

WINGS

WINTER 2019
VOLUME 71 NO.2

THE GREATEST SHOW IN THE AIR
AVALON 2019



BACK
TO BASE

EXPLORING TWO OF AUSTRALIA'S
EARLIEST AIR FORCE BASES

RAAF
SPITFIRES
OVER NORMANDY

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FROM THE EDITOR

WHAT'S NEW IN *WINGS*

Welcome to the winter issue of a refreshed *Wings* magazine. We look forward to continuing the magazine's great tradition for the Air Force Association with a new look and feel.

While *Wings* has changed, it will continue to support veterans and their families. We have retained all the popular subject areas and added some exciting new ones, outlined below.

Bases - Each issue will feature an article about an ADF flying base and, as well as RAAF bases, we hope to feature Army and Navy air bases. Laverton and Point Cook, page 42, are our first.

Museums - issue by issue we will explore the 30-odd aviation museums around Australia, starting with the fabulous RAAF Museum at Point Cook, page 36.

Varies and stories - every one has a story to tell, and our first is by ex-CAF Jake Newham, page 40. This section is not reserved for pilots and crew, it's also about the people who support them. We are inviting readers to submit short first-person accounts that will be of interest to other readers - whether they be amusing or hair-raising.

Letters to the editor - giving readers the opportunity to share their thoughts about the magazine and the AFA, or brief items that will be of interest to other readers, page 6.

Civil aviation - this will cover all aspects, from heavies to lighties, starting off with an article about Matt Hall, an ex-RAAF fighter pilot who is making his mark in sport aviation, page 48.

Personal finance - a regular article on personal finance, a critical but often neglected facet of our lives. While this is principally aimed at younger serving members, older readers may learn a thing or two as well, page 62.

Centrefold - each issue we'll present a pull-out picture of an exciting flying machine, starting with a C-17 on page 34.

We wish you an enjoyable and informative read.

Sandy McPhie
Editor



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FROM THE CHIEF OF AIR FORCE

THE ROYAL AUSTRALIAN AIR FORCE and the Air Force Association (AFA) have a long shared history, having both been formed in 1921. Understandably, our relationship has always been close. AFA members remain part of our extended Air Force family and I appreciate their strong and ongoing support of the RAAF.

It is therefore a privilege for me to welcome the new-look Wings magazine, a publication that has been a familiar sight for both serving and former RAAFies for some 75 years.

This new-look edition introduces a more modern appearance, improved presentation and the addition of new specialist columns, including segments on Army, Navy and Civil aviation.

The new personal finance pages are a welcome initiative to remind and educate members about this too frequently neglected, but critical aspect of our lives.

The magazine will also enjoy a much



wider readership through increased distribution to all RAAF and other ADF aviation bases, and to those within the community with a shared interest in aviation and their Defence Force.

The new-look *Wings* will be a valuable engagement mechanism for the Association, for the broader Air Force family and for Defence aviation support elements, including industry. I have great pleasure in commending the AFA and *Wings* to you.

Air Marshal Leo Davies, AO, CSC

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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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ON THE COVER

For many, the 2019 airshow was their first opportunity to see Australia's new F-35 in a full display.

Photo courtesy Avalon 2019.

THE NEW WINGS TEAM

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AIR FORCE ASSOCIATION

THE NEW WINGS

A S NOTED IN THE AUTUMN EDITION, *Wings* is now being published by RAAFANSW Publications Pty Ltd, a small not-for-profit company owned by the Air Force Association (NSW Division). The company has made its mark producing high-quality *Welcome* handbooks for the air bases at Edinburgh, Richmond/Glenbrook and Williamstown (available at raafapublications.org.au).

In effect, *Wings* will now be published in house as part of an Association-wide modernisation program. The new *Wings* aims to capture an increased readership by expanding its range of aviation subjects, widening its distribution and improving the quality of both the printed and online versions.

Association members are keen to know about today's veterans and we will endeavour to obtain human interest stories, especially about experiences on deployment. The change of publishers will financially benefit the Association by reducing costs and providing profits from sale of advertising to support the work we do for our veterans and families.

AIR FORCE 98TH BIRTHDAY

March was a milestone month for Air Force when it celebrated its 98th Birthday. I had the honour of laying a wreath during Air Force's Commemorative Birthday Service at the RAAF Memorial Grove, on the Federal Highway just outside Canberra City at Majura. Federal and ACT Government representatives attended in addition to Service representatives, serving members, former serving members, and visitors. Managed by the Association's ACT Division, the site commemorates those who served and died in service. It is a popular layby for travellers transiting between Sydney and Canberra. Air Force holds its birthday commemoration at the site every other year.

Air Force also held a birthday reception at Duntroon House where Deputy Chief of Air Force Air Vice Marshal Gavin Turnbull presented the Air Force Association Trophy to Headquarters Air Combat Group. It was the second award of the trophy since it was reactivated in 2018.

The NSW Division also commemorated the Air Force's birthday at a ceremony at the Martin Place Cenotaph, Sydney with guest speaker Air Commander Australia Air Vice Marshal 'Zed' Robertson. NSW Division President Ron Glew and I laid a wreath. With support from the NSW Police Band, the ceremony attracted many onlookers.

AVALON 2019

Avalon Air Show 2019 was also a highlight for Air Force and the Association. The biennial event is a showcase opportunity for Defence Industry, the ADF and international armed forces, among others, to display and demonstrate their equipment. This year, Air Force proudly displayed its first two F-35A Joint Strike Fighter aircraft. The Association promoted its veteran support services at its stands in the Trade Pavilion and Air Force's Deployable Aircraft Maintenance and Logistics Shelter. The Association is grateful for the ongoing support from Air Force and Avalon Air Show management. A report on the Air Show can be found on page 20.

Her Majesty Queen Elizabeth II presented a new Queen's Colour to the RAF in July last year when it celebrated its 100th anniversary.

Chief of the Air Staff RAF Air Chief Marshal Sir Stephen Hillier presented the RAF's retired Queen's Colour to the RAAF, which was received by CAF Davies at an Avalon Air Show reception at the Crown Palladium Ballroom, Melbourne. It was a spectacular and historic event enjoyed by Australian and international serving military personnel, former serving Air Force members and an array of people who had not before witnessed this unique military ceremony.

AFA MODERNISATION PROGRAM

The Association, which began as the Australian Flying Corps (AFC) Association, will celebrate its centenary in 2020. It has undergone several adaptations during this time; probably the most significant being the transformation into the AFC and RAAF Association in 1940 following the advent of WWII.

Like Air Force, the Association is five generations old and it must now meet the needs of 'fourth-wave' veterans as well as older veterans. The time-honoured objectives of the AFC Association remain as relevant today as they were in 1920 – support, comradeship, and welfare. The National Board acknowledges the Association needs to modernise its operation and, among other things, progress its development of veteran and family support programs. Work has begun.

Carl Schiller, OAM CSM

President, Air Force Association Ltd



Presenting the Air Force Association Trophy to Headquarters Air Combat Group. From left: AFA President Carl Schiller, Warrant Officer Rudi Vitasz, Group Captain Harvey Reynolds and Leading Aircraftwoman Rachael Hoey and Acting Chief of the RAAF Air Vice-Marshal Gavin Turnbull.

REMEMBERING A DAMBUSTER

I WAS KEY IN organising a three-day remembrance weekend in the Netherlands last September to mark the 75th anniversary of the death of one of Australia's greatest WWII pilots. Dambuster pilot Flight Lieutenant Les Knight DSO sacrificed his life to save his crew following a doomed mission to attack the Dortmund-Ems Canal, code named Operation Garlic.

His seven crewmen survived the war. Two were taken prisoner and five escaped with the help of villagers and the local Resistance, at great risk to themselves and their families.

Knight managed to steer his doomed Lancaster away from the village of Den Ham and the villagers have never forgotten his heroism.

The remembrance weekend was attended by family members of Knight's crew and six of his family from Australia.

A ceremony attended by more than 500 villagers, the Australian Ambassador to the Netherlands and other notables witnessed two fly-pasts to honour Knight at the crash site where a huge boulder monument was adorned in wreaths. Each villager placed a single rose at the base of the monument.

A special church service moved the congregation to tears when a local brass band played *The Dambusters March* while pictures of a Lancaster bomber, Les Knight and his crew were projected onto a huge screen. A lone piper played a lament while wreaths were laid at the graves of Knight and two Allied airmen buried next to him.

For the occasion, I wrote a 100-page book called *Remembering Dambuster Les Knight* telling how Operation Garlic unfolded and what happened after the Lancaster crashed. It's a story of hope, sacrifice and bravery.

I also gave lectures at local schools and was moved when children raised their hands to say their grandparents had been in the Resistance. I was speechless when one boy told me his grandfather was executed because of it.

Organising the event took six months. I traced families of all the crew, formed a charity and our great team worked tirelessly to make it a success.



ABOVE Les Knight.



Melvin Chambers' book *Remembering Dambuster Les Knight* can be ordered via jomini.nl

Next year the Netherlands, and of course our village, will celebrate the 75th anniversary of the country's liberation. I am in the group planning the celebrations and we will remember Les Knight and the British and American airmen who crashed in the vicinity.

*Melvin Chambers
Den Ham, the Netherlands*

A SPECIAL CELEBRATION

GLADYS WATERS, widow of WOFF Leonard 'Lenny' Waters, celebrated her 90th birthday at an event in Brisbane on 16 February.

Lenny was the only RAAF Indigenous fighter pilot of WWII. Mrs Waters has been a community stalwart famous for her generosity, kindness and

determination. The event was an opportunity to celebrate her birthday and remarkable life.

AIRCDRE Glen Braz, Commander of Air Force Training Group, represented the RAAF and reflected on his 23-year friendship with Mrs Waters.

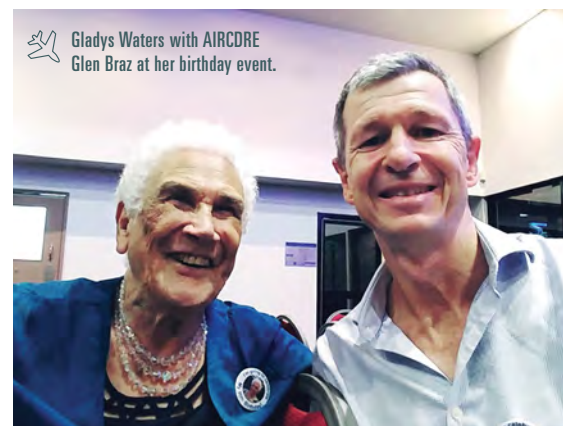
"I remember the first time I met Gladys like it was yesterday. It was 1996 and I was a young pilot who attended a dedication of a park near Boggabilla to commemorate Lenny. An F-111 from 1 Squadron did a flypast in support and the spirit and pride in Gladys was evident from the first moment we met," he said.

"I also remembered Gladys sharing precious memories about how honoured and privileged her late husband felt about serving the country alongside fellow Australians. I felt so proud of Lenny and other Indigenous Australians who have defended and continue to defend our country on operations and in peace."

In addition to Lenny, many Indigenous Australian have proudly served the RAAF, including ACW Myrtle Harris, CPL Edgar Samuel Lockyer and SQNLDR David Paul. To show appreciation and acknowledge Indigenous history and culture, the RAAF unveiled an F/A-18A Worimi Hornet painted in an Aboriginal colour scheme with WOFF Water's pilot markings in 2015.

The Air Force has come a long way since we signed up our Indigenous volunteers during WWII, with many of their stories only now being told.

FLTLT Tracey Li



Gladys Waters with AIRCDRE Glen Braz at her birthday event.

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

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EDITED BY Bob Treloar

Hornet Enhances CANADIAN RELATIONS

IN DECEMBER 2017, the Australian Government announced the sale of F/A-18A/B 'Classic' Hornet aircraft to Canada. The first two (A21-53 and A21-55) were delivered to Canadian Forces Base Cold Lake on 16 February 2019. They were flown from Nellis AFB by AIRCDRE Michael Kitcher (Commander Air Combat Group) and WGCDR Jason Easthope (CO 77 SQN) following their participation in Exercise Red Flag.

Australia and Canada have a long association in military aviation. During WWII many Australian aircrew trained in Canada under the Empire Air Training Scheme, both countries flew the F-86 Sabre (albeit with different engines) and

we both purchased the F/A-18 Hornet.

With respect to the Hornet, both air forces considered the fatigue testing as carried out by the manufacturer did not sufficiently reflect the way we would use the aircraft, which resulted in a highly successful, collaborative test program. Under the International Follow-on Structural Test Program partnership, Canada conducted a full-scale fatigue test of the wing and centre fuselage (using flight load data provided by Australia), and the aft fuselage/vertical stabilizer was tested in a ground-breaking, dynamic full-scale fatigue test at our Aeronautical Research Laboratories (ARL) in Melbourne.



ABOVE AIRCDRE Mike Kitcher being greeted by acting Base Commander LCol Jonathon Pilon as he arrives at 4 Wing Cold Lake. Photo courtesy of Canadian Forces.

The fatigue tests helped to identify fatigue damage and consequent repair programs. Fatigue damage in the fuselage centre section eventually resulted a number of high-life Australian fuselages being sent to Canada for 'centre barrel' replacements, a complex engineering operation that required the fuselages to be placed into jigs for disassembly/reassembly.

The sale to Canada comprises 18 operationally viable aircraft and up to a further seven aircraft (non-flyable) for software testing, maintenance training and spares.

The intention is for the aircraft to supplement Canada's existing Hornet fleet as it develops and implements its plan to replace the Royal Canadian Air Force (RCAF) fighter fleet. All aircraft are expected to be delivered by the end of 2021.

The Canadians will be modifying their 'new' acquisitions to achieve commonality with the RCAF CF18 aircraft. Those modifications include replacing the ejection seat with one that is common to the Canadian fleet, modifying the undercarriage and cockpit, fitting unique Canadian weapon systems and operating software, and of course changing the paint scheme.

It did not take long for A21-53 to be displayed in its new livery. 'Reggie spotters' may have noted that the Canadian numbering system has retained the last two digits of the Australian airframe number. The two ex-RAAF aircraft are expected to be in service with the RCAF by third quarter of this year.

The F/A-18 Hornets being sold have served Australia well, and will continue to foster our already close relationship with Canada.



ABOVE Compatibility Modifications to be carried out on the ex-RAAF Hornets.



RIGHT The former A21-53 in its new home and livery. A21-55 is in the background. Photo courtesy of the Canadian Forces.



New Chief of Air Force

AIR MARSHAL MEL HUPFELD, AO, DSC will take command of the Air Force on 3 July 2019 from current Chief of Air Force AIRMSHL Leo Davies, who has completed more than 40 years of exemplary service.

AIRMSHL Hupfeld is currently Chief of Joint Operations at Headquarters Joint Operations Command. In that role, he is responsible for the planning, control and conduct of all Australian military Campaigns, Operations, Joint Exercises and ADF commitments in accordance with Australia's national objectives. His prior command appointments included Commanding Officer No.75 Squadron, Officer Commanding No.81 Wing, Commander Air Combat Group and Air Commander Australia.

The highlight of those appointments was the Command of No.75 Squadron on Operations Bastille and Falconer in the Middle East. He was awarded a Distinguished Service Cross in recognition of his performance in that role, and his squadron was awarded a Meritorious Unit Citation. Additional operational deployment in 2008 included an embedded role as Director of the Combined Air and Space Operations Centre in the Middle East Area of Operations.



New Deputy Chief of Air Force

AIR VICE-MARSHAL Stephen Meredith has been announced as the next Deputy Chief of Air Force.

He brings a wealth of experience to the role gained through his current appointment as Head Force Integration, his 2017 deployment as Director of the Combined Air Operations Centre in the Middle East and his contribution to the introduction into service of the E-7A Wedgetail aircraft.

AVM Meredith is looking forward to the

role of DCAF, and to supporting CAF with the continuing evolution of Air Force. He will take up the role 1 July.

"I am deeply humbled to be appointed to the role and expect to be challenged by our innovative and capable people," he said. "I am looking forward to working together with all elements of Air Force, Army, Navy and our agency partners to unlock the fifth-generation potential of our Air Force capabilities."



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Australian F-35 operations: SO FAR, SO GOOD

AUSTRALIA ORDERED 72 Lockheed Martin F-35A, Lightning IIs to replace the ageing F/A-18A/B Classic Hornets that entered service with the RAAF in 1985. Equipped with a single Pratt & Whitney F135-PW-100 engine, the multi-role fighter has a range of 2,200km and can accommodate a weapon payload of 8,160kg.

The first aircraft delivered in 2019 are part of 141 F-35 variants (102 F-35A) produced in Low Rate Initial Production (LRIP) Batch 11 by Lockheed Martin and

will be the first to cost less than US \$90 million (approximately \$130 million) per copy.

More than 50 Australian companies have directly shared in more than \$1.3 billion in global F-35A production contracts to date, employing more than 2,400 Australians. Additional contract opportunities are anticipated as production continues with Australian industry involvement expected to exceed \$2 billion by 2023, employing 5,000 people nationally.

The RAAF's first F-35s, used at the US Luke Air Force Base (AFB), Arizona as a contribution to the international training program, were received in 2014. The RAAF now has 12 F-35As: eight at Luke AFB and four at RAAF Williamtown, NSW. The first two were flown to Australia in December 2018 and second two arrived in early April this year. Commander, Air Combat Group (ACG) at RAAF Williamtown, Air Commodore Mike Kitcher said a further four were planned to arrive by year-end, while an additional two will be deployed at Luke AFB around the middle of the year.

Operational introduction of the F-35A, Lightning II to the RAAF is progressing smoothly, with the Commander ACG seeing few of the problems anticipated. In particular, logistic support and application of the mission planning system by the RAAF have proven relatively free of difficulties, despite the immature adoption of both systems.

Initial operating capability is planned for the end of 2020, when No. 2 Operational Conversion Unit at Williamtown and No. 3 Squadron will be equipped with the F-35A. A third Unit at Williamtown, No. 77 Squadron, will convert to the F-35A in 2021 and No. 75 Squadron, at RAAF Tindal in the Northern Territory, in 2022. Final operational capability is due in 2023.

Source: airspacemag.com



LEFT Lightning IIs off the coast of Port Stephens, NSW.

