

WINGS

SPRING 2019
VOLUME 71 NO.3

MILITARY AVIATION

EVOLUTION

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MANAGER'S MESSAGE

YOUR MAGAZINE NEEDS YOU

Welcome to the Spring 2019 edition of *Wings*, we hope all our readers and contributors enjoyed our Winter (first) edition in the modernised format.

With the ongoing arrival of the F-35A ushering in a new fighter presence, we take a step back in this edition to the Mirage era, largely stimulated by the Friends of The Mirage (FOTM) reunion organised by Barry "Bones" Einam (see page 56). WGCDR Marty Susans (retd) also kindly allowed us to publish a precis of his book *The RAAF Mirage Story* (page 20).

One of my objectives as *Wings* Manager is to provide the opportunity for our serving men and women to foster a sense of ownership of the magazine. In my 25 years in the RAAF, I became aware that the Service enlists quite a number of budding authors, cartoonists, jokesters and "yarnsters". As we all know, once we become comfortable with the challenges of our work environment and with our colleagues, we develop a sense of passion for our vocation and the tools and machinery we work with. Truckies love their rigs, pilots love their aircraft, gunnies love making things go bang etc. It's that passion that spawns the stories and jokes that articulate the camaraderie within and commitment that weave the fabric of the Service.

RAAFA Publications has lots of stories from the past, as illustrated by the Ubon story in this edition (page 58), but while our history will remain an important part of *Wings*, we are keen to include more contemporary material. With that in mind, and on the back of Bones' FOTM story, I would like to draw on the latent talents of serving personnel to provide regular contributions to the Warries and Stories section of *Wings*. I'm looking for short stories about your experiences and activities, humorous or sober, at home or deployed, and graphical cartoons that depict the situations you find yourself in from time to time. Good yarns and rhythmical ditties of a non-offensive nature are also welcome. If we have sufficient response with cartoons, I will consider a regular cartoon corner.

If you feel you have a yarn or interesting story you would like published, please email it to manager@raafapublications.org.au. I look forward to your contribution.

Ron Haack
Manager



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FROM THE CHIEF OF AIR FORCE

I AM DELIGHTED to provide the foreword for this second edition of the new-look *Wings* magazine.

Wings provides a direct link between the Air Force Association and the Air Force family – serving members, APS and contractors, and many former men and women in blue. It is a privilege to be a part of such a distinguished group of people.

When I started at the RAAF Academy in 1980, I was yet to fully appreciate the many opportunities, challenges and rewards that service in the Air Force would provide me over what continues to be a wonderful journey. I am excited by the range of career options available in Air Force today, as well as the many opportunities for former members as they transition into civilian life. I hope *Wings* will continue to provide a tangible link between Air Force and the people that support it.

I am enjoying my time as CAF, and looking forward to the challenges that it will bring. We have one of the world's most technologically advanced air forces and are well on the way to becoming a fifth-generation air force. I have no doubt we will continue to maximise the potential of our technological and human assets, and to excel in an increasingly complex warfighting environment.

I am also fortunate to have several significant events taking place during my tenure. This year sees the centenary of the Great Air Race from Great Britain to Australia. The exploits of pilots Captain Ross Smith, his brother Lieutenant Keith Smith, and mechanics Sergeant W.H. (Wally) Shiers and J.M. (Jim) Bennett inspired

the world and became a defining moment in aviation. Air Force will celebrate the anniversary at the Edinburgh Air Show in November.

And in 2021 we celebrate another centenary, with our own 100th birthday. This is a reminder that ours is the world's second oldest Air Force, with a proud and remarkable history. It will be quite a celebration for current and former airmen and airwomen, and indeed for all Australians.

I have great pleasure in commending the Air Force Association and *Wings* to you.

AIRMSHL Mel Hupfeld AO DSC
Chief of Air Force



ON THE COVER

Mirage III A3-15, 77SQN configured for air-to-air combat.
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THE NEW WINGS TEAM

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DIGITAL EDITION

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AIR FORCE ASSOCIATION

THE NEW LOOK *WINGS* has received overwhelming approval with a multitude of accolades following the issue of the winter edition. The Association congratulates RAAFANSW Publications Pty Ltd on its publishing achievement and looks forward to a long relationship with the publishing company.

The Productivity Commission recently delivered its final report on the government's inquiry into veterans compensation and rehabilitation.

The report contains sweeping recommendations to reform the veteran support system. Several of the recommendations could be considered controversial and confronting, but many contain well overdue initiatives. The final report is 900-plus pages and a challenge

to read. However, an 80-page overview version is available online at pc.gov.au/inquiries/completed/veterans/report.

During the year, Air Force Association Ltd – the Association's national entity – has been actively supporting veterans of all generations through its representations to Department of Affairs, government-directed inquiries into veteran support matters, and representations on behalf of individuals. Written submissions, personal interviews and attendance at numerous committee meetings, public hearings, and participation in video-conferences have occupied the Executive. Protecting veterans' hard-won benefits and entitlements, and providing input to help shape a more effective and efficient veteran support system will be an ongoing challenge.

The Association's objective for a veteran support system was acknowledged by the Commission that quoted our view in its final report.

The Air Force Association: Any compensation and rehabilitation system for veterans and their families must be 'fit for purpose', recognising the unique nature of military service. Its principal aim is to return the veteran who has suffered injury or illness due to service duty to his/her former physical and/or

mental health state and when this is not possible provide lifelong treatment and financial support.

The Productivity Commission sees an important role for ex-service organisations (ESOs) in continuing to provide input on the practicalities of the veteran support system and influencing government policy on veterans' support issues. It also sees the opportunity for ESOs to assist veterans and their families with transition, rehabilitation and social engagement.

However, the commission is critical of ESOs for having no unified position. This was evident from the responses to the Productivity Commission's Inquiry and Robert Cornall's Advocacy Support Services Scoping Study. A government-funded peak body representing veterans' interest was suggested. ESOs need to collaborate otherwise there is a danger their ability to continue to effectively champion the needs of veterans and families will diminish.

The State/Territory Division Presidents and the Executive that form the Association's national entity have agreed to an Association refinement and modernisation program. The new-look *Wings* was the first step in the process. The Association is a federated organisation comprising eight separate autonomous, incorporated entities. However, despite their many differences, they are united by shared values, aims and objectives. The Association can become more effective by harmonising its Divisions' strategies, governance, and operations to enable them to better contribute to the provision of veteran support services to former serving and serving Air Force personnel and their families. The Association, of course, will not ignore any veteran from other Service origins who reach out for assistance.

It is a great honour to belong to an organisation that recognises the service and sacrifice of veterans of all generations, and is ready and willing to assist them and their families when and where needed.

Carl Schiller, OAM CSM
National President



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JOIN THE AIR FORCE ASSOCIATION

Membership is open to serving and former members of the Australian Defence Force and Allied Armed Forces, their family members, current and former Air Force Cadets, Air League Cadets and members of the public who have an interest in aviation and who support the mission and objectives of the Air Force Association.

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THE WINTER ISSUE OF **WINGS** MAGAZINE WITH ITS NEW LOOK AND BROADENED CONTENT HAS BEEN WELL RECEIVED AND WE THOUGHT WE'D SHARE A FEW OF THE KIND WORDS THAT HAVE COME OUR WAY.

WELL PRESENTED

THE LATEST EDITION of *Wings* is excellent and a credit to all involved. All of the articles were particularly interesting, varied and very well presented.

Malcolm Burns

President, Seaplane Pilots Association of Australia, Rathmines, NSW

HIGH QUALITY

I WOULD LIKE to congratulate everyone on the *Wings* crew on such a beautiful and professional magazine. The readers are very lucky to have such a high-quality magazine both in content and in print.

Melvin Chambers

Den Ham, the Netherlands



CONGRATULATIONS

CONGRATULATIONS TO YOU and your contributors on the Winter issue of *Wings*.

The articles were wide ranging in their subject areas and therefore appealing to varied readers. Even so, I found very many of them of personal interest.

The quality of the publication was excellent – its format and arrangement, quite superb photographs, attention to detail, the obviously thorough proofreading, and so on. The glossy finish further added to its appeal.

You mentioned in your opening note the magazine's new look and feel. Well the end result is a really high-class publication.

Warren Grace

North Turrumurra, NSW

YOUNG FAN

WHEN I VISITED my six-year-old godson Ty, I took my latest copy of *Wings* to show him. We were going out for the day, but Ty refused to be separated from my magazine. "I'll just take it in the car," he said.

He spent the entire trip looking at the Globemaster poster, and through *Wings*, with a lot of questions about aircraft. The magazine was on his lap again the entire trip home, more plane conversation, and his dad saying to him that they could read the stories together at night. All while Ty was discreetly working on the staples. By the time we returned home, the poster was loose and ready for the wall in his bedroom.

As for my magazine, I didn't have the heart to separate Ty and my only copy of *Wings*. However, I am consoled by the knowledge there is one small, happy boy, who can't wait to read the stories with his dad at night and can't wait for his next poster and issue of *Wings*.

Name and address supplied

Please send letters to editor@raafapublications.org.au, including your name and details. Letters may be edited for length and clarity.

CORRECTION On page 33 of our winter issue, in the feature RAAF Spitfires over Normandy, the sentence following the 11 June 1944 operation – "So ended June 1944 for 453 Squadron and the others of 2TAF" – should have read "Operations continued through the rest of June". Our apologies for any confusion caused.

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Photo: Tony Crampton



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EDITED BY Bob Treloar

NEW CHIEF OF AIR FORCE

THE ROYAL AUSTRALIAN Air Force welcomed new Chief, Air Marshal Mel Hupfeld, following a ceremonial parade and flypast in Canberra on 3 July.

AIRMSHL Hupfeld has served in the RAAF for nearly four decades; he was awarded the Distinguished Service Cross in recognition of his performance as Commanding Officer of No.75 Squadron on Operation FALCONER, and his Squadron was awarded a Meritorious Unit Citation. AIRMSHL Hupfeld said it was both an incredible honour and a substantial responsibility to be taking command of Air Force.

"Our people are the key to our capability, and it is humbling to have

been chosen to lead them," AIRMSHL Hupfeld said. "I am grateful for the enduring legacy of AIRMSHL Davies' leadership, with today's RAAF on a strong and solid vector for the future."

AIRMSHL Hupfeld has commanded Air Combat Group and served as Air Commander Australia and Head Force Design. He was appointed as Officer of the Order of Australia for distinguished service to the Australian Defence Force in senior command and staff appointments.

Prior to appointment as Chief of Air Force, AIRMSHL Hupfeld served as Chief Joint Operations.

Source: Defence Connect



ABOVE Air Marshal Mel Hupfeld.

Leadership change AT AIR COMMAND



ABOVE Air Vice-Marshal Joe Iervasi (left) and Air Vice-Marshal Steven Roberton, shake hands at the official ceremony at RAAF Base Glenbrook. Photo: CPL Casey Forster.

AIR FORCE MARKED the Air Commander Australia Change of Command from Air Vice-Marshal Steven Roberton to Air Vice-Marshal Joe Iervasi with a formal ceremony at RAAF Base Glenbrook.

About 200 personnel and Air Force leadership attended the ceremony at RAAF Base Glenbrook on 12 July 2019, which included a traditional tree planting and culminated with a low formation flypast of four RAAF F/A-18A Hornet aircraft from No.2 Operational Conversion Unit.

Air Commander Australia is responsible to the Chief of Air Force for effectively preparing air combat forces to meet government objectives.

There are more than 10,000 people across Air Command and while the operational tempo, through commitments to multinational efforts, has been very high, the ability to maintain a high safety standard and training flying programs is a testament to the professionalism of the teams involved.

AVM Joe Iervasi takes up his appointment as Air Commander Australia following deployment as Commander Joint Task Force 633 commanding Australian Forces in the Middle East.

Source: Air Force

More F-35A AIRCRAFT DELIVERED

TWO ADDITIONAL AUSTRALIAN F-35A Lightning II Joint Strike Fighter (JSF) aircraft have been delivered by Lockheed Martin to Luke Air Force Base in Arizona, US. The two aircraft are expected to join the RAAF fleet next year and are expected to be used as chase aircraft to support initial flight test of aircraft as they roll off the production line.

A chase aircraft is employed to observe the flying characteristics and systems operation of new-built aircraft and report anomalies that could occur due production errors or immature system degradation.

Traditionally, F-16 aircraft have fulfilled the chase role; however, with the ramp up in production of the F-35 program, the Joint Strike Fighter is garnering more responsibility for those activities.

The F-35 Program Office has requested that new partner nation aircraft be used as chase aircraft for a short period prior to functional delivery to the partner nation.

Source: Defence Connect



Williamson Airfield SUPPORTS EXERCISE TALISMAN SABRE

THE RAAF COMBAT Support Group (CSG) prepared Williamson Airfield in the Shoalwater Bay Training Area to support Exercise Talisman Sabre.

About 1,300 personnel, together with aircraft from the RAAF, Australian Army, the US and New Zealand conducted air operations from Williamson during the exercise.

The airfield was used as a forward-operating base for air support operations and to provide catering, communications and security

Source: Air Force Technology



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Minister's military EXPERIENCE



SENATOR LINDA REYNOLDS was appointed Defence Minister in May. Prior to election to the Senate in 2014 she had spent more than 20 years' working for ministers, members of Parliament and the Liberal Party of Australia. She also served for 29 years in the Australian Army as a Reserve Officer.

The minister has held the roles of Senior Training and Development Officer, Army Command and Staff College Training Command; Project Director/Strategic Performance and Training Analyst, Canberra Deep Space Communications Complex; Commanding Officer, 5th Combat Support Battalion; Military Instructor, Army Command and Staff College; Project Director, Army-based Accountability Model Implementation Project; Director Army Strategic Reform Program; and Army Adjutant General

"Having served for over two decades as an Army Officer before my election to the Senate, I know there is no greater constitutional responsibility for any Australian Government than the defence and security of our nation," she said. "My key priority as Minister for Defence is to ensure that our greatest asset – our men and women across Defence – receive the support, training and resources necessary to succeed in their mission to defend Australia and its national interests."

Source: Katherine Times

AUSTRALIA TAKES ITS TIGERS TO SEA

THE AUSTRALIAN ARMY has entered a new era with the deployment of four Airbus Helicopters Tiger Armed Reconnaissance Helicopters (ARH) aboard the navy's HMAS Canberra as part of the vessel's voyage through Southeast Asia.

While the deployment marks the third time the Tiger have been operated from the Canberra, it is the first occasion that an operational Unit has done so. With 80 army personnel, including 12 flight crew, the army and navy are focused on developing a seaborne attack helicopter capability.

The Tigers did not deploy with the ship when it sailed from Australia. They were transported from their base in Darwin to Kuala Lumpur's Subang International Airport in Malaysia aboard RAAF Boeing C-17s, which can each accommodate two helicopters, in addition to equipment and personnel.

Each with a displacement of 27,000t, greater than the UK Royal Navy's former Invincible-class aircraft carriers, Canberra and sister ship HMAS Adelaide can deploy over 1,000 personnel by helicopter or landing craft. Trucks, jeeps and landing craft launch from the ship on an integral well dock. A long, steep ramp and an elevator allows vehicles to travel between the well dock and the vessel's large hangar deck.

Roughly half the hangar deck is earmarked for helicopters, with the remainder for vehicles. Two elevators provide access to the flight deck, with the largest able to accommodate a Boeing CH-47 Chinook transport helicopter.

Source: Flight Global.com



Maintenance arrangement ENHANCES READINESS

US AIR FORCE and RAAF officials implemented a new maintenance arrangement for the C-17 that will improve strategic airlift efficiency and fleet readiness.

Previously, US and Australian airmen could only assist one another with C-17 aircraft repairs. Now, they are able to perform full, interoperable cross-maintenance on US or Australian C-17s at mission critical times on a global scale, improving aircraft availability and decreasing aircraft maintenance downtime and maintenance recovery expenses.

The arrangement increases the C-17's strategic readiness, vital to executing the global mobility mission. Strategic airlift assets like the C-17 are vital to ensuring the US can overcome the challenges associated with operating in a region known for its 'tyranny of distance.'

The maintenance arrangement strengthens the alliance between the US and Australia. It improves operational resiliency, capability and cooperation and is an example of the benefits of common logistics support arrangements.

New opportunities may be realised as well, including the establishment

of combined and integrated C-17 maintenance organisations in deployed environments and the potential for integrating that capability into our new adaptive and agile basing concepts

Source: Aerotech News



ABOVE Maintainers from the 15th Maintenance Group and members from 36 Squadron, RAAF Base Amberley, perform maintenance on a C-17 Globemaster III at Joint Base Pearl Harbor-Hickam, Hawaii in 2017.

Australian KC-30A TANKER DEPLOYED TO THE MIDDLE EAST

THE RAAF DEPLOYED a KC-30A multi-role tanker transport (MRTT) aircraft in June 2019 to support US-led efforts to help combat the Islamic State (ISIS). The RAAF's Airbus KC-30A delivered air-to-air (AAR) refuelling capability to support coalition air operations in the Middle East region. The AAR capability incorporates both Boom and Probe and Drogue refuelling systems and the aircraft is able to refuel almost all aircraft, including the F-16 Falcon, F/A-18 Hornet variants and the F-35A Lightning.

The deployment is part of Operation OKRA, supporting the Operation Inherent Resolve mission. Operation OKRA is the Australian Defence Force's contribution to the international effort to combat the ISIS terrorist threat in Iraq and Syria.

About 600 ADF personnel are deployed to the Middle East in support of Operation OKRA. They make up the Air task Group, the Special Operations Task Group and Task Group Taji.

Source: Department of Defence



RAAF KC-30A MRTT lands at the main air operating base in the Middle East Region.
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Historic MILITARY AIRCRAFT GIFT



IN AN UNUSUAL deal, Temora Aviation Museum has gifted the RAAF with 11 airworthy warbirds from its collection. The deal will help secure the continued operation of the aircraft, which will remain based in Temora and on public display with the museum.

The alliance will provide a fleet of important historic types, along with the requisite funding, to celebrate the RAAF's centenary across Australia in

2021. The transfer included Spitfire, Hudson, Boomerang, Ryan, Wirraway, Dragonfly, Canberra, Vampire, Meteor and Tiger Moth aircraft.

Air Commodore Glen Braz, Commander of Air Force Training Group acknowledged the new and strong relationship and thanked museum founder David Lowy for the generous donation. "Air Force is proud to receive the collection on behalf of the

Australian people and we look forward to honouring those who served with and supported the aircraft in the past," he said. "This remarkable fleet will inspire an interest in aviation among Australians and remind people of an important part of the Australian wartime history."

The fleet of aircraft will play a key part in Air Force's centenary celebration in 2021.
Source: Temora Aviation Museum News

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USAF Raptors

JOIN TALISMAN SABRE 2019

UNITED STATES AIR FORCE (USAF) F-22 Raptors flew alongside the RAAF as part of an Enhanced Air Cooperation mission in lieu of exercise at Exercise Talisman Sabre 2019.

Talisman Sabre builds on the regular exercises conducted from Amberley, within the US and during the key training programs and exchanges with USAF and US Navy forces that are used to develop combat tactics, techniques and procedures. Integration with the fifth-generation platforms like F-22 and F-35 is part of the program.

Talisman Sabre focussed on operating and training our F/A-18 Classic Hornet, F/A-18F Super Hornet, EA-18G Growler and E-7A Wedgetail in the same theatre as the advanced F-22 Raptor stealth fighter.

Aircraft deployed by the USAF in the exercise were: F-22 Raptor from 90th Fighter Squadron; E-3C Sentry, an airborne early warning and control aircraft operated by the 962nd AACS; KC-10 Extender, an airborne refuelling tanker operated by the 6th Air Refuelling Squadron; and B-52 Stratofortress bomber from the 69th Expeditionary Bomb Squadron.

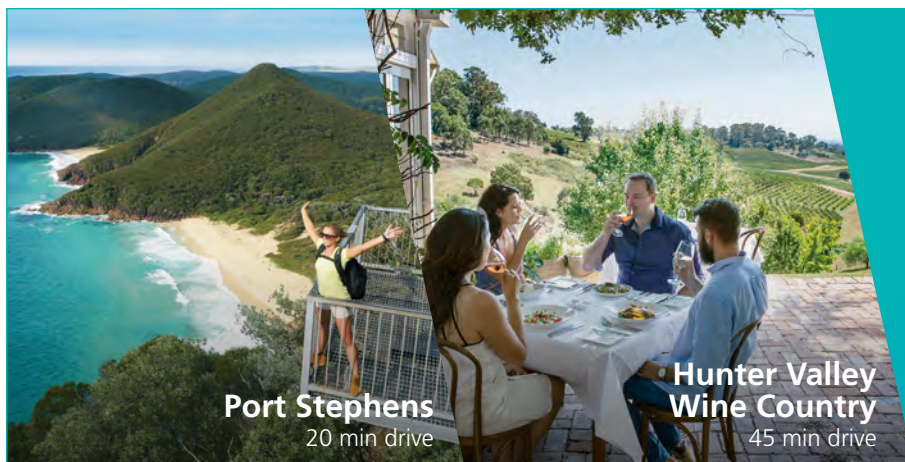
The 90th Fighter Squadron first established its long-term relationship in with the Australians in 1942.

