzie@gmacoveraustralia.com.au)

Tel: +618 9206 2444

Design model pictured:  
C-130 Hercules Hanger

# AIRCRAFT HANGARS

We offer hangars and roofs for aircraft of every type and designation, hangars for ground services, cargo warehouses and other facilities. In addition to a number of desired features, our hangars are characterised by the lack of any internal supports, columns or pillars, making them an ideal solution for aircraft with large wing spans.



## Why choose aircraft hangars by GMA Cover Australia?

- cheap and economical
- easy maintenance and operation
- short construction time
- custom-made
- large span — up to 100 m
- long-term guarantee and fast and efficient service
- naturally bright interior thanks to translucent membrane
- infrared radiators provide economic and efficient heating
- excellent acoustic conditions
- trouble-free operation in the winter season





Aviation Ground Support Equipment



WE RECOMMEND  
SUPPLY AND INSTALL  
SQUID TRANSPONDERS  
by



**SALES**

**HIRE**

**MAINTENANCE**



Australasia's Largest Distributor of  
Overhauled & Refurbished Aviation Ground Support Equipment  
of the Highest Quality at the Most Competitive Prices



**SQUID by era**

**OzGSE is now the exclusive Australian agent for  
SQUID AIRSIDE TRANSPONDERS**

**07 3860 6800 W: [ozgse.com.au](http://ozgse.com.au) E: [info@ozgse.com.au](mailto:info@ozgse.com.au)**

**BLDG 7, AMC, BAECHEA ST, BRISBANE AIRPORT QLD 4008, AUSTRALIA**

## ROV PILOT TECHNICIAN TRAINING

# Turn your technical expertise into a new career working with subsea remotely operated vehicles

- JOB SATISFACTION
- FLEXIBILITY
- LUCRATIVE EARNINGS
- WORLDWIDE TRAVEL

Get the best start to your new career with training for the job, from ROV industry experts.

  
**THE UNDERWATER CENTRE**  
TASMANIA & FORT WILLIAM

Contact our Student Advisors  
to find out more: +61 3 6383 4844  
tasmania@theunderwatercentre.com  
www.theunderwatercentre.com



01/11/16/03



## Australian Parachute Federation National Championships 2017

**Where:** Skydive Australia, York, WA

**When:** Practice – 19/20 March. Comp – 21 to 25 March  
CP Qual – 21/22 March. Comp – 23 to 25 March  
Weather – 26 March

**Events:** 4 and 8 way FS (Inter and Open), 2 way VFS, 4 way VFS, CF 2 way Seq, CF 4 way Seq, Freely, Freestyle, Classic Accuracy, Canopy Piloting (Inter and Open), WS Performance Flying and Acro (Inter and Open)

**Registration:** \$100

**Event Fees:** FS 4-way Open and Intermediate \$500 - 10 rounds  
FS 8-way Open and Intermediate \$472.50 - 10 rounds  
Vertical Formation Skydiving 2 way - \$480, 4 way - \$400 - both 8 rounds  
Artistic Events \$420 - 7 rounds, Wingsuit - \$420 - 7 rounds  
Canopy Formation 2 way - \$480, 4 way - \$400 - both 8 rounds  
Accuracy \$250 - 10 rounds

More info at: [www.apf.com.au/national-competitions](http://www.apf.com.au/national-competitions)





**The Museum will be open on Monday,  
6 March 2017 from 10:00am to 5:00pm**

### Open

9:00am to 3:00pm Tuesday to Friday  
10:00am to 5:00pm Weekends & Public  
Holidays

### Closed

Mondays, Christmas Day & Good Friday

Tel: (03) 8348 6040

Fax: (03) 8348 6692

Web: [www.airforce.gov.au/raafmuseum](http://www.airforce.gov.au/raafmuseum)

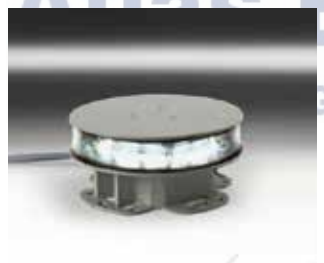
Facebook: [facebook.com/RAAF.Museum](https://facebook.com/RAAF.Museum)

## Entry to the RAAF Museum is FREE!!

The RAAF Museum, located at Point Cook, is home to an amazing range of historic military aircraft. A great chance to view these rare machines is at the interactive flying displays which are held every Tuesday, Thursday and Sunday at 1:00pm (weather permitting).

The Museum has a vast collection of historical material on show, including several hangars with static aircraft. It offers visitors an exciting experience and insight into the history of the Air Force.

Models, books, patches, clothing and mementos can be purchased at the Museum shop.



### Aviation Lighting

We provide medium intensity aviation lights for sale, hire and installation. Our red and clear lights can be used on all aviation applications and meets all Australian Aviation Standards.

The medium intensity aviation light is designed to give a working life of 1 million hours and each unit has a in-built audio visual alarm to warn for maintenance.

### Custom crane signage design

We can create tailor-made crane signage to match your specific requirements. Any design, any colour and any size, our signage design is made to meet your needs.

Plus, all our signs are wet weather-proof, manufactured using lightweight material and feature high-tech lighting in variety of colours.