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 A RAAF maintainer marshals in a No. 75 Squadron F/A-18A Hornet on arrival at Andersen Air Force Base, Guam for exercise Cope North 19. Photo: SGT Kirk Peacock.

Flying as one: Exercise COPE NORTH 2019

THE RAAF DEPLOYED 16 aircraft and over 450 personnel to participate in Exercise Cope North 2019 in Guam. The contingent comprised 12 F/A-18A Hornets, an E-7A Wedgetail Airborne Early Warning and Control aircraft, two C-27J Spartans, a KC-30A Multi-Role Tanker Transport, a Combat Support Element and an Aeromedical Evacuation team.

The exercise focus was on interoperability with Australia's counterparts from the US and Japan.

More than 2,900 military personnel and approximately 100 aircraft from the RAAF, US Air Force, US Navy and Japan Air Self Defence Force participated.

The exercise began with humanitarian assistance and disaster relief training, and concluded with air combat and large force employment.

As first on the ground, No. 4 Squadron Combat Control Team (RAAF) had the important job of assessing the suitability and environment of Baker Airfield, Tinian Island in the Mariana Island Group to accept the arrival of aircraft and personnel.

Source: *Air Force News*

Air Warfare INSTRUCTORS COURSE 2019

FOLLOWING SUCCESS OF the inaugural course in 2017, the RAAF has conducted its second biennial Air Warfare Instructor Course (AWIC19).

AWIC19 integrates warfighting functions across a range of specialisations to qualify expert air warfare instructors who will develop the next generation of tactical and integrated warfare specialists across the Air Combat spectrum.

The course exposes participants to complex war-like scenarios designed to integrate people, systems and combat effects across the five warfare domains: air, land, sea, space and cyber and encompasses theory and practical exercises designed to broaden participants' knowledge and develop expert instructional skills.

AWIC19 activities were conducted from Amberley, Darwin, Edinburgh, Pearce, Tindal and Williamtown throughout the first half of 2019. Participants took part in three integration exercises – Exercise Diamond Seas, Exercise Diamond Shield and Exercise Diamond Storm.

Sources: sldinfo.com; eielson.af.mil; airforce.gov.au



US Air Force Lt. Col. Jason Monaco takes off in the 354th Fighter Wing flagship during Exercise Diamond Shield 2019. Photo: USAF Senior Airman Isaac Johnson.



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ADF showcases ASW CAPABILITIES



MH60-Romeos on Task.

AN AUSTRALIAN MARITIME Task Group has been commended on the proficient prosecution of anti-submarine operations during Exercise Ocean Explorer 2019.

Ocean Explorer committed a Maritime Task Group to join with RAAF maritime patrol aircraft in the West Australian Exercise Area, to locate and prosecute potential submarine threats. Simulated hostile submarines were consistently identified and located by a Poseidon aircraft partnered with Royal Australian Navy MH60-R 'Romeo' maritime combat helicopters operating from HMA Ships Canberra and Newcastle.

The world-leading identification, location and tracking capabilities offered by the RAAF P-8A Poseidon and Sea Hawk Romeo aircraft provide a potent response to the growing proliferation of potential submarine threats in Australia's near region.

The joint maritime effect delivered by Navy and Air Force in this domain positions Australia as a capable partner in maintaining a rules-based global order.

Source: Defence Connect



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RECORD MARINE AIR POWER



THE UNITED STATES is sending more air power than ever in support of this year's contingent of 1,700 Marines on rotation to Darwin in the Northern Territory.

Aircraft deploying for the rotation include 10 MV-22 Osprey tiltrotors, four AH-1Z Vipers and three UH-1Y Venom helicopters. The aircraft represent the most capable Aviation Combat Element sent to Darwin since rotational deployments began in 2011.

The majority of the deployed Marines and aircraft are normally based at Marine Corps Base Hawaii, Kaneohe Bay. The aircraft and the Marines who fly and maintain them will be hosted at RAAF Base Darwin.

Marines from the rotational force will also participate in Talisman Sabre, a biennial exercise that involves tens of thousands of US and Australian troops training Down Under for a month during the southern summer.

Source: Stars & Stripes

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EDITED BY John Kindler

P-8A POSEIDON AIRCRAFT

DEFENCE MINISTER Christopher Pyne and Defence Industry Minister Linda Reynolds have welcomed the receipt of the Royal Australian Air Force's latest Boeing P-8A Poseidon aircraft. The P-8A Poseidon is designed for long-range anti-submarine warfare; anti-surface warfare; and intelligence, surveillance and reconnaissance missions. It is capable of broad-area maritime and littoral operations. It is also effective for humanitarian and search and rescue missions.

A derivative of the 737-800 Next Generation, the P-8 combines superior performance and reliability with an advanced mission system that

ensures maximum interoperability in the future battlespace. The Australian government has committed to acquiring 12 P-8A Poseidon aircraft, with the final aircraft to be delivered by March 2020 and maintained at RAAF Base Edinburgh.

These aircraft will be based and sustained at RAAF Base Edinburgh in South Australia, creating over 120 jobs by next year. The project is part of a broader intelligence, surveillance and reconnaissance precinct being developed at the Super Base, which will support and create highly skilled jobs in South Australia for decades to come.

The \$470 million facility is part of the



government's \$5.2 billion investment in Australia's P-8A Poseidon maritime surveillance and patrol aircraft. A workforce of over 4,000 Australians has already contributed to the broader infrastructure build happening at RAAF Base Edinburgh," Minister Reynolds added. The eighth aircraft is now undergoing its verification and validation flying in the US, and will join the rest of the fleet in Australia in mid-June 2019.

Source: defenceconnect.com.au

UPGRADE FOR P-8A POSEIDONS



THE RAAF'S FLEET of P-8A Poseidon maritime patrol and anti-submarine aircraft is set to receive a suite of capability upgrades as part of an approved foreign military sale.

Boeing secured the US\$326.3 million cost-plus-fixed-fee delivery order to support the development, integration and testing of Increment 3 Block capabilities into the US Navy and RAAF's fleets of P-8A Poseidon maritime patrol aircraft.

Australia is an integral global partner in the Poseidon program, supporting the largest P-8A training facility outside of the US, which is part of the government's \$5.2 billion investment in Australia's Poseidon maritime surveillance aircraft capability.

Source: defenceconnect.com.au

RAAF to acquire Gulfstream G550 Peregrine EW aircraft

DEFENCE MINISTER

CHRISTOPHER PYNE said the acquisition of the Gulfstream G550 EW aircraft (MC-55A Peregrine) would "enable Defence to actively strengthen electronic warfare support to naval, air and land forces for operations in complex electromagnetic environments".

The Peregrine is a new airborne electronic warfare capability that will be integrated into Defence's joint warfighting networks, providing a critical link between platforms, including the F-35A Joint Strike Fighter, E-7A Wedgetail, EA-18G Growler, Navy's surface combatants and amphibious assault ships and ground assets to support the warfighter.

The airborne intelligence, surveillance, reconnaissance and electronic warfare

(AISREW) mission systems aircraft will be based at RAAF Base Edinburgh in South Australia – yet another piece in a broader ISR precinct being developed at the Super Base, which is already home to the Poseidon maritime patrol aircraft. RAAF Base Edinburgh will also serve as the headquarters for the RAAF's fleet of unmanned Tritons and armed unmanned Reaper variant.

Australia requested the possible sale of up to five Gulfstream G550 with AISREW mission systems, GPS capability, secure communications, aircraft defensive systems; spares, including whole-life costs of airborne and ground segments; aircraft modification and integration; ground systems for data processing and crew training; ground support equipment; publications and technical data; US government and contractor engineering, technical and logistics support services; flight test and certification; and other related elements of logistical and program support.

Source: defenceconnect.com.au



Tritons to enhance RAAF CAPABILITIES

THE GOVERNMENT HAS announced the purchase of up to seven Triton high altitude, long endurance autonomously piloted systems. The Triton will complement the manned P-8A Poseidon aircraft and significantly enhance Defence's anti-submarine warfare and maritime strike capability as well as the ability to monitor and secure Australia's maritime approaches.

Remotely flying out of RAAF Base

Edinburgh, SA, the Tritons are capable of monitoring 40,000sq.km a day and flying a round trip for sustained surveillance and in support of allied Freedom of Navigation Operations in the South China Sea from the Northern Territory, increasing Australia's interoperability with key allies, particularly the US.

The Triton acquisition is expected to create about 70 jobs in SA and the NT.

Source: defenceconnect.com.au

SMEs expand Air Force air combat capability support

HUNTER-BASED NUPRESS TOOLS will help keep the RAAF's growing fifth-generation fleet of Joint Strike Fighter in the air after winning a contract to manufacture parts for the engine that powers the global F-35 fleet. Nupress Tools and F-35 Program prime contractor Pratt & Whitney have signed a seven-year, multimillion-dollar contract to produce precision machined small parts for the F135 engine.

Under this contract, Nupress expect to produce 50 per cent of the global supply of five engine components for Pratt & Whitney. The small machined parts Nupress will manufacture for the F135 engine include components such



as brackets, clamps, tubes and adaptors. Building on this achievement, The Government announced the approval of AIR 6000 Phase 3 to acquire a range of new weapons and countermeasures for both the F-35A Joint Strike Fighters and F/A-18F Super Hornets.

Thales Australia will supply weapon components and Chemring Australia will supply countermeasures for the project. The Joint Strike Fighter program has so far delivered over 2,400 jobs, with this number expected to increase to over 5,000 jobs by 2023.

Source: defenceconnect.com.au



HIGHER, FASTER, FURTHER

– the pursuit of next-generation fighter dominance

WHILE F-35 PRODUCTION ramps up, American and European research and development efforts have turned to a next generation of air supremacy aircraft with capabilities superior to the current fleet of fifth-generation combat aircraft.

In response to the growing success of Russian and Chinese fifth-generation fighter aircraft like the Su-57, J-20 and JF-31, the US has kicked off a suite of development programs to replace the ageing F-15 Eagle and F-22 Raptor platforms beginning in the 2030s.

While the US intends to maintain fifth-generation combat aircraft like the F-22 and the F-35 and has recently announced the acquisition of an advanced F-15X variant, which will serve as the backbone of the US continental Air National Guard Wings, the rapid evolution of potential adversaries' fifth-generation air combat capabilities has forced a major step-change in the way the US responds to those evolving capabilities.

Both British and a Franco-German team are also seeking to respond to the qualitative and quantitative capabilities

transforming the Russian and Chinese air forces and the possible proliferation of fifth-generation technologies to potentially hostile middle and great regional powers.

REPLACING RAPTOR & SUPER HORNET

The 2016 Air Superiority 2030 study conducted by the US Air Force (USAF) sought to identify the capabilities of the 'Next Generation Tactical Aircraft' air superiority/dominance fighter expected to enter service in the 2030s.

The USAF identified a suite of capabilities needed to survive in the increasingly complex future air combat environment.

"The future system will have to counter adversaries equipped with advanced electronic attack, sophisticated integrated air defence systems, passive detection, integrated self-protection, directed energy weapons, and cyber-attack capabilities. It must be able to operate in the anti-access/area-denial environment that will

exist in the 2030-2050 time frame," the US Air Force solicitation stated.

The US Navy has also recognised a number of major capability gaps in both the F-35C and the F/A-18E/F and G series Super Hornet and Growler strike aircraft, namely the lack of low observable coatings, and comparatively short, unrefuelled combat radius exposing the USN Carrier fleets to advanced Russian and Chinese anti-ship cruise and ballistic missiles.

As a result of the different operating environments and requirements, the Pentagon, USAF and USN would be expected to avoid the joint development program model, which, while delivering the F-35 Joint Strike Fighter, presented a series of challenges resulting in compromised capabilities.

Source: Defence Connect

- Stay tuned to the next edition of *Wings* for a continuation of this subject with a summary of the European approach to future Air Superiority requirements.

LOCKHEED MARTIN LOOKS TO LOWER COSTS OF FLYING F-35S

LOCKHEED MARTIN HAS

transitioned additional F-35 suppliers to longer-term performance-based logistics (PBL) contracts and master repair agreements (MRA) in order to "enhance supply availability and reduce sustainment costs". The multi-year PBLs allow each company to make longer-term investments and actions to reduce costs and improve efficiency, compared with the annual contracts that were previously used.

The F-35 global supply chain is a key enabler to success, and by restructuring and streamlining several contracts with key industry partners this will provide the long-term stability that will allow them to make investments, improve efficiencies and optimise their performance. This is one of several actions taken across the supply chain



to improve capacity, reduce costs and enhance supply availability.

The initial multi-year contracts are already delivering benefits, with a 2017 PBL contract awarded to BAE Systems for an electronic warfare subsystem for the F-35 delivering a 25% improvement in the system's availability throughout

global operations. The enterprise goal is to deliver 80% mission capable rates in the "near term", as well as achieving a \$25,000 cost per flight hour (CPFH) by 2025. The current figure is different customer by customer and in the order of \$35,000 per flying hour.

Source: defenceconnect.com.au

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SIMULATION TRAINING PARTNERSHIP



AVM Warren McDonald, Senator Linda Reynolds and Lockheed Martin Australia CEO Vince Di Pietro.

THE GOVERNMENT HAS partnered with Lockheed Martin Australia to upgrade the ADF's simulation capabilities in order to prepare Defence Personnel for future operations. The contract is part of the government's total investment of \$897 million in ADF simulation capabilities.

Lockheed Martin will be supported by NEC Australia and Calytrix Technologies to provide more simulation-supported training events on a broader scale and ensure that simulation-enabled collective training is conducted in secure and realistic environments as part of JP9711. Under JP9711, Defence requires Core Simulation Capability (CSimC) services that will meet the demand for Simulation-enabled Collective Training in order to meet ADF's preparedness directives.

The target CSimC capability sought by Defence is the capability to realise an available on demand, integrated and distributed managed simulation service, including enhancement and sustainment services, which underpin ADF single-service, joint and combined (with allies) simulation-enabled collective training. The training will prepare soldiers sailors and airmen for the situations they may face. Simulation provides training opportunities that are not always possible in real-world situations.

Source: defenceconnect.com.au



Integrating Meteor and SPEAR INTO F-35 WEAPONS SYSTEM

BAE SYSTEMS HAS begun integration efforts for MBDA's Meteor beyond visual range air-to-air missiles and SPEAR precision surface attack missile for the UK's fleet of F-35 aircraft.

A team from BAE, Lockheed Martin and MBDA are working on the integration project, with Lockheed Martin providing the initial funding award for the work. This initial package of work will see BAE and Lockheed Martin also complete further integration work with MBDA on ASRAAM and with Raytheon on Paveway IV, which was initially integrated in support of delivering initial operating capability (IOC) for the UK.

At the 2019 Avalon Airshow, MBDA showcased a series of advanced weapons systems designed to enhance the strike capability of the RAAF and its next-generation air combat capability, including SPEAR, Meteor and ASRAAM.

Source: defenceconnect.com.au

\$436m Helicopter Aircrew Training System achieves initial operating capability

THE AUSTRALIAN DEFENCE FORCE'S Helicopter Aircrew Training System (HATS) had successfully achieved initial operating capability (IOC). The training system was designed to prepare Navy and Army aircrew for transition into Defence's complex combat helicopters: Following successful testing of the individual aircrew training courses throughout 2018, the Chief of Navy, Vice Admiral Michael Noonan has declared the conditions have been met for IOC.

The training system employs a complimentary set of full motion flight simulators, part task trainers and classroom instruction, along with 15 Airbus EC135T2+ helicopters, all within purpose-built facilities. On maturity, HATS

will train up to 130 students each year, including pilots, aviation warfare officers, air crewmen and sensor operators, in addition to qualified aircrew returning for instructor training. HATS encompasses part task trainers including winching, aircraft marshalling, aerial transfers to ships and deck operations; flight simulators; a helicopter maintenance program; development and maintenance of training materials and overall curriculum of four ab initio courses; along with the provision of ground and air training by Boeing instructors.

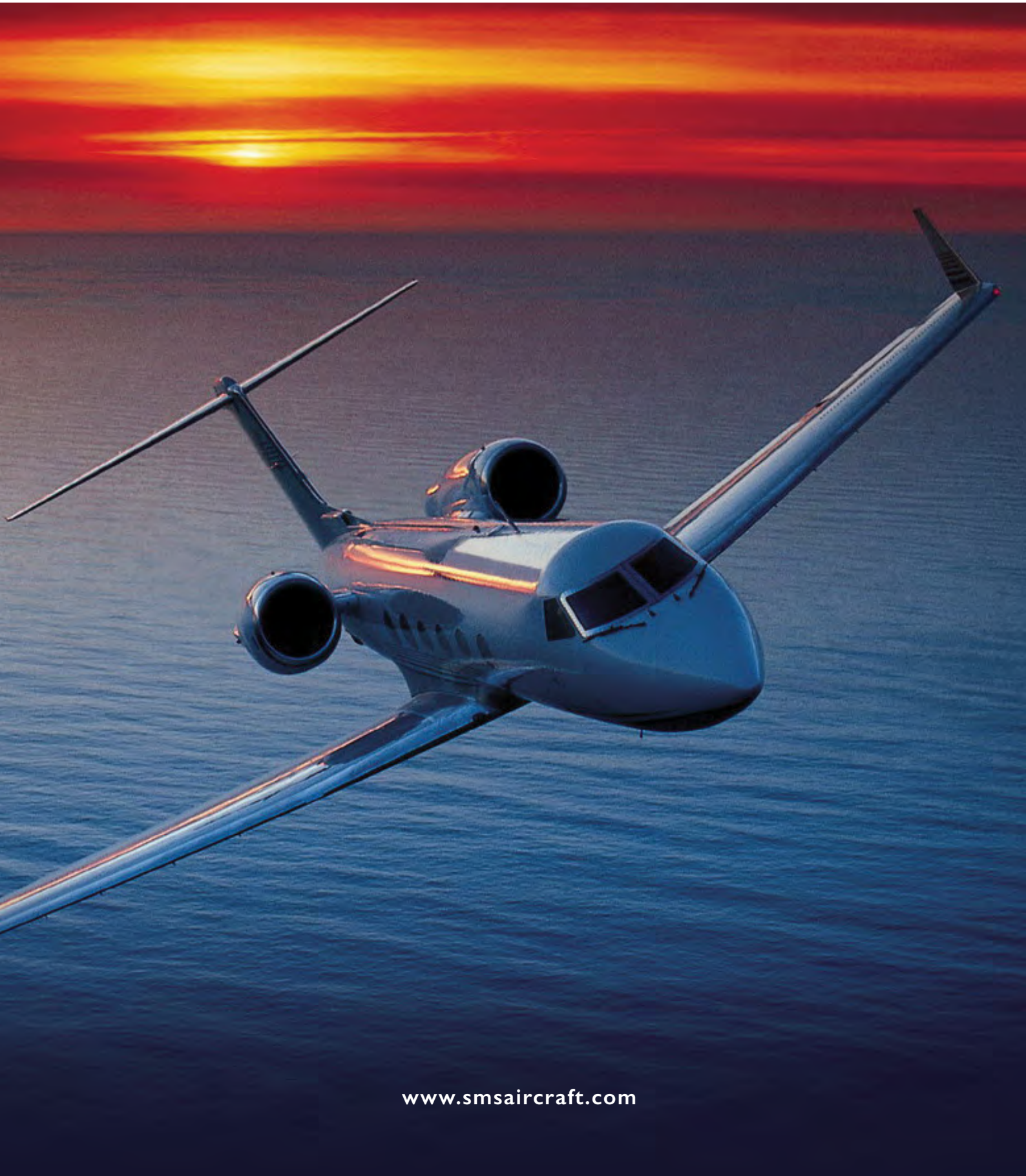
723 Squadron is staffed by Navy and Army aircrew, with additional instructors, support staff and aircraft maintenance provided by Boeing Defence Australia, who employ 108 contracted personnel in the Nowra area.