More than 34,000 military personnel from the US and Australia participated in Talisman Sabre conducted in July.

Source: Australian Aviation



ABOVE USAF F-22 Raptors flying in formation over RAAF Base Amberley.



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EDITED BY John Kindler

Defence looks for TIGER REPLACEMENT

DEFENCE HAS ISSUED a Request for Information (RFI) for a platform to replace the Army's Tiger Armed Reconnaissance Helicopters (ARH) under Land 4503.

The RFI specifies a timeline out to Initial Operational Capability (IOC) in 2026 with 12 airframes and Final Operational Capability (FOC) in 2028 with 29 helicopters, 24 for operational deployment and five for training.

The squadron of 12 intended for IOC includes a deployable troop of four aircraft, continued force generation of four aircraft, and an initial training

element of four aircraft.

"The acquisition strategy aims to reduce operational and in-service risk, and to allow the Australian Army to rapidly achieve operational milestones for the replacement armed reconnaissance capability, whilst achieving value for money," the RFI states.

The Tigers were singled out for criticism in the 2016 White Paper and were subject to an ANAO report that listed 76 'deficiencies' not specified in the original requirements.

Three likely contenders for Land 4503 include: Airbus's Tiger Mk.III, which

draws on combat experience in Afghanistan and Mali; the Bell AH-1Z Viper, a US Marine Corps attack helicopter that is specifically marinised by design for amphibious operations; and the Boeing Apache, which is reportedly due to be in service with the US Army until 2060.

Airbus recently won a contract extension to provide through-life support to the Tiger fleet, including aircrew training, design services, software development, complete parts support and technical publication.

Source: Australian Defence Magazine



Students get inside look at F-35 program

HUNDREDS OF HUNTER VALLEY students have toured BAE Systems Australia's Williamstown facility to learn about maintaining and upgrading jet aircraft for the Royal Australian Air Force.

The event, organised by Regional Development Australia (RDA) Hunter, saw students from Years 9, 10 and 11 go behind the scenes with the F-35 and Hawk lead-in fighter aircraft sustainment teams to better understand career opportunities in the region's defence industry.

BAE Systems has secured long-term work at Williamstown supporting Australia's F-35 fleet. Students who have grown up and studied locally can now target a long-term aerospace career in the region.

The students were able to use virtual reality technologies to "see and walk



around" an aircraft hangar that will be built at the facility to support the company's sustainment of fast jets.

BAE Systems sustains 33 Hawk lead-in fighter aircraft and will play an

integral role in the sustainment of Australia's F-35 fleet, employing more than 400 highly skilled workers over the next 10 years.

Source: Defence Connect

INCREASING F-35 CAPABILITIES

LOCKHEED MARTIN HAS revealed a new weapon mounting rack that enables the F-35 A and C variants to carry two more missiles internally – increasing the air-to-air capability of the fifth-generation fighter. The new rack, called 'Sidekick', enables each of the two weapons bays of the Air Force and Navy variants of the F-35 to carry three AIM-120 Advanced Medium-Range Air-to-Air Missiles (AMRAAM) instead of the current two, for a total of six internally carried AMRAAMs. The aircraft can also carry AIM-9X missiles externally on wing stations.

Source: Defence Connect



Interim Chief Executive FOR LOCKHEED MARTIN



 **Scott Thompson.**

SCOTT THOMPSON HAS been appointed interim Chief Executive of Lockheed Martin Australia (LMA).

Scott joined Lockheed Martin in the United States in 2004 as the Logistics Manager for Aegis Lifetime Support providing holistic sustainment arrangements for the US Navy's fleet of Aegis cruisers and destroyers. He worked in that capacity until late 2007 when he returned to Australia on another Aegis related assignment. In 2009 he was appointed lead for all Maritime Logistics activities in Australia. In 2010 he assumed the responsibilities of the Deputy Director Strategy and Business Development.

In March 2016, Scott was appointed Director Strategic Engagement for LMA and was responsible for leading the development and implementation of the company's Australian business growth strategy.

Prior to joining Lockheed Martin, Scott served as a Supply Officer in the Royal Australian Navy for 20 years. Career highlights include postings to the US and UK and a two-year posting as the Supply Officer to *HMAS Brisbane*.

Scott is the Chairman of the American Chamber of Commerce – Defence & National Security Committee and serves on the Australian Transport Management System Partnering Board with the Australian Rail Track Corporation.

Revolutionising nano-sensing tech



THE UNIVERSITY OF Sydney Nano Institute and the RAAF have launched a scientific collaboration to provide world-leading sensing technology for Australia's defence. Researchers at the Jericho Smart Sensing Laboratory will develop nanoscale devices that can assess the physical, chemical, biological, acoustic or electromagnetic environment. This is vital technology for Australia in monitoring electromagnetic, space and underwater domains as they become more contested and congested.

Deputy CAF, Air Vice-Marshal Gavin Turnbull said: "Advanced sensors give us a clearer picture of what is happening against difficult targets in challenging environments." Plan Jericho is the RAAF's project to develop augmented intelligence capability to protect Australia from technologically sophisticated and rapidly changing threats. The Jericho Lab at Sydney Nano will form a critical part of the plan's scientific infrastructure.

The technology developed at the Jericho Smart Sensing Lab will be optimised for Australian conditions, including humidity, foliage and other environmental factors that currently pose challenges for airborne sensors. The experimental work will be located in the Sydney Nanoscience Hub, the headquarters of the University of Sydney Nano Institute. This purpose-built building for research and teaching incorporates state-of-the-art, environmentally controlled laboratories specifically designed for research in nanoscale devices, such as those that will underpin the compact smart sensors developed in this project.

Source: Defence Connect

Boeing prepares Little Bird for ADF

BOEING HAS CONFIRMED it will offer its AH-6i Little Bird light-attack and observation helicopter under the LAND 2097 Phase 4 Project, as Australia seeks to acquire at least 16 special operations support helicopters. However, the company is yet to receive a formal request from the Australian government.

The AH-6 is a light-attack/armed reconnaissance helicopter “specifically designed with superior performance characteristics and flexible, easily configurable mission equipment ideal for light, precision attack, anti-armor, close combat attacks, reconnaissance, security and escort, troop insertion/extraction, combat search and rescue”.

The Defence Request for Tender established that the helicopter should be a proven design (already in service either

in commercial or military capacities), optimised for operating in dense urban environments and capable of rapid deployment by air transport in the RAAF’s C-17 Globemaster strategic airlifters.

The successful helicopters are

intended for use by the Australian Army’s 6th Aviation Regiment, based at Holsworthy, south of Sydney, and will complement a squadron of larger MRH-90 Taipan helicopters.

Source: Defence Connect



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BREAKTHROUGH 'BLOWN-AIR' TECH

FOR THE FIRST time in aviation history, an aircraft has been manoeuvred in flight using supersonically blown air, removing the need for complex movable flight control surfaces. In a series of ground-breaking flight trials in Wales, the MAGMA unmanned aerial vehicle (UAV) demonstrated two innovative flow control technologies which could revolutionise future aircraft design.

The MAGMA aircraft developed for the trial was designed by the University of Manchester with advice and expertise from BAE Systems. The fluidic thrust vectoring exhaust and wing circulation control devices were manufactured using the latest additive manufacturing capabilities.

Working in close collaboration, academics defined the design requirements and leading industry engineers looked at ways of pushing the boundaries of additive manufacturing to optimise the design and performance of the parts. The team produced and flew the first metal 3D printed part to ever fly on a

military aircraft in 2013 and were able to exploit that knowledge to produce highly accurate parts for MAGMA with wall thicknesses just half a millimetre thick, something previously unachievable for flight.

By replacing moving surfaces with a simpler 'blown air' solution, the trials have paved the way for engineers to create better performing aircraft that are lighter, more reliable and cheaper to operate.

The technologies could also improve an aircraft's stealth as they reduce the number of gaps and edges that currently make aircraft more observable to radar transmission.

Technologies demonstrated:

- **Wing Circulation Control:** Taking air from the aircraft engine and blowing it supersonically through narrow slots around a specially shaped wing trailing edge in order to control the aircraft.
- **Fluidic Thrust Vectoring:** Controlling the aircraft by blowing air jets inside the nozzle to deflect the exhaust jet and generate a control force.

Source: Defence Connect

High-speed comms upgrades for Hercules fleet

THE REMAINING RAAF fleet of C-130J Hercules tactical airlift aircraft will receive a high-speed communications upgrade. The Honeywell Ka-Band satellite communications (SATCOM) system has been selected to provide broadband internet connectivity for crew and passengers.

One Hercules was fitted with the system in 2017, and fitting to an additional five C-130J Hercules airframes will commence this year.

The KA-Band system allows for streaming of high-definition video as well as access to complex mission planning while the aircraft is in flight.

The system will improve Defence's ability to respond to a crisis. Hercules crews and passengers are often first on the scene in times of crisis and require timely information at their destination.

The RAAF's fleet of 12 C-130J Hercules already carry L-Band SATCOM, which permits global voice communications and data transfer. The Ka-Band system will complement current satellite transfer rates and enable communications across a broader spectrum.

The installation of Honeywell Ka-Band SATCOM antennas will occur during scheduled maintenance works by Airbus Australia Pacific at RAAF Base Richmond.

Source: Defence Connect

BECA SECURES AUSTRALIAN DEFENCE CONTRACT

BECA HAS BEEN awarded a contract for the management and contract administration of Projects P0008 and P0009 National Airfield Maintenance Works, for the Capital Facilities and Infrastructure Branch of the Estate and Infrastructure Group, Department of Defence.

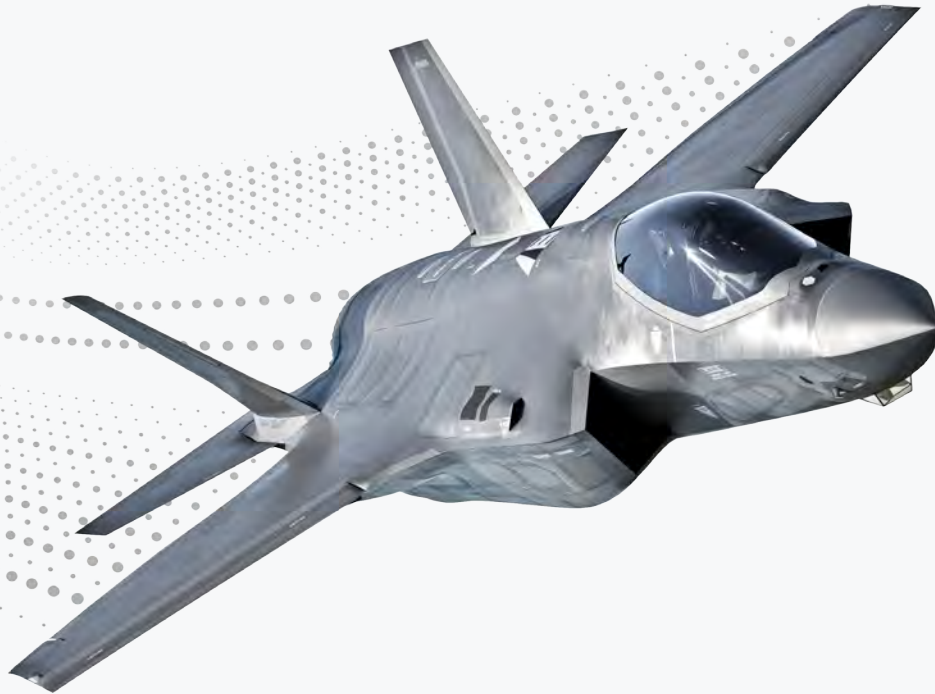
These are major projects for Defence and an extension of the work the company has delivered already for the P1004 program (partnering with Aurecon) and P0007 programs. The latest projects combine the expertise of people across its defence, project management and airports teams, and involve airfield

works at: RAAF Bases Williamtown and Darwin; Robertson Barracks; and Mount Bundey Training Area.

Beca has been providing aircraft pavement maintenance advice and design services to the ADF since 2009. Since 2013 it has been delivering full design and Project Management and Contract Administration services with joint venture partner Aurecon.

Source: Defence Connect

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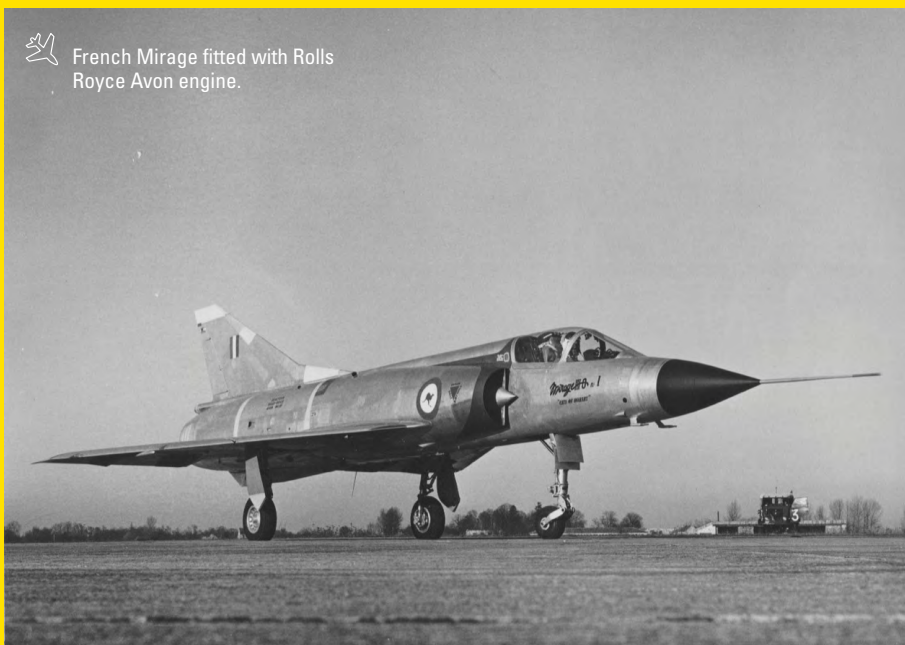
A CHALLENGING

ERA

BASED ON THE BOOK *THE RAAF MIRAGE STORY*, WING COMMANDER MARTIN SUSANS OFFERS A REFLECTION ON THE RAAF MIRAGE PROJECT.



French Mirage fitted with Rolls Royce Avon engine.



IN DECEMBER 1960, the Australian Government selected the French Mirage 111 to replace the Avon Sabre which had been in RAAF service since 1952. The Mirage was a major capability leap for the RAAF fighter force. The Sabre was a subsonic day fighter, while the Mirage was a high-performance all-weather interceptor.

In May 1960, an RAAF Fighter Evaluation Team assessed two contenders, the Mirage 111 and the F104G Starfighter in their countries of manufacture. The Mirage was assessed as being less demanding on airfields, whilst engine reliability, handling qualities and ferry range went against the F-104. Hence, the decision to purchase the Mirage.

PARIS MISSION

The initial Mirage order was for 30 airframes without engines, avionics or weapons. Hence, an RAAF mission was set up in Paris under Group Captain Ron Susans to flesh out the order with ancillary equipment.

To assist in engine selection, Dassault, after urging from Rolls Royce, agreed to fit an Avon Mk67 engine in an earlier Mirage for a trials program. While the Avon had benefits in certain areas of the flight envelope, there was not sufficient performance difference to warrant the technical risk of changing the manufacturer's engine fit. Furthermore, the French Atar engine was lighter and cheaper than the Avon and was perceived to be easier to manufacture and service, as it was designed for military operation exclusively. The French were elated at an all-French buy from a country normally associated with British and American weapons systems.

AUSTRALIAN PRODUCTION

The Government Aircraft Factories (GAF) was the prime contractor for delivery of the Mirage to the RAAF. GAF produced the fuselage at Fishermens Bend, and the Commonwealth Aircraft Corporation built the wings, fin, rudder, tail cone and engine at an adjacent facility. Final assembly and flight testing took place at GAF Avalon.

From aircraft A3-48 onwards, a ground

attack capability was built into the aircraft with major modifications including; new avionics, wet leading edges, camouflage paint scheme and redesignation to 1110(A). Initial Mirage production was completed on schedule with delivery of A3-100 in January 1969. In addition to the initial ten 111D (Dual) a further six Duals were produced during 1971/73 bring the Mirage fleet total to 116 aircraft.

INITIAL PILOT TRAINING

The first Mirage arrived at Williamtown from Avalon on 26 February 1964 with Wing Commander Fred Barnes at the controls, and pilot training got under way in earnest in October. Compared to the Sabre, the Mirage presented some challenges to new pilots. The Mirage had a true delta wing with no high lift devices, introducing high take off and landing speeds and high induced drag at low speeds. As well as an air intercept radar and two different missiles, the aircraft had a navigation computer and a TACAN receiver, all new concepts to the Sabre pilots. The introduction of an afterburner engine involved very high fuel consumption requiring careful fuel management - not an easy task with the quirky fuel transfer system.

TECHNICAL CHALLENGES

Introduction of the Mirage into service involved a major challenge for the RAAF technical service. The RAAF had acquired a modern weapons system including a Mach 2 engine/airframe, a complex and innovative flight control system, advanced avionics, weapons, electrics, hydraulics, support equipment and an advanced mobile flight simulator.

Many of the existing technical facilities at RAAF bases were of WWII vintage needing upgrade for an aircraft such as Mirage. Many large, air-conditioned, open-plan workshops were constructed, and additional hangars, hardstands, run up bays and weapons storage facilities were required. New technologies to the RAAF included transistor-based electronics, printed circuit boards, and Automatic Test Equipment. Many of the systems were integrated, and for the first



 Mirage final production, Avalon.



 F104G Starfighter.



 Air Defence configuration.

time, aircraft tradesmen were required to work across traditional trade boundaries. Logistic support was further complicated by unfamiliarity with French industry processes, and the language barrier.

CHANGING ROLES

During its service life, the roles and disposition of the Mirage force evolved to meet differing priorities, however, throughout its time in the RAAF, the Mirage maintained an operational capability at the Butterworth Air Base in Malaysia. RAAF presence at Butterworth from 1958 was initially by way of a contribution of two Sabre squadrons to the Commonwealth Far East Strategic Reserve, with air operations controlled from HQ Far East Air Force in Singapore. On 31 March 1970, the Butterworth Air Base was formally handed over to the Malaysian government under arrangements covering the return of British military bases to national authority. After the British withdrawal, the RAAF presence was under the auspices of the Five Power Defence Arrangement between Australia, Malaysia, New Zealand, Singapore and the UK.

On arrival at Butterworth, the two Mirage squadrons were role-specialised, 75 Squadron concentrating on all-weather air defence, and 3 Squadron on strike/ground attack.

At that time, 75 Squadron's 1110(F) aircraft were painted silver and were equipped with the Cyrano 2A air intercept radar, while 3 Squadron's 1110(A) aircraft were camouflaged and equipped with ground mapping radar, doppler and radar altimeters for all weather, low-level penetration. 3 Squadron also configured up to two aircraft with nosecone-mounted cameras to accommodate their reconnaissance sub role.

Late in 1969, 75 Squadron was re-equipped with Mirage 1110(A) aircraft and both squadrons converted to multirole. Thus, for the remainder of their time at Butterworth, the two Mirage squadrons operated in similar roles, although 3 Squadron retained the sole reconnaissance capability.



Mirage flight line, Butterworth 1969

With the introduction into service of the FA18 Hornet, the disposition of the RAAF fighter force changed. The Hornet was not to be based at Butterworth, but rather was to make regular deployments to that region. Hence, the RAAF's permanent fighter presence at Butterworth dating back over 30 years was to come to an end.

The Mirage withdrawal from Butterworth was staggered. In August 1983, 75 Squadron redeployed to Darwin where it continued to operate the Mirage until September 1988. 3 Squadron withdrew to Williamstown in March 1986 to re-equip with the Hornet. 3 Squadron's Butterworth assets reformed as No.79 Squadron from 31 March 1986 until that Squadron's disbandment in April 1988.

At Williamstown, Number 2 OCU relinquished its Mirage training role

from January 1985, and that task was taken up by a greatly expanded No.77 Squadron. At that time, 77 Squadron comprised 505 personnel, 68 officers and 437 other ranks, and operated 56 aircraft, 40 Mirages and 16 Macchis. Apart from Mirage conversion training, 77 Squadron also conducted Fighter Combat Instructor and Introductory Fighter courses. In addition, 77 Squadron met its operational training commitments which included a substantial increase in Fleet Support flying following the demise of the RAN fixed wing capability.

Williamstown Mirage operations effectively ceased in June 1987 with 77 Squadron's last flight prior to re-equipping with the Hornet. From that date, only ARDU and No.75 Squadron continue to operate RAAF Mirages. 75 Squadron ceased Mirage operations in September

1988 and after ferrying its aircraft to Woomera for disposal, re-grouped at the new Tindal airbase to commence Hornet operations. ARDU continued to operate the Mirage into 1989.

TECHNICAL ISSUES

Throughout its service life, the Mirage suffered several technical 'crises', the first, the bane of many early jet engines – the ancillary drive pick off. The ancillary drive is used typically to power services such as electrics, hydraulics and fuel pumps. Three Mirages were lost in quick succession from problems associated with the ancillary drive before the matter was resolved and no further such losses were experienced.