1300 30 50 29

[info@atlaselctric.com.au](mailto:info@atlaselctric.com.au)

[www.atlaselctric.com.au](http://www.atlaselctric.com.au)

# Atlas Electrical

## TECHNOLOGIES & SERVICES



.Illuminated Signs.

.Aluminium Signs.

.Panel or Dibold Signs.

.Mesh Banners.

## Permanent, portable & temporary aviation lighting solutions

Avlite, international  
designer & manufacturer  
of complete aviation  
lighting systems; airfield,  
heli & obstruction



**Avlite Systems**  
Melbourne, Australia  
t: +61 (0)3 5977 6128

We believe technology improves navigation™

[info@avlite.com](mailto:info@avlite.com)



### *Premier Provider of Project Management and Information & Communications Technology (ICT) Solutions and Services*

Established in 1991, CDM has grown to more than 160 employees spread throughout our four branch offices in Canberra, Sydney, Brisbane and Melbourne. CDM delivers Visibility, Productivity, Connectivity, Manageability and Supportability for your current and future ICT environment. Our services include:

- ICT Project Management
- ICT Project Definition Studies
- ICT Procurement
- ICT Network Design, Installation and Engineering Support

Applications Solutions, including the installation of Microsoft® Sharepoint and/or Enterprise Project Management

For further information or to discuss your ICT requirements, please contact **David Welch** on (02) 6269 2204, [dwelch@cdm.com.au](mailto:dwelch@cdm.com.au), **Jon Gamble** on (03) 9601 6611 [jgamble@cdm.com.au](mailto:jgamble@cdm.com.au) or **Mick Mokrzycki** (02) 9286 2267 [mmokrzycki@cdm.com.au](mailto:mmokrzycki@cdm.com.au).

[www.cdm.com.au](http://www.cdm.com.au)



### OUR SERVICES INCLUDE

- Rotor Drive Systems CR&O
- Non-Destructive Testing
- Brush Cadmium Plating
- Cargo Hook Repair & O/H
- Mechanical Flight Controls CR&O



[www.heliponents.com.au](http://www.heliponents.com.au)



**0402.332.039**  
or **0414.738.539**



[ben@heliponents.com.au](mailto:ben@heliponents.com.au)



**48 High Rd**  
**Burpengary East,**  
**QLD, Australia 4505**

**DISTRIBUTOR OF THE HELIFIRE MONSOON BUCKET,  
THE MOST COMPACT AND COLLAPSIBLE MULTI  
DROP HELICOPTER FIRE BUCKET AVAILABLE**





## AVIATION VALUATIONS FIXED WING & ROTARY

Specialising in Finance  
& Corporate Valuations  
Australia Wide with offices  
in Brisbane, Newcastle,  
Sydney, Melbourne & Perth.



**CONTACT** Tim Deeble  
Phone: 02 4028 0011  
Mobile: 0411 231 536

NAAA Senior Certified Aircraft Appraiser AVAA Valuer Member No. 374.

16774

[slatteryauctions.com](http://slatteryauctions.com)



**2017 aviatex**

ITS FINALLY HERE!!  
A professionally produced,  
comprehensive, commercial  
aviation exposition aimed squarely  
at the GA, RA and light sport  
sectors of the aviation industry.

Illawarra Airport, Albion Park

**THU 4 MAY- SUN 7 MAY**

hear the information  
see the equipment  
meet the people

Media Partner  
**AVIATION TRADER**

IN CONJUNCTION WITH  
**wings over illawarra**



commercial - general - recreational - sport - education

**EXHIBITORS - BOOK YOUR SITE NOW!  
VISITORS - REGISTER NOW!**

Strategic partners



Major sponsors



[aviatex.com.au](http://aviatex.com.au)



## ST Aerospace Academy

A member of ST Engineering



ST Aerospace Academy (STAA) is a company of ST Aerospace – one of the world's leading aircraft maintenance, repair and overhaul service providers. Operating a global network with subsidiaries and affiliates in the Americas, Asia-Pacific and Europe, ST Aerospace has a staff strength of more than 8,000 worldwide.

Established in 2007, STAA is the first non-airline affiliated flight training organisation headquartered in Singapore to offer commercial pilot training services to airlines and aspiring individuals. STAA's pilot training network includes a Simulator Training Centre in Singapore's Seletar Aerospace Park and two flight training bases – one in Texas, USA and the other in Victoria, Australia.

Apart from conventional Commercial Pilot Licence (CPL) training programmes, STAA is among a select few flight training organisations in the world to train airline cadets on the competency-based Multi-crew Pilot Licence (MPL) programme.

As a one-stop pilot training solutions provider, STAA's offerings also include dry and wet leasing of simulators, advanced training such as Multi Crew Cooperation and Type Rating courses, recurrent training, as well as customised programmes for airlines.

**Phone: 03 5330 9522 [www.staa.com.sg](http://www.staa.com.sg)  
2 Bowral Court Mitchell Park VIC 3355**



## Looking to get into the Aviation industry?

Visit **Federation Training** and the  
**Federation Academy for Aviation** to meet  
our staff and learn about what we offer.

**Find us at stand 2N27.**

1300 133 717  
[federationtraining.edu.au](http://federationtraining.edu.au)  
National Provider No: 0417