Source: defenceconnect.com.au



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A V A L O N

2019



A HIGHLIGHT OF THE AVIATION CALENDAR, THE BIENNIAL AVALON AIRSHOW ATTRACTED MORE THAN 170,000 VISITORS TO SEE THE LATEST AVIATION TECHNOLOGY AND AN EXCITING AERIAL DISPLAY. NEIL SMITH JOINED THE CROWDS.

THE USUALLY SEDATE skies south-west of Melbourne came alive earlier this year with the biennial Australian International Airshow and Aerospace & Defence Exposition – better known as the Avalon Airshow.

Your fortunate correspondent was one of 171,830 people who, over six days from 26 February to 3 March, came to Avalon Airport, Geelong to see a record 371 aircraft, including 94 military aircraft from six nations, participate in the impressive flying and static displays.

Participating companies numbered 698 – 453 Australian and 245 international from 30 countries.

From major-league giants such as Boeing, Lockheed Martin and Airbus to smaller manufacturers and support companies, they filled the three massive exhibition halls and beyond with their latest technology.

Also attending were 161 official delegations from 37 countries, including 24 Chiefs of Air Force or their representatives, whose attendance recognised an air show firmly established on the international aviation calendar and the equal of any other.

Our own Chief of Air Force, Air Marshal Davies, opened the show and, with all those visiting VIPs, it would be fair to say he had a busy week.



Australia's new F-35 Joint Strike Fighter and the US Air Force's F-22 Raptor go nose to tail.
Photo courtesy of Avalon 2019.



RIGHT Air Marshal Davies opening Avalon 2019.
Photo: CPL David Said.

On the first three days, reserved as trade days, 36 associated industry conferences, seminars and briefings attracted a record 2,591 attendees.

Inaugural conferences included the Space Industry Association of Australia's 'Reaching for the Stars – Growing Australia's Space Economy', and the Australian Helicopter Industry Association's ROTORTALK OEM workshops. The latter attracted senior executives from four of the world's largest helicopter manufacturers – Bell, Leonardo, Robinson and Sikorsky, who each presented their programs, technical issues and future plans in a day of workshops.

In another first, the first for any air show, a Northrop Grumman Global Hawk UAV landed on the Thursday afternoon, having flown non-stop from the US base at Guam, a distance of 5,700km. Defence has purchased a development of the Global Hawk, the Trident, due to enter RAAF service in 2023.

BOEING PARTNERSHIP

Defence Minister Christopher Pyne revealed the Loyal Wingman program in which Boeing, in partnership with the RAAF, the Australian Defence Science & Technology Group (DSTG) and a number of Australian companies led by BAE Systems, will design and build a concept demonstrator of an unmanned system

to act in conjunction with high-value assets such as the P-8A Poseidon, E-7A Wedgetail, F-35A and F/A-18F.

The concept is for an "expendable" platform to be used to carry electronic warfare and/or sensor payloads into high-risk environments, although it could eventually be adapted to carry weapons. It will be designed and built using stealth technology, with extensive use of commercial-off-the-shelf and military-off-the-shelf components to minimise unit cost.

The Loyal Wingman will use artificial intelligence to fly independently or in support of manned aircraft. It will have a range of more than 3,000 km, giving it a four- to five-hour combat endurance, well beyond that of manned fighter-sized aircraft.

The first flight is planned for 2020 and if the program successfully proceeds to production, it will be the first jet aircraft of Australian origin built since Jindivik.

On the ground there was a huge array of exhibits, more than could be absorbed in just one day, with numerous aircraft on display in the expansive display area, from military to biz-jets to light aircraft.

ADF displays included the RAAF's new F-35 JSF, F/A-18F Super Hornet, KC-30A Multi Role Tanker Transport, C-17A Globemaster, Wedgetail, P8 Poseidon and C27 Spartan. Together with the Army's Chinook and Tiger and the Navy MRH-90 Multi Role Helicopter, the public was provided an outstanding opportunity to see Australia's ultra-modern ADF aviation up close.

A star attraction was the C-17 Globemaster that was open for inspection.

Inside a marquee and out of the weather, the RAAF Museum displayed its precious Deperdussen alongside a Pilatus PC21, representing the earliest and latest in pilot training aircraft.

THE AIRSHOW ATTRACTED A RECORD 371 AIRCRAFT.

PHOTO: CPL. Matthew Bickerton





Australia's new E-7 Wedgetails put on an understandably sedate display for the crowd. Photo courtesy Avalon 2019.



BELOW Boeing's Loyal Wingman mock-up on display. Photo courtesy of Boeing.





Avalon 2019 marked the end of the Pilatus PC-9 as the mount of the Roulettes aerobatic team, seen here with its replacement PC-21 in the new Roulettes livery. Photo courtesy Avalon 2019.

TOP LEFT The Scandinavian Catwalk Skycats wingwalkers were a hit with the crowds, complete with tiger costumes and makeup. Photo courtesy Avalon 2019.

TOP RIGHT Entry to the Jericho STEM exhibition. Photo: CPL Nikki Freeman.



✈ Our earliest and latest training aircraft: Deperdussin and Pilatus PC21. Photo: Duncan Fenn.

THE JERICHO PRECINCT

The evolving fifth-generation capabilities of Air Force were on full display for people of all ages in the Jericho Precinct. In a range of tents on one side of the precinct, industry personnel, defence staff and academics demonstrated a range of new capabilities. These included passive radar, the use of CubeSats (which are small enough to be held in a hand and can be launched into space quickly), and a world-first revolutionary telescope that can “see” space objects using neuromorphic sensing.

The neuromorphic sensor is an innovation from Western Sydney University that is part of Jericho. It is unique in that it can track objects in space during the day and can see what other sensors can’t, enabling Air Force to identify potential threats to the space systems we rely on.

On the other side of the precinct, the massive STEM (science, technology, engineering and mathematics) tent housed more than 30 displays with which young people could interact. The displays comprised robots, flight simulators, virtual reality and rocket experiments, and one display allowed children to learn design principles by building paper planes and watching how they performed when launched by a robot arm.

Plan Jericho Director GPCAPT Lyle Holt explained: “STEM is critical for us to achieve our goal of moving to a fifth-generation force. If we aren’t having people thinking clearly about science, technology, engineering and maths from an early age, our nation, and our Air Force, will not be able to make the fifth-generation edge work.”

CROWD FAVOURITES

A total of 133,000 people attended the public days Friday to Sunday. As always, the favourite was the flying, especially the night flying display on Friday.

The charming Air Show ladies handing out free earplugs at the entrance provided an indication of what was to come in terms of sheer power and its associated noise. In that regard, the fighter jets stole the show, with our new F-35s and the visiting USAF F-22 providing exciting individual displays of high incidence and max afterburner flying at low-level close to the crowd, after which they joined up for a formation flypast for us to note the similarities (and differences). Not to be outdone, the F/A18 Classic Hornet added to the decibels with an impressive handling demonstration.

From the sublime to the gorbliney, biplanes with wing-walkers took us back to the post WWI days of barnstorming.

Between military fast jets and heavyweights such as the C17 Globemaster and visiting B52H Stratofortress, there were all manner of displays, too numerous to list. Fifty different military and civil types were displayed, including Navy and Army MH90, Tiger and Chinook helicopters, and various vintage and sport aircraft including the silent (but impressive) glider aerobatics.

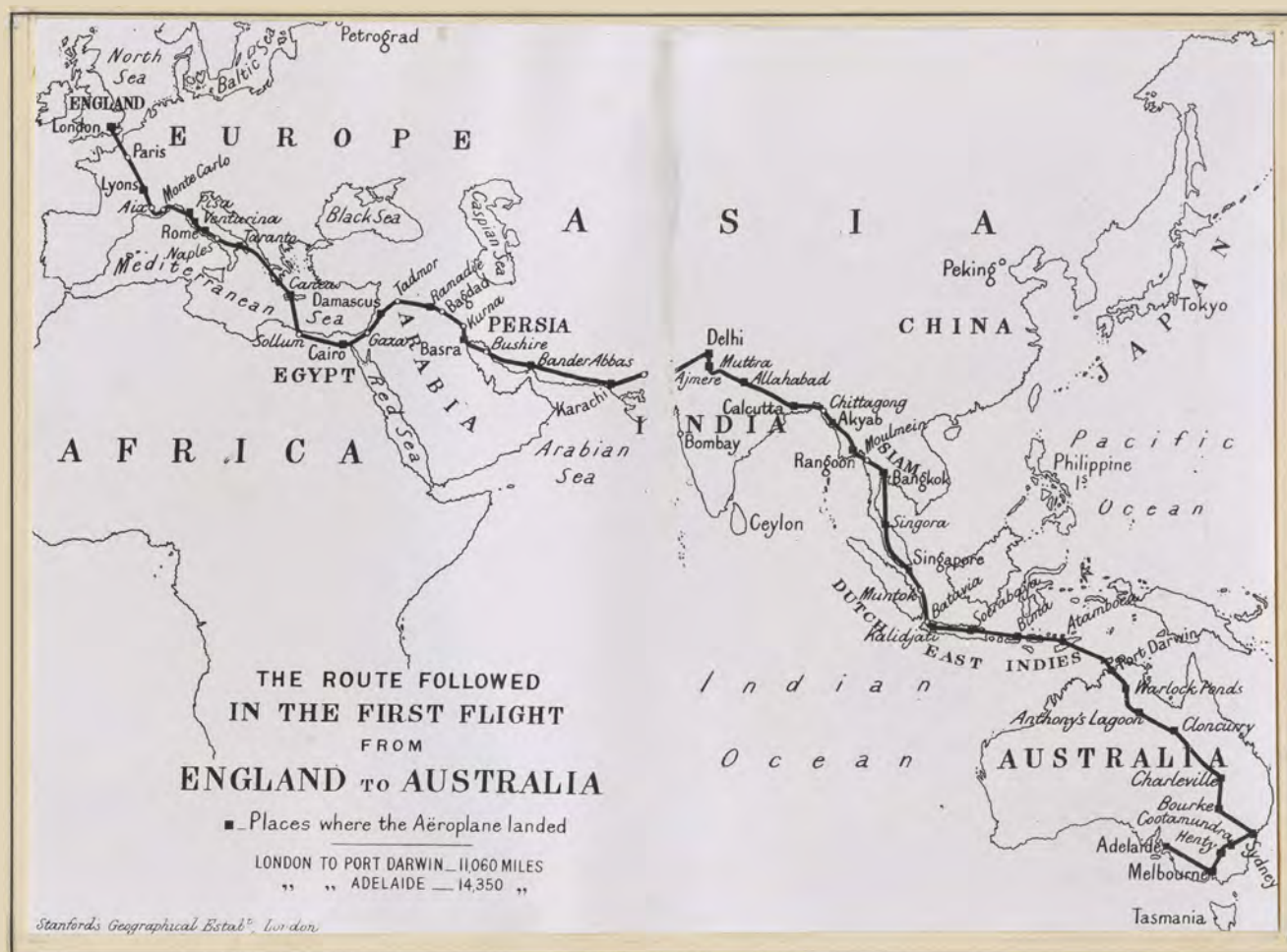
The crowd was also entertained by some excellent, and at times exciting, formation flying by Pitts Specials, F/A 18 Hornets, the comically named Russian Roolettes in their Nanchangs and Yak-52s and of course the RAAF’s Roulette aerobatic team, who staged their final display in the PC9, and were joined by four PC21s in final salute.

In closing, I have to say I thoroughly enjoyed all aspects of this air show, my only regret being that I allowed myself only two days. I can’t wait to rectify that oversight at Avalon 2021, especially as our Air Force will be celebrating its 100th birthday.

I would also like to express my sincere appreciation to CEO Ian Honnery and his team, and especially to Philip Smart, who generously provided me with his time and knowledge, as well as access to the Air Show’s wonderful image gallery. 📸

RACE

THE
GREAT
AIR



CELEBRATING THE CENTENARY OF AN EPIC
FLIGHT FROM LONDON TO DARWIN.



LEFT The crew with their new Vimy still in its original Royal Air Force markings.



BELOW The Vimy's civil registration was painted in white, interpreted by the crew as a plea to the Almighty: God 'Elp All Of Us!



AUSTRALIAN PRIME MINISTER Billy Hughes was flying over the English Channel when he came up with the idea of a great air race across the world to Australia. Realising the potential of aviation to unite the Empire and inspire his young nation after a devastating war, he offered a £10,000 prize for the first Australian airmen to fly from London to Darwin in a British-built plane. And they had to do it in 30 days.

The planes were made from wood, wire and fabric with open cockpits and only basic navigation. Airstrips along the route were few and far between. Yet six Australian crews accepted the challenge.

Two crews perished and two others crashed out. Only one aircraft reached Australia in 30 days – the Vickers Vimy flown by South Australia's Ross and Keith Smith.

Although a peacetime event, the Great Air Race has strong military connections. The crews that took part were Australian Flying Corps men. Most of their aircraft were military and the four crewmen who died in the race are included in the Australian War Memorial's Roll of Honour.

To mark the centenary year of this landmark in the story of Australian aviation, over the next several issues *Wings* will recount the Vimy's part in the Great Air Race in Ross Smith's own words with edited extracts from his 1921 book *14,000 Miles Through the Air*. Here is part one.

SETTING OUT FROM ENGLAND

HOUNSLOW TO LYON, FRANCE

We climbed slowly upward through the cheerless, mist-laden skies, our engines well throttled back and running perfectly. So as to make sure that all was in thorough working order, we circled for ten minutes above Hounslow, then set off.

At 2,000 feet we suddenly emerged from the fog into brilliant sunshine, but the world below was lost to sight, screened by the dense pall of mist. Accordingly, we set a compass course for Folkestone, and just before reaching the outskirts a rift in the mists enabled us to pick up the grand old coastline, every inch of which is measured by history; and so we checked our bearings.

It seemed hard to realise that we had at last started out on the long flight for which we had been planning and working so long, and as I glanced over the machine and the instruments, I wondered what the issue of it all might be – if the fates would be so kind as to smile on us ever so little and allow us to reach the goal of our ambitions, Australia, in thirty days.

My brother marked our assumed position off on the chart, by dead reckoning, every fifteen minutes. The cold grew more intense. Our hands and feet lost all feeling and our bodies became well-nigh frozen. The icy wind penetrated our thick clothing and it was with greatest difficulty that I could work the machine. Our breaths condensed on



Preparing the Vimy.

our faces and face-masks and iced up our goggles and our helmets.

Occasionally immense cloud barriers rose high above the lower cloud strata, and there was no circumventing them; these barriers were invariably charged with snow, and as I plunged the machine into them, the wings and fuselage were quickly armored with ice. Our airspeed indicator became choked, and we ourselves were soon covered white by an accumulating layer of driving snow.

Goggles were useless owing to the ice, and we suffered much agony through being compelled to keep a lookout with unprotected eyes straining into the 90-miles-an-hour snow-blast. I have never felt so cold or miserable as I did during those few hours. My diary is terse, if not explicit: "This sort of flying is a rotten game. The cold is hell, and I am a silly ass for having ever embarked on the flight".

Snow was falling heavily from the clouds that encircled us, yet down, down we went in an almost snow-free atmosphere. The omen was good; fair Fortune rode with us. We forgot the cold, the snow, the gloom; everything grew bright and warm with the flame of hope and success. And so eventually we reached Lyons and landed.

LYON TO ITALY

The French flying officers were very surprised when they learned we had come from London. They looked up at the weather, at the machine, then at us, and slowly shook their heads. It was an eloquent, silent expression. They were still more surprised when they learned that we intended leaving for Rome the next morning.

It was a frosty daybreak, and for a short time we encountered some clouds; but as we progressed these drifted away, clearing the atmosphere and unfolding a scene of bewildering beauty. Eastward the Alps reared up, serrating the horizon with a maze of glistening snow-peaks. Seas of cloud filled the valleys, with innumerable dark, rocky pinnacles piercing through and giving the whole scene the appearance of a rock-torn surf. Charming villas, set amidst lawns and gardens, lay tucked away over the hillsides. White roadways crossed the landscape, and close by the



ABOVE The Vimy before leaving snow-covered Hounslow.



CLOCKWISE FROM FAR LEFT

Sir Ross Smith - captain; Sergeant Jim Bennett - air mechanic; Sergeant Wally Shiers - air mechanic; Sir Keith Smith KBE - navigator/co-pilot.

COMPETITORS IN THE 1919 GREAT AIR RACE

MATTHEWS & KAY (Sopwith Wallaby G-EAKS). Departed 21 October. After crashing at Bali on 17 April 1920, the crew continued to Australia by ship with the aircraft.