Another early technical problem involved an intermittent fault in the Twin Gyro Platform brush assembly, which caused errors in the attitude instrument – the Bezu Ball. This dangerous fault was solved after extensive technical investigation and caused no further problems. A further dangerous fault was the tendency of the Dual canopy to implode at speed. There were several occurrences of Dual canopy failure, and one unexplained loss of a Dual at sea off Williamstown on a Mach 2 run. The dual aircraft were subjected to performance limitations before strengthened canopies arrived from France.

Early indications of corrosion problems in the bare-skinned aircraft lead to the fleet being painted as a protection measure. Fatigue problems arose in the late 1970s with cracks discovered in the lower wing skin panels. An Australian developed Boron fibre doubler patch repaired the cracks and restored structural integrity. Subsequently, eight aircraft were fitted with Fatigue Data Analysis Systems to provide more accurate flight load data. As more cracks were discovered in the wing main spar, a Wing Life of Type Extension Programme was initiated to repair/replace damaged wings.

Between 1976 and 1984, six aircraft were lost due to failure of the undercarriage to lock down. The problem was attributed to the main wheel lateral jack not locking properly.

After much technical investigation, this problem was also solved and did not recur. Other short-term groundings occurred due to specific engine component problems, flight control actuator binding and excess pull forces on the ejection seat handles. However, in general, the Mirage achieved good availability through its long service life.

The Mirage was a clever, uncomplicated design incorporating a sturdy, clean-burning engine. The result was an aircraft that was strong and stable while being aerodynamically clean, making detection difficult, a significant tactical advantage. When lightly loaded, the Mirage accelerated quickly, dashed at high speed, and sustained high transonic cruise speeds at economic fuel flows.

Payload and combat radius were not strong points for this ex-interceptor, however, later in its life, the Laser Guided Bomb and advanced short-range missile improved the aircraft's lethality.



BELOW Primary Attitude Indicator – Bezu Ball.

BOTTOM RAAF weapon release trial.





FLYING ASPECTS

The Mirage was a delight to fly if one ever got a quiet moment with a clean aircraft. The flight control system was a triumph, giving good feel throughout the envelope. The airframe was slippery, easily breaking through the sound barrier when the nose was lowered. The cockpit layout was good, if a little cramped.

On the downside, the Mirage was a high workload machine – software hadn't been invented. Getting out of the flight line was the first drama as differential braking was needed, resulting in high power settings.

A heavy take off was a lengthy affair, with all hopes pinned on the engine 'over speed' kicking in half way down the strip. Once airborne, there was some blessed relief as the air con spooled up, and by top of climb one was more composed. Landing the beast was another drama as it gobbled up runway at 170 knots, no flaps, no slats and quite often no dragchute.

Fuel management could be a problem; there was no total fuel contents gauge, but a manual debitmeter and a series of transfer lights. There was no positive indication of fuel remaining until near exhaustion. The RAAF never lost an aircraft to fuel starvation, but many came close – very close.

Sadly, 14 pilots lost their lives flying

the RAAF Mirage and 42 aircraft were destroyed. However, on a more positive note, all 26 known ejection attempts were successful, with one pilot ejecting twice. In the end, 51% of RAAF Mirage losses were attributable to material factors, 20% to human factors and 7% to operational hazard. The overall loss rate was 11.96 per 100,000 hours, slightly higher than the predicted attrition rate of 11.0.

DISPOSAL ASPECTS

By the time the Mirage was phased out of service, the high time aircraft A3-17, which was placed in storage at Woomera in November 1987, had accumulated 4554 flying hours. Many aircraft had exceeded 4,000 hours. The Atar 9C engine proved to be a rugged powerplant, finishing with a time between overhaul of 630 hours. The airframe TBO finished at 960 hours.

In 1990, 50 ex-RAAF Mirages stored at Woomera were sold to the Pakistan Air Force. The aircraft, including ground support equipment, engines, drop tanks, and spares were shipped from Whyalla to Karachi in November 1990. After overhaul, the aircraft entered service with operational squadrons and the training unit. Later on, the aircraft were upgraded with new avionics, self-protection systems, radar, missiles and air refueling.



LEFT Formation of Squadron markings over Penang Island.



BELOW Mirage cockpit.



The Mirage project was an important and successful stage in the development of Australia's Defence capabilities. The Area Manager at Avalon during that period has declared Mirage "the most successful aircraft project undertaken in Australia".

Perhaps the last word on the Mirage project should go to Air Marshal Jake Newham, previous Mirage Squadron CO and Air Force Chief who stated in his foreword to *The RAAF Mirage Story*: "The Mirage turned out to be an honest aircraft. On reflection, I believe we failed the fighter force by not remedying deficiencies identified early in the aircraft's life, and through being forced to reduce our permanent liaison staff in France, which I'm sure contributed to our slowness to stay on top of serious technical problems – another case of 'penny wise and pound foolish'. This neglect became more pressing as we extended and re-extended the Mirage's operational life when the F/A-18 date of introduction slipped several years. Notwithstanding these strictures and millstones, morale stood up when times were tough; the technicians worked harder to keep the Mirage flying, and the pilots continued to fly them hard and enjoy it. So passes an important era in RAAF history, and a much-respected aircraft." **W**



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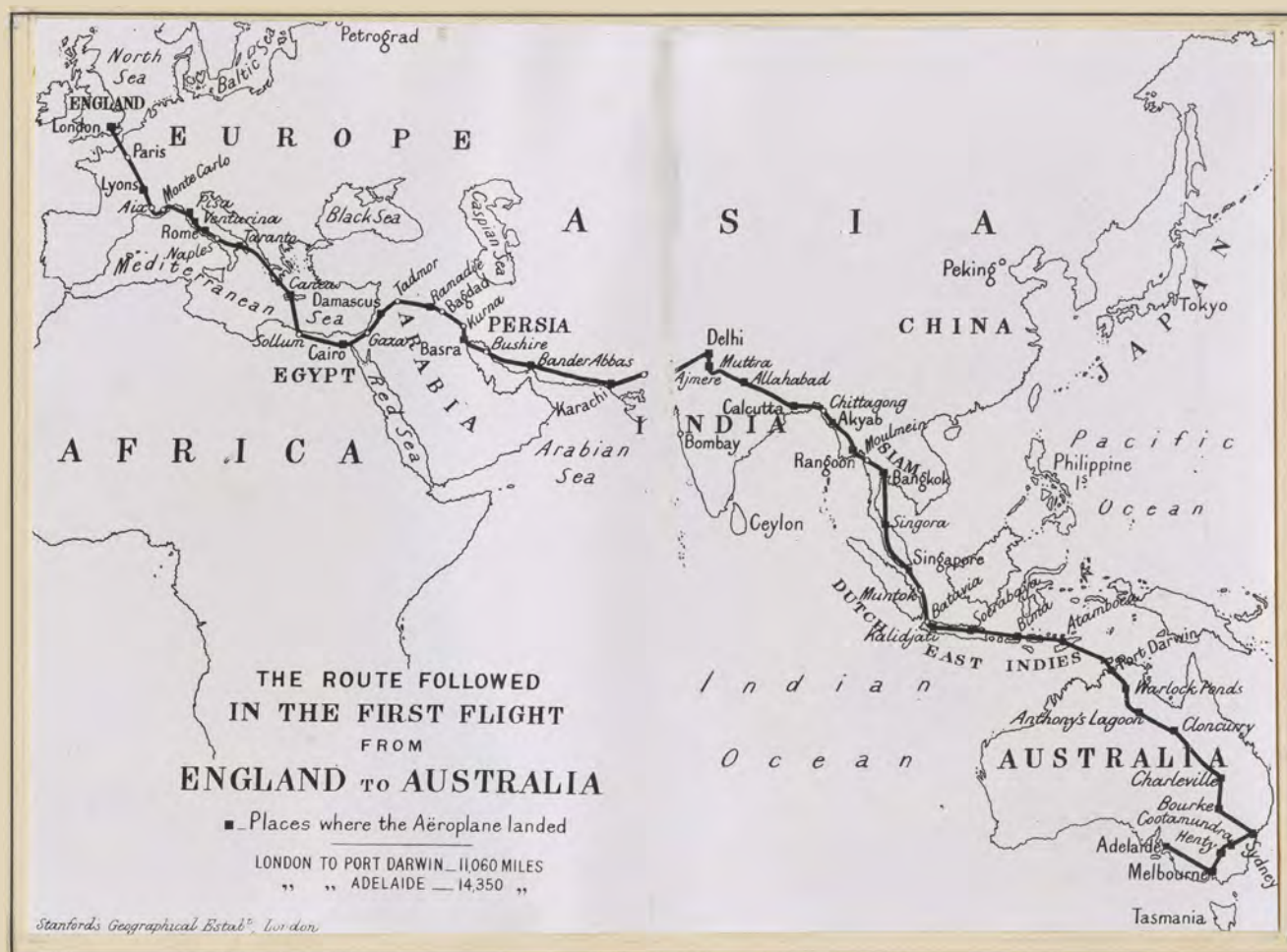
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HALF WAY HOME



CONTINUING THE STORY OF THE GREAT AIR RACE
FROM ENGLAND TO AUSTRALIA.

CONTINUING THE **PIONEERING 1919** flight from England to Australia by four intrepid airmen, Ross Smith, his brother Keith Smith and their sergeant mechanics Wally Shiers and Jim Bennet, we now follow their route from Baghdad to Rangoon.

This account uses excerpts from Ross Smith's 1922 book, *14,000 Miles Through the Air*, which this year has been re-released under the title *Flight to Fame*.

OVER MESOPOT TO KARACHI

The flight from Bagdad to Basra took just under three hours. The crazy river barge, probing its way through shallows, rips, and mud, generally takes a fortnight! Basra we discovered to be a hive of activity. It was the main shipping port during the Mesopotamian campaign, and a large military base and aerodrome were still in evidence. The aerodrome stretches to the horizon, and with the British camp extends for miles along the eastern bank.

As there was a Royal Air Force depot here, I decided to delay a day and allow Bennett and Shiers to overhaul and adjust the engines.

There was always plenty of work to be done at the end of each day's flying. Both of the engines had to be overhauled and cleaned, all parts of the machine examined and petrol and oil tanks refilled for the next journey. Usually this took us three or four hours every day. We adopted a set program which we always carried out religiously. As soon as the machine landed Bennett and Shiers would don their overalls and set to work on the engines; the sparking plugs would be taken out and cleaned, magnetos examined and all parts of the engine inspected and cleaned. On this work to a large extent depended our success or failure.

Keith and I would climb out of our seats and talk to the people who had come out to meet us. Presently Keith would make enquiries about our petrol and oil supplies and get them brought up to the Vimy. I would then go off to the nearest post office and send our cables and get back to the Vimy as



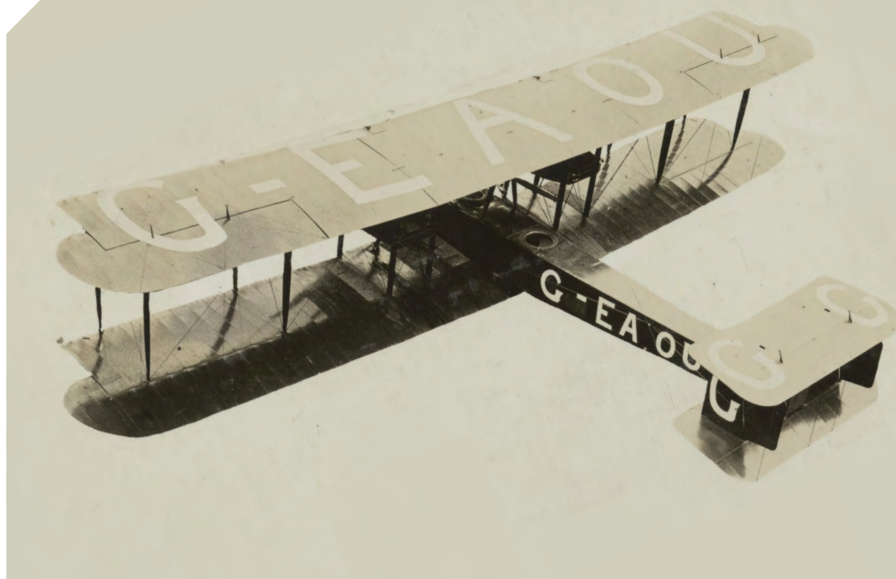
soon as I could. In addition, we had to run the gauntlet of functions and ceremonies, and it was difficult to make folk understand that work had to be done. We deeply appreciated everyone's generous kindness, but I fear that on some occasions people must have thought us very discourteous.

By the time I returned to the machine Keith would have the petrol ready to put into the tanks and we would start to work. This was very tiring and monotonous. I would open the four-gallon cans and lift them up to my brother, a distance of about six feet, and he would empty the cans into the tanks through a large funnel with a chamois leather strainer. Usually we lifted and filtered about half a ton of petrol into the machine and sometimes as much as a ton if we had just completed a long flight. I have always regarded this work

as the hardest part of the whole flight. We would land more or less tired after several hours in the air and then start on really hard work again. The temptation was always to let someone else do it and go off ourselves and rest, but other people might not have filtered the petrol properly, or done something wrong. We decided before we started that we would do all the work on the machine ourselves and as far as possible we carried this out.

By the time the tanks were full Bennett and Shiers would have the engines finished; we would then fill up the oil tanks with "Castrol", put the covers over the cockpit, and peg the machine down for the night.

Putting in the "Castrol" was always a messy job and we would usually finish our day's work very tired and very oily. Fortunately we had foreseen all this



ABOVE The Vickers Vimy in flight..



LEFT Sunset behind the Vimy at Ramadie in Mesopotamia, 20 November 1919.

and talked about it before we started; each man knew exactly what he had to do, and did it, and I think that anyone who has studied human nature will agree that, under these conditions, it is a remarkable fact that never once was there a misunderstanding or a cross word spoken amongst our four selves.

On many occasions it was 9 or 10pm before we left the machine for the night; we would then go off to either a hotel or some kind friend's house, bathe, dine, and in due course — to bed. Each day we arose at 4.30am and we never once had more than five hours' sleep a night, usually it was about four, and then on through another similar day. Add to this the thrill, excitement and strain of the whole race against time and one realises that it is fortunate that we had gone into training and got ourselves very fit before leaving England.

On the morning of November 23rd we made a daylight start from Basra for Bundar Abbas, 630 miles [1,015km] southeast. Soon after starting, the sun came up from the distant hills; the world threw off its somber gray, and in dawn's fair raiment became beautiful. The delicate shades of pink that flushed the horizon mounted higher and higher until the zenith grew gay; and so another day of the flight had begun.

The sunlight sparkled on our varnished wings, and the polished propellers became halos of shimmering light. Our engines sang away merrily. The Vimy ceased to be a machine and pulsed with life, as if feeling the glory of the morning; my brother scanned the landscape below, plotting off the course on the chart and checking our position from time to time by villages and salient features, remarking how wonderfully accurate the world was created!

Bennett and Shiers had stowed themselves away in the after cockpit and were reclining inside the fuselage with the spare parts, endeavoring to secure well-earned rest from their strenuous efforts of the past few days. As the spare parts crammed all available space, theirs was painful comfort indeed. The dimensions of our front cockpit were of those adequate proportions generally attributed to wedges. The weather continued fine, but for the most part the

flight was uninteresting and monotonous.

Throughout this terrible country I scarcely observed a possible landing ground, and had our engines failed us it would have meant either crashing or else an immersion in the Persian Gulf. So it was with no small relief that I brought the Vimy to a safe landing at Bundar Abbas, where a hearty welcome was extended to us by the British Consul, the Persian Governor, and a great concourse of interested natives.

Although dog-tired, I could not sleep

much that night. The coming day's trip, I hoped, would enable us to reach Karachi in a non-stop flight of 730 miles [1,175km]. The distance did not perturb me in the least, but the treacherous country and the isolation from civilization in case of a forced landing, and another long stretch of detestable mountain-scored country, was in itself enough to give one a nightmare.

The British Consul had prepared an ostentatious-looking document which



BELOW Lt Keith Smith, standing in cockpit, pours Shell benzine into the fuel tanks.



SMITH'S COMPETITION: POULET & BENOIST

Of the three other crews competing in the race, none were by this time a threat to Smith's leading position. However, a fifth crew, Frenchmen Etienne Poulet and Jean Benoist in a Caudron G.4, had left Paris a month before the Vimy, on 14 October 1919, on a self-funded flight to Melbourne. Although they were barred from actually competing in the race (as they were not Australian, their aircraft was not British, and they had not left from England), Ross Smith was nevertheless keenly interested in their progress and determined that his Vimy would touch down in Darwin before the Caudron.

The Frenchmen were ahead until Burma, reaching Akyab a day ahead of Smith. But on 9 December, the day before the Vimy landed at Darwin, they abandoned

the flight at Moulmein racecourse with a broken propeller and a cracked piston. Returning to France by ship, they arranged for a new Caudron to be shipped to India.

The following July, they reached Batavia (now Jakarta) in it, but never did continue to Australia.



ABOVE The Caudron preparing to depart.

we were to carry. It commanded the murderous tribes which infested the country to treat us kindly, in case we were compelled to land among them!

My supreme difficulty was to keep my sleep-heavy eyelids from closing and my head from nodding. First of all I would look at my starboard engine and see that the oil-pressure gauge and revolution counter were registering correctly; then listen to hear if the engine was firing evenly. Next, glance over the engine and oil-pipe connections and check off the thermometer which indicated the water temperature in the radiators. The altimeter, air-speed indicator, and petrol-flow indicator in turn claimed attention.

I would then look up to the port engine and go over the instruments and engine as before; then over the side to scan the landscape, and ever keep an alert eye for a suitable spot in case of a forced landing.

Often our thoughts were of Poulet, who was somewhere ahead, and we wondered if ever we would catch up with him.

Frequently we passed over small villages, and our advent instilled terror into the inhabitants and their animals.

For the last 100 miles we left the coast and flew on a compass bearing direct for Karachi and so we entered the aerial gateway to India after a non-stop flight of eight and a half hours.

KARACHI TO RANGOON

The usual procedure of overhauling the engines and machine and refilling our tanks with petrol had to be carried out before we could seek rest, but the first news that greeted us on landing at Karachi was gratifying. Poulet was at Delhi, only a day's flight in the lead! This was a great surprise, for we fully expected that he would be well on his way to Singapore. From now onward added zest would be given to the flight, for I intended to pursue the chase in keen earnest. Already I considered the race as good as won, for the Vimy was superior both in speed and range.

We had hoped for a good rest at Karachi, but the local Royal Air Force officers had arranged a dinner, and it was not before "the very witching hour" that we turned to bed. Three hours and

a half later we were called to continue the flight. This was to be one of the longest non-stops we had undertaken. Nine hours' flying should land us in Delhi, 720 miles [1,160km] away.

During the afternoon flying conditions became very boisterous, and the turbulent atmosphere tossed the Vimy about like a small vessel in a heavy sea. This I also accepted as a welcome diversion, for the flights of the past few days had cramped me in one position, and now I was kept actively on the move keeping the machine straight and fighting the air-pockets and bumps into which we plunged and fell.

At Delhi we learned that Poulet had left the same morning for Allahabad. Great excitement prevailed, for one aeroplane had departed and another had arrived on the same day, both engaged in a race halfway around the world! After attending to the machine we dined at the RAF mess, thoroughly tired but extremely happy. Half the journey was completed and Poulet was within range.

By now we had overhauled the engines and machine twice, and had by our own efforts lifted and filtered two and three-quarter tons of petrol into the machine...

[After a day of maintenance and sightseeing], at 4.30 next morning I tumbled stiffly out of bed on the insistence of a Yankee alarm-clock. Oh, for another day off! But by the time the others had uncoiled and emerged into the early Indian dawn, I felt again the keenness of the chase. A friendly RAF pilot came up in a Bristol Fighter and flew with us for a few miles along the course of the Jumna.

Half an hour later the oil-gauge surprised us by setting back to zero, and we made an unexpected landing at Muttra, to find that it was happily only a minor trouble — the slipping of the indicator on its spindle. And so into the air once more, and on to Agra.

Of all the remembered scenes, wonderful and beautiful, that of the Taj Mahal remains the most vivid and the most exquisite. There it lay below us, dazzling in the strong sunlight — a vision in marble. Seen from the ground, one's emotions are stirred by the extraordinary delicacy of its workmanship. Viewed



BELOW Top view of the Smiths' cramped cockpit.

BOTTOM Stopover at Delhi, 25 November. The crew wear Sidcot padded flying suits, invented by Australian flyer Sidney Cotton.



from 3,000 feet above, the greater part of its infinite detail is lost, but one sees it as a whole. It lies like a perfectly executed miniature, or a matchless white jewel reclining in a setting of Nature's emeralds.

We hovered lazily around, exposed our photographic plates, and swung off on our course. Allahabad was reached after four and a half hours, and we eagerly but vainly searched the aerodrome for a glimpse of Poulet. There were several hangars on the aerodrome, however, and we thought that his machine might be under cover, but on landing we were informed that he had left that same morning for Calcutta.