SMITH BROTHERS, BENNETT & SHIERS (Vickers Vimy G-EAOU). Departed 12 November, arrived at Darwin 10 December to win the £10,000 prize.

DOUGLAS & ROSS (Alliance Endeavour G-EAOX). Departed 13 November. Crew killed when the aircraft crashed at Surbiton UK, just 10km from the start.

RENDLE, WILLIAMS, WILKINS & POTTS (Blackburn Kangaroo G-EAOW). Departed 21 November. Crashed at Souda Bay, Crete, 8 December due to engine failure; crew survived.

HOWELL & FRASER (Martinsyde A1 G-EAMR). Departed 4 December. The crew drowned after crashing in St George's Bay off Corfu on 9 December.

Two further crews participated but did not fulfil the race conditions.



coast ran thin lines of steel along which a toylike train passed with its burden of sightseers to Monte Carlo.

My brother and Bennett and Shiers spent most of their time while flying along this picturesque coast in taking photographs. Kodak Ltd had offered a prize of £800 for the crew of the machine who produced the best 50 negatives taken during the Australian flight. We entered for this prize and eventually won it and Kodak had supplied us with their cameras and dozens of films.

PISA TO ROME

[After overnighting at Pisa]: Drizzling rain and a cold south wind ushered in the new day. However, we went down to the aerodrome, determined to get the machine into the air somehow. My brother and I walked over the aerodrome, stamping in the mud to try to find a hard track for the machine. We got very wet, but managed to find a pathway with a fairly hard surface.

All went well until I swung the machine round, just preparatory to opening the engines full out for getting off. In doing this sharp turn, one wheel became a pivot in the mud and stuck fast; so we were badly bogged. Our Italian friends came to the rescue, and by digging and pulling got the machine out of the hole which it had made for itself. The ground was so soft that the wheels began to sink in slowly, and I realised that if we were to get off at all it must be at once.

I opened up the engines, but the machine would not move forward, as the wheels had become embedded in the mud; on the other hand, the tail lifted off the ground and there was the danger of the machine standing up on its nose. To overcome this difficulty Sergeant Bennett applied the whole of his weight on to the tail-plane, and I once more opened the engines full out. Some of the Italian mechanics pulled forward on the wing-tips, and this time the machine started to move forward slowly. I suddenly realized that Bennett was not on board, but as I had got the machine moving at last, I was afraid to stop her again. I felt sure that he would clamber on board somehow, as I had previously told him that as soon as the machine started to move he would have to make a flying jump for it or else take the next train to Rome.

We gathered way very rapidly, and, after leaving the ground, I was delighted to see Sergeant Bennett on board when I looked round. The take-off was very exciting and hazardous, as the Vimy had to plow her way through soft mud and water. The water was sucked up and whirled around by the propellers, so that we became soaked through and plastered with liquid mud. I am sure that in a cinema picture our performance would resemble the take-off of a seaplane more than that of a land machine rising from an aerodrome.

It was with feelings of relief that we landed at the Centocelle aerodrome



LEFT Over the Southern Alps.



BELOW A painting of Bennett being hauled aboard by Shiers during take-off from Pisa.

BOTTOM A painting of the Vimy being lashed by a storm.



[Rome]. A hospitable welcome was accorded us by the commandant of the Italian Flying Corps and by the British air attaché. The latter kindly attended to our wants, had a military guard placed over the machine and acted as interpreter

CAIRO TO BAGHDAD

Telegraphic reports from Palestine indicated "Weather conditions unsuited for flying", [but] I made up my mind to proceed. We took off from Heliopolis aerodrome with the cheers of my old war comrades sounding above our engines. And soon to the canal that links north with south – a straight cut of deep-blue water, running to the horizon transversely to our course – and ahead the grey desert sands, only limited by the blue sky.

Below, a P&O steamer, heading south, passes down the Suez Canal. Perhaps she is bound for Australia; she will call in at Adelaide, my home and destination!

With a smile, I contrasted the old and the new methods of transportation, and a throb of exultation thrilled us all. Still, we wondered – unspoken the thoughts – who would reach Australia first.

We were flying at an altitude of 1,500 feet, so that it was possible to pick out all details readily. As we passed over the old battlefield of Romani, I picked out my old camping site and machine-gun nest.

Next we passed over the Medj del aerodrome, and as I gazed down at the marks where the hangars had stood, many memories of bygone days came pleasantly back to me. Soon after leaving Medj del we ran into dense clouds, and on reaching Ramleh heavy rain began to fall. There was an RAF squadron station on the old aerodrome, and I was sorely tempted to land and renew old friendships, for I had been stationed at this aerodrome for five months at the latter end of the war. However, this was no joy-ride; so I reluctantly passed over this haven of refuge, and then once more out into the bleak world of storm and rain, but I was much cheered by the whole squadron turning out on their aerodrome and waving up to us.

The flight through Palestine had been an ordeal; extreme weariness gripped us all, for we were still soaking wet and very cold. Damascus invited and offered a haven of rest. Great was our joy on touching the ground; greater still to be welcomed by old comrades, and to be cared for. The Vimy, too, was looked after. Bennett and Shiers attended to their beloved engines, while I overhauled the controls, and my brother Keith filled up with 'Shell', to be ready for an early start on the morrow.

Conceive my dismay when, on awakening with the morning, I discovered heavy rain falling: still further was I dismayed to find the aerodrome surface rapidly becoming soft, and the wheels of the Vimy sinking in. As there was no sign of the weather clearing up, we greased our tires to assist their passage through the sticky clay, started up the engines, and, to my unspeakable relief, the Vimy moved ahead.

But the take-off was not lacking in excitement. The propellers sucked up water and mud, whirling in all directions,



 Flying over the Pyramids.



BELOW RIGHT Pouring Shell benzine into the fuselage fuel tanks.

BOTTOM Indian guards at the aircraft at Basra.

we happened to be included in one of them, and so we rose into the air, once more to be cut by the lash of the elements. To my intense relief, the storm did not extend more than a score of miles beyond Damascus.

We selected a suitable landing ground among some old trenches, close to a cavalry camp, and landed. We had landed on the old Ramadie battlefield, which was one of the notable sites of the Mesopotamian campaign. Soon after landing the CO of the Indian cavalry regiment came out to greet us, and proffered the hospitality of his camp.

We were delighted to learn there was a small supply of aviation petrol here, and we obtained sufficient to carry us through to Basra without having to land at Bagdad. An Indian guard was mounted over the machine, and the Vimy was securely lashed down for the night.

About 11 o'clock that night a heavy windstorm swooped down upon us, and my brother and myself rushed out to the machine. The wind had suddenly changed, and was now blowing hard on the tail of the machine. The Vimy was in imminent danger of being blown over and crushed.

We turned out fifty men from the nearest camp. They hung on to the machine until we started up the engines and swung her head round into the wind.



FURTHER READING



The State Library of South Australia launched its digitised collection of Sir Ross and Sir Keith Smith papers on 19 March, 100 years since the Great Air Race was announced. Go to digitalcollections.slsa.sa.gov.au/pages/smith-brothers.

Wakefield Press released an edited version of Sir Ross Smith's story in May – *Flight to Fame: 14,000 Miles Through the Air*.

For more see: epicflightcentenary.com.au; greatairrace.com.au; lockoweb.com/smith.

It was a pitch-dark night, and the gale whirled the sand into blinding eddies, cutting our faces and eyes. One very severe gust caught one of the ailerons and snapped the top balance-wires. This allowed all four ailerons to flap about in a very dangerous manner, and it looked as though they would all be wrenched off before we could secure them.

By weight of arms, however, we eventually managed to secure the ailerons before serious damage was done. At last the machine was turned, facing the wind, and in that position successfully weathered the storm. Throughout the rest of the night the guard hung on to the machine and all stood by.

The storm abated by morning. We found that all the aileron control wires were strained or broken. The sand had choked up everything exposed to the weather, and by the time the damage had been repaired and our tanks filled with petrol it was noon.

For the first time since leaving London we had promise of a good flying day with a following wind. This good fortune atoned for our troubles of the night and for our lack of sleep. We were sweeping along at 100 miles an hour, and in less than thirty minutes Bagdad lay below. Glorious old Bagdad! Bagdad today, faded of all its old glory, is a place of poverty and decay, alluring only through name and association. Yet, in spite of its meanness and squalor, the magic city of Haroun-al-Raschid, the hero of the Arabian Nights, of Aladdin, and Sinbad the Sailor, shall remain immortal. **W**
To be continued

 **BELOW** In-flight selfie.

EPIC FLIGHT CENTENARY

South Australia is celebrating the centenary with a program of events coordinated by the History Trust of SA, celebrating the extraordinary achievement of the Smith crew and inspiring a new generation of South Australians to strive for new horizons.

The Epic Flight Centenary has secured two highly-respected Patrons: Air Chief Marshal Sir Angus Houston AK, AFC (Ret'd) and former NASA Astronaut Dr Andy Thomas. Dr Thomas took the wings brevets of Sir Ross Smith and Sir Keith Smith on one of his own epic journeys into space in recognition of their milestone aerospace achievement.

The events and activities throughout 2019 have a community-based approach with stakeholders including Adelaide Airport, Adelaide City Council, Honourable Company of Air Pilots, RAAF Association (SA), RAAF Edinburgh, Royal Aeronautical Society, SA Aviation Museum, State Library of SA and the Sir Ross and Sir Keith Smith Fund.

They began in February with a display in the Air Force marquee at the Superloop Adelaide 500. During March, the centenary was a key element of Adelaide-based Air Force birthday activities and in May it was showcased in the SA History Festival.

The website epicflightcentenary.com.au provides a single portal for education, history, imagery and details on all events and will inspire school children for decades to come. Education projects with the SA Department of Education will also ensure the Smith Brothers' story is better integrated into the school curriculum.

SA CALENDAR OF EVENTS

Until 15 June: Photographs and memorabilia from the Sir Keith Smith collection will be available in the Barr Smith Library at the University of Adelaide.

15 June: Sir Ross Smith Commemoration Service at St Peter's Cathedral, North Adelaide, hosted by the Epic Flight Centenary Committee, the RAAF and the RAAF Association (SA).

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.

20 October: Vickers Vimy open day, Adelaide Airport (registration required for aircraft tour) and flypast.

8-9 November: RAAF Edinburgh Airshow, "From Vickers Vimy to 5th Generation" with an Epic Flight Centenary display.

12 November: Opening of State Library of SA's 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 which was carried by the Vimy crew.

10 December: Centenary of Darwin landing, including rededication of the Sir Ross Smith Memorial (on Memorial Drive near Adelaide Oval).

• For more information and updates on events, go to epicflightcentenary.com.au.



RAAF SPITFIRES OVER NORMANDY

THE ALLIED INVASION OF FRANCE ON 6 JUNE 1944, D-DAY, MARKED THE BEGINNING OF THE PUSH THAT ULTIMATELY LED TO VICTORY OVER GERMANY. TO MARK THE 75TH ANNIVERSARY, **ADAM LUNNEY** PRESENTS AN EDITED EXTRACT FROM HIS BOOK *READY TO STRIKE: THE SPITFIRES AND AUSTRALIANS OF 453 (RAAF) SQUADRON OVER NORMANDY*.



An aerial view east along the coast to Arromanches from just west of the gun battery at Longues-sur-Mer.

BELOW 453 Squadron Spitfires in Normandy. Photograph courtesy of the Olver family.



IN THE WEEKS leading up to the D-Day landings, the Spitfire Mk IXs of the Royal Australian Air Force 453 Squadron based at RAF Ford, near the south coast of England, were involved in sorties of all types. Not all were the traditional fighter sweeps for which the Spitfire is famous. Together with others, they dive-bombed radar sites and conducted armed reconnaissance sorties looking for ground targets to strafe around Caen and the Normandy countryside.

On 4 June, the famous invasion stripes were painted as a recognition marking on the squadron's Spitfires, and on all Allied single and twin-engine aircraft in the UK. Crews spent most of 5 June at lectures and briefings.

On 6 June, all the pilots of 453, and many other squadrons of 2nd Tactical Air Force (2TAF), were up at 0400 for dawn readiness. The squadron diary recorded: "We are glad we are not Germans". After a breakfast of beans and fried bread, the first patrol was flown at 0800: 10 aircraft led by Malta veteran Squadron Leader Don Smith in Spitfire FU-J. Flying over the Utah Beach area they saw thousands of ships of every description.

Three other patrols were flown that day, all uneventful, with the last returning at 2315.

On D-Day, 453 Squadron put 19 pilots into the air in 43 sorties across the Channel to Normandy to protect the landings. The Allies flew more than 3,300 sorties that day, including 1,500 by fighters. During daylight hours there were usually 100 fighters over the beachhead at any given time.

Expecting strong resistance, Squadron Leader Smith stuck to his most experienced pilots, some of whom flew three times that day. While the less experienced pilots may have been upset or disappointed at missing out on the biggest all-arms operation of all time, Smith was not willing to risk their lives in what was expected to be a hard-fought battle. That it was not as hard-fought in the air as it was on land came as a big surprise to many pilots.

Allan Harris commented in his logbook on the first sortie of 6 June:



"Beginning of 'Second Front'. Much bombardment of coastline by navy. No flak. No German a/c. Landing according to plan". Then for his second sortie: "Bombarding continuing fires all over beachhead. No enemy a/c. Allied tanks seen moving inland". The Allies were back in France, their Normandy landings achieving a strong foothold and a front 60 miles (97km) long. At the end of the day, WOFF Froggy Lyall recorded in his logbook: "D DAY. A lot of opposition expected, but greatest danger from collision with friends".

For D-Day, the Allies had amassed 171 squadrons of day fighters, 10 squadrons of Mosquitos for night defence, plus more for intruder night operations. Coastal Command blocked the Channel at both ends with Sunderlands and Beaufighters. Thirty-six squadrons of Spitfires were allocated to low cover tasks, enough to have six squadrons over the landing area at all times. These were backed up by rotations of three squadrons of American P-47

Thunderbolts operating as high cover over the beachhead and rotations of four squadrons of P-38 Lightnings in the mid-Channel area. Fleet gunnery was directed by Royal Navy Seafires against shore batteries.

WOFF Fred Cowpe expected a massive air battle to accompany the landings, but it was a one-sided affair. At one point during the morning he thought he saw some Messerschmitt Bf 109s and went after them with his section, but they turned out to be Mustangs. The bare metal finish of the American aircraft, perhaps dulled by the cloud, was confused with the grey camouflage common to 109s. With so many aircraft and so much cloud, the biggest risk was mid-air collision.

On 7 June, the first patrol of the day was flown by 11 aircraft, again as low cover, over the Utah Beach area. The morning of the 9th saw Warrant Officer Keith Daff, flying Spitfire FU-O, take the honour of being the first of the squadron to land on newly liberated French soil when, due to engine failure, he had to land at Vierville, adjacent to Omaha Beach. Fortunately, he was able to return the same day. On 11 June came the first planned landing of the Australians in Normandy, with the morning patrol landing at 1320 at St Croix-sur-Mer.

So ended June 1944 for 453 Squadron and the others of 2TAF. During the month, 453 had dropped 40 500-pound bombs and flown 687 sorties since 6 June, compared with 656 sorties for 602 Squadron and 682 sorties for 132 Squadron.

In total, the Allies had flown approximately 130,000 sorties in support of Operation Overlord. To defend Normandy, the Germans had managed to launch just 13,829 sorties in return.



ABOVE One of the four gun emplacements at Longues-sur-Mer.

ABOVE LEFT Squadron Leader Don Smith (left) and RAF Wing Commander A.C. Stewart at RAF Station Ford, Sussex on 10 June 1944. (Courtesy of the Australian War Memorial).

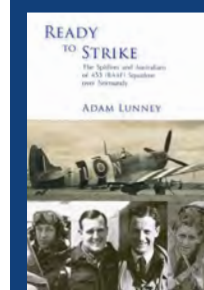


LEFT Wings covered the D-Day invasion with a nine-page illustrated article (courtesy AFA).

The German army could be forgiven for feeling it had been let down. But the fight was not over yet and by the end of August, 453 Squadron would lose pilots to flak, bombing and 'friendly fire'. Several pilots and ground crew would be wounded and others would fall ill. Some downed pilots would be captured, while others would stay on the run in the French countryside for weeks. Allied superiority over the battlefield did not guarantee everyone would make it home. **W**



ABOVE The memorial to the airfield from which RAAF 453 Squadron operated.



ADAM LUNNEY is a Sydney-based military historian. *Ready to Strike* is his first book. (adamlunney.com)

Photographs are courtesy of author except where noted.





RAAF C-17A GLOBEMASTER III

WINGS ISSUE 71 NO.2



THE RAAF MUSEUM

WORDS BY James Kightly

LOCATED AT THE BIRTHPLACE OF THE AUSTRALIAN FLYING CORPS, THE RAAF MUSEUM PAYS TRIBUTE TO THE HISTORY OF THE AIR FORCE AND HOUSES AN EXTENSIVE COLLECTION OF MEMORABILIA AND STORIES OF MILITARY AVIATION.

WE ARE VERY LUCKY in Australia to have a national air force collection of the quality of the RAAF Museum. At the historic site of Point Cook, half an hour's drive from Melbourne, the RAAF Museum is a world-class display featuring many rare and unusual aircraft embedded in the story of the RAAF and its predecessor, the Australian Flying Corps.

Appropriately at the birthplace of the Australian Flying Corps and the Royal Australian Air Force, the museum tells the story of the second oldest air force in the world.

The museum was founded in 1952 by one of the final directions of Air Marshal Sir George Jones when he was Chief of Air Staff.

THE SITE

Originally an open paddock near Port Phillip Bay, the site of the RAAF Base and Museum predates all else in military aviation in Australia. On 1 March 1914, Lieutenant Eric Harrison in a Bristol Military Boxkite made the first flight of an Australian military aircraft. Exactly a century later, the flight was recreated at the start of a major Australian Defence Forces (ADF) air show, the Centenary of Military Aviation held at RAAF Point Cook on 1-2 March 2014. The museum's own Boxkite replica, CFS-3 (VH-XKT) lifted off at the start of each day.