It was too late to continue the chase that afternoon, but next morning saw us early on the wing.

Calcutta slipped beneath us. Thousands of people had collected on the race-course, at the far side of the city, to witness our arrival, and when we landed it was with great difficulty that the police kept back the multitude of natives that surged around the machine. A barrier was at last placed

around the Vimy, and soon we became the center of a compact mass of peering faces, all struggling to get closer and obtain a better view. The elusive Poulet, we learned, had moved off the same morning for Akyab.

That night, after the usual overhaul of engines and filling up with petrol, we stayed with friends and slept well. We had crossed India and were now more than half-way to Australia.

Our departure next morning from Calcutta was marked by an incident that to the layman may sound insignificant, but it might easily have spelled disaster to us. A large number of kite hawks were flying around, alarmed by the size and noise of this new great bird in their midst. When we had cleared the ground by about 10 feet two hawks flew across us at an angle; they seemed to become confused and turned straight into us, one striking the wing and the other flying straight into the port propeller. There was a crash as if a stone had hit the blade, and then a scatter of feathers. We fully expected to hear the crash of broken propeller blades. We were at the time flying straight for the high trees, and, had the propeller broken, nothing could have saved us from a terrible crash. However, more hawks were circling about, and in endeavoring to avoid them I almost crashed the machine on the tree-tops. By a very narrow margin indeed we cleared them, and I was deeply relieved when we had climbed to 1,000 feet and were clear of the pestilent birds. I marveled that our propeller stood the impact, for a very trifling knock will cause the disruption of a propeller when running "full out", and so in an extremely high state of tension. (I have known so tiny an object as a cigarette end thrown carelessly into a propeller to cause the whirling blades to fly to pieces!)

On looking over the machine I noticed one of the hawk's wings had become pinned in the rigging, and we secured it after the day's flight as a souvenir of a hairbreadth escape.

Calcutta marked the completion of the second stage of our journey, and from now onward the route would be much more difficult and hazardous. We had had the benefit of RAF aerodromes and personnel at almost every landing place, but henceforth we would have



17th Century 'crown of palaces', the white marble Taj Mahal, on the south bank of the Yamuna River in Agra.



BELOW RIGHT The crowds at Calcutta's racecourse were kept at bay for the take-off on 29 November.

BOTTOM Pith helmets were the order of the day as Ross and Keith enjoyed a cigarette in Calcutta.

to land on race-courses, or very small aerodromes. Also, I knew that the only possible landing places right on to Port Darwin were at stated places hundreds of miles apart, and that in the event of engine trouble our chances of making a safe forced landing were very slender.

I had originally intended flying from Calcutta to Rangoon race-course in one flight, but as the next day, November 29th, was a Saturday, and I was informed that a race meeting would be held at Rangoon on that day, I decided to stop at Akyab. My brother peered over the side as we circled above the aerodrome and showed symptoms of great excitement, while Bennett and Shiers waved joyfully from their cockpit and pointed down to the ground. They indicated a small machine near the center of the field. It was Poulet!

Poulet was the first to greet us on landing. He came forward with a cheery smile and outstretched hand — a true sportsman, the hero of a gallant and daring enterprise. I was deeply interested in inspecting Poulet's machine, which was drawn up alongside the Vimy. In proportion the contrast was reminiscent of an eagle and a sparrow. The Vimy towered above the tiny Caudron, which appeared altogether too frail and quite unsuited for the hazardous task these two courageous fellows had embarked upon. I had a long talk with Poulet and his mechanic, Benoist; they made fun of their adventures and intimated that theirs was a novel and exciting method of touring the globe.



We agreed to fly on together the next day to Rangoon, but when morning arrived, as we still had some work to complete on the machine, Poulet set off, and by the time we were ready he had an hour's lead. No aeroplane had ever landed at Rangoon before, and naturally I was very keen to win the honor for the Vimy. I had no difficulty in locating the landing ground — the race-course, a green patch framed by a compact ring of cheering humanity.

We came to earth midst tempestuous cheering, and were welcomed by the Lieutenant-Governor of Burma, Sir Reginald and Lady Craddock. We were told that no race meeting had been so well attended as the present, nor had the betting been so widespread. The

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multitudes had massed to witness two aeroplanes racing half-way across the globe. To them the race was more than novel; it was a great event in their lives, for few indeed of the vast assemblage had ever seen an aeroplane.

As flying conditions from Akyab had been boisterous, we in our high-powered machine had a great advantage over Poulet, and in spite of the hour's handicap at the outset, we succeeded in reaching Rangoon an hour ahead of him. Poulet's arrival was the signal for another outburst of cheering, and he was welcomed no less warmly than ourselves.

The police experienced great difficulty in clearing the race-course that evening, as many of the natives had brought their food and beds, intent on holding a festival for the duration of our stay.

I was told that when the first news of our departure from London appeared in the local papers, and the fact that we intended calling at Rangoon became known, a large crowd of natives straightaway assembled on the race-course, expecting to see us arrive in a few hours. Later, when the news of our reaching Akyab was noised abroad, a multitude camped overnight on the race-course, so as to make sure of witnessing our arrival.

There is a strange lizard in the East which makes a peculiar noise, like "tuk-too", and it is a popular superstition that if one hears this sound repeated seven times, good luck will follow.

That night, just before going to our rooms, a lizard "tuk-tood" seven times. The omen was good and we slept peacefully. 

To be continued

EPIC FLIGHT CENTENARY UPDATE

WORDS GPCAPT Greg Weller

Over the past three months, the Epic Flight Centenary celebration in South Australia has been continuing with some fantastic events including:

- The centenary being showcased in the SA History Festival.
- A life-sized Vickers Vimy mural painted on the outer hangar wall of the SA Aviation Museum, sponsored by the RAAFA SA.
- Ross Smith Magical Bus Tour visiting key locations around Adelaide.
- Sir Ross Smith Commemoration Service at St Peters Cathedral on 15 June, the date and location of Smith's funeral in 1922.
- A photographic and memorabilia exhibition from the Sir Keith Smith collection in the Barr Smith Library at the University of Adelaide.
- The release of two publications related to the Epic Flight Centenary by Wakefield Press: Sir Ross Smith's *14,000 miles through the air*, originally released in 1922, retitled *Flight to Fame* and Lainie Anderson's *Long Flight Home*, a book of historical fiction (or 'faction') based on the Great Air Race.



ABOVE Vimy mural on the SA Aviation Museum hangar.

MORE EVENTS

From mid-July: Epic Flight Unearthed: a call for Sir Ross Smith memorabilia. Australians are being urged to share family memories and memorabilia of Sir Ross and Sir Keith Smith, Wally Shiers and Jim Bennett to create an online community collection as a lasting legacy of the centenary. Everything from photos and medallions to stamps and family anecdotes are wanted to be permanently displayed on the epic flight website epicflightcentenary.com.au. To contribute, email epicflight@history.sa.gov.au or call the History Trust of SA on (08) 8203 9888.

3-4 August: Harry Butler Centenary at Minlaton, Yorke Peninsula, celebrating the first over-water airmail flight in the southern hemisphere (Northfield in Adelaide to Minlaton). The Smith crew landed at Butler's Northfield Aerodrome in 1920.

21-24 September: Epic Flight Centenary display at World Routes Conference.

3 October: Launch of Michael Molkentin's new biography of Sir Ross Smith, *ANZAC & Aviator*.

20 October: Vickers Vimy Open Day, Adelaide Airport.

9-10 November: RAAF Edinburgh Airshow 'From Vickers Vimy to 5th Generation' with Epic Flight Centenary display.

12 November: Opening of State Library SA major exhibition of Epic Flight treasures from the Sir Keith Smith collection (until April 2020).

6-8 December: Aeropex 2019 at Drill Hall, Torrens Parade Ground. Commemorating the first international airmail to Australia, carried by the Vimy crew.

10 December: Centenary of the Darwin landing, including re-dedication of the Sir Ross Smith Memorial on Memorial Drive near Adelaide Oval.

WELL-EARNED RECOGNITION

On 16 November 2019, at a gala dinner at the Australian War Memorial's ANZAC Hall, the names of air mechanics James Bennett and Walter Shiers will join the Smith brothers (inducted in 2012) in the Australian Aviation Hall of Fame. In his public speeches after the Great Air Race, Ross Smith acknowledged the vital work of his mechanics in keeping the Vickers Vimy airworthy against the odds. For a full list of inductees see aahof.com.au.

Thanks to state and federal government funding, the Vickers Vimy G-EAOU will also be in the limelight again. The aircraft will be relocated to a more prominent location in the expanded Adelaide airport terminal where it can be seen by travellers and locals, ensuring the historic aircraft and its story will be accessible for generations to come.



LEFT Shiers (left) and Bennett at one of the Rolls Royce Eagle engines of the Vickers Vimy.



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MATES LOOKING AFTER MATES

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O V E R W A N A K A



Jets rounding the
pylon at WOW 2014.
Photo Gavin Conroy.

JET RACING WILL RETURN TO
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ONE OF THE MOST popular Warbirds Over Wanaka acts of the past few years is set to return

for the international airshow next Easter, due to popular demand.

Jet racing made its New Zealand airshow debut at Wanaka in 2014 featuring pilots from Australia, New Zealand and the United States, wowing the crowd with precision flying around a tight race track at speeds of more than 600kph. Four of the pilots from 2014 will be returning next April including Kiwi Paul 'Huggy' Hughan, who took out the winner's trophy at the inaugural event, flying John Currie's Christchurch-based Vampire jet.

Huggy is keen to get his name on the trophy a second time. "The jet racing in 2014 was such a blast. A chance for a group of very experienced pilots to test their skills and aircraft against each other. While we were fierce competitors on

the racetrack, we were all good friends once the aircraft were back on the ground," says Huggy.

Other returning pilots include Brett Emeny from New Plymouth, NZ, flying his Vampire, and Peter Vause, also from New Plymouth, flying his L-39 Albatros.

American pilot and former Reno Air Races Jet Class champion Rick Vandam is also coming back. "I had such a great time on my first visit. A beautiful country and such a wonderful airshow. The racing was great and I've been itching to get back ever since," says Rick.

A new pilot confirmed for next year's jet racing is former US Air Force Thunderbirds pilot Paul 'Sticky' Strickland, who made his Wanaka debut in 2018 performing a jaw-dropping display in the same L-39 Albatros jet he will again pilot next Easter. Sticky is currently a member of the US-based Patriots L-39 display team which performs at big airshows across America.

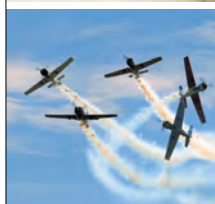
JET THRILLS

The two L-39s Rick and Sticky will be flying are owned by Craig Mossman who operates them out of Tauranga, NZ. "We have created a successful business with the jets offering rides to the public," says Craig.

"Our marketing is all about offering the 'ultimate adrenaline rush' and that's what we're looking forward to bringing to Wanaka Airshow visitors."

If watching the jet racing isn't thrilling enough, airshow patrons can go to fighterjets.nz to book the ride of a lifetime in a jet at Wanaka next Easter.

• *Warbirds Over Wanaka International Airshow will be held at Wanaka Airport, New Zealand on 10-12 April 2020. For more information go to warbirdsoverwanaka.com.*



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AIR FORCE ON SHOW



The Roulettes, which performed at the Avalon Airshow, will be flying at Edinburgh. Photo: POIS Rick Prideaux.

RAAF BASE EDINBURGH WILL OPEN ITS GATES TO THE PUBLIC FOR AN ACTION-PACKED AIRSHOW IN NOVEMBER.

WORDS Air Commodore C J 'Noddy' Sawade, Head of Air Shows

THE AIR FORCE has a proud tradition of opening its bases to the public to experience the aircraft, support systems and people of the ADF and, in particular, the RAAF. However, over the past 25 years, restructuring and downsizing has made it increasingly difficult for base resources to successfully organise and display the type of air shows the public has come to expect.

Those expectations were created by the series of Air Force airshows of the 1970s, 1980s and 1990s, and great shows such as the commercially run the Australian International Airshow, a premier event held every two years at Avalon in Victoria. The Air Force has a long and enduring association with Avalon and will continue to do so for its centenary in 2021. However, back in 2001 the then Chief of Air Force realised he needed to be able to present to the Australian public the ADF aviation

capabilities with a more regional and domestic focus, without a large impost on the dwindling uniformed workforce.

As a result, he approved the formation of a small team of reservists to plan and conduct ADF domestic air shows and open days. The team, known as the Air Show Team (AST), is an element of Air Force Headquarters and is made up of a core of 15 reservists of all ranks, from all over Australia, with varying backgrounds and civilian experience in event management, contracting and aviation. The AST, through contracting, outsourcing and on-site planning, develops, plans, coordinates and delivers public events in a compliant, safe and secure process that relieves pressure on the day-to-day running of a base.

The construct of the AST has evolved over the years and successful air shows and open days have been conducted on a rotational basis at all major RAAF bases approximately every two years since 2001. Exercise Pitch Black 18 Open Day in Darwin last August and shows such as the Point Cook Air Show in 2014 and the Townsville Air Show

in 2016 presented the mature format of this type of event. The next airshow sponsored by CAF and planned by the AST will be the Edinburgh Air Show on 9-10 November this year.

Planning for Edinburgh has been going on for the past three years and it will be a great event. The theme is 'Vimy to Fifth Generation in 100 years', as 2019 is the 100th anniversary of the epic flight from England to Australia in 1919 by South Australians Sir Ross and Sir Keith Smith and also the year the F-35A Lightning II has been introduced into RAAF service as the Air Force's first fifth-generation fighter aircraft.

On show will be a number of historic and warbird aircraft as well the latest ADF aviation assets including the Roulettes in PC21s, the P8 Poseidon and F-35 Lightning II. The flying displays will last for about four hours and there will be a number of unique ground displays, including drone racing, military working dogs and fifth-generation innovation displays, as well as concerts by the RAAF Rock Band.

The AST is often asked why the public has to pay to attend military airshows and open days and it is a good question. While RAAF bases are functional and safe environments for trained military folk, they are not necessarily designed as public showgrounds.

It is the AST's job to ensure public safety, security and comfort at the shows and that comes at an additional cost outside of the normal Defence budget. That is why, at some events, there is a nominal admission charge. Those charges are kept as low as possible and do not include the costs of flying Defence aircraft or the wages of Defence personnel.

The AST has already commenced planning for the next major ADF domestic air show, The Centenary of Air Force Air Show planned for October 2021 at RAAF Base Amberley. The team looks forward to ensuring the Australian public has the opportunity to see its Defence aviation capability on display. **W**

• Edinburgh Air Show, 9-10 November, RAAF Base Edinburgh, Adelaide, South Australia. Tickets can be purchased online through Ticketmaster.



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LEFT

No.37 Squadron
C-130J A97-448 displaying
a range of modifications
on the RAAF Base Richmond
flight line. Photo: CPL David Said.

LOCATED BETWEEN THE townships of Windsor and Richmond in North West Sydney, RAAF Base Richmond occupies a unique place for both Defence and the wider Australian community.

Historically, Richmond is the second oldest Air Force base in Australia, and the oldest operating airfield in the Sydney basin. It remains an important piece of national Defence infrastructure while simultaneously supporting Defence operations across the globe. For more than 60 years RAAF Base Richmond has been closely associated with Air Mobility roles, primarily on the C-130 Hercules fleet.

EARLY DAYS

The location of Sydney's RAAF Base is partly owed to Parramatta dentist William Ewart Hart an aviation visionary who recognised the potential of a site known as Ham Common – the current site of the base today.

Ham Common was bordered by a rail line to the south and lowlands along the Hawkesbury River to the north. Both were important factors in Hart's decision to build facilities for a flying base in 1912, but his time at Ham Common was brief. In September 1912, he suffered serious injuries after crashing a home-built monoplane on the lowlands and never flew again. In 1916, the New South Wales Department of Education established a flying school at Ham Common to train pilots and that saw more facilities constructed during the World War I to support the war effort.



THE RAAF ARRIVES

Once the RAAF was established at Point Cook in 1921, the natural step was to raise an airfield in NSW, most probably near the economic centre, Sydney. From there, the RAAF could support local Army and Navy units and provide air defence of the greater Sydney region. Wing Commander Richard Williams, Chief of Air Staff, outlined his requirements in July 1921: "It is not desirable to station aeroplane units near the coast where they may be open to bombardment from the sea, nor in localities surrounded by thickly populated areas where provision cannot be made for expansion and which cannot be said to be suitable country for flying training. The most suitable ground from a flying point of view is to the north west of Sydney and it was here (near Richmond) at a distance of about 40 miles from Sydney that the NSW Government established a flying school some years ago."

In a submission to the government's Air Council, WGCdr Williams noted the following reasons for selecting Richmond.

- The ground and surrounding country is excellent from a flying point of view.
- There is plenty of room for expansion in time of war.
- An excellent road runs past it.
- It is within four miles of the Sydney-Newcastle road.
- The railway line from Sydney to Richmond runs past it.

- It has a hangar, workshops, machinery, stores, cottage, and some huts already erected.
- The purchase of this property would allow the establishment of a Second Wing, Nos.3 and 4 Squadrons, to be proceeded at an early date.

The Air Council approved Williams' proposal and the site was acquired by the Commonwealth in 1923 for £9,318.

On 27-28 June 1925, a collection of DH9 and SE5A aircraft from No.3 Squadron set out north from Point Cook to Richmond. Aircraft were left scattered along the route due to unserviceability and bad weather, but shortly after 2pm on 30 June 1925, a DH9 appeared through the arch of a rainbow over Richmond, avoiding a cloudbank and landing at Richmond. At the controls was Commanding Officer No.3 Squadron, Flight Lieutenant F W Lukis, who was joined half an hour later by two SE5As.

A reception in July for the newly arrived RAAF personnel led Flight Lieutenant Lukis to tell locals: "I have seen many grounds in various parts of the world and can say that the Richmond site is easily the best".

INTER-WAR YEARS

The post-war fleet of DH9s, SE5As and Avro 504Ks at Richmond was soon superseded by bigger Wapiti general purpose biplanes, along with Supermarine Seagull III amphibious



RAAF Richmond 1927.



LEFT Hawker Demon.

biplanes operated by No.101 (Fleet Cooperation) Flight.

After Charles Kingsford-Smith and Charles Ulm completed the May-June 1928 trans-Pacific flight in the Fokker F.VIIb *Southern Cross*, Kingsford Smith used RAAF Station Richmond main hangar to overhaul the aircraft as it was the only hangar large enough to support it. On 10 September 1928, *Southern Cross* took off from Richmond to complete the first successful trans-Tasman crossing, and today that connection is preserved with a bust of Sir Charles Kingsford Smith, donated by his family in 2018, on display in the foyer of the Officers Mess.

Major construction works took place in the 1930s, bringing hangars, workshops and accommodation buildings still in use to this day. No.2 Aircraft Depot was established in February 1936 to provide aircraft overhaul and maintenance.

The Officers Mess, opened in August 1937 at a cost of £50,000, hosted New Zealand aviator Jean Batten in October 1937 on the eve of her trans-Tasman record breaking flight from Richmond to New Plymouth in just 11 hours.

Pre-War growth at Richmond continued with the formation of No.22 Citizen Air Force Squadron in 1936 operating Hawker Demon biplanes. No.4 Reconnaissance Squadron was re-established at the base in May 1937 also operating Hawker Demons but later equipped with twin-engine Avro Anson aircraft. While both types were largely obsolete by the 1940s, they remained useful stepping stones for RAAF personnel before working on more complicated aircraft.

WAR FOOTING

RAAF Station Richmond expanded significantly during WWII and many flying units originated there, including: No.11 Maritime Surveillance Squadron (September 1939) equipped with two Supermarine Seagulls and two ex-Qantas Short Empire flying boats, operating from Rose Bay in Sydney Harbour; No.30 Beaufighter Squadron (September 1939) and No.100 Beaufort Squadron (March 1942). No.54 and No.452 Squadrons RAF (August and September 1942 respectively), No.1 Fighter Wing (October

1942) and No.84 Boomerang Squadron (February 1943) were stationed at Richmond for periods throughout the war.

Several auxiliaries including training schools, salvage units and over 30 radar stations were also formed at Richmond. No.2 Recruit Depot formed in January 1940 and No.3 RAAF Hospital was established in October 1940. The Australian Army conducted parachute training from the base using ex-Airline DC-2 aircraft. Consequently, thousands of Air Force and Army recruits trained at Richmond during the early war years and temporary accommodation resembled a tin city on the fringes of the base.

In January 1939, No.4 Squadron was renamed No.6 Squadron, and soon re-equipped with Lockheed Hudson light patrol bombers. Maritime patrol missions – beginning with Anson aircraft and later using Hudson and Boston aircraft operated off the coast of Sydney and Newcastle, and eventually all along the NSW coast from Brisbane down to Moruya in the south.

Setting a pattern for many other squadrons at Richmond during the War, No.11 Squadron soon deployed north to Port Moresby. Then in July 1940, No.3 Squadron left the base for the Middle East where it would be equipped with Gloster Gladiators.

By August 1942, No.6 Squadron Hudsons were deployed to Horn Island and then on to New Guinea. By that year, Richmond was home to No.22 Squadron Bostons, No.30 Squadron Beaufighters and No.100 Squadron Beauforts. All three squadrons would deploy to New Guinea that year and prove devastatingly effective in the Battle of the Bismarck Sea in March 1943, a campaign that continues to be commemorated at the base.

Flight Lieutenant William Newton of No.22 Squadron was posthumously awarded the Victoria Cross for fearless bombing operations against heavily defended Japanese positions at Salamaua, New Guinea and attempting to ditch his burning aircraft well clear of those positions.

In September 1943, No.38 Squadron was formed as a transport unit with Hudsons converted for airlift duties. The squadron would have a long association with Richmond, and go on to become the



longest continuously serving operational flying unit in the RAAF until its disestablishment in 2018.

POST WAR AND VIETNAM

With the post-War drawdown, a 'graveyard' of decommissioned aircraft rose up at Richmond, but the base itself would carry on – in 1947, it was identified as a home for No.86 (Transport) Wing, for which it would require a longer sealed runway. An extended east-West runway was completed in 1953 and a proposal for a 10,000-foot north-south runway was outlined in March 1953, but not pursued.

In 1954, No.11 Squadron returned to Richmond with the Lockheed Neptune, which it operated until 1968 when it moved to RAAF Base Edinburgh to re-equip with the Orion. The squadron's time at Richmond was marred by the loss of A89-308 in February 1959, when the aircraft came down on the lowlands during a maintenance test flight killing all seven on board. That same year, the massive Catalina hangar at RAAF Station Rathmines was relocated in sections to RAAF Base Richmond, where it still stands today.

In December 1958, the first of 12 C-130A Hercules, operated by No.36 Squadron, arrived. Growth at the base continued in the 1960s with No.38



LEFT Western tarmac in the mid-1960s with 38Sqn Caribou (and Dakota) and 11Sqn Neptune aircraft.



BELOW LEFT Boston Light Bomber.



BELOW Dr Lawrence Kingsford Sayer with the bust of Sir Charles Kingsford Smith at the Officers Mess at RAAF Base Richmond. The bust was created by Dr Sayer's mother whose art works can be seen displayed at the National Portrait Gallery in Canberra.

BOTTOM DHC-4 Caribou.



Squadron introducing the DHC-4 Caribou in April 1964, but as soon as its first aircraft arrived the Squadron sent personnel and aircraft to form the RAAF Transport Flight Vietnam (RTFV).

The increased commitment to Vietnam led No.36 Squadron C-130As to deploy personnel and equipment from Australia and repatriate wounded soldiers. In 1966, No.37 Squadron was re-established at Richmond and operated a fleet of 12 C-130E Hercules, all but taking over the aeromedical evacuation role in a short space of time. In 1965, Air Movements Training and Development Unit (now called Air Mobility Training and Development Unit) emerged as an independent Unit following a period as training Flight within No.38 Squadron. It



was tasked with developing load-carrying techniques on Hercules, Caribou, Iroquois, and in the 1970s, the Chinook.

By February 1972, No.35 Squadron (as the RTFV had become known) redeployed back to Australia, and would operate at Richmond until relocating to Townsville in 1976. In 1978, No.36 Squadron retired the C-130As after 20 years' service and equipped with the C-130H.

1980S & ONWARDS

In 1979, the first two Boeing 707s, of what would become a fleet of six aircraft (with a seventh acquired for spare parts), entered service with No.37 Squadron. They were allocated to No.33 Flight in 1981 and finally a re-established No.33 Squadron in 1983. The Squadron initially provided strategic airlift and VIP transport; however, they were also acquired with a view towards providing an air-to-air refuelling capability for the RAAF's Mirage III fighter replacement – which would ultimately become the F/A-18. Tragically, one Boeing 707 was lost during a training accident off the coast of Gippsland in October 1991, with the deaths of all five on board.

Domestically and internationally, RAAF Base Richmond continued to provide support to the community and humanitarian operations, including the 1989 Airline Pilots' Strike (Operation Immune), Flood Relief in NSW in the late 1980s and other aid missions to the South Pacific and South East Asia.

Aeromedical teams and Hercules aircraft are often called upon to support humanitarian assistance and disaster relief missions, although civilian aeromedical services now undertake many patient transfers that were previously supported by Air Force. Health services at Richmond – once consolidated under No. 3 Hospital, now reside with Richmond Joint Health Centre, No. 3 Aeromedical Evacuation Squadron (3AMES) and No. 1 Expeditionary Health Squadron (Richmond Flight).

The biggest public event in RAAF Base Richmond's history remains the 1988 Bicentennial Air Show, which attracted an estimated 250,000 people. Organised by the Schofields Flying Club, which would become AirShows Downunder, organisers of the Avalon Air Show, the Bicentennial Air Show saw the first participation by Soviet aircraft at an air show in Australia, along with participation from the United States, United Kingdom, New Zealand, Netherlands and civil partners.

An Air Show for the 70th anniversary of the RAAF followed in 1991. In 1993, No.38 Squadron and its Caribou fleet relocated to Amberley, and in 1999, the first C-130J Hercules arrived to replace the C-130Es at No.37 Squadron. Elsewhere on the base, a new building was constructed to house the C-130H/J, and Boeing 707 simulators.

The new millennium has arguably kept the base busier than any time

since the Second World War. In 1999, the deployment of peacekeepers to East Timor required considerable logistic and organisational commitment from RAAF Base Richmond, for both airlift and combat support, notably communications, health and expeditionary airfield establishment.

In 2001, C-130Hs from RAAF Base Richmond deployed on operations to Afghanistan, with Boeing 707s deploying to Kyrgyzstan the following year. In 2003, a Hercules detachment was established in the Middle East, and remains there to this day.

The base also supported disaster relief missions in Indonesia (Operation Sumatra Assist I and II, 2004-2005); Operation Pakistan Assist (2005) and Operation PNG Assist (2007), among countless others.

THE BASE TODAY

Recent years have seen RAAF Base Richmond maintain a busy operational tempo while also farewelling a number of Units to RAAF Base Amberley. Units relocating to Amberley include No.36 Squadron in November 2006, to re-equip the C-17A Globemaster, Strategic Airlifter, and No.33 Squadron, which retired the Boeing 707 in June 2008 and relocated to operate the Airbus KC-30A Multi-Role Tanker Transport. No.1 Combat Communications Squadron departed the Base in 2015, while No.35 Squadron re-established at Richmond in 2013 and introduced the C-27J Spartan into service in 2015 before relocating in late 2018.

Despite significant functional downsizing, RAAF Base Richmond's location within the Sydney economic and cultural precinct uniquely places it to support Defence and civil agencies alike. It is an embarkation point for NSW Urban Search and Rescue Teams and, in 2015, RAAF Base Richmond commenced hosting NSW Rural Fire Service air tankers during the bushfire season. As of July 2019, these aircraft are expected to be based at Richmond year-round.

The base maintains a United States Air Force air mobility detachment, and is also strategically located to support Army Units at Holsworthy Barracks. RAAF Base Richmond hosted VIP aircraft for the 2007 APEC Summit, and Pope Benedict



C-27J Spartan.



LEFT B-707 Refuelling a F/A-18 Hornet.



BELOW Nancy Bird Walton, a DC-10 firefighting aircraft contracted to the NSW Rural Fire Service from Coulsan, performs a water bombing display. Photo: CPL David gibbs.

BOTTOM A C-130E Hercules tail is lifted into position at the front gate of RAAF Base Richmond.



XVI when he visited Australia in 2008.

A new generation of aviators will be inspired to take to the skies from RAAF Base Richmond. Australian Air Force Cadet Units conduct pilot training in Diamond DA40 aircraft operating from the Base.

RAAF Base Richmond will remain home to 12 C-130J Hercules transport aircraft, which are expected to be operated by No.37 Squadron into the 2030s. The base hosts Headquarters Air Mobility Group and the Air Mobility Control Centre, along with Headquarters 84 Wing and Air Mobility Training and Development Unit.

Army's 176 Air Dispatch Squadron, established at Richmond, is responsible for providing operational support for paratroops and airdrop loads, predominantly using the nearby Londonderry and Rickaby's Drop Zones.

Generically, the provision of airbase combat support, base security and surveillance is exercised by an Airbase Operations Squadron, No.22 Squadron based at Richmond is charged with providing that capability whenever and where it may be needed. A Flight of No.65 Squadron (RAAF Base Townsville), permanently deployed to Richmond, provides a range of combat support functions, both locally and further abroad.

The Air Lift Systems Program Office, an arm of Defence's Capability Acquisition and Sustainment Group, has a workforce of military personnel and Australian Public Servants who provide

engineering and logistics support to the C-130J and C-27J fleets. The Systems Program Office (or SPO as its commonly called) works closely with aviation industry partners located at Richmond – notably Airbus Australia Pacific (which conducts deeper level maintenance on the C-130J with Lockheed Martin), Standard Aero (maintaining the Rolls Royce AE2100D turboprop that powers the C-130J and C-27J), and Northrop Grumman Australia (which provides a range of avionics and other technical sustainment services).

The size and complexity of Richmond has grown considerably in nearly a century, requiring economic and efficient management. Like all other Defence bases, Estate and Infrastructure Group (E&IG) manages the industry and contracted partners that deliver day-to-day garrison functions at RAAF Base Richmond that do not require military participation.

When RAAF Station Richmond was formed in the early 1920s, the Commanding Officer of No.3 Squadron was 'dual hatted' as both Base and Squadron Commander. Today, Commander Air Mobility Group also functions as the Senior Australian Defence Force Officer for the base, but is assisted in that task by an Air Base Executive Officer (ABXO), a duty currently assigned to the Commanding Officer of No.22 Squadron and the Base Manager in charge of the E&IG functions at Richmond.

Domestically, RAAF Base Richmond

remains the only base in Australia (apart from RAAF Base Tindal) with married quarters on base accommodating a number of families, including the original Richmond House which still houses Commander Air Mobility Group. Single and unaccompanied members continue to live in accommodation at the Officers and Sergeants Messes, and in Airman Quarters, and all three messes operate for meal services during the working week (although only the Airmen's provides a hot breakfast). The Metro Cinema (located opposite the Base Roundabout) has a proud committee that continues to screen new release films on Fridays and Saturdays, but will shortly be closed until early 2020 so that the building can undergo refurbishment. **W**

\$50M ELECTRONIC SUSTAINMENT CENTRE ENHANCING ADF CAPABILITIES

OVER THE COMING decades, Australia will require defence capabilities that are more sophisticated and increasingly reliant upon complex electronic systems. To sustain and enhance mission-readiness, local access to critical resources is imperative. Northrop Grumman Australia (NGA), a subsidiary of Northrop Grumman Corporation, headquartered in Canberra ACT, recognises the significance of those needs and is committed to enhancing Australian Defence Force (ADF) capabilities through advanced electronic support – across land, sea, air and cyberspace.

To further expand on that commitment, NGA announced in May 2017 a \$50 million investment to develop an advanced defence electronics maintenance and sustainment capability at RAAF Base Richmond. The Electronic Sustainment Centre (ESC) is a critical step in enabling the fifth generation ADF to sustain capabilities locally and continues the company's long association with the local Richmond community.

Operation of the ESC will significantly enhance the availability of major platforms and systems by shortening repair turn-around-time for mission-critical, complex electronic systems – by doing most work in Australia rather than shipping components back to the original manufacturer. That capability not only saves time but lowers cost by lowering investment in the spares inventory and reducing the incidence of time consuming and expensive nil-fault-found repairs. In-country capability also provides Australia with enhanced sovereignty, additional operational capability, and longer-term procurement certainty.

Initial ESC facilities construction was completed at RAAF Richmond in October 2018. Shortly afterwards, the ESC achieved initial operating capability for repair of the AN/APN-241 Tactical

Transport Radar that is employed on regional C-130s and RAAF C-27Js. In the near future, the ESC will support more advanced radar systems including Advanced Electronically Scanned Array (AESA) sensors, communications systems, navigation products, and electronic warfare equipment. The ESC will be leveraged to support Northrop Grumman products in Super Hornet, Growler, F-35, C-27J and MQ-4C Triton, as well as third party systems.

The centre also supports other defence contractors that require an in-country repair capability. In addition, the ESC provides our allies and partners in Asia and the Indo-Pacific with a regional repair facility that will generate revenue in Australia from the export of technical expertise and capability.

Today, NGA employs around 500 people at eight locations across Australia, primarily supporting the RAAF through platform stewardship services. NGA boasts a proven history of delivering thousands of safe flying hours to the RAAF and, of note, holds both civil and military engineering and maintenance certifications for fixed wing aircraft.

Key programs include the provision of through life support for the RAAF fleet of six KC-30A Multi-Role Tanker Transport (MRTT) aircraft—a derivative of the Airbus A330-200—located at RAAF Base Amberley in Queensland. In November 2017, NGA was awarded a through life support contract for the RAAF C-27J Spartan Battlefield Airlifter fleet now based at Amberley. NGA provides through-life support to the Commonwealth's special purpose aircraft (SPA) VIP fleet operated by No. 34 Squadron at Fairbairn, Canberra. The SPA fleet comprises two 737-700IGW Boeing Business Jet aircraft, three Falcon 7X business jets, and later this year, a KC-30A MRTT modified to support long-range government VIP transport needs. NGA has also been assigned a significant



STEM COMMITMENT

In order to maintain and grow a highly skilled workforce, NGA is committed to supporting and investing in the region's science, technology, engineering and mathematics (STEM) initiatives to increase awareness and interest in STEM careers. That commitment includes expanding partnerships with state and local government, industry associations and training organisations, to maximise the impact of collective investment throughout Greater Western Sydney. Skilled workers from across the region will have the opportunity to support advanced, fifth-generation, mission-critical systems at the ESC.

Earlier this year, NGA provided scholarships for students and STEM educators to attend Space Camp in Huntsville, Alabama. Western Sydney was well represented with a teacher and two students from Elizabeth Macarthur High School in Narellan Vale, and two teachers and two students from Seven Hills High School taking part in that experience.

By providing Australia's best and brightest with the opportunity to 'work on what matters', NGA is delivering on its commitments to its Australian customers and partners.

amount of maintenance, repair, overhaul and upgrade - MRO&U - work under the F-35 Global Support Solution. Those November 2016 and February 2019 assignments by the F-35 Joint Program Office position NGA for an important role in the current and future sustainment of F-35s based in the Asia Pacific region, including the seventy-two F 35As on order for the RAAF. **W**

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FOR THE LOVE OF A V I A T I O N

WORDS Doug Philpott | PHOTOS Mark Keech



A GROUP OF DEDICATED VOLUNTEER AVIATION
PROFESSIONALS AND ENTHUSIASTS USE THEIR SKILLS
TO RESTORE AND MAINTAIN ICONIC AIRCRAFT
AT THE HARS AVIATION MUSEUM.

HISTORICAL AIRCRAFT RESTORATION SOCIETY (HARS) Aviation Museum

is located at the Illawarra Regional Airport, about 100km south of central Sydney, NSW.

From the 1920s, the area was largely used as an airfield by private aircraft, but in 1942 the Australian Government acquired land and built RAAF Albion Park, at the current location, as a major training facility during World War II. Since the war, the airport has been used by various private and commercial operators.

Today the Illawarra Regional Airport is owned and operated by the Shellharbour City Council. It is also the home of the annual Wings Over Illawarra Airshow.

The museum, which is one of the airport's major tenants, moved to the airport in 2002 with a small collection of vintage aircraft. Construction of the museum's hangar complex commenced shortly afterwards, resulting in two large operational hangars and one museum/administration hangar with a total footprint of approximately 11,500sq.m. More facilities will be built as needs arise, development approvals are granted and funds become available.

HARS has also been granted a long-term lease by Shellharbour

City Council and NSW Trains on the historic Illawarra Butter Factory, about a kilometre from HARS' main base, and provides significant immediate-use for spares storage.

In recent years, another "branch" of the HARS Aviation Museum at Parkes Airport in Central West NSW has become increasingly important. The airport is another former wartime RAAF training centre and is the site of the museum's long-term spares storage where a growing collection of aircraft can be viewed by the public a couple of days each week.

HISTORY & PURPOSE

HARS is a not-for-profit, all-volunteer organisation formed in 1979 by a group of enthusiasts interested in preserving Australian aviation history.

In the early 1980s, HARS members recovered two Beaufighter airframes from northern Western Australia. One, a Mk1 Beaufighter, was restored by HARS and traded to acquire the Lockheed Super Constellation, an aircraft that pioneered Australian's embrace of international travel. That Beaufighter now resides in the United States Air Force Museum in Dayton, Ohio. The second Beaufighter airframe is yet to be restored.

Over the next few years, HARS

HARS' *Connie* is one of only two flying L-1049 Super Constellations in the world.
Photo: G. Canciani Copyright Image via AussieAirliners.

RIGHT Douglas C-47B (A65-94, VH-EAF) with DC-3 behind.



evolved, becoming an incorporated society in 1988, a deductible gift recipient in 1991, and underwent a more business-oriented restructure in the same year.

The HARS mission statement strongly expresses the emphasis and direction of the organisation: To recover and, where possible restore to flying condition, aircraft or types of aircraft that have played a significant part in Australian aviation history both in the civil and military arenas.

To achieve its objectives, HARS recruited as volunteers, specialists from within the aviation industry interested in the preservation of historic aircraft. HARS now has within its membership a significant cadre of licensed aircraft engineers within a volunteer membership of approximately 750 dedicated enthusiasts. The engineers' licenses cover virtually all the skills recognised within the industry.

While many members are active or retired aircraft engineers and pilots, recent years have seen more and more people contributing their diverse skills to the organisation at both centres. To apply to join HARS all an individual needs is dedication and a love of aircraft and history.

HARS has achieved significant milestones in its endeavours to preserve Australia's aviation heritage such as the arrival of the Boeing 747-438 *City of Canberra*.

That aircraft brings fond memories to many of the HARS volunteers who either maintained or operated it during its life at Qantas. HARS also owns a Boeing 707-138B also formally owned by Qantas, John Travolta and others that is planned to be repatriated to the airport later in 2019.

All achievements to-date have been financed partly by corporate sponsorship and through contributions from the general public. HARS has received only two government grants, one federal grant to assist in the erection of the museum and education building and one NSW Government grant to assist the fit-out of its extensive library complex. HARS members have also contributed

considerable funds towards the development of the museum.

The aircraft engineering capability of our members can be demonstrated in the way that they took a derelict Lockheed Super Constellation from the Davis Montham aircraft graveyard, restored it to beautiful flying condition, flew it across the Pacific to its new home in Australia in early 1996, and have kept it operational ever since.

In 1997, the International Guild of Air Pilots and Air Navigators awarded the Grand Master's Australian Award to HARS in recognition of the outstanding restoration of the Super Constellation. The award was presented to our president and chief pilot, Robert De La Hunty OAM, on behalf of HRH Prince Phillip, Duke of Edinburgh in London in December 1998.

In 2019, the Institution of Engineers Australia awarded an Engineering Heritage Marker to the Super Constellation and its maintenance team in recognition of the engineering involved in the restoration and maintenance of that iconic aircraft.

HARS is also well known for its collection of airworthy and static military aircraft. Examples are the



ABOVE RIGHT Boeing 747-438 (VH-OJA).

RIGHT Boeing 747-438 cockpit.



BELOW *Southern Cross* replica in the final stage of rebuild. After a wing was damaged on landing in 2002, it was acquired by HARS in 2010.





Consolidated Catalina (VH-PBZ)
over Stanwell Park.



BELOW From top: De Havilland Canada Caribou (A4-210, VH-VBA); engine run for the Vampire (A79-665); Convair CV-440 (VH-TAA).

Catalina, Neptune, Orion, Tracker, Dakota, Caribou, Vampire, Sabre, Mirage, Canberra, F-111 and others.

VISITING THE MUSEUM

HARS has seen its collection of both airworthy and static aircraft increase at a seemingly amazing pace. Every year, there is something new to see and HARS is truly a solid destination on the world map of aviation places to see.

The Illawarra museum is open every day (except Christmas Day) between 9.30am and 3.30pm.

The Parkes museum is open on Thursday and Sunday between 9.30am and 3.30pm.

Some special tours are available for in-depth analysis of some aircraft and the museum also has function, training and conference facilities.

HARS has an extensive library of books, periodicals, drawings and other paraphernalia. It is the custodian of Hawker de Havilland Australia's documentation and memorabilia following its merger with Boeing and is now the home of the Australian Aviation Hall of Fame, for which there is an annual ceremony when individuals and organisations of significance to Australian aviation are inducted. **VI**

• *Doug Philpott is a senior tour guide and member of the HARS marketing and media team.*



For more information go to:
hars.org.au; Facebook – HARS
Aviation Museum - Albion Park,
HARS Aviation Museum - Parkes,
HARS Navy Heritage Flight;
instagram.com/harsaviationmuseum.

THE COLLECTION

The following is a summary of the collection across both sites, including the Navy Heritage Flight. There are several examples of some types.