The original Boxkite was one of several aircraft operated by the Army's Central Flying School (CFS), soon to be incorporated into the Australian Flying Corps, which throughout WWI used the



The museum's airworthy New Zealand-built replica Royal Aircraft Factory RE.8, an important type in the hands of 1 and 3 Squadrons, Australian Flying Corps.



TOP RIGHT The museum was lucky to have a replica 1914 Deperdussin Type A monoplane built for it by the late Jack Gillies, who as a child lived on the base.

RIGHT The opening display in the Training Hangar features (left to right) the PAC CT-4 in its original 'Plastic Parrot' livery, the museum's static Tiger Moth and the rare Maurice Farman Shorthorn.



BELOW RIGHT The underside view, as would have been seen on the Western Front in 1917-18, of the museum's RE.8 replica.



Proudly the oldest continuously operating military airfield in the world, today's main military flying unit is the museum, although there are regular visits from other ADF aircraft for various purposes, as well as the new diesel-powered Diamond DA40 NG used for Australian Air Cadet air experience flights which continue a long-term achievement of enabling the next generation of Australian airmen and women on site.

The whole site is listed under both Victorian and national heritage protection, and most of the surviving early site buildings and environment survive, making up the core of a Great War era airfield.

THE DISPLAYS

The museum's displays cover a number of galleries, the majority in original but upgraded WWII Bellman hangars. The first gallery is a two-level display covering the history and the main wars and battle honours that the RAAF and its predecessor forces have been involved in, as well as:

- Australia's aircraft industry
- RAAF medical and chaplain stories
- Woman's Auxiliary Australian Air Force (WAAAF) and Woman's Royal Australian Air Force
- Peacekeeping and civil aid.

airfield for the first Australian military flying training courses.

One unique survivor from this period is a dent in one of the original hangars where a Boxxkite got too close at the end of the day's flying. That dent is mentioned in the site heritage listing.

In the period after "the war to end all wars", limited flying continued until the formation of the Royal Australian Air Force in 1921, when Point Cook expanded in its role as the main and key training base for the air arm, including landplanes and marine aircraft, the latter operating from a long pier into Port Phillip Bay.

During WWII intensive training operations required tarmac runways, which are still in use today, though the airfield is still classed and used as an all-over grass airfield as well.



The Training Hangar displays the many facets of Air Force training including the following aircraft:

- Maurice Farman Shorthorn (CFS.20)
- Avro 504K replica ('E3747')
- de Havilland DH.82 Tiger Moth (A17-711)
- CAC Winjeel (A85-401)
- de Havilland Vampire T Mk.35 (A79-616)
- CT-4A (A19-027, the first RAAF example)
- Macchi MB326H (A7-001).

The Technology Hangar highlights the diversity of technical aviation equipment: engines, instrumentation, armament and safety equipment from the earliest period to the present day. Aircraft currently displayed are:

- Replica Royal Aircraft Factory BE.2a ('CFS 2')
- Replica Royal Aircraft Factory SE.5a ('A2-31')
- Supermarine Walrus (HD874)
- Douglas Boston (A28-8)
- de Havilland Vampire F.30 (A79-375 in target tug colours)
- Bell UH-1B Iroquois helicopter (A2-1020, one of the two which resupplied ammunition for the Battle of Long Tan in 1966)
- Government Aircraft Factory (GAF) Mirage (A3-92).

The other main hangars include the Strike Hangar, displaying GAF Canberra (A84-236), McDonnell Douglas F-4 Phantom II (67-0237, a gift from the National Museum of the US Air Force, representing 69-7208), and General Dynamics F-111G (A8-272). Hangar 180 displays several rare machines including:

- Hawker Demon (A1-8)
- Avro Cadet (A6-34)
- CAC Boomerang (A46-30, for many years the only surviving Boomerang)
- GAF Pika (A93-2) and Jindivik (A92-47), Australia's first jet-powered designs
- CAC Sabre prototype (A94-101, the first aircraft to break the sound barrier in Australia)
- Sikorsky S51 Dragonfly (A80-374), the RAAF's first helicopter in 1947
- Bell UH-1H Iroquois (A2-377)
- Aerospatiale AS-350B Squirrel helicopter (N22-001) introduced in 1984 for ADF helicopter training
- Shellvocke & Drury vehicle, a 1947 Fire Appliance.



A number of larger airframes are on external display or storage including: Three Lockheed C-130 Hercules (C-130H A97-011, C-130A A97-214, and C-130E A97-160); A Lockheed AP-3C Orion (A9-751); Hawker Siddeley HS 748 (A10-601), cocooned in a protective plasticated coating; and de Havilland Canada DHC-4 Caribou (A4-152) outside the museum's main entrance.

The other main display is the Restoration Hangar, housing restoration projects as well as several of the museum's operating aircraft between flights. The main restoration projects are currently the sole surviving photo-reconnaissance de Havilland Mosquito PR.XVI (A52-600) and a de Havilland DH.60M Moth, as well as the museum's operating CAC Mustang (A68-170, VH-SVU) which is nearing the end of a range of required refurbishments, including an engine rebuild undertaken in the UK.

THE ARCHIVE

The museum's archive provides an important Australian aviation history asset and is open to genuine researchers by prior appointment.



ABOVE The museum has a Link Trainer on show, unusual in having the table and plotting 'crab' as used by the instructor alongside as well.



BELOW Air Chief Marshal Sir Allan Grant 'Angus' Houston AC (Mil) AFC greets a fellow 9 Squadron RAAF veteran after Houston had delivered 'his' old Bell UH-1H Iroquois to the museum, making him probably the highest ranking museum delivery pilot in history.





Centre of the Training Hangar display is the first RAAF Macchi MB326H A7-001, overhead the composite two-seat de Havilland Vampire T Mk.35 A79-616, in Telstar display team colours.

The museum's extensive holding of artefacts, recorded in a huge digital catalogue, is constantly growing with donations, often from members of the public "just dropping by", as well as a planned program of acquisitions which include everything from the smallest items chosen from current operations to complete aircraft as they are retired from the military.

Perhaps surprisingly, these include examples of former RAAF types that were more recently operated by the army such as Boeing Chinook A15-006 (currently stored). Each aircraft example selected for the museum is always one with a significant history.

FLYING AIRCRAFT

The museum is unique as a national level collection in operating a small cadre of aircraft and guest aircraft for free regular Interactive Flying Displays each Tuesday, Thursday and Sunday at 1pm (excluding the Christmas/New Year period), where the public can get close to the flying and ask questions of the pilot and crew.

It is the museum's policy to fly only aircraft types which are duplicated in



LEFT The museum's rare Douglas Boston was recovered from Papua New Guinea and restored at RAAF Amberley, Queensland.



BELOW A popular exhibit is the F-111G 'The Boneyard Wrangler', so named as one of the few aircraft to escape the Davis-Monthan Aerospace Maintenance and Regeneration Group, or 'Boneyard', when refurbished for RAAF use.



the collection or are replicas. Currently, the fliers are:

Sopwith Pup replica (VH-PSP, built in the 1970s by Transavia

Royal Aircraft Factory RE.8 replica (VH-OTF, for 'Over The Front') de Havilland DH.82

Tiger Moth (A17-692)

CAC Mustang (A68-170 mentioned previously, painted as A68-750)

NAA Harvard (ex-Royal New Zealand Air Force NZ1075)

CAC Winjeel (A85-439)

Pacific Aerospace Corporation CT-4 trainer (A19-077).


On occasion visitors will see privately owned aircraft in the air including other Harvards, Winjeels, CT-4s and Cessna O-1 Birddogs. These may be displayed solo or, on numerous occasions throughout the year, making up a commemorative flight such as over The Shrine in Melbourne.

Unusually, the operating museum aircraft are Defence Force assets but also on the Australian civil register, and are certified and operate under the requirements of both the military and civil authorities. The pilots are all Air Force Reserve officers, organised by the

current serving flying Operations Officer (OPSO), Squadron Leader Glen Coy CSC.

The civilian museum staff, headed by museum director David Gardner is supported by a committed and experienced volunteer group and by the Friends of the RAAF Museum.

The Friends have undertaken significant fundraising over the years, providing several elements of infrastructure including a man-lift, public picnic area and the eye-catching full-scale model carbon fibre and fibreglass Spitfire outside the museum headquarters building.

The museum is open year-round, except Mondays, Good Friday and Christmas Day, and entry is free. Visitors over the age of 16 years need to have photo identification for entry to the base. 

• *James Kightly is a journalist, writer and editor of vintage aviation and preservation (VintageAeroWriter.com), an active volunteer at the museum and a member of the Friends of the RAAF Museum. The views expressed in the article are his own and are not official museum views or policy. All photographs are by the author.*

TROPICAL FLYING: A FIGHTER PILOT'S EXPERIENCE

INTRODUCING A NEW SECTION OF SHORT STORIES FROM READERS, RETIRED CHIEF OF AIR STAFF JAKE NEWHAM – AT THE TIME AN EXPERIENCED SQUADRON PILOT, RECOUNTS THE 1958 RELOCATION OF NO. 78 (F) WING SABRES FROM WILLIAMTOWN TO BUTTERWORTH IN THEN MALAYA. IT REFLECTS THE HAZARDS ENCOUNTERED BY AIRCREW WHO FLEW EARLY TECHNOLOGY AIRCRAFT WITH LIMITED FUEL CAPACITY AND NAVIGATION AIDS.

NO. 3 SQUADRON WAS the first squadron of No. 78 Wing to deploy to Malaya, departing Australia from Darwin in November 1958. Restricted from overflying Indonesia, staging posts were established at Biak, then owned by the Dutch, Guiuan and Labuan.

All the legs were about 1,000 nautical miles (nm, 1,852km), the very limit of the Sabre's range when carrying two external tanks each of 167 imperial gallons capacity. Each staging post had radio communications and Guiuan had a transportable non-directional beacon.

The only navigation aid fitted to the Sabre was an automatic direction finder (ADF) which was of limited range. To compensate, Neptunes provided mid-track navigation assistance via a neat trick of reading our gunsight radar on their electronic support gear. In

addition, Canberra escorts flew about an hour ahead for route and destination weather reconnaissance, and a US Air Force (USAF) Grumman Albatross amphibian provided SAR [search and rescue] cover at Guiuan.

We carried 1:3 million strip topographical maps (topos) which were fine for long overwater travel and adequate if the weather was kind at destination. We were well briefed about the characteristics of tropical weather, especially the intertropical convergence zone, which we were to transit before seasonal activity was expected.

I led a section comprising PLTOFF Mike Matters, FLTLT Jim Treadwell (on loan from 77SQN) and FLGOFF Ted Radford. We took off for Biak on 7 Nov 1959, flying a southern dogleg to avoid Indonesian territory. The trip was straightforward, although there had

been heavy rain before we arrived.

The next day we were to cover two legs, to Guiuan – an isolated, largely unused airfield activated by the USAF to ferry aircraft, and then to Labuan. We managed to scrounge a 1:1 million topo of Guiuan from the Neptune crew and I laid our inbound track to Guiuan and a few distance markers on the chart.

The Canberra took off on time, the Neptune having long since left. We followed and established air-to-air comms. Nearing the point of safe return the Neptune confirmed our position and passed a special weather report: it was socked in at Biak. The Canberra, about 40 minutes ahead, then advised he was crossing a line of medium cumulus which he did not expect would be a problem and that Guiuan was reporting local showers but generally clear.

We had no option but to continue. Later, the Canberra reported he was over Guiuan, could see the strip, no significant weather and "could he continue to Manila as he and his navigator were freezing". Okay by me.

Not long afterwards I saw the line of "no sweat" cloud. It had developed into an awesome sight; boiling cloud, crisp edges, tops nearing our altitude of around 45,000 feet. The ADF snapped to life, pointing out centres of lightning.

We climbed higher. To consider potential problems: the Sabre's stability was poor at low IAS when carrying big jugs, and the conditions for compressor stalls were perfect: super cold air temperatures, high revs and low IAS.

As we approached, the tops grew to something in excess of 56,000 feet and did not look like stopping. I diverted west 30° to get through a saddle and started a rough plot on the precious 1:1,000,000 topo using my 21nm matchbox. Guiuan came on the air with the news it was bucketing down and maybe we should land elsewhere.

We had passed Davao which had a dubious strip and I thought we might, with a lot of luck, find something at Leyte on the west side of the gulf. Then I peered down a miraculous 47,000ft hole and saw three distinctive small islands in the middle of Leyte Gulf, a very comforting pin-point although we were still up the proverbial creek.



TOP LEFT 3SQN Sabres at Butterworth. Note the detachment of RAF Javelins at the end of the Sabre line.

ABOVE Jake after bombing mission.




LEFT The route from Darwin to Butterworth.

day I do not know how they did it.

I could see the ground below, but horizontal visibility was only a few yards. The other three had little time to glimpse the disappearing scenery as we entered rain.

All was not over, heavy rain continued, we were low on fuel (especially No. 4) and we had to land very quickly. As we slowed pronto, I called for spacing and open canopies, and turned onto downwind. Nos. 2, 3 and 4 were losing sight of me, but urgency made them press on. We turned onto a curving base leg final approach on instinct. We first three landed and managed to pull up without busting anything. No. 4's canopy would not open. He went around with near zero fuel remaining and landed in the most terrible conditions. The planned two-hour flight had taken two hours 30 minutes, a sort of record for the circumstances.

We had to wait several hours for the deluge to clear before completing a comparatively peaceful second leg of the day to Labuan. We'd had enough tropical weather experience for one day. 

This section is not reserved for magnificent men in their flying machines, it's also for stories of the people who support them. If you have story to tell, please email it to editor@raafapublications.org.au, with accompanying images.



We turned east and I caught a glimpse of the neck of the Guiuan peninsular. Then thinner high cloud between the cumulonimbus permitted a right turn onto 165° to run down the peninsular hidden by cloud. Our man at Guiuan contributed the encouraging news that heavy rain continued with very low visibility. He could see no sign of relief.

The Albatross, sensibly still on the ground, called to say he was reading our IFF radar pulses and we were on track 30nm south. As we were then about 50nm north I had some doubts about this advice but did not have time to mull it over. Later I realised his readings were indicating in the reverse sense.

Several times I tried to operate the ADF control in manual mode, but was too pressed with flying the aircraft and could not discriminate a signal though the static. So, having no reference to the ground and no navigation aid, I

held on to precious height and avoided penetrating the black stuff for as long as possible.

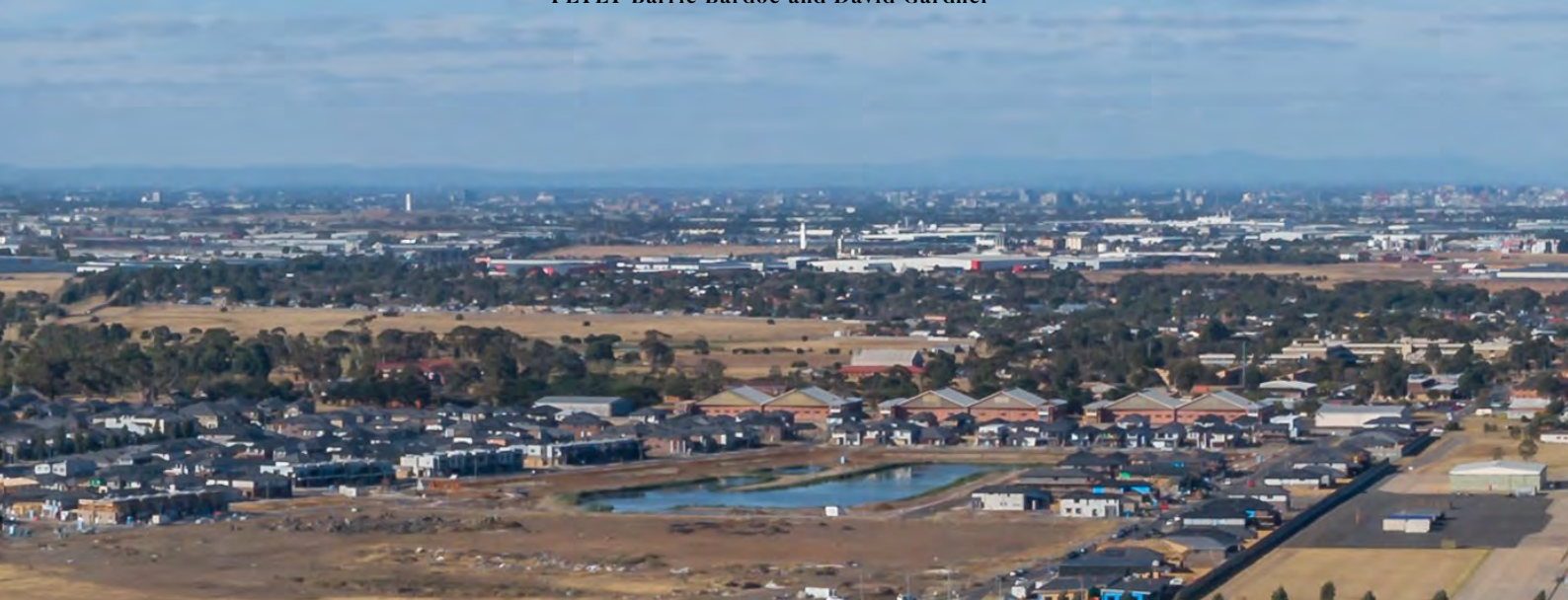
Contingency plan? I decided that on ETA we would jettison the tanks, then let down individually, outbound to the east and return on 260°, and if no contact at 1,000 feet, eject.

Suddenly I found myself looking down through another of those magic holes at the eastern end of a runway. I announced this to the formation saying: "If the strip below is not Guiuan, it will have to do; don't worry about drop tank limits; speed brakes GO."

The next few minutes were the hairiest I've flown, a spectacularly steep, tight spiral through 46,000 feet, demisters blowing hot air full chat, pilots furiously rubbing holes in the ice forming on the inside of the canopy. I levelled out in heavy rain at about 800 feet and saw the most remarkable sight: three Sabres clinging on like limpets. To this

MELBOURNE'S HISTORICAL RAAF BASES

WORDS BY
FLTLT Barrie Bardoe and David Gardner



TWO OF THE ROYAL AUSTRALIAN AIR FORCE'S EARLIEST BASES SIT IN THE WESTERN SUBURBS OF MELBOURNE: RAAF BASE WILLIAMS – LAVERTON AND RAAF BASE POINT COOK, THE OLDEST CONTINUOUSLY OPERATING MILITARY AIRFIELD IN THE WORLD.

R TWO OF THE EARLIEST Royal Australian Air Force bases are located about 7km apart at Point Cook and Laverton in the western suburbs of Melbourne. Originally known as RAAF Base Point Cook and RAAF Base Laverton, the bases were managed independently until 1989 when they were organisationally combined and collectively renamed RAAF Base Williams after Sir Richard Williams, the first Chief of Air Staff. In 2017, the name RAAF Base Point Cook was reinstated, and the Laverton establishment was renamed RAAF Williams – Laverton.

RAAF WILLIAMS – LAVERTON

RAAF Williams – Laverton was established 1 March 1926 and is the third oldest RAAF base. In its heyday,

Laverton was home to Base Squadron Laverton, No. 1 Aircraft Depot, Aircraft Research and Development Unit, Nos. 1, 2, 7, 21 and 37 Squadrons, RAAF Central Band, No. 6 RAAF Hospital, Central Photographic Establishment, RAAF School of Radio, RAAF Equipment Training School, RAAF Printing and Publications Unit and Support and Training Command Headquarters.

Today it is home to Headquarters Air Force Training Group, the Defence Forces School of Languages, Air Force Band, Defence International Training Centre and elements of Joint Logistics Command. Army also has a presence with the 8th/7th Battalion, Royal Victorian Regiment. Enabling groups also call the base home, including Estate and Infrastructure Group, Chief Information Group, elements of Capability Acquisition and Sustainment



RIGHT

The former No. 1AD Headquarters, now 8th/7th Battalion, Royal Victorian Regiment Headquarters. Photo courtesy Trev Benneworth, Radschool Association.



LEFT A recent aerial view looking north-east. The old 1AD Workshops are in the right foreground. Note the houses built up to the edge of the hardstand areas in front of 1AD and the old 21SQN/ARDU hangars. Photo courtesy of Cedar Woods Properties.

Group and Defence Learning Branch.

After Laverton's runways were decommissioned in 1996, the airfield was sold to developers. The new suburb of Williams Landing was built on the area that included the airfield. RAAF Williams – Laverton retains an active nine-hole golf course and gymnasium.

RAAF BASE POINT COOK

In late 1912 two instructors, Lieutenants Eric Harrison and Henry Petre, were engaged by the then minister for defence and tasked with establishing a military flying training school, later to become the Central Flying School. Sites for the establishment of the proposed school included Duntroon, ACT and Langwarrin, Cribb Point, Werribee and Altona Bay in Victoria. Altona Bay (Point Cook) was selected as it was on Port Phillip Bay and had the advantage of being suitable for both landplanes and seaplanes. Seaplanes were necessary to meet the Navy's proposed requirements, while the base would be located not far from the Army Headquarters in Melbourne.

The acquisition of 734 acres (297ha) was gazetted on 17 October 1914, seven months after flying commenced at Point Cook. With the fledgling airbase still no more than a collection of tents, flying finally started on 1 March 1914 when LT Harrison took to the skies in a Bristol Boxkite, the first flight of a military aircraft in Australia.

It was an inauspicious start, but building work was rapid and the base quickly began to look like a military airbase. Over the course of WWI and the subsequent eras, Point Cook expanded significantly. It is now the oldest continuously operating military airfield in the world and considered the spiritual home of the RAAF.

In 1998, as a result of the 1997 Defence Reform Program, RAAF Point Cook was one of the Defence properties identified for disposal. In August 2003, the parliamentary secretary announced the freehold sale of RAAF Point Cook by June 2004. A designated RAAF Heritage Precinct was to be retained, including the RAAF Museum, some messing and accommodation buildings, the parade ground, the Australian Flying Corps



The grand Officers' Mess, built in 1939, is still operating but is now a Combined Officers and Sergeants Mess.



BELOW The former home of the RAAF School of Radio, now accommodating Headquarters Air Force Training Group, elements of the enabling groups and some Joint Logistics elements. Photos courtesy Trev Benneworth, Radschool Association.



Memorial and the 1914 caretaker's cottage. However, intense lobbying by the local federal member, individuals and aviation-orientated organisations, coupled with a group of ex-RAAF senior officers and a prominent Melbourne businessman, led to an announcement in 2007 that Defence would retain RAAF Point Cook as an open working heritage base. It was listed on the National Heritage Register in August 2007.

At present RAAF Base Point Cook is home to three military units, No. 21 (City of Melbourne) Squadron, the RAAF Museum and a Detachment of No. 1 Security Force Squadron. There is also a significant Australian Air Force Cadets (AAFC) presence undertaking ground and flying operations. There are also a number of civilian operators and users that have access to the base including the Royal Melbourne Institute of Technology which provides commercial flying training.

Headquarters No. 21 Squadron operates out of the former RAAF College building, while the Air Base Command Post is located on the flight line at the southern end of the museum precinct. The squadron was raised on 20 April 1936 at Laverton to provide an air defence capability for Melbourne. Having been an operational flying

squadron during WWII, it ceased flying operations in 1960, but continued as a reserve squadron at Laverton providing support for the Melbourne region. Relocated to RAAF Base Point Cook in 2010, No. 21 Squadron has primary responsibility for the management of the airfield as well as supporting elements at both Point Cook and Laverton.

No. 1 Security Force Squadron comprises elements of Air Force security, airfield defence and policing personnel providing specialist security support for both bases. The small Airfield Defence Guard cadre conducts regular weapons training along with management of the base armoury and range for all Victorian defence personnel.

The AAFC has more than 30 units based across Victoria, totalling about 1,500 cadets and staff. A number of ground units routinely parade at RAAF Base Point Cook, including No. 4 Wing Headquarters, No. 404 Squadron and No. 418 Squadron. In addition, RAAF Base Point Cook hosts the Victorian elements of No. 9 Air Operations Wing operating the newly acquired Diamond DA40 NG turbo-prop fixed wing aircraft, as well as ASK-21 Mi self-launching gliders. See page 58 for more about the AAFC.

There has been a significantly increased tempo in military flying at RAAF Base Point Cook. Along with the popular heritage display flying by the RAAF Museum, the AAFC recently acquired Diamond DA40 NG aircraft (for details see page 59), and there has also been an increase in the number of military aircraft movements with Air Mobility and Air Force Training aircraft regularly transiting through the base. With its combination of land, sea and air access, the base also supports a number of Army exercises.

In preparation for the Centenary of the RAAF in 2021, there is significant refurbishment underway, including the parade ground, Australian Flying Corps Memorial area and the chapel.

Commanding Officer No. 21 Squadron, Wing Commander James Rogers paints a positive picture of the future with the

base population expected to grow to an estimated 1,500 personnel as part of the planned Point Cook Redevelopment. Phase one of the redevelopment is primarily aimed at modernising the base underground services, along with the relocation of the Defence Force School of Languages, Defence International Training Centre and Air Force Band from RAAF Williams – Laverton.

The population growth in Melbourne's west has also seen suburbs march down Aviation Road towards RAAF Base Point Cook but, unlike Laverton, it seems the base has a new lease of life.

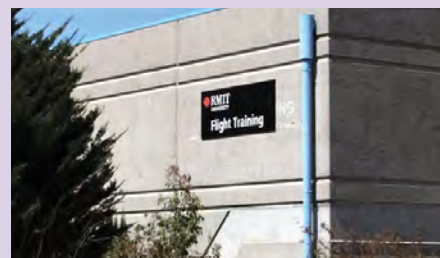
From the Bristol Boxkite to the F-35, it has been an amazing century, and the spiritual home of the Air Force has managed to not only survive but build upon its heritage legacy.

For more on the RAAF Museum, see page 36.



BELOW Former RAAF College HQ now HQ No.21 Squadron.

BOTTOM The former No.1FTS building, now houses HQ RAAF Museum and RMIT Flying Training. Photos courtesy Trev Benneworth, Radschool Association.



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**



 facebook.com/RAAFMuseum

Phone 03 8348 6040. Fax 03 8348 6692. Open 10am-3pm Tues-Fri; 10am-5pm weekends and public holidays. Closed Mondays, Christmas Day and Good Friday.



 Engineers on the base in 1942.



LIFE ON THE BRISBANE LINE

THE OUTBACK QUEENSLAND TOWN OF CHARLEVILLE IS THE SITE FOR A NEW WWII INTERPRETIVE CENTRE.



  Camouflaged vehicles and planes in scrub at Charleville.



ABOVE Mess Hall.

LEFT 20,000 feet above the base with 300 aircraft 1943.


DECLARED THE YEAR of Outback Tourism by the Queensland government, 2019 it is definitely

Charleville's year. Situated on the banks of the Warrego River, 683km west of Brisbane, the town recently sourced funding through the local Murweh Shire Council to build an interpretive centre to tell the story of "Life on the Brisbane Line".

Between 1942 and 1946, approximately 3,500 US Army and Air Force personnel were based in Charleville. The top-secret base was established on the 'Brisbane Line' where it was believed US forces planned to defend Australia against invading Japanese forces. The base was used as a Pacific air ferry route terminal and housed the Norden Bombsight to train bomber crews fighting in the Coral Sea.

The new interpretive centre will go hand in hand with the current Top-Secret WWII Tour that operates seven days a week in the tourist season (April - September). Murweh Shire Council will spend \$1,230,000 on a building to house interactive displays, concentrating on the men and women who were based in Charleville during the war years.

Half of the building will be used by universities working on virtual and augmented reality and the development of those fields of entertainment. With tenders out, Murweh Shire Council hopes to have this building under construction soon.

A very exciting time for the folks in Charleville. 

Top Secret WWII Tour

Step inside the world of the 'Top Secret Precinct – Charleville'
and discover what 1942 marked the arrival of...

The USAAF arrived in Charleville during WWII. They set up camp here for four years and would spend around \$1.4m (1940s currency) constructing 101 buildings on the site.

It was a Top Secret base throughout WWII and even if the enemy knew they were here, they couldn't get to Charleville and return to their base as Charleville was too far inland.

This USAAF base would cover an area of approximately 25 square kilometres south of Charleville and station up to 3500 (Charleville's population today) personnel on site.

So just how do you keep something that large a secret? Book the **Top Secret WWII Tour** today to discover what the top secret actually was and listen to the story behind it all ... it's fascinating - you won't be disappointed. Follow your local guide in your own vehicle around what once was a USAAF Top Secret Base inside today's Top Secret Precinct. The journey is 4 kilometres on some dirt and tar roads just around the Airport area.

'Brisbane Line' coming soon!



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OCTOBER – MARCH MON, WED & FRI from 8:00AM
BOOKINGS ESSENTIAL

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THE CONSUMMATE A V I A T O R



AUSTRALIAN SPORT AIRCRAFT CHAMPION **RETIRED RAAF SQUADRON LEADER MATT HALL** INTRODUCES WINGS' NEW CIVIL AVIATION SECTION WITH A PERSONAL ACCOUNT OF HIS JOURNEY FROM AN UNCERTAIN TEENAGE RAAF RECRUIT TO THE FIRST AUSTRALIAN TO EVER COMPETE IN THE RED BULL AIR RACE WORLD CHAMPIONSHIP AND BEYOND.

I'VE HAD A very privileged career in aviation to date. While it has been a great ride, I don't consider myself lucky. As all current and former members of the Australian Defence Force realise, it is all about working hard, creating opportunities and working hard again to make the most of those opportunities, then starting that process over again to reach the next level.

I've come to understand repeating that process is what makes other people call you lucky.

My RAAF career was over in what seemed like a flash – an 18-year flash. I joined via the direct entry scheme as a teen, not fully convinced it was what I wanted to do or could do. The Return of Service Obligation was set at 10 years, more than half my life to that stage, a pretty daunting prospect for someone with doubts in his mind.

Officer Training School took 13 weeks, a long time to worry if I could

do it. But then the flying started and I was instantly transformed into someone who knew they wanted to be there and who would work as hard as required to get the results I wanted.

Throughout pilots' course at No. 1 Flying Training School, Point Cook, Victoria and No. 2 Flying Training School at Pearce, Western Australia, I worked six long days a week, putting my best foot forward every time I was strapping an aircraft onto my back. I succeeded in graduating as the Dux of my pilot course, No. 159, in July 1992.

I then did my Intro Fighter flying on PC-9s (the Macchis were suffering some fatigue issues initially), then Macchis at 25 SQN, then 76 SQN, prior to starting Hornet Conversion at 20CU. Operational flying tours at 77 SQN then 3 SQN at Williamstown, NSW earned me a place on 26 Fighter Combat Instructor Course, the Australian equivalent of the USN Top Gun Course.

Following graduation and a tour as

an instructor at 20CU, I started to have doubts about my motivation to continue in the RAAF. It had already been 10 years since I joined, and I was finding life repetitive (yes, it can even happen when you are flying an F-18!).

I was fortunate to have good bosses, and they inspired me to continue with my Air Force career by offering me an exchange program in the US to fly F-15E strike fighters for the next three years.

This was the injection of challenge and excitement I had been looking for.

It turned into a greater challenge than I'd ever had. I arrived in the United States three months after the terror attacks on the World Trade Centre and observed a country struggling to come to grips with being attacked on home soil.

I completed my training on the F-15, then watched the squadron I had been assigned to disappear over the horizon to combat operations



ABOVE Challenges. Photo: Henry Howard.



BELOW The Mighty Eagle. Photo: Henry Howard.

for Operation Iraqi Freedom. I was sidelined due to my citizenship and I was devastated.

Then, a few days later, I was contacted by my boss and informed I would be joining the squadron in the Middle East. I packed my bags, said my goodbyes and headed east for war with my new family, my US Air Force family. Six weeks later, a lot of memories and some sad farewells to those lost, I found myself back on US soil, with the air campaign all but complete.

I found myself slightly lost again. I had now done most things possible in an F-18, flown an F-15 in combat and was back on the day-to-day routine. I was 31 and wondering if I had plateaued and if military flying was all downhill from here. Rather than sit around and worry, I looked for a new challenge. If I had achieved the pinnacle in the military aviation spectrum, why not challenge myself in the civil aviation spectrum. I purchased



an aerobatic biplane and started competing on weekends.

It turned out I had the ability to win basic comps in the US, so prior to coming back to Australia, I invested in a modern carbon-fibre monoplane and brought it home to Australia with a plan to build my experience to allow participation in World Aerobatic Championships at a future date.

That was the new challenge and drive. This time set by me and not my bosses. It was the beginning of a path that would eventually put me on the world aviation stage.

In 2006, I was XO (Executive Officer – Director of Operations) of 3 SQN,

and we took a few jets to Perth for some training and while there witnessed the new aviation sensation travelling the world, the Red Bull Air Race.

Through a senior RAAF officer friend, I was introduced to one of the pilots, Nigel Lamb. He immediately showed interest in me as someone who could handle pressure (combat), fly low and fast (fighter jets) and fly the types of planes they were racing (aerobatics). He encouraged me to send an application to try out for the race. This was the beginning of a set of dilemmas for me.

While I had previously wondered

if I would continue in the RAAF, I was now married, had a child and had a very secure job. I was a Squadron Leader on the promotion list for Wing Commander and being paid well. To give that away with no certainty of success in this fairly new air race experiment would require some detailed planning.

The final decision came from my wife. We sat down and she asked me how I would feel if I did not chase this opportunity and then saw another Australian doing it instead of me. Would I have a twinge of envy if I were to see someone else on TV chasing a dream that could have been mine?

We decided it was worth the risk

“MY WIFE ASKED ME HOW I WOULD FEEL IF I DID NOT CHASE THIS OPPORTUNITY.”



My inspiration. Photo: Matt Hall.

and I threw my hat into the training ring. I adopted my work hard routine that saw success so many times before when I was chasing results. It paid off.

In January 2009, I left the RAAF after 18 years of service and joined the Red Bull Air Race as the first (and to date only) Australian pilot. I had to build my own team, train my own people, generate my own money, and run my own budget.

There were so many new challenges that I had no experience in and they had not been skills I needed during my military career. Though there were many similarities too; the work ethic, discipline, problem solving, management, fitness, deployments involved in air race. I realized I had those skills, I just needed to apply them to different problems in the air race environment.

My first few years in the Red Bull Air Race went well, then the series stopped, for an undefined period. All of a sudden, I found myself wondering if I had made the correct decision a few years back. Here I was, now unemployed, with a young family, wondering what to do.

My first thought was to rejoin the RAAF. While I think they would have had me back and I would have fitted straight back in, I was aware that if I did that, there would be no second chance if the race returned. My moral obligation would be that if the RAAF took me back and retrained me, I was there for keeps. If the race came back, it would be too bad.

I wasn't ready to stop working at the air race opportunity. This time though, the hard work came in the form of patience, uncertainty and building up a company ready for a return to racing.


During this time, the team remained busy. We applied our training from the military and our experience from running the race team to start a small business doing joy flights, displays, and motivational talks. It started to grow, so we took on our first employee. There was risk and concern, but we made it work. We bought another



aircraft to build up the business.

Then before we knew it, we were back racing, with a new team, an improved aircraft and a new vision. Our eyes weren't set on just a race team, but an aviation business to be proud of.

We are now back racing for our sixth consecutive year, eighth years all up. In that time, we have been runner up in the World Championship three times. We have purchased five more aircraft, and an airfield to operate from.

Our full-time staff is now up to seven people and we have another 10 contractors. We race planes, we do charters, we give people the ride of their life in our aerobatic planes and we fix other people's aircraft to the standard we demand of our own. And it was all built on the training and discipline an 18-year-old learnt when worried with doubts about his motivation and ability. Let the challenges keep on rolling. 

• *Learn more at matthallracing.com*



Restoring Ballarat's AIRPORT HUT 48

Left unused and in disrepair for more than 50 years, Airport Hut 48, the former RAAF Officers' Mess, at Ballarat Aerodrome has been restored for public use by the Ballarat City Council and Heritage Victoria.

On 28 March, the AFA's Ballarat Branch hosted an official opening of their newly allocated rooms in the restored Airport Hut 48 with guest speaker WWII veteran Jack Bell, 101.