PASSENGER AIRCRAFT

Boeing 747-438
Boeing 707-138B (due November 2019)
Lockheed Super Constellation L1049
Convair CV-440
Convair CV-580
Douglas DC-3 (TAA's first passenger aircraft)
de Havilland Heron
Piaggio P-166
Fokker FVIIIB Southern Cross (replica)
Fokker F27-500 Friendship
de Havilland Drover
Lockheed 12

MILITARY AIRCRAFT

TRANSPORT

Douglas C-47B Dakota
Douglas C-54 Skymaster
de Havilland Canada DHC-4 Caribou

MARITIME PATROL & SUBMARINE HUNTERS

Consolidated PBV-6A Catalina
Lockheed P2V-5 Neptune
Lockheed P2V-7 Neptune
Lockheed AP-3C Orion
Grumman S-2G Tracker

FIGHTERS & BOMBERS

de Havilland DH-115 Vampire
de Havilland Sea Venom FAW53
Hawker Sea Fury FB11
CAC CA-27 Avon Sabre
GAF Dassault Mirage III(F/A)
English Electric Canberra T.MK-4
General Dynamics F-111C

TRAINERS

de Havilland DH-82 Tiger Moth
North American NA-16 Harvard/Texan
CAC CA-25 Winjeel
CAC CA-30 Macchi MB-326H

HELICOPTERS

Bell Iroquois UH-1B
Bell Cobra AH-1P
Westland Wessex Mk 31B

OTHERS

LET L-200A Morava
Cessna 150
Cessna 310B
Auster J-5G Autocar
Various drones, engines, cockpits & models

PHOTOS WGCDCR
MaryAnne Whiting

THE GREAT ESCAPE

FOR THE 75TH ANNIVERSARY OF THE DARING ESCAPE FROM GERMAN POW CAMP STALAG LUFT III, **WING COMMANDER MARY ANNE WHITING** TRAVELLED TO POLAND TO ATTEND COMMEMORATIVE SERVICES AT ZAGAN AND POZNAN.



ON THE NIGHT of 24 March 1944, 220 Allied prisoners held in the German POW camp Stalag Luft III at Zagan, which is now in Poland, made their final preparations for escape.

Over the previous 15 months, more than 600 prisoners had helped in a tunnel-building operation. Meanwhile the 'X Organisation' escape committee, led by Squadron Leader Roger Bushell, had accumulated several thousand German marks – enough money for about 40 people to travel by train. Maps had been produced and tailors had handsewn nearly 50 complete suits. Australian Warrant Officer Albert Hake and his team had produced 250 compasses, fashioned from melted-down Bakelite gramophone records, slivers of magnetised razor blades, glass and solder from the seals of tin cans.



The escapers gathered in Hut 104 where the entrance to tunnel 'Harry' was located. From shaft to face, Harry stretched 106 metres.

Despite all their efforts, the plan began to go wrong when it was discovered that the exit trapdoor was frozen shut. The door was freed, only for the escapers to discover the exit was not in dense woodland as planned.

Even after the POWs began to make their way down 'Harry' to freedom, a Royal Air Force air raid on nearby facilities caused the camp's electricity supply to be shut down, plunging the tunnel into almost complete darkness. This was exacerbated by a tunnel collapse at around 0100 hours on 25 March. Despite these problems, 76 men reached the end of the tunnel and escaped into the night. At about 0455 hours, the 77th escapee was spotted by a guard.

The 'Great Escape' was so audacious, Hitler ordered that any escapees who were recaptured were to be shot – a clear violation of the Geneva Conventions.

In the event, 73 of the escapees were recaptured and 50 of those brave men were murdered.

2019 CEREMONIES

At 1000 hours on 24 March 2019, British, Polish and Australian air force representatives attended a service at the Old Garrison Cemetery at Poznan, 200km from Zagan, where 48 of the 50 escapees are interred.

The cemetery is maintained in immaculate condition by the Commonwealth War Graves Commission, its centrepiece a monument to the collective grave of the majority of the escapees killed



ABOVE Commemorating the 75th anniversary of the Great Escape with a ceremony at Zagan, Poland.

by the Gestapo. Local school children laid single roses on the individual gravestones.

At 1500 hours that afternoon at Zagan, guests gathered near the pine forest on the site of the camp, adjacent to the exit of tunnel Harry, to commemorate the 75th anniversary of the Great Escape. They included representatives from the Royal Air Force, the RAAF (Air Vice-Marshal Robert Chipman CSC, Military Representative to NATO and the EU), Polish Armed Forces, Royal Netherlands Air Force, Royal New Zealand Air Force and defence attachés from Belgium, Canada, France, Norway and the United States, the Mayor of Zagan, the city council, local residents, relatives and friends of 'the 50', and Air Commodore Charles Clarke OBE (RAF), president of the RAF POW Association and former Stalag Luft III prisoner, who sadly passed away just months later.

The service commenced with a flypast by Polish Air Force F-16s and a RAF C-130 Hercules from RAF Brize Norton. After a welcome and a reading of the Act of Remembrance and Ode, speeches were made in Polish and English by a number of dignitaries.

Air Commodore Clarke remarked how welcomed he felt in attending these commemorations: "I am always overwhelmed by the kindness and hospitality of the Polish people; we have come a long way together."

Lieutenant Krzysztof Jedrys of the (Polish) 11th Commanding Battalion read the names of 'the 50' by service – RAF, RAAF, South African Air Force, RNZAF, RCAF, Free French Air Force, Royal Greek Air Force and Belgian, Czech and Polish air forces. As each name was read out, 50 RAF personnel each carrying an escapee's portrait formed a guard of honour. Lieutenant Jedrys intoned, "I am calling you", to which the Polish Armed Forces guard of honour responded, "We will remember them".

The Last Post and, after a minute's silence, *Reveille* were performed by Senior Aircraftman Adam Rosbottom of the RAF Central Band. Guests then laid wreaths, AVM Chipman laying one on behalf of the RAAF.

After the ceremony, the Mayor of



ABOVE The exit from the tunnel 'Harry' where 76 POWs escaped.




RIGHT At Most Cemetery, Czech Republic, Louise Williams (author of *A True Story of the Great Escape*) at the monument to her uncle SQNLDR John Williams, his friend FLTLT Reg Kierath (both of 450 Squadron RAAF), and the Polish and English aircrew with whom they were executed. Their ashes are interred at Poznan.



Zagan hosted a reception at the Zagan Palace – a building extensively damaged in local fighting in 1945 and rebuilt.

REFLECTION

I felt tremendously honoured and humbled to attend both services. Despite the passing of 75 years, we continue to be inspired by these brave men for their ingenuity and heroism. I wish to thank most sincerely museum director Mr Lazarz, his staff and volunteers for their dedication in maintaining the memory of the POWs of Stalag Luft III, in particular 'the 50' who were so callously murdered. 

• **WGCDR Mary Anne Whiting** is from the *Air Force History and Heritage Branch*.

THE AFTERMATH

University of NSW PhD candidate Kristen Alexander is researching the stories of the 350 RAAF airmen who were imprisoned at Stalag Luft III. As part of a blog called *Touched the face of God: Faith, Christmas and Remembrance in Captivity* she has written of the escape's aftermath and the part religion played in the ways those left behind coped with the deaths of their fellow prisoners. To read her work, go to australiansinliiii.blogspot.com.

A RICH HISTORY

AUSTRALIA'S
OLDEST AERO CLUB
IS CELEBRATING
ITS CENTENARY.

"THE CREATION of some organised and authoritative body to represent the flying service is imperatively essential. Aviation is going to become of importance, and some central controlling body is decidedly necessary."

With these words H. Bowden Fletcher, DFC proposed the formation of a Queensland branch of the Royal Aero Club at a meeting on 26 September 1919, asserting it would safeguard the future of flying in the state. Those present at the gathering were fellow veterans of the Australian Flying Corps.

The Royal Queensland Aero Club is the oldest aero club in the Southern Hemisphere and was granted the first license for the carriage of passengers in Australia, just ahead of Qantas.

Between 1929 and 1931, the club took over flying training under contract for Qantas at Archerfield Aerodrome. In 1935, a Royal Charter was granted and it became the Royal Queensland Aero Club.

Countless students have gained their wings at the club, going on to careers with the military, Qantas, Virgin Australia, Ansett and international airlines. Notable members include Bert Hinkler, Sir Charles Kingsford Smith and Lores Bonney.

• *RQAC will celebrate its centenary with a black-tie dinner on 21 September at the historic Hangar 5, Archerfield Airport. Tickets are available from eventbrite.com.au. For more on the club go to rqac.com.au.*



De Havilland DH.60G Gipsy Moth at the Royal Queensland Aero Club.
Photo from State Library of Queensland

- HISTORIC MILESTONES -

1910 Australian Aero Club - Queensland Section was formed.

1919 Club re-established.

1920 Granted the first licence for the carriage of passengers in Australia.

1935 Royal Charter granted and the title became Royal Queensland Aero Club.

1951 RQAC took over Hangar 5 for its Aircraft Engineering subsidiary.

29 January 1966 Foundation stone was laid for the clubhouse building.

1998 Established ATAE Ltd to provide aero engineering training after the Queensland government ceased training through TAFE.

2004 Commenced first of five courses to train cadet pilots for China Airlines.

2005 Established the Airline Academy of Australia to cater for airlines and continued to train Griffith University aviation students.

2006 Contracted to train two courses of Qantas Airways cadet pilots.

2007 Contracted with Boeing training subsidiary Alteon to train eight cadets from China in the Multi Crew Pilots Licence.

2013 Contracted with Boeing Flight Training Services to provide pilot training for Boeing customer airlines.

2015 Acquired access to the Australian government Vet Fee Help scheme which provided loans to students.

2016 Club ceased trading after suffering a cash-flow problem due to arrears payment terms of Vet Fee Help.

2017 A small group of board and club members resurrected the club.

2018 Club acquired the name Royal Queensland Aero Club under a deed from the receivers and the Queensland Governor agreed to continue as patron.



ABOVE Portrait of
H. Bowden Fletcher.

THE CLUB FOUNDER

H. Bowden Fletcher was a Gallipoli veteran who had transferred with the 12th Light Horse to the Sinai-Palestine war against the Ottoman Turks. He had been "bitten by the flying bug" in 1917 when, while convalescing from a head wound, he was taken up for a "flip" by a Royal Flying Corps pilot. Transferring to the AFC for the last year of the war, he took part in many aerial battles as an air observer, gunner and photographer with No.1 SQN.

When the Citizen Air Force was formed within the RAAF in 1925, Fletcher was among its officers. He also worked with E.J. Hart, founder of *Aircraft* magazine. In 1927 he moved to Narromine, NSW, and founded an aero club.

• *Brisbane Courier* articles sourced by E.P. Wixted, 1969



FRIENDS OF THE MIRAGE

BROUGHT TOGETHER BY AN ENDURING,
PASSIONATE RESPECT FOR THE MIRAGE
FAST JET, A GROUP OF EX-RAAFIES IS
KEEPING MATES IN TOUCH AND RAISING
FUNDS FOR LEGACY. **BARRY “BONES” EINAM**
EXPLAINS HOW IT ALL CAME ABOUT.

Saturday the 29 June 2019 saw 377 old mates and friends congregate at the Stockton RSL near Newcastle, NSW for the second Annual Friends of the Mirage (FOTM) Reunion – and what a gathering it was.

Mateships were rekindled, bold stories were told, bulldust was spread, jokes and funny stories were delivered – and sometimes “unmanly tears” slid down cheeks from mostly twinkling eyes. A congregation of happy, smiling men and women from a unique family of ex-RAAFies – a group that for me includes 95% of the greatest and indeed bravest people I have ever known – Fighter people.

In particular, the people who maintained, directly supported and flew the Dassault Mirage IIIO & IIID jet while it fulfilled the role as the RAAF’s front-

line fighter/ground-attack aircraft for some 24 years.

The origins of this particular reunion group evolved from a situation well known to many – bar talk plain and simple. A small group of some of my oldest mates got talking over a few beers and over the phone – the common theme here was blokes who had been on the same Trainee and Airframe Mechanics and Fitters Courses at RAAF Wagga circa 1971 to winter 1972 – and who had maintained the Mirage.

At the time, the recent death of yet another one of our number in August 2016 sent a jolt through all of us. Time was running out, why don’t we hook-up at regular intervals and keep an eye out for one another more often. This initial bunch of blokes comprised Col “Kitto” Kitson, Merv “Dizzy” Dwyer, Ian “Storky” Malcolm and Tim “Clapper”

McLean and soon grew to take on Roley Pugh and Baz “Dog” Kirton from our earlier sister courses. Enter some much younger blood in the form of fellow Framie Al Vincent and then have this group congregate at the Stockton Bowlo for an interstate get-together on the 22 March 2017. Hence, came “my entrapment” when I joined this merry bunch of bandits for a few ales.

I ended up saying “yes” to help kickstart the proposal into life, but on one condition – that apart from all the obvious benefits of getting together, we would also endeavour to include ongoing unofficial fundraising activities, which would support Legacy in some way or another. This proposal was unanimously accepted.

Before we went much further with the project, we had to set the rules for eligibility to the group. Delineation of eligibility was to be clear and direct (read savage) yet fair.

Eventually it was agreed that, generally, to become a Friend of the Mirage, you had to have been a serving or ex-RAAF/RAAF Reserve member of any aircraft trade, mustering or category who had had a posting to any flying squadron, maintenance squadron or reserve squadron involved with the Mirage. There are also some other criteria and qualifiers.

That settled, I was then advised that the first annual function had to be in June of 2018 (for whatever reason) – not much notice at all considering we had to do a “bootstrap start” on the whole project. “Clapper” McLean was going to look after the “reunion tawny”,



Al "Command and Control" Vincent was to be our extremely capable MC and assistant to both Clapper and myself, and I was to coordinate the function and attract membership. Some two weeks later, I had already "captured" some 46 interested parties just by approaching mates using email. It took off like a bushfire from there.

The first FOTM reunion was held on Saturday 30 June 2018. The initial response was extraordinary considering the short build-up time we had available. At that time, we had some 370 people on the books with nearly 300 committing to attend that reunion. Come the day, the attendance figure dropped to about 245 due to a massive air traffic debacle created when a rogue fog enveloped Eagle Farm airport at Brisbane on Friday the 29th. The flow-on effect created huge air traffic dramas all over Australia for the whole weekend. Despite this, people had still successfully flown in or driven from such places as Darwin, Karratha, Townsville, Perth, Melbourne, Toowoomba, Rockhampton, all over SA, Vic, NSW and Qld and as far afield as New Zealand, Southeast Asia, Hong Kong and the United Kingdom. The gathering was a huge success and resulted in Al and I being able to handover a cheque to Maitland Legacy for \$1,000 at a later date.

The overall success of the first "thrash" confirmed to us that we should immediately start planning the second FOTM reunion and that, in view of other on-going reunions for ex-RAAFies throughout any given year,

the last Saturday in June of every year would be a reasonably appropriate time to have such a gathering.

Come early 2019, our books had grown to some 642 interested members, out of which we received 411 nominations. As mentioned earlier, 377 attended, with people travelling from all corners of our great land and the globe – an acceptable attrition rate, considering the age of the group, hospitalisations, rehabilitations, family funerals and an extremely bad influenza season.

As we have been offered space for a follow-up article in the next addition of *Wings* to discuss our group's "real connection" to Maitland Legacy and our "adopted Legatee family", I will not discuss this year's final donation tallies in this article. Suffice to say the overall compassion, empathy, generosity and the huge heart of our group has truly shone through.

For whatever reasons, our members came together under the RAAF Mirage Fast-Jet umbrella – she was one high-maintenance lady and a demanding mistress on all her staff – every single one of them. Many of us strained, sweated and bled profusely for her lavish upkeep. Some sadly died in her service or as a result of it and many of us are now broken bodied and/or minded because of her whims and our overzealous flaws. However, she was only the glue that bonded us all together – the jet may be considered one of the greats but in my mind, the people were always the greater. Would we do it all again? If it involved the same people? Of course, we bloody would! **W**



ABOVE Bones presents Barry Sisson with a Mirage memento – he travelled from UK to attend both reunions.



BELOW LEFT No.77 Squadron on parade.

REMEMBERING THE FORGOTTEN MECHANIC

*Through the history of world aviation
many names have come to the fore.*

*Great deeds of the past in our memory will last,
as they're joined by more and more.*

*When man first started his labor
in his quest to conquer the sky
he was designer, mechanic and pilot
and he built a machine that would fly.*

*The pilot was everyone's hero,
he was brave, he was bold, he was grand,
as he stood by his battered old biplane
with his goggles and helmet in hand.*

*But for each of these flying heroes
there were thousands little renowned,
and these were the men who worked on the planes
but kept their feet on the ground.*

*We all know the name of Lindbergh,
and we've read of his flight to fame.
But think, if you can, of his maintenance man,
can you remember his name?*

*And think of our wartime heroes,
and all the acclaim that they got.
Can you tell me the names of their crew chief?
A thousand to one you cannot.*

*So when you see mighty jet aircraft
as they mark their way through the air,
remember the greased-stained man with
a wrench in his hand;
he's the man who put them there.*

Author unknown



UBON THE STORY

THE LITTLE-KNOWN STORY OF THE
RAAF'S INVOLVEMENT IN THE LEAD-UP
TO THE WAR IN VIETNAM.

AUSTRALIAN MILITARY PARTICIPATION in the prelude to the Vietnam War was and is barely mentioned in public, largely unknown and unheralded. This is the first of a three-part feature that exposes the RAAF contribution through the words and impressions of the people involved. The contributors are Jake Newham, Pete Scully, Pete La-rard, Bob Richardson, Dave Rogers, Clint Roland, Ray Funnell, Mike Lavercombe, Cliff Viertel and John Clarkson.

The story is sometimes serious and sometimes humorous but most of all it encapsulates the spirit and character of the RAAF at that time in uncertain circumstances. It also contrasts the expectations and acceptance of service conditions at that time as compared with today's standards.

RAAF SABRES DEPLOYED TO THAILAND

In May 1962, Australia joined several South-East Asia Treaty Organisation (SEATO) partners in rushing forces to north-east Thailand to protect against an anticipated communist invasion from Laos. On 28 May, 10 CA-27 Sabre jet fighters from RAAF units at Butterworth, Malaya, were sent to Singapore, where eight of the aircraft formed into No.79 Squadron. On that day, the new unit flew into a Royal Thai Air Force base at Ubon, 80km from the Laotian border. During the next 10 days, RAAF C-130 Hercules from Richmond, NSW, flew in a base Squadron of 200 men and 450 tonnes of supplies and equipment to establish a tented camp. Although the crisis which prompted the deployment was defused by negotiation, No.79 Squadron remained at Ubon until

August 1968, as part of an integrated air defence system protecting American forces engaged in bombing North Vietnam from communist retaliation.

The situation was that the Pathet Lao were flexing their muscles and, heavily supported by the Russians and North Vietnam, were getting very active across the border they shared with Thailand. Those were the first steps in what would, in time, become the Vietnam War and our job was to get up there (to Ubon) and hold the fort.

For the first few weeks we lived in a tented camp by the side of the runway, with messing facilities of similar rudimentary construction. The toiletry facilities were standard holes in the ground and while we'd erected modesty screens from the rest of the camp, we were wide open to the local population as they made their way to and from the fields, and from our





TOP From left: SQNLDR Roy Frost, WGCDR John Hubble, FLTLT Hughie Collits, PLTOFF Reg Meissner, PLTOFF Ray Butler.

ABOVE Luxury accommodation.



LEFT Early RAAF base camp, Ubon, Thailand.

thunder boxes we returned their cheery waves as they passed by.

Security around the base was provided by the Thai army with whom we had very good relations however, about a week into the operation after we've retired to our tents late one evening, we became aware that a couple of the guards were sitting in the mess tent drinking booze.

Cliff, Kev and I, with some trepidation, entered the mess tent to explain to these chappies that they were being very naughty boys, and as well as stealing our booze; they weren't doing a great job of guarding the camp. We were very aware of the fact that as well as a fair amount of beer in their bellies, they both had big old Smith and Wesson shooters hanging off their hips.

As happened, they were well and truly pissed and not really aware of the seriousness of their situation. To indicate how naughty they were, I started walking around pointing at the empty cans on the ground, counting, one, two, three and was joined by the corporal counting, four, five, six gleefully demonstrating that, not only could he count to 10, he could do so in English.

Blissfully unaware of the seriousness of his position, he happily allowed us to move him and his mate out of the mess tent, and in time, we restored the security detail and returned to our cots.

Of course, the incident had to be reported to higher authority and the Colonel, suffering a massive loss of face was mortified. A few days later, I met him casually and asked what he'd done with those naughty chaps. He replied quite calmly, "Oh, I shot them". Retribution comes quickly in this part of the world.

It was summertime but the living was anything but easy. As regular as clockwork, each morning at 0200 hours, a thunderstorm arrived with a torrential rainstorm and we would be, to a man, standing in our tents, all our belongings piled on our cots which we were holding waist high as the water rushed through the camp. Ten minutes later we would be back in the cot, fast asleep, with slightly muddy feet. In time we moved into more permanent accommodation when the rest of the infrastructure had



No. 79 Squadron at Ubon.

been put into place. Troops' comfort was always very much the last priority.