The historic site once housed wireless air gunner trainees and Mr Bell, who completed Course No. 2 at No.1 Wireless Air Gunners School at RAAF Base Ballarat in 1940, gave a memorable address to guests including Wendouree MP Juliana Addison and Ballarat Mayor Samantha McIntosh.

Ballarat Branch President Noel Hutchins took the opportunity to formally acknowledge the Ballarat City Council and Heritage Victoria for the restoration and for allowing the AFA to re-establish rooms there. "We also recognise the dedication and hard work of members of our Association here in Ballarat who have campaigned for a number of years for this site to be returned to its former glory," he said.

The AFA's occupancy of rooms in Airport Hut 48 harks back to the building's WWII past. Flying began at what is now Ballarat Aerodrome in 1914, but military flying did not commence until WWII.

A RAAF base was established in Ballarat in 1940. The No.1 Wireless Air Gunners School (commonly known as 1WAGS) – using Avro Anson multi-engine and CAC CA-6 Wackett

single engine training aircraft – was established under the Empire Air Training Scheme to train wireless air gunners for the fight against the German Air Force in Europe. It was one of only three WAGS training facilities in Australia and the only one in Victoria.

The first Commanding Officer of No.1 Wireless Air Gunners School was Wing Commander C.O. Fairbairn and his grandchildren, Catherine Calvert and Charles Fairbairn-Calvert, were among the guests at the official launch.

Of the 5,025 wireless air gunner trainees who passed through 1WAGS at the base, more than 1,100 were killed in action during WWII.



TOP The newly renovated Hut 48.



ABOVE RIGHT Ballarat Branch President Noel Hutchins, guest speaker Jack Bell and AFA (Vic Division) board member Chris Hudnott at the entrance to Airport Hut 48, Airport Hut 48 as it was 50 years ago.



RIGHT Airport Hut 48 returned to its former glory.



But RAAF Ballarat wasn't just about 1WAGS, which was disbanded on 21 January 1946. Many other types of training were undertaken there, including navigators, signallers, radar and radio men and stenographers. The Air and Ground Radio School, which later became the RAAF School of Radio, was established on 1 November 1945.

Wing Commander Reynolds was Commanding Officer from 1948 to 1952 and his daughter, Margaret Bennett, and grandson, Trevor Bennett, also attended the official opening.

The RAAF School of Radio at Ballarat trained more than 4,000 communications, radio and radar tradesman and aircrew signallers between 1945 and 1961, when it was relocated to RAAF Base Laverton.

A dedicated team of researchers starting with AFA Ballarat Branch Immediate-Past-President Dr Tom Roberts OAM, joined by Vice President Peter Schoutens and committee member Janet Bates, have painstakingly scoured RAAF Personnel Occurrence Reports and all other records to put together the records of all the wireless air gunners who passed through 1WAGS Ballarat.

Branch President Noel Hutchins said: "An important part of our plans for the restored site includes a memorial to all the wireless air gunners who trained in Ballarat but never returned from the war."



RAAFA Leadership AWARD 2019



Left to right:
Kim Beazley,
Governor of Western
Australia Alexander White,
AFA Western Australia Division
President Clive Robertson.

THE RAAFA ASSOCIATION (WA Division) is delighted to announce the winner of the 2019 RAAFA Leadership Award: Alexander White.

The award consists of paid work experience with RAAFA, which Alexander has chosen to spread across a range of fields, including information technology, and people and culture. He also receives a \$1,000 scholarship fund.

Alexander is a 2018 graduate of John Curtin College of the Arts where he studied physics, mathematics applications, drama, literature and modern history. He has been a member of the Australian Air Force

Cadets (AAFC) from 2015 to 2018.

Alexander is no stranger to awards. He won the Returned and Servicemen's League Spirit of ANZAC Cadet of the Year 2018, represented the AAFC at the Commemoration of the Battle of Amiens in France, and was a finalist in the Australian Scholarship Group NASA Space Camp in 2017 and 2018.

He also achieved the Award for Outstanding Achievement in the Arts on graduating from John Curtin College of the Arts, was a member of Wind Orchestra One – the highest ranking Wind Orchestra at the college, and performed with the orchestra at OPTUS 2017 in the Perth Concert Hall.



REAL SUPPORT FOR VETERANS

PART OF THE AIR FORCE ASSOCIATION'S WORK IS OFFERING PRACTICAL ASSISTANCE TO VETERANS IN NEED. ASSOCIATION PRESIDENT CARL SCHILLER ILLUSTRATES THIS WITH A REAL-LIFE EXAMPLE.

THE PURPOSE OF THE Air Force Association (AFA) states quite clearly that, almost 100 years ago, it was established "to foster the spirit of friendship formed on service, to perpetuate the honour and ideals of the Royal Australian Air Force and to provide support to members in need". To support that purpose, four ideals are expressed: fellowship, advocacy, commemoration and support.

The Association applies those four ideals, sometimes in a very open manner – think of the many ceremonial events carried out by AFA divisions and branches, but often in a quiet and unassuming manner.

Early in 2018, one of the AFA divisions became aware of a veteran who was, in reality, homeless. Paul (not his real name) had spent many months 'couch surfing' among his various friends and acquaintances but

had no real place to call home. The few personal belongings he could call his own were stored interstate at a relative's place, where he was not a welcome visitor. Paul had no way of paying to bring those belongings to his current state and, more importantly, had nowhere to call home anyway.

Later, the division discovered Paul had spent some nights sleeping rough on the streets – alone, cold and lonely. He was not a member of the Association, he couldn't spare the money to join and besides he didn't even know the AFA existed. It was only through his contacts with colleagues from the PAF that he became aware of the Association's work.

That he was a veteran in desperate need mattered very much to the division, which set about applying three of the AFA's ideals, namely fellowship, advocacy and support. Financial support was provided through a welfare

grants program. Personal support was provided by those close to Paul and advocacy support through AFA's network of advocates.

AFA was able to help Paul by providing temporary shelter until permanent housing became available, and by providing financial assistance with initial living and medical expenses, as well as connections to the AFA network.

Once the avenues of advocacy were opened to Paul, he was able to access hearing aids and other health support benefits with support from AFA and its contacts. His wellbeing is being monitored by the division to ensure his situation remains stable.

Divisions and their branches are urged to keep their eyes and ears out for veterans in need. By helping these veterans, AFA is living up to its ideals and further supporting its aim in becoming the ex-service organisation of choice. [W](#)

NEW SOUTH WALES

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MATES LOOKING AFTER MATES

A SPORTING CHANGE



Australian Invictus Games 2018
team member Rachel Kerrigan.
Photo: PLOFF Aaron Curran.

BUILDING ON THE MOMENTUM GENERATED BY THE INVICTUS GAMES, A NEW ORGANISATION HAS BEEN ESTABLISHED TO HELP VETERANS IMPROVE THEIR HEALTH AND WELLBEING THROUGH SPORT.

THE INVICTUS GAMES held in Sydney last October were a wonderful success. They shone a light on the issues faced by many veterans on their path of rehabilitation, and presented some outstanding sporting performances.

As a legacy of the games, Veteran Sport Australia (VSA) has been established to provide an ongoing service to all veterans. Focused on sport and recreation nationwide, VSA allows some of the amazing stories prevalent throughout the games to continue.

Former Royal Australian Air Force officer Rachel Kerrigan is one of those success stories. Rachel spent seven years as a RAAF electrical engineer and saw active service as part of the International Coalition Against Terrorism under Operation Slipper in Afghanistan in 2002.

After leaving the military, she became a successful project manager and contract administrator within heavy industry and Defence.

Sadly, Rachel had not recognised the symptoms that had plagued her since leaving the RAAF and in 2010 her life changed abruptly. She suffered a full emotional and physical breakdown. Following a stress-induced stroke she was hospitalised and diagnosed with chronic post traumatic stress disorder and severe depressive disorder.

Rachel was told she'd never walk again and survived by taking up to 30

tablets a day to control her moods, anger and nightmares. Her weight escalated and at just 152cm tall, she weighed 119kg.

It was Rachel's teenager daughter who motivated her to challenge her diagnosis and strive to not only walk again, but to dream and work towards those dreams.

"With a lot of hard work, dedication, tears, pain and perseverance I did challenge my diagnosis, and achieved the goals I had set with my daughter," Rachel says.

Her biggest personal breakthrough came when she competed in the 2016 Invictus Games in both powerlifting and indoor rowing. She went on to trek

Graduates Program in Sydney, she decided she wanted to use her story and experiences to help other veterans.

"Through sport I want to help veterans reintegrate back into life, reigniting the passion and drive that enabled them to do what they did in the military, while re-establishing bonds within their community and with each other. All things you often lose on leaving the military or once diagnosed with a mental health condition," she says.

Her role within VSA has given her the platform to do just that. VSA works to connect veterans and their families with sport and recreational opportunities by acting as a central hub of information and support. This includes engaging



BELOW LEFT Rachel Kerrigan competing in the Invictus Games 2016 indoor rowing finals in Orlando, Florida. Photo: LSIS Jayson Tuffrey.

BELOW The Australian Defence Force team at Whistler, Canada: Lieutenant Commander Nicola Edgeworth, Chief Petty Officer Adrian Profke, Leading Seaman Thomas Gray, Sergeant Daniel Serventy, Corporal James Rosengrave, Private Nicholas Avino, Elaine Gallagher, David Price and Matthew Ball.



the Sandakan Death March Route and the Kokoda Track.

"Sport has given me back my passion, my drive and my life," Rachel says. After falling in love with powerlifting at the Invictus Games, she now competes nationally in both able-body powerlifting and wheelchair basketball.

Rachel credits the Invictus Games and sport with teaching her how to move back into life, helping her improve her health physically and mentally. Once classed as totally and permanently incapacitated, Rachel is now back to her healthy weight, working as a veteran engagement specialist with VSA and studying to become an exercise physiologist.

After being part of the Invictus

with ex-services organisations, sports organisations and clubs, and community associations.

The program also provides a pathway for veterans registering interest for future Invictus Games teams or seeking similar event and team opportunities at home or overseas.

In February, VSA sent a small squad, accompanied by current-serving Defence members, to the Allied Winter Sports Camp in Whistler, Canada. This provided an opportunity for the veterans to bond and be reintroduced to a team environment many haven't experienced since their time of service.

VSA is all about finding an option that is right for the individual. Opportunities exist to compete in regular competitions

and events, to coach or referee, or simply to take part in a fun social activity. The program also offers financial assistance to address barriers to participation.

In partnership with the National Rugby League (NRL), it launched Battlefields to Footy Fields earlier this year. The program is open to veterans interested in refereeing and supports their training and fast-tracking into the NRL's officiating pathway. The first veteran to graduate from this program refereed at the ADF Rugby League Tournament held in Sydney in March. **W**

• To find out more about VSA and the opportunities available, sign up for the newsletter at veteransport.org.au.

WORDS Squadron Leader (AAFC) Roger Buddrige & Paul A Rosenzweig

COMMEMORATING ANZAC DAY

ON 25 APRIL in capital cities, regional centres and small towns, thousands of Australian Air Force Cadets (AAFC) donned their distinctive blue uniforms to help our nation commemorate ANZAC Day, remembering their members, family and friends who have served the nation.

Most of the AAFCs' approximately 10,000 members actively commemorated ANZAC Day to recognise and acknowledge the sacrifices made by our nation's men and women. They also honoured former members of their organisation, originally known as the Air Training Corps (ATC), formed in the early days of WWII to assist in training and recruitment. Many hundreds of ATC

members fought courageously and with great honour in Europe, the Middle East, South East Asia and the Pacific.

Many cadets served in overnight catafalque parties at war memorials across Australia, even more joined dawn services, and thousands marched with veterans.

In most capital cities and in many towns, Air Force Cadets Drum Corps provided precision rhythm and beat for the Veteran marchers and accompanying groups. They also carried unit banners for Royal Australian Air Force Association branches and other ex-service organisations.



ANZAC Dawn Service Air Force Cadets Honour Guard



All Air Force cadets will have access to drones in their home squadrons.

LAUNCHING INTO STEM WITH JAR AEROSPACE

A JOINT AAFC and JAR Aerospace's STEM program is delivering enhanced opportunities for cadets, helping prepare them for emerging careers in aviation, aerospace and defence sectors of Australian industry.

Rather than just teach science, technology, engineering and mathematics (STEM) as separate subjects, our program integrates these vital disciplines into cohesive, real-world applications, primarily using remotely piloted aerial systems, commonly known as drones.

The initiative involves cadets undertaking construction, programming, ongoing development and aerial control of the vehicles. Underpinned by online training and train-the-trainer packages, the curriculum has five stages – recruit, basic, proficiency, advanced and qualified, incorporating significant elements of electrical, mechanical, computer science, aviation and aerospace disciplines.

The program also promotes project control, leadership values and skills relevant to modern management understanding and practices. These STEM principles, along with management and leadership skills in the context of emerging technologies and innovation, are contemporary and industry relevant. Importantly, they potentially link cadets to future careers in aviation, aerospace and defence disciplines, that will help secure Australia's long-term future.

NEW DIAMOND DA40 NG TRAINER AIRCRAFT



AIR FORCE IS providing eight new Diamond DA40 NG aircraft to support safer, more advanced training for Australian Air Force Cadets.

"Our introduction of the new Diamond aircraft for the AAFC enables us to transition into a 5th Generation youth development organisation and aligns with the RAAF's future plans for aerospace," said Air Commodore Gary Martin, Director General Cadets - Air

Force. The fleet signals another step forward in capability for the AAFC, following introduction of RAAF-sponsored glider aircraft in 2014."

The Diamond DA40 NG is the most modern piston training aircraft available, combining an all-composite structure with all-glass Garmin G1000 avionics suite and a turbocharged sophisticated 168hp AE300 diesel engine that burns jet fuel. More than 2,000 aircraft of this



LEFT CCPL Kieran Livingstone (602 Squadron, Adelaide Hills) at Aldinga airfield in a Piper Super Cub.

type are in operation worldwide, many at flight schools.

The aircraft will be based at RAAF Base Amberley in Queensland, RAAF Base Richmond in NSW and RAAF Base Point Cook in Victoria, with regular deployments to regional areas on weekends and during school holidays. They are being leased for 10 years to provide a standardised flight training platform for aspiring young airmen and women, particularly in regional areas.

Air Force has also signed a 10-year contract with Airflite to provide maintenance services. Airflite has been the principal maintenance contractor for the RAAF's PC-9/A aircraft during the past 30 years.

"It is a very exciting time for everyone involved in the project, and we are conducting flying training up to solo standard with our Cadet students with the first two aircraft in the April school holiday period," said Air Commodore Martin.

6 WING'S FLYING START TO 2019

ADELAIDE-BASED AUSTRALIAN Air Force Cadets (AAFC) have launched their aviation year with a Pilot Experience Flight from Aldinga airfield. Aviation instruction and training activities for No.6 Wing (SA and Mildura) are conducted by No. 906 Aviation Training Squadron, AAFC, which also offers free Pilot Experience Flights with a qualified flying instructor to AAFC cadets at no cost. Aircraft used include the Cessna Skyhawk C172 and the Piper Super Cub PA-18.

Among the participants was Cadet Corporal Sean Fry from No. 605 (City of Onkaparinga) Squadron, who had just graduated from the 2019 Senior NCO promotion course. Sean has undertaken power flying training privately and has passed the prerequisite examinations for first solo. He is also training to be a glider pilot.

Sean has flying in his blood. His grandfather, Mark Lewis Fry, was an Australian who served with No. 149 (East India) Squadron RAF of Bomber Command as a wireless air gunner. Based at Mettwold in 1944 and flying in Stirling and Lancaster long-range bombers, he flew 34 operational sorties as part of Operation Pointblank (the Allied Combined Bomber Offensive against Germany).

His grandfather's heritage prompted Sean to join the AAFC in 2015. Besides, recognising the AAFC as an excellent pathway into aviation, Sean also believes the it has taught him self-discipline, teamwork and communication which have helped him with his personal life at school and will prepare him well for his working life.

TOP RIGHT CCPL Kieran Livingstone (602 Squadron, Adelaide Hills) at Aldinga airfield in a Cessna.

RIGHT CCPL Sean Fry (605 Squadron, Seaford), honouring the service of his late grandfather Mark Fry of Bomber Command (pictured here as a Flight-Sergeant Wireless Air Gunner).



YOUNG EAGLES PREPARE TO SOAR

A SMALL GROUP of South Australian Air Force Cadets who are keen to learn about and fly radio-controlled fixed-wing aircraft have started on their pathway to earning their wings.

A preparatory weekend was held at the Gawler AAFC depot, which will lead to a formal Radio-Controlled Aircraft Course and a flying camp. This aviation elective is being offered by No. 906 Aviation Training Squadron in conjunction with No. 608 (Town of Gawler) Squadron.

On completion of the course, comprising theoretical instruction and practical flying experience, cadets who achieve the necessary standards will be eligible to receive the Bronze Wings awarded by the Model Aeronautical Association of Australia for modellers flying models under 2kg.

This preparation activity was run by Sergeant (AAFC) Shayne O'Hara, who served as a cadet in the Air Training Corps in the 1970s and attained the rank of Cadet Flight Sergeant. Shayne has now completed some 17 years' service as an Instructor of Cadets and maintains an active interest in aircraft modelling.

No. 906 Aviation Training Squadron is always looking for qualified and motivated instructors to join the team. A variety of part-time positions are available now for volunteers with excellent people skills and a passion for youth training, aviation and an appreciation of the military lifestyle. Experience as a military officer or NCO is preferred but not essential.



ABOVE Leading Cadet Connor Bonham (608 Squadron, Gawler) receives guidance on repairing and cleaning a radio-controlled fixed-wing aircraft (a Kyosho Calmato high wing trainer with a 60-size engine) from Sergeant (AAFC) Shayne O'Hara. Photo by Flying Officer (AAFC) Paul Rosenzweig

PILOT PROFILE:

CUO BEN DUNK

THE PINNACLE OF training within an air-minded youth organisation would have to be gaining the right to fly an aircraft solo.

Benjamin Dunk has achieved that status in his AAFC career: he is a solo glider pilot, 'C' Certificate qualified, and provides instructional support to No. 906 Aviation Training Squadron. In addition, he has risen to the rank of Cadet Under Officer and is now serving as the Cadet Executive Officer of No 613 Squadron, AAFC (RAAF Edinburgh).