Just a couple of weeks into our time there, one morning well before dawn the Boss appeared at our tents, "Out of bed lads, and down to the flight line. It's on."


We head down to the flight line. It's a hive of activity as the ground crews are readying the ships for combat. The word is that there are multiple radar targets, believed to be helicopters just across the Laotian border and headed in our direction. Our job; stop 'em. Four Sabres are armed with HE ammo and Sidewinder missiles ready for scramble at first light. This is what we've been training for and as well as milking the lads from Lion control (our fighter control radar site) as to their spin on how the situation is developing, we're mentally going through what we may be faced with and how we're to deal with it. Been waiting for this for years and it would be disastrous to get it wrong. In the early morning twilight we climb in the cockpits. The armament fitter runs a check on the Sidewinder missiles hanging under my wings. They're whirring away, responding to the test and ready to go. Doug fires up at first light with Cliff on his wing and I'm leading the second pair.

This could well be the first engagement in what is, as yet, an undeclared conflict. I'm quite confident that we're equipped to handle anything that may come our way. This is all very enervating and it is essential that I get it right. I'm very anxiously waiting for

the reappearance of Johnno as that could be my cue to fire up and leap into the air. At low level, the Sabre has about 30 minutes fuel on board, and I have a feeling Johnno's going to get a sighting just as he runs out of fuel, and it will be up to me to get this embryo conflict into play.

Half an hour later Johnno is back on the ground, still carrying his missiles and he's not fired his guns either. He climbs on my wing to give me a rundown. He'd been vectored onto the targets, "Half a mile; quarter of a mile, two hundred yards... merging with target... now!"— nothing.

They'd steamed around the area, in and out of the early morning mist, trying to make head or tail of the situation, but with no sightings at all and fast running out of fuel, returned to base. Big mystery. Lion control meantime was trying to assess what they were seeing on their screens. After about an hour and a half a decision came down from high level to the effect that the radar targets were either a rare meteorological phenomenon or some very sophisticated ECM work from over the border, the result of which was we could all relax. Bugger. The battle was over and I didn't even get airborne. We tidied up the flight line, and headed back to our camp and opened the bar, to celebrate the cessation of hostilities.

It's a merry life at the front. 
To be continued.



HISTORY MEETS SPEED & ADRENALIN

TO PURSUE THEIR PASSION FOR
WARBIRDS, A GROUP OF AVIATORS GOT
TOGETHER TO BUY A MUSTANG.

ROGER HENDRY AND FRANK DEETH come from opposite corners of the planet; Hendry hails from Dundee in Scotland and Deeth grew up near Caboolture in South East Queensland. As it happens, they have a common interest. They're both members of a syndicate named 'Mustang Flights Australia', who own, operate and sell joy flights in a CA18 Mk21/P-51 Mustang named *Snifter* (a cartoon character dog from 1940's newspaper comic strips).

Be it airline pilots like Mark Hall, who

has criss-crossed the globe for 25-years working for a prominent international airline or Matt Hall (unrelated); one of the most successful Red Bull Air Race World Championship pilots of the past decade; the Syndicate has come together with a determination to preserve and share their iconic aircraft.

Snifter is one of 200 Mustang aircraft built by the Commonwealth Aircraft Corporation in Victoria, under licence from North American Aviation in the USA. Ironically, the first scratch-built Mustang's weren't finished until after



LEFT *Snifter* in flight. Photos Henry Howard.

WWII, in 1945. Instead, the Aussie-built versions were deployed to Japan as part of the British Commonwealth Occupation Force and later entered combat during the Korean War.

Though the Mustang was borne out of conflict, celebrating its genesis is not the reason that Hendry, Deeth and their colleagues work to preserve *Snifter*.

"This aeroplane was one of history's decisive weapons. Its clever design and extended range made a profound difference to the course of events in WWII," Hendry explained.

"It's not the conflict itself, but the ingenuity behind the aircraft that is fascinating. It was created using slide-rules and drawings, in a time before computers; only 102 days separated contract award to the roll-out of prototype NA73X and just 149 days to first flight." But it's not just the history of the aircraft's development and prowess that Hendry loves sharing with customers. He's also keen on relating the story of the men and women who applied the aircraft to the war effort.

"The aeroplane is a pure thoroughbred," said Hendry. "Every time that magnificent Rolls-Royce Merlin bursts into life, you think 'wow, what have I just unleashed?' – and that is before you apply take-off power. The aircraft is beautiful to fly and behaves well as long as you respect its limitations."

"I often wonder how the young lads who flew it would have felt as they committed to the harsh reality of battle. On the one hand, they would have been quite fearful, but on the other quite glad to be in a Mustang!"

Hendry recalled being overawed when he was introduced to the Boeing 707 jet as a young British Overseas Airway Corporation (BOAC) pilot, continuing that he could only imagine how a young pilot would have felt at the same age, but instead with a Mustang fighter before him.

"It was a big step for those relatively inexperienced youngsters, mostly around the age of 19, to climb into such a high-performance machine and there



were understandably many training accidents."

Deeth, like Hendry, has spent his professional career in the airlines. He joined Qantas in 1995 to pursue his dream and a means to fuel his passion for warbirds. As a child he was engrossed by the Battle of Britain and the Spitfires and Hurricanes flown in that campaign.

"I was brought up in an aviation family," Deeth said, a sense of pride clear in his voice. "My father never pressured me to pursue aviation, he loved gliding, but never pressed us to choose flying as a career.

"I think that every boy wants to fly fighters, and warbirds were the inspiration for that. But only a small percentage of pilots get to fly fighters.

"That led me down the commercial route as it provided the means needed to be involved in a variety of aviation pursuits."


The Spitfire might have been Deeth's first love, but nowadays his involvement in warbirds extends beyond a love of the aircraft itself, but also to the people that he's met via his passion.

"Financially I could not afford to purchase such an aircraft on my own, and years ago what I have now with this project was not on my radar," he said. "But the benefits of owning a Mustang with like-minded people is beyond words. We have an amazing camaraderie and we're on the same level with what we want for the plane.

"Flying is so individual; some people are history junkies and come along just to experience a historical warbird in flight. Others want a speed rush and to do some aerobatics. All we want is for them to have a big smile on their face.

"I love that we offer transit flights so that passengers can get a sense of this plane going long-range and cross country, like it was designed

to do. I want to see it flying around the country. We have it registered under a charter category AOC and not many warbirds are registered that way. It has amazing potential and is absolutely an unforgettable experience."

Gone are the days when the Mustang was controlled by teenagers who took on responsibility beyond their years and experience. The experienced aviators at Mustang Flights Australia want to put the passenger safely in the shoes of those 19-year-old pilots, who's trepidation in war was masked by a veneer of bravery and sheltered by a magnificent aircraft that contributed so much to history. 

• *Joy flights in the Mk21/P-51 Mustang are available year-round. The aircraft is based in Caboolture but spends many months of the year in other locations around the country. For information and bookings go to mustangflights.com.*





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AUSSIE ROCKET

WIN



Silvereye reached 10,027 feet and placed first in its division at the Spaceport America Cup in New Mexico.

AN AUSTRALIAN ROCKETRY TEAM SOARS AT THE ANNUAL SPACEPORT AMERICA CUP.

THE UNIVERSITY OF SYDNEY rocketry team claimed victory with its custom-built rocket, *Silvereye*, in the 10,000 feet commercial off-the-shelf category of the Spaceport America Cup intercollegiate rocketry competition.

Competing against 51 teams from around the globe, including Princeton and Eidgenössische Technische Hochschule Zurich (ETH Zurich), the team achieved a total score of 1146.9 and a Predicted versus Actual result of 98.9%. Runner-up ETH Zurich accrued a total score of 1042.3 and, interestingly, a Predicted versus Actual result of 0%. For all results go to www.soundingrocket.org/2019-sa-cup.

Sydney Uni was the first Australian team to compete in the competition held annually in New Mexico, United States.


"Winning the 10,000 feet commercial off-the-shelf category at Spaceport America Cup 2019 is the culmination of more than eight months of hard work," said team president André Franck Bauer. "Our win represents the biggest achievement for university student rocketry in Australia's history. We look forward to collaborating with other universities for next year's competition."

The team was commended for its precision and safety preparedness, with the rocket reaching a height just 27 feet above the target altitude of 10,000 feet – about 3km. It also received an honourable mention for sportsmanship, using its expertise to assist other teams launch and recover their rockets.

"Our rocket has been successfully flown and recovered both in Australia and now in the US, highlighting the robustness and adaptiveness of our design," said team chief engineer Mitchell Galletly.

Competing against a global cohort of universities and working alongside leading aerospace organisations has allowed the team to gain new insights to the international space industry that they hope to share with their peers.

University of Sydney vice-chancellor Dr Michael Spence congratulated the students. "Their success in New Mexico not only demonstrates the high calibre of our students, but also showcases our commitment to world-class research in aerospace engineering."

Silvereye was constructed from a custom-designed and manufactured carbon-fibre airframe and uses a solid propellant to achieve speeds approaching the speed of sound. In 2020, the team hopes to compete again, paving the way for other universities to join them. 

ABOUT THE TEAM

The University of Sydney Rocketry Team is Australia's oldest tertiary student rocketry team – a dynamic group of student aerospace engineers who design and manufacture high-powered rockets. In 2018, it became the first Australian university team to design and build a rocket to successfully reach 10,000 feet. The team's trip to New Mexico was supported by 33 donors, who raised more than \$3,000 through a crowdfunding campaign.

WORDS Luisa Low, media and PR adviser (Engineering & IT); PHOTO Allen Chan.



Wings first issue cover.



SHEDDING MORE LIGHT ON THE ORIGINS OF *WINGS* MAGAZINE.

THE GENESIS OF *WINGS*

IN THE NATIONAL notes in our Autumn issue, mention was made of the origins of *Wings*. We can add a few more notes thanks to Steve Allen, Collection Manager in History and Heritage Branch – Air Force.

Steve looked into the early issues of *Wings* and discovered issue one of volume one, dated 13 April 1943. As the official magazine of the RAAF during the war years, incorporating Air Force News, it was published fortnightly by the Directorate of Public Relations for all personnel in air-related service: RAAF, Women's Auxiliary Australian Air Force, Air Training Corps and Volunteer Air Observer Corps.

After three years, in March 1946 its publication was handed over to the NSW Division of the Australian Flying Corps and Royal Australian Air Force Association and it became a quarterly magazine.

For those who own early issues, there may be some confusion over duplicated volume numbers shown on the covers. The explanation is that with the change of publisher the volumes started over again, as *Wings* was now effectively a new magazine with the same title. Hence, issues from both 1943 and 1946 are labelled volume one.



LEFT
WgCdr D. Thomson, Commanding Officer of a RAAF Medical Receiving Station in the Darwin area, reads the first issue of *Wings* in 1943. Photo AWM NWA0334.

RAAF MUSEUM POINT COOK

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 1pm (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.



**ENTRY TO THE RAAF
MUSEUM IS FREE**



**RAAFMUSEUM
POINT COOK**

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

RAAF History & Heritage PUBLISHING SYMPOSIUM

WORDS Charles Page

AIR FORCE HISTORY and Heritage Branch staged a successful inaugural publishing symposium at the ADFA campus Canberra in July. It was organised by Wing Commander David Fredericks, who also performed his MC duties with great flair.

The event, attended by more than 100 aviation writers and historians, was an opportunity for the RAAF and the broader history community to discuss promotion of Air Force history, with the RAAF centenary in 2021 in mind.

The welcome address was given by Deputy CAF, Air Vice-Marshal Stephen Meredith AM. Presentations were delivered by Air Commodore John Meier (Director General History and Heritage), Martin James (Air Force Historian), Group Captain John Martin (Director of History Services), Group Captain Ernie Walsh (Air Force 2021 Liaison Officer), and Andy Wright (*Flightpath* magazine).

Day one also saw the launch of the book *Empire Has an Answer* by Dr Tony

Brady, winner of 2014 Air Force History Award Fellowship. An Air Force History gap analysis workshop identified the need for post-WWII themes, and an open forum on historical period themes was then held with delegates.

Delegates attended the Last Post Ceremony at the AWM, followed by dinner at Olms Mercure Hotel, where guest speaker Michael Veitch (author of *Flak, Fly, 44 Days*) gave a riveting talk on his research and writing.

The second day continued with themes from 1954 to present day, followed by a panel discussion with authors Peter Rees, Peter Ingman, Louise Williams, and Air Commodore Mark Lax. Presentations were then delivered on the Air Force history collection, copyright, National Archives, National Library, AWM and UNSW collections.

After a panel discussion on research, delegates attended breakout theme sessions on publishing, research, illustrations (Juanita Franzl), copyright, and referencing. Publishing tips were

given by Denny Neave (Big Sky Publishing), Peter Ingman (Avonmore Books) and Mark Lax. Delegates appreciated the subsequent opportunity for individual meetings with Air Commodore John Meier, Air Force Historian Martin James, and staff from AWM, National Archives, National Library, and UNSW.

A third day was optional, and many delegates were taken on a tour of the AWM Treloar Annex at Mitchell, where aircraft and other military hardware are temporarily stored. Aircraft included F111, Dakota, Beaufort, Caribou, Chinook, Sioux, and several rare types. Lunch at Poppy's, AWM was followed by further individual meetings with Air Force Historian, Martin James. Many delegates stayed on in Canberra for research, and sightseeing.

The symposium greatly enhanced the connections between the RAAF and writers and researchers. It also enabled close networking between the latter, many of whom knew each other from social media, but had never actually met. Another symposium may be held in 2021 to coincide with a RAAF airshow at Amberley.

• *Charles Page is historian for the RAAFA WA Australian Air Force Cadets Branch.*



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Contact the Secretary @ nnwaircrewreunion@gmail.com





ABOVE The Spitfire mounted outside RAAFA WA's former office in Adelaide Terrace, Perth.



LEFT Cambrai Village, Merriwa.

RAAFA Western Australia CELEBRATES 90 YEARS

THIS YEAR IS A special milestone for RAAFA in WA as it reaches its 90th year. It is a time to reflect on how we started from humble beginnings to become the seventh largest not-for-profit organisation in Australia that provides retirement living, and one that employs more than 700 staff, supported by more than 500 dedicated volunteers.

The Australian Flying Corps and Royal Australian Air Force Association was formed in Melbourne in 1920 by a group of ex-Australian Flying Corp members who gathered to greet the Smith brothers who had flown 'down under' from England.

Soon after, Reece Price from the NSW group moved to Perth and instigated a meeting in May 1929, with just 30 men, to form an Australian Flying Corps Association of Western Australia.

At its inception, the organisation was concerned with the welfare and continued comradeship of those who served first in the Australian Flying Corps and later in the Royal Australian Air Force.

The WA contingent deployed to fight in WWII lost 44% of their mates, so when they came back to WA there was a strong bond between the 6,000 survivors. RAAFA was there to support them.

Fast forward to 1952 and RAAFA WA acquired an old house in Adelaide Terrace, which became quite an icon in Perth as a result of a retired Spitfire mounted outside. In the same year, the Association decided to establish a country club where members could gather for commemorations and celebrations, and also to offer retirement accommodation for members.

A parcel of land at Bull Creek, bound by Leach Highway and the Kwinana Freeway, was purchased. And in 1971, the RAAFA Club was opened with Princess Margaret cutting the ribbon and the Spitfire relocated to the site.

In 1984, the organisation was renamed the Royal Australian Air Force Association. RAAFA has evolved continuously to stay relevant and is now known as Air Force Association (AFA). This has seen us evolve from purely an ex-serviceman's association, to welcoming men and women from all areas of the community.

Today AFA WA has more than 4,500 members, and a high-level strategic plan setting out our objectives for future growth. We are conscious of the demands of the current membership and the broader community of ageing Baby Boomers. It is expected we need to

respond with somewhere between 800 and 1,000 new homes over the next five to 10 years to accommodate their needs.

We have 1,447 retirement living units that provide homes for more than 2,000 residents. Our estates provide an opportunity for seniors to embrace a fulfilled and enriched second half of life.

Each AFA WA estate has a unique community. For example, RAAFA Amity Village Albany is a small tight-knit community, while Air Force Memorial Estate (AFME) in Bull Creek is a vibrant village which is also home to two aged care homes, as well as our Aviation Heritage Museum.

We have also introduced a AFA Connect service that offers numerous amenities within our AFA communities including a DVA service. These are tailored to assist older people to continue living independently, in their own home, for as long as possible.

Then there's our Aviation Heritage Museum at AFME, opened on 17 November 1979. It's home to one of Australia's largest collection of civil and military aviation artifacts and is supported by more than 200 volunteers.

We are also proudly committed to supporting local groups, organisations and individuals within the wider community through our philanthropic Clear Skies program, which maintains AFA's traditions and heritage.

Our core values of recognition, inclusivity and diversity, benevolence and healing are central to what we do.

**Clive Robartson, State President,
and John Murray, Chief Executive Officer,
AFA WA.**

Commemorating OUR PAST

RAAF ASSOCIATION SOUTH AUSTRALIA partnered with RAAF Edinburgh's 462 Squadron, a Bomber Command squadron in World War II, to host the 2019 Bomber Command Commemorative Ceremony at the Air Force Memorial, Torrens Parade Ground, Adelaide on 2 June 2019.

In a splendid occasion attended by more than 180 people, including His Excellency Hieu Van Le, Governor of SA, political, community and Defence dignitaries, veterans and a large flight of 462 Squadron personnel on parade, the ceremony acknowledged the service and sacrifice of those allied airmen who served in Bomber Command during World War II.

The main address by SQNLDR Andrew Jolley, Executive Officer of 462 SQN, recalled the actions of WOFF Alec Hurse, a young Victorian who served as a bomb aimer with 75SQN (RNZAF) and was awarded the Conspicuous Gallantry Medal for his actions on his 29th mission on 11 June 1944. While 462SQN provided the catafalque party, RAAFA SA President Robert Black AM, recited the Ode. Refreshments at the Combined



Services Mess after the ceremony provided a fitting opportunity for young and old to join and share stories.

The service was followed on 15 June by a special Sir Ross Smith Commemorative Service where the RAAF Association SA partnered with RAAF Edinburgh and the History Trust of South Australia in commemorating the passing of one of Australia's most distinguished military aviators, Sir Ross Smith, as part of South Australia's Epic Flight Centenary.

The RAAF Association and RAAF Edinburgh have been partners of the Epic Flight Centenary, South Australia's celebration of the record-breaking flight from England to Australia in 1919. The wonderful service was held in St Peters Cathedral, Adelaide, where The Last Post was played from the Gallery resonating

through the cathedral like nobody had heard before. AIRCDRE Phil Gordon, Senior ADF Officer Edinburgh, provided the key address.

RAAF Association SA and RAAF Edinburgh will be partnering to hold several other commemorative services this year including a new Victory in the Pacific ceremony on 15 August and a Battle of Britain Commemorative Service on 14 September.

These services are proving to be a wonderful way of not only commemorating those who have served before us but also to connect our younger serving veterans with RAAF Association veterans and help them embrace and understand the legacy of their service. It is wonderful to see RAAF Association and RAAF Edinburgh setting the standard for commemorative ceremonies in the Adelaide area.

'A Gathering of Eagles'



A NATIONAL COMMEMORATION of AIR POWER and AIR FORCES

ANNIVERSARY OF THE BATTLE OF BRITAIN
• HOBART TAS 13-15 SEPTEMBER 2019 •

The Royal Australian Air Force Association, Tasmania Division, extends to all Royal Australian Air Force members, past and present, and their partners and guests an invitation to attend 'A Gathering of Eagles' to be held in Hobart over the period Friday 13th - Sunday 15th of September 2019 to commemorate the deeds and sacrifices of the Royal Australian Air Force, the Royal Air Force, Allied and all Air Forces in all conflicts past and present.

For more information visit the website: www.raafatas.com or contact the State Secretary: secretary@raafatas.org.au

YOUNGER VETERANS HAVE BEEN DUPED

ASSOCIATION MEMBER MAC WELLER SHARES HIS VIEWS ON THE PRODUCTIVITY COMMISSION'S FINAL REPORT ON VETERANS' SUPPORT.

OUR YOUNGER CONTEMPORARY veterans with war service have been duped by the Productivity Commission's (PC) final report "A Better way to Support Veterans" with the recommendation that there be no difference between the benefit and support provided to a veteran with war service and a service person with none.

The PC's ill-founded logic is that there is no difference in impairment, condition, injury or wound whether obtained in wartime conditions or in peacetime. In this judgment, that conflicts with over 100 years of repatriation policy, the PC shows a complete lack of understanding by completely discounting the trauma of

war and the effect that armed conflict has on veterans.

Illogically, the PC does recognise the additional hardship and risks of war service but argues that these are adequately remunerated by deployment allowances and honours and awards. Deployment allowances do not contain any element for compensation and how possibly could an allowance for say a six-month deployment cover compensation for impairment for the subsequent life of a veteran? Frankly, a dollar or two or an honour or two is incomprehensibly inadequate compensation for being exposed to the trauma of war.

Existing entitlements are largely maintained, but older veterans such

as Association members with Vietnam service will not be impressed that the younger veterans of today will be denied similar entitlements in the future. There is no place for an 'I'm all right Jack' among veterans and the last thing we want is a schism between veterans with war service.

Moreover, the PC misses the target in respect of an overall strategy to effectively address the findings of the Senate inquiry into suicide by veterans and ex-service personnel. A key finding was that the system was so complex that many veterans simply were not able to access entitlements.

The very extensive organisational rearrangements of the deck chairs recommended by the PC cannot possibly reduce the complexity of the veteran support system nor solve the fundamental problems identified by the Senate Inquiry and are impractical.

To move the veteran support function into the Defence portfolio seems absolutely incongruent with Defence's fundamental charter to prepare for and prosecute war. Far better for the Department of Veterans Affairs (DVA) to get on with its program of improvements and 'veteran centric' commitment nor be diminished in role to an obscure 'policy' unit.

Further and surprisingly, the PC has neither quantified the expected benefits nor costed the changes.

The PC has made some valid recommendations such as government funding of advocacy, increased attention to transition of service people to civilian life and the streamlining of legislation and Association members would have existing entitlements maintained under the PC's recommendations.

But overall the report does not meet objectives set by government and members might feel compelled to advise the Minister for Veterans and Defence Personnel accordingly if they feel likewise.

• The views express here are those of Mac Weller and do not necessarily reflect the official AFA position.



RIGHT
Current vets carrying
the remains of vets
recovered from
Vietnam.



WORDS Flying Officer (AAFC) Paul Rosenzweig

ASPIRING AVIATOR

DURING THE JULY school holidays, Cadet Sergeant Tharane Thamodhar from No.604 Squadron (Hampstead Barracks SA) took the step from a DG-1000S glider for a chance to fly as she had never done before – in a PC-9/A aircraft at the Aircraft Research and Development Unit (ARDU), RAAF Base Edinburgh. The flight, over Adelaide, was arranged courtesy of ARDU's Commanding Officer to give an understanding of what it is like to be an Air Force aviator.



ABOVE CSGT Tharane Thamodhar prepares for the flight of her life in an Adelaide-based RAAF PC-9/A. Image courtesy CSGT Thamodhar.

DIAMONDS IN THE SKY



THE PINNACLE OF Australian Air Force Cadets training is flying an aircraft solo. During the April school holidays, Elementary Flying Training School (EFTS) at RAAF Base Point Cook, Victoria ran the first flying training course using the new DA40 NG Diamond aircraft.

Ten cadets from No.4 Wing (Vic), No.5 Wing (Tas), No.6 Wing (SA and Mildura) and No.7 Wing (WA), were the first cadets to take the Diamonds to the sky.

"Seven Cadets on the course flew their first solo in the DA40 NG aircraft," said Squadron Leader (AAFC) Scott Wiggins, Staff Officer Operations, Aviation Operations Wing.

Cadet Sergeant Mark Hargreaves of No.402 Squadron (Watsonia) gained the honour of being the first cadet to complete a solo flight. "When my flying instructor got out of the aircraft, I was over the moon with excitement because I was about to fly solo for the first time," he said. "This is something I will never forget."

Cadet Corporal Brianna Haunold of No.710 Squadron (Bunbury) followed. "My aim is to become an Air Force pilot and eventually, I hope to fly the F-35A Joint Strike Fighter," she said.

The leasing and maintenance by Air Force of eight Diamond DA40 NG aircraft for exclusive use by the Australian Air Force Cadets is intended to inspire young Australians like CSGT Hargreaves to pursue a career in aviation. The aircraft will be based at RAAF Amberley, Qld, RAAF Richmond, NSW and RAAF Point Cook, Vic, and will be regularly deployed to regional areas on weekends and during school holidays.

ABOVE LEFT CCPL Brianna Haunold (710 Squadron) with her instructor FLTLT (AAFC) Kate Hobson. Photo SQNLDR (AAFC) Scott Wiggins

RIGHT Cadet Corporal Chevvy Dolan, No.608 Squadron, with WWII Bomber Command Veteran Doug Leak, a recipient of the French Légion d'honneur.

CADET MEETS A LIVING LEGEND

AUSTRALIAN AIR FORCE Cadet Corporal Chevvy Dolan, 14, met World War II living legend, Warrant Officer Doug Leak, at this year's Bomber Command Memorial Service in Adelaide.

One of the readings at the service was delivered by CCPL Dolan from No.608 (Town of Gawler) Squadron, who was recently awarded the Bronze Award of the Duke of Edinburgh's International Awards, and the AAFC's individual proficiency badge. He hopes to pursue a career in aviation and intends to apply for the next round of flying training opportunities provided by the AAFC.

Menindie-born Doug Leak was one of 10,000 Australian airmen who served with RAF Bomber Command during WWII, including with No.149 (East India) Squadron RAF (Lancaster II & III heavy bombers) from 9 March 1945, which was based at Methwold in Norfolk, England. He flew in five Operation Pointblank bombing missions over Europe as a Wireless Operator/Air Gunner in the mid-upper turret of Lancaster long-range bombers.

The Bomber Command Memorial Service was hosted by Air Force and the RAAF Association, with participants including Air Force Cadets from No.6 Wing (SA), who are custodians of the Adelaide Air Force Memorials.

"The importance of cadet participation in these commemorative services cannot be understated," said Flying Officer (AAFC) Paul Rosenzweig, Public Affairs & Communication Officer for AAFC's Aviation Operations Wing. "Not only does spending time with our veterans help bridge the generations, but their service is helping inspire our next generation of aviators."



CADET OF THE YEAR

THE COMPETITION WAS TOUGH FOR THIS THE 2018/19 AUSTRALIAN AIR LEAGUE CADET OF THE YEAR.



Australian Air League Cadet of the Year nominees, from left to right Sgt Elliot Mulligan, Sqn.Sgt. Rachael Fleming, Sgt Darby Thompson, Sgt Tristan Duncombe, Sgt Victor Tikhonov and Cpl Caitlyn Edwards. ✈️

ON SATURDAY 23 MARCH, candidates for Australian Air League Cadet of the Year flew in to Sydney from around Australia for selection for the prestigious award.

This year saw a change to the selection process. In the past, selection was spread over two days on the same weekend of the Council of the Australian Air League meeting and included presentations by the candidates at the Saturday evening dinner. This year presentations were delivered and reviewed prior to the award dinner.

The female candidates for this year's consideration were: Sqn Sgt Rachael Fleming, Rowville Squadron, Victoria and Cpl Caitlyn Edwards, Doyalson Squadron, NSW Girls. The male candidates were: Sgt Victor Tikhonov, Berwick Squadron, Victoria, Sgt Tristan Duncombe, Gold Coast Squadron, Queensland, Sgt Darby Thompson, Sutherland Shire Squadron, NSW Boys, and Sgt Elliot Mulligan, Port Adelaide Squadron, South Australia.

Candidates from interstate met with the NSW candidates at Sydney Airport and travelled to the NSW Boys' Group Air Activities Centre at Camden to meet members of the federal staff. Assessment activities commenced at 1100 hours, with three flights in one of the Air League's aircraft, Piper PA-28 Warrior VH-UNL flown by the NSW Boys' Group Air Activities pilot Rocky Cheung.

While cadets took turns enjoying flights over Sydney Harbour, fellow candidates underwent uniform inspections, assessments and individual panel interviews. The results were used to select the successful candidate.

This year, the candidates were a close match in age and experience so the competition was tough.

The assessment process concluded that any one of the candidates would be able to represent the AAL with pride and all should be very proud of their performance. Their families, Squadrons and Groups should also be proud.

After lunch the results were announced and the successful candidates were Sqn Sgt Rachael Fleming, Victoria and Sgt Tristan Duncombe, Queensland.

On behalf of the Australian Air



Cadets enjoyed flights over Sydney Harbour in the Air League's Piper Warrior VH-UNL. ✈️

League we extend our hearty congratulations to Rachael and Tristan.

We would also like to congratulate their colleagues who were not successful, the standards this year were excellent and to compete in such company is highly commendable.

About the Australian Air League

The Australian Air League is a youth group for boys and girls aged eight years and older who have an interest in aviation either as a career or as a hobby. In the Air League they learn about aviation in all its forms through classes in theory of flight, navigation, aircraft engines and a variety of interesting subjects. It also aims to enable them to achieve their full potential and become better citizens. With Squadrons in most states of Australia, the Air League has been serving the community in Australia since 1934. It is self-funding and staffed by volunteers. For further information, phone 1800 502 175, email info@airleague.com.au or go to airleague.com.au.

TOO GOOD TO BE TRUE

WE'VE ALL HEARD THE WELL-WORN ADAGE, IF IT LOOKS TOO GOOD TO BE TRUE, IT PROBABLY IS, BUT IT'S TOO-OFTEN IGNORED, AS **DELIA RICKARD**, DEPUTY CHAIR OF THE ACCC EXPLAINS.

EVERYONE LOVES A bargain, and no-one knows that better than online scammers. Increasingly, scammers, masquerading as legitimate online retailers, are luring bargain hunters by selling well-known brands at too-good-to-be-true prices.

In the first three months of 2017 alone, the Australian Competition and Consumer Commission (ACCC) Scamwatch service received more than 1,000 reports of online shopping scams, netting more than \$150,000.

Australians in the 18-24-year age bracket made up the biggest group reporting losing money to online shopping scammers. Worryingly, Scamwatch statistics also show nearly one in two people reporting a scam lost money.

The scam itself is alarmingly simple. Scammers set up fake websites that look like genuine online stores, including professional-looking design, stolen logos and even a .com.au domain name and/or stolen ABN. The scammers advertise goods, often well-known and trusted

brands, at unbelievably low prices to lure in consumers who are shopping around for a good deal.

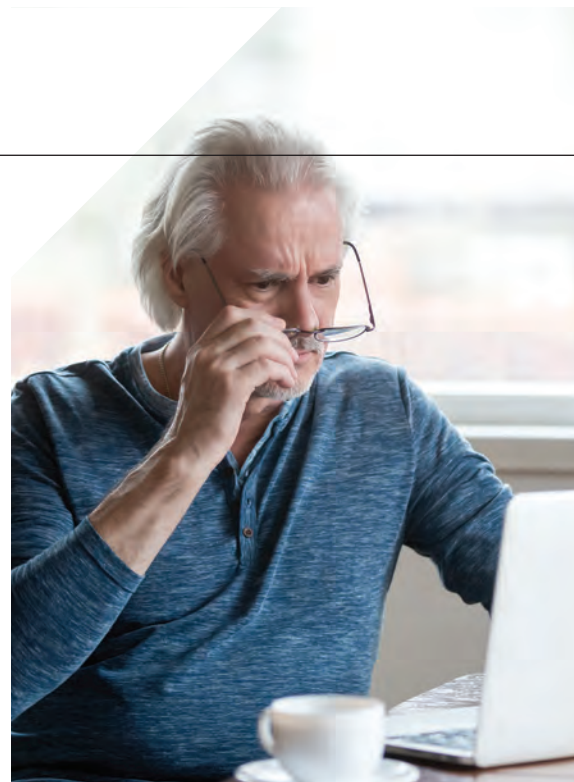
This is the best clue that it's a scam, because if something looks too good to be true, it probably is.

There are other signs you should also look for. Aside from unbelievable prices, the biggest tip-off is the method of payment: scammers will often ask you to pay using a money order, pre-loaded money card, wire transfer, or even gift cards from well-known retailers. If you make a payment this way to a scammer, you're highly unlikely to see your money again. That's why they avoid traditional payment methods such as credit cards.

We all love a bargain, the bigger the better, but scammers prey on this and will use 'fear of missing out' to cloud your judgement. If in doubt, do a Google search on the website you're thinking of buying a product from. There are many great product review services that can tip you off to stay clear of a fake retailer.

For more advice on how to avoid online shopping scams, go to scamwatch.gov.au. **W**

This article was originally published by the ADF Financial Services Consumer Centre. For more informative articles, tips and advice, go to adfconsumer.gov.au.



SCAMWATCH TIPS

- Do some independent research on a website you're thinking of buying a product from and check out reviews from other consumers.
- Avoid any arrangement with a stranger that asks for up-front payment via money order, wire transfer, international funds transfer, pre-loaded card or electronic currency.
- Never send money or give credit card or online account details to anyone you don't know or trust, and never by email.
- When making online payments, only pay for items using a secure payment service – look for a URL starting with https and with a closed padlock symbol, or a payment provider such as PayPal.
- Think twice before using virtual currencies such as bitcoin — they do not have the same protections as other transaction methods so you can't get your money back once you send it.
- When using retail websites, find out exactly who you are dealing with. If it is an Australian company, you are in a much better position to sort out the problem if something goes wrong. You can check Australian Business Numbers (ABNs) at abr.business.gov.au.
- Check if the website has a refund or returns policy, and if their policies sound fair. The better online shopping sites have detailed complaint or dispute-handling processes in case something goes wrong.
- Avoid clicking on pop-up ads that can download viruses, spyware, malware, and other unwanted software to your computer.



FLYING OFFICER COLIN BARCLAY HARVEY

7 February 1923 – 12 June 2019

FLGOFF COLIN BARCLAY HARVEY was born in the War Memorial Hospital, Birrell Street, Waverley, NSW. He was a very bright young man and spent some formative years at an academically advanced school. As he left school



LEFT The crew in front of *Goofy*. Standing from left, Tom Scott and Hugh Page. Sitting from left, Frank Perry, Stan Beckett and Col Harvey.

at age 17, World War II began and keen to participate Colin applied at Woolloomooloo recruiting HQs to join the RAAF. He wore reading glasses so was ineligible for pilot training and was initially offered to train as a gunner. He pushed to be a navigator and completed Navigator training in Alberta, Canada in 1941 at age 18, the youngest to be so qualified. Of the 21 young course mates Colin was one of the lucky seven to survive the War.

Colin was assigned to 295 Squadron, initially operating twin-engine Albemarle transport aircraft primarily tasked to tow gliders into the combat zones of France and Germany. He was one of a mixed nationality crew: pilot, Tom Scott (English) wireless operator/gunner, Hugh Paige (NZ) and gunner, Frank Perry (Canadian). The Albemarle was so

distinctive it was tagged *Goofy the Dog*. The squadron was later re-equipped with the Shorts Stirling bomber, and the crew was augmented with Bomb Aimer, Stan Beckett and Flight Engineer, Hedley Simpson both English.

On D-Day, 6th June, 1944 while over the English Channel on a mission to Caen, South France the crew lost contact with the glider under tow. One of the tow ropes snapped and as the glider was being towed awkwardly by one wing it was dragging the Sterling down. The glider was released and crashed into the Channel. All on board the glider survived, were picked up by one of the many Naval vessels in the Channel that day and were committed to another glider insertion the very next day – pretty brave lads.

After the war, Colin worked at the Water Conservation and Irrigation Commission until 1950 and then became successfully involved in motor vehicle dealerships in Northern NSW. Colin was an accomplished poet.



WARRANT OFFICER GEORGE ENDACOTT

7 November 1922 – 6 July 2019

WHEN GEORGE WAS 15, he moved from his home town of Daylesford to Melbourne to complete a tool makers apprenticeship at Henderson's Federal Spring Works.

Henderson's were tool makers for the armed forces fleet and the reason

George decided to join the RAAF. George initially trained in Shepparton, Victoria then worked at the Victoria Barracks, Melbourne before transferring to Wagga Wagga.

George taught engineering in the RAAF; "nothing to do with flying" he told his niece Bronwyn Shea not long before he passed away.

Over the years George studied hard and worked his way up the ranks to a Permanent Warrant Officer. He was one step off the highest rank but he told friends and family it wasn't for him, as it meant he would have had to attend black tie events and get further away from the coalface.

In 1964 George was selected to go to America along with two other Warrant Officers for a year to source support equipment for the RAAF's ageing transport aircraft fleet (the Lockheed C130A Hercules). George and his colleagues were to decide if Australia had suitable tools to carry out the repairs or to establish whether he could actually make the tools required himself.

George's father had passed away in

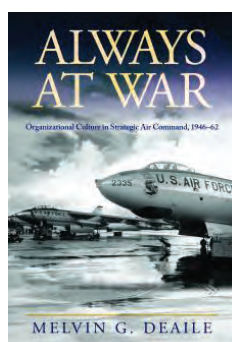
a railway accident when he was a small boy, so he looked after his siblings.

Niece Bronwyn recalls, "I am eternally thankful for the care Uncle George offered my father. Buying Dad his first bike, making sure he always had clothes and boots (the boots may have been RAAF-issue but I guess that's a bonus when you have the same sized feet). George was always there to support and help my father and later on us."

George loved working for the Air Force and did so for 33 years until he reached compulsory retirement age. His service record shows he retired on his 55th birthday.

George retired to the Gold Coast, where he spent the past 15 years with friend Suzanna, with whom he shared his love of cruising.

The local RSL honoured George with a poppy service and Last Post at his funeral service in Miami on the Gold Coast. He was the oldest of four siblings, yet at 97, he was the last to pass away. George is survived by Suzanna and seven nieces and nephews.



REVIEW BY Bob Treloar

ALWAYS AT WAR

Organizational Culture In Strategic Air Command, 1946-22

By **MELVIN G DEAILLE**

Naval Institute Press, \$US34.95 (hardcover)

MORE THAN A HISTORICAL account of the United States Air Force Strategic Command, *Always at War* addresses the development of the organisation, its culture and behaviours and the standards and ethics that were imprinted on the command by a strong, personal and uncompromising leadership.

Strategic Air Command was the centrepiece of US deterrence against the Soviet Union during the Cold War. Its commander, General LeMay, recognised the limited warning that would precede an attack on the US and developed cultural norms insisting, "We are now at war". He drove the men in the command hard.

At its peak, Strategic Command was capable of launching a force of more than 700 bombers with near simultaneous penetration of Soviet Airspace and in conjunction with its missile force, the co-ordinated delivery of almost 2,000 nuclear weapons, in one decisive strike planned to destroy Soviet aircraft and petroleum production in 35 cities where 24 million people lived.

Melvin Deaile is an associate professor at the US Air Command and Staff College with a PhD in American history. He flew combat operations as part of Operations Desert Storm and Enduring Freedom and was awarded the Distinguished Flying Cross. He is a distinguished graduate of the USAF Weapon School.

Always at War sets the military aviator apart within the warrior class and provides a fascinating insight to a culture and a leadership style that was uncompromising and readily embraced by the members of Strategic Air Command.



REVIEW BY Carl Schiller

EXIT WOUNDS:

One Australian's War on Terror

By **JOHN CANTWELL**

WITH GREG BEARUP

Melbourne University Press, \$34.99 (paperback)

VETERANS' MENTAL HEALTH is a topical subject. I can think of no better person to articulate the personal impact of war on the veteran than Australian Army Major General (Retd 2012) John Cantwell, AO DSC. *Exit Wounds* is a brutally honest account of his struggle to deal with the emotional scars of combat and first-hand experience with terror attacks.

Forty years of military service, from private to major general, could not insulate Cantwell from the horrors of war, and being embedded in a military culture that in the past was insensitive to mental health, especially among its senior staff, compounded his attempts at recovery. He is a veteran of Operation Desert Storm (1991), War in Iraq (as Director of Strategic Operations of the Multi National Forces situated in Bagdad in 2006), and as Commander of Australian Forces in the Middle East (Afghanistan 2010). A likely candidate for Chief of Army, Cantwell's career ended with admission as a patient to a psychiatric hospital.

The story spans his three combat experiences and clearly defines his respect and love for his soldiers.

If you do not know John Cantwell, you will certainly gain an insight to his character. This is a highly readable account of Australia's recent involvement in conflicts and the mental health issues suffered by our service personnel. You could not be unmoved reading this book, available in paperback and ebook versions. I rate it 4.5 out of five stars.



REVIEW BY Bob Treloar

HIGH IN THE SUNLIGHT SILENCE

The story of fifty trainee pilots, RAAF Narromine NSW, December 1941

By **COMMANDER TONY VINE RANR**

Vivid Publishing, \$36.99 (paperback)

THIS IS A DIFFERENT style of book.

It is the story of 50 young men who came together at No.5 Elementary Flying Training School at Narromine, NSW, in December 1942 to undergo pilot training. Narromine was one of many such flying schools around Australia.

While many trainees were aspiring fighter pilots, most were destined to join the killing machine of Royal Air Force Bomber Command in the bloody night skies over Europe. The majority of the graduates formed part of the Empire Air Training Scheme and completed their final training in Canada on multi-engine aircraft before commencing operational conversions onto aircraft such as Wellington, Lancaster, and Halifax bombers in the United Kingdom.

Eighteen of the 50 young men who embarked on No.20 Pilots' Course were subsequently killed in action or in flying accidents. After reading each of these stories, I felt a strong pride in these our fellow Australians, but I also a feeling of sadness and loss.

Commander Tony Vine is a private pilot. He has had a lifelong love of aviation and is a keen student of naval and military history. He joined the Royal Australian Navy in 1971 as a 15-year-old and served on a range of ships and submarines.

High in the Sunlit Silence is an interesting and rewarding read. It is a remarkable tribute to a small group of ordinary Australians confronted by extraordinary challenges in dangerous skies and in turn is more widely a tribute to all Australian airmen who flew and fought in World War II.

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