Like all aviators, Ben has vivid memories of his first solo flight. "After seven hours of flight time my chief instructor exited our glider and told me the words I'll never forget: 'You don't need me back here'," Ben says. "We pushed the glider to the launch point and after I made my most thorough pre-flight check yet, then I went on my way... only to find the sky was full of three biplanes who had arrived unannounced and now were requesting to land."



ABOVE Cadet Corporal Benjamin Dunk (right) after achieving solo status in the DG-1000S glider on 6 October 2017 during a gliding camp at Balaklava, SA, with Cadet Corporal Tomasz Kocinski (left) and their instructor Pilot Officer (AAFC) Dennis Medlow (centre). Photo courtesy of No. 600 Aviation Training Squadron.

"Thankfully my instructor had my back and requested them to wait as a young pilot was taking to the air by himself for the first time. The biplanes were only too happy to oblige."

"After a short but enjoyable flight I turned in for my approach and made a landing which even today I consider one of my smoothest. Before hopping out I found I was receiving a flyover by the three biplanes, the last of which happened to be a DeHavilland Tiger Moth, a vintage trainer used to train pilots during the Second World War. A fitting end to what at the time was the greatest achievement of my life."

About the AAFC

The Australian Air Force Cadets (AAFC) has evolved from the Air Training Corps, formed in 1941 to prepare young men as aircrew before they joined the Royal Australian Air Force. Over 78 years, the AAFC has become one of the most dynamic, effective and satisfying youth programs in the world, open to young people aged 13 to 18 years. The RAAF continues to support the AAFC, whose membership currently numbers nearly 10,000 cadets and staff.

Bound together by shared values of loyalty, teamwork, respect, courage and honour, the AAFC aims to:

- give a foundation of Royal Australian Air Force (RAAF) knowledge and discipline
- develop qualities of leadership, self-reliance and initiative
- develop character and good citizenship in the widest sense
- develop an interest in the RAAF and aviation generally
- instil a knowledge of aviation history
- encourage cadets to continue an active interest in aviation into their adult life.



Forest Lake Squadron 2nd Officer Bianca Koops, Bojana Spasojevic (Griffith University), Robert Sutton (Mirragin Aerospace) and Milton Dick, MP, with Marjorie Pagani (Angel Flight) and Heather Stafford (Aviation Projects) and the female Cadets from Forest Lake Squadron.



Forest Lake Squadron Cadets getting ready for the Pink Paper Plane Competition.



THE AUSTRALIAN AIR LEAGUE FOREST LAKE SQUADRON IN QUEENSLAND IS ENCOURAGING GIRLS TO SOAR WITH AN ANNUAL WOMEN IN AVIATION EVENT.

FOR THE PAST three years the Australian Air League Forest Lake Squadron in Queensland has been holding a special Women in Aviation – Evening in the Hangar to celebrate International Women’s Week in March.

This year’s theme was “the future is here for girls and women in aviation” and with more than 55 attendees, the evening was a resounding success. As always, the Pink Paper Plane competition was hotly contested.

At the annual event women who are leaders in their fields share knowledge and experience with cadets and the general public. This year, the squadron was joined by Angel Flight CEO Marjorie Pagani, Aviation Projects business manager Heather Stafford and Griffith University aviation management lecturer Bojana Spasojevic.

Each speaker drew on her experience in the aviation industry to showcase the different paths females can take to achieve their career goals. What

stood out was that hard work and determination are key success factors. The opportunities for involvement in the industry are growing and with the increased awareness and encouragement for girls, they will continue to do so.

The Forest Lake Squadron has shown that with continued focus and engagement with girls and women in the community, change can be effected. The squadron has gone from having no female participation in March 2016 to more than 40% female membership in 2019.

According to Squadron Officer

Commanding Michael Hansen: “Our aim is to provide our female cadets with the opportunity to explore all aspects of the aviation industry and by hearing from women who are currently working in aviation, I believe it gives them the inspiration they need to follow their dreams.”

As highlighted by Bojana Spasojevic from Griffith University, the anticipated growth of the aviation industry over the next 20 years and the increased demand for pilots will mean an associated increase in the need for aeronautical engineers, aircraft maintenance engineers, project managers, designers, air traffic controllers and administrators.

“What is exciting about this future is that no matter where your talents lie, there is an opportunity for you to pursue your passion,” she said.

GET INVOLVED

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 a variety of subjects including theory of flight, navigation and aircraft engines. It aims to enable them to achieve their full potential and become better citizens. With squadrons in most states, the Air League has been active in Australia since 1934. It is self-funding and staffed by volunteers.

MAKING THE MOST OF YOUR MONEY



MANAGING YOUR FINANCES IS AN IMPORTANT BUT OFTEN NEGLECTED PART OF LIFE. LAUNCHING OUR NEW FINANCE FEATURE, **AARON FROUD** RUNS THROUGH THE BASICS OF ONE OF THE MOST NEGLECTED ASPECTS – SUPERANNUATION.

LET'S BE HONEST, it is not the most exciting topic. The challenge of retaining your attention through an article on superannuation is somewhat overwhelming. However, after working as a KPMG partner I know what super lacks in excitement, it makes up for in importance and complexity.

Your superannuation investments will directly impact your quality of life in later years. So, I thought I would start by answering some basic questions I often hear from members of the Defence community.

WHAT IS SUPERANNUATION?

Some years ago, the nation, employers and employees agreed to contribute a portion of an individual's salary into superannuation to provide for the cost of living after retirement. The Australian Taxation Office (ATO) defines superannuation as "a system where money is placed in a fund to provide for a person's retirement".

It is important to know superannuation is your own money, invested on your behalf by a superannuation fund. While the cash is usually contributed by your employer, it is an element of your salary

and should be managed by you as you would any other financial accounts. For example, if you had money sitting in a bank account that wasn't paying interest or was extracting excessive fees, you would look to change. Your superannuation investments should be managed the same way. It is important to remember superannuation is not an investment itself but rather the vehicle through which investments are made.

WHAT TYPES OF SUPER SCHEMES ARE THERE?

Broadly there are two types of superannuation scheme, defined benefit and accumulation. Within Defence there are both. The Defence Force Retirement and Death Benefits Scheme (DFDRB) and Military Superannuation Benefits Scheme (MSBS) are types of defined benefit schemes, while the ADF Super Arrangement is an accumulation scheme. The features and differences of each scheme are significant.

Defined benefit schemes

Now less common than accumulation schemes, most existing defined benefit schemes are maintained within public sector employment and almost all are

now closed to new members. Within a defined benefit scheme, the value of your retirement benefit is defined by the scheme rules and usually depends on a number of factors often including:

- how much money your employer contributes
- how much extra you contribute
- how long you have worked for your employer
- your salary when you retire.

Make sure you get professional advice if you're considering changing from a defined benefit to an accumulation scheme. Once you leave a defined benefit scheme, it is likely that you can't get back in and quite often the defined benefit scheme may provide better options for retirement. Consider also the life and disability insurance components of each scheme before making a decision; a subject for later editions.

Accumulation schemes

Most Australians have their super in an accumulation scheme. They are called accumulation schemes because your money grows or accumulates over time based on the employer contributions, any voluntary contributions you make and investment earnings, less the cost of administering the investments.





It is important to note any investment losses incurred by the fund on your behalf result in reductions to your superannuation balance.

SHOULD I MAKE ADDITIONAL CONTRIBUTIONS?

A great way to increase your retirement financial security is to make additional voluntary contributions. There are two different types of additional contribution, concessional and non-concessional. The terms concessional and non-concessional relate to the taxation

treatment of those contributions both on deposit into superannuation and on withdrawal at retirement.

We will cover taxation of superannuation in a later edition of Wings, but it is sufficient to note here that the amount of cash that can be deposited into super as additional contribution has limits (caps) within each financial year (1 July – 30 June).

Due to the power of compounding, additional contributions into your superannuation account when you are younger has a far greater impact on your retirement income than contributions that are made later in life. By way of example, an additional \$5,000 invested in your super at age 30 would equate to around \$74,000 upon retirement based on a retirement age of 65. If you waited until you were 50 to contribute that additional \$5,000, it would only compound to around \$16,000 at retirement as illustrated in the graph below. The example is based on an 8% return, which was the conservative return of the Australian Super Fund over the past 10 years. The difference becomes even greater should you increase the rate of return.

To further explore the power of compounding, go to the website moneysmart.gov.au and search for 'compound interest calculator'.

WHAT HAS CHANGED WITH SUPER IN DEFENCE?

Over the years there have been a number of changes to the

superannuation arrangements available to Defence personnel. Broadly there have been three superannuation schemes in operation.

- DFDRB for those commencing between 1973 – 1 October 1991
- MSBS (Military Super) for those commencing between 1 October 1991 and 1 July 2016
- The ADF Super Arrangement for those commencing since 1 July 2016.

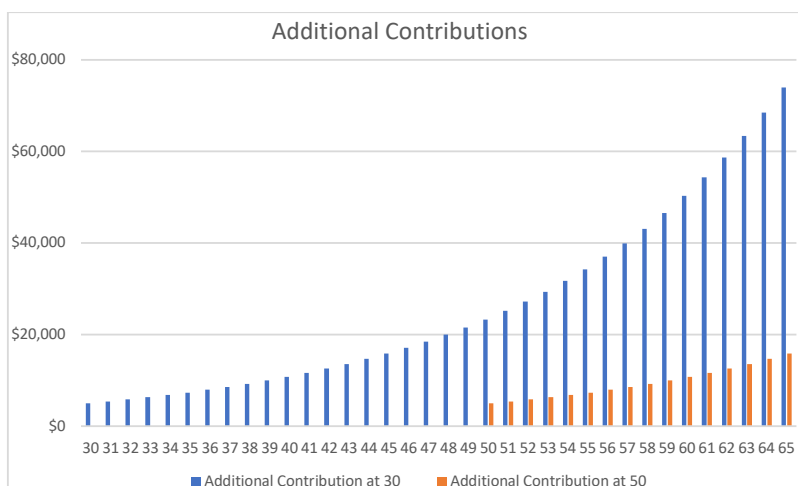
There are many and varied differences between these schemes. However, the greatest difference is the fact that both DFDRB and MSBS are predominately defined benefit schemes and provide a fixed pension upon retirement whereas the ADF Superannuation Arrangements is an accumulation scheme and therefore your pension is based on your contributions (employer and voluntary) and investment returns over your career.

WHO SHOULD I SPEAK TO?

The areas of superannuation and taxation are complex and constantly evolving. It is important that you seek advice from an appropriately qualified provider. Ideally you should find someone you have a trusting relationship with. A great resource to assist with the questions in relation to obtaining financial advice is the ADF Financial Services Consumer Centre. As you start, check out the website adfconsumer.gov.au and watch the video titled *Financial Advisers – The Facts and the Fiction*.

While you can't drive your superannuation balance or post pictures of it on your social media account, it is important to make informed decisions and manage your investments throughout your working life to allow you to live comfortably in the retirement you seek. [W](#)

Aaron Froud is a Partner in KPMG's Canberra office with more than 18 years' experience. He has developed a strong business and personal finance understanding having worked as a consultant in both audit and tax. He also spent two years within industry as a CFO. Aaron is a registered tax agent and member of Chartered Accountants Australia & New Zealand.





WING COMMANDER EDWIN PLENTY (RTD)

7 April 1931 – 28 February 2019

A RESPECTED PILOT, flying instructor and loving father, WGCDR Edwin (Ed) Plenty (retired) passed away in Darwin on 28 February 2019, surrounded by family. His life was memorialised in a funeral service on 8 March.

During a 30-year Air Force career, Ed flew many different aircraft, served in a number of flying and staff posts and commanded three units. He trained many pilots, navigators and flying instructors, and was influential in the government decision to lease 24 F-4E Phantoms as an interim until the delivery of F-111Cs.

Edwin David Plenty was born in country South Australia, the youngest of seven children. He enlisted in the Air Force in February 1951 as a trainee engine fitter and spent what spare money he had on flying lessons.

Completing his training, Ed was posted to the Aircraft Research and Development Unit at RAAF Base Laverton. He was accepted for pilot training at Uranquinty, near Wagga Wagga, NSW, and graduated as a sergeant pilot in September 1953. Ed was posted to the School of Air Navigation, RAAF Base East Sale, as a staff pilot.

In April 1954, Ed married Helen,

and later that year was commissioned as a pilot officer. In 1956 he completed Flying Instructors Course and was posted to Uranquinty to instruct at No.1 Basic Flying Training School.

In 1958 he was posted to RAAF Base Amberley to 6SQN where he trained on the Canberra bomber with subsequent postings to 1SQN, 2SQN in Butterworth, Malaya and 1 (Bomber) Operational Conversion Unit back at Amberley. He also completed deployments to The Philippines, Singapore, Hong Kong and South Vietnam.

Posted to the Directorate of Flying Safety in Canberra in 1966, Ed also became heavily involved with the identification of missing Australian airmen and aircraft wrecks from the War in the Pacific.

After completing RAAF Staff College in 1968, he was posted to Air Force Headquarters as Staff Officer 'Operational Requirements – Bomber'.

On promotion to WGCDR in 1970, Ed was posted as Commanding Officer of Central Flying School at RAAF Base East Sale from 1971 to 1973, instructing on Winjeel, C47 Dakota and Macchi.

Postings followed to RAAF Support Command, Melbourne as the Command Operations Officer, and RAAF Base Darwin as the Base Commanding Officer, during which time he flew his final military flight on the Base's C47 Dakota.

Ed's final RAAF posting in 1979 was to the Directorate of Personnel Services in Canberra. Retiring from the Air Force in 1981, Ed and his family moved to a property at Howard Springs, NT where he gained civil flying qualifications and instructed with the Darwin Aero Club, rapidly becoming the chief flying instructor. He finally hung up the headset in 2002.

Ed was granted Honorary Life Membership of the Officer Mess and accepted Honorary Patron of the Aviation Historical Society of the Northern Territory in 2016.

He is survived by his wife Helen, five children, 12 grandchildren and 12 great grandchildren.



FLIGHT LIEUTENANT DUDLEY MARROWS DSO DFC

8 December 1917 – 11 March 2019

FLTLT DUDLEY MARROWS was a living legend of WWII. Enlisting in the RAAF in October 1940, he learned to fly in South Africa before a posting to the UK and service as a flying boat captain. Flying Short Sunderlands with 461 Squadron at the height of the crucial Battle of the Atlantic, Dudley saw more than his fair share of life-threatening situations.

On 30 July 1943, his Sunderland teamed with another Sunderland, a Catalina, a Liberator and a pair of Halifaxes were sent to battle three surfaced U-boat submarines. Dudley's Distinguished Flying Cross award citation notes his disregard for his personal safety as he "sank one submarine after attacking from a height of 50 feet in the face of intense anti-aircraft fire". It was the second of six U-boats sunk during the war by 461 Squadron.

Dudley's depth charges destroyed the U-boat fuel tanker. The next item he dropped was a dinghy for the 25 German submariners who had survived. More than 40 years later, Dudley and the U-boat captain, Wolf Stiebler, met convivially in Germany.

Less than three months later, it was Dudley's turn to be saved by dinghy. His Distinguished Service Order citation recounts the interception of his Sunderland by six Junkers Ju 88 fighters:

"Well supported by his gunners, he frustrated the attackers for more than an hour until, with three engines shot away and all but one gun turret silent, he was forced to bring the aircraft down onto the water". In rough sea, he and his 10 crew climbed aboard their one remaining dinghy and were rescued.

Eighteen months of patrols over the Atlantic accumulated flying hours, and by the time he returned to Australia in April 1944, Dudley had logged some 1,200 hours on Sunderlands. His next posting was as a Catalina captain to Eastern Area with 76 Wing Headquarters. At war's end, he was serving with 40 Squadron flying Sunderlands and Martin Mariners in the transport role.

The Australian War Memorial collection holds Dudley's service memoirs and an account of the U-boat encounter by his wireless operator, Peter Jensen.



BOB PIPER

8 September 1946 - 19 February 2019

DURING THE 1980S AND 1990S

in particular, the name Robert Kendall Piper was synonymous with RAAF historical research. As the first RAAF historical officer with the Department of Defence, Bob led the RAAF Historical Section from 1978 to 1993.

When he started the job he had not long returned from living in Japan, where he had met his wife Misako.



WARRANT OFFICER ROBERT HAMILTON PERCY

20 February 1923 - 22 March 2019

RAAF WARRANT OFFICER and B24 Liberator Flight Engineer Robert (Bob) Percy had an almost life-long love of the famous B-24 aircraft. Bob's funeral service on 8 April was held next to an A72-176, the Liberator undergoing restoration at B24 Liberator Restoration Australia's hangar in Werribee, Victoria.

Born in Numurkah, Victoria, Bob joined the RAAF just after his 19th birthday. He became an engine fitter and then underwent flight engineer

training at No.7 Operational Training Unit, Tocumwal in 1944. Operational service followed and Bob and his No.21 Squadron B24 crew operated from Fenton Airfield, a WWII military airfield on Tipperary Station at Hayes Creek, Northern Territory. ANZAC Day 1945 was his first operational sortie.

Following the Japanese surrender, the Liberators were re-purposed for medical evacuations of Japanese POWs. Bob flew several medivac flights from Morotai via Darwin to Mascot or Laverton. He left the RAAF in 1946 but rejoined six years later to serve in the Korean War, remaining in service until 1978.

In 1989, Bob was one of the 'second wave' of inspirational men to progress the restoration of B-24 Liberator A72-176, and he remained involved with the project, including countless hands-on work, until his death at the age of 96.

A Pratt & Whitney Twin Wasp R1830-65 engine, in all its radial sounding glory, was run as Bob's RAAF Ensign draped casket left the hangar. This engine had received Bob's attention when it was in operational service.

To learn more about this historic aircraft, visit the hangar in Werribee or go to b24australia.org.au.

*Group Captain Carl Schiller,
OAM CSM (Retd) Patron, B24 Liberator
Restoration Australia*

After working in Defence public relations, he left Defence and continued his air force research in a business capacity (but provided free advice for veterans and their families). He was among the most prolific contributors to *Air Force News*.

Bob contributed much to the study of Australian and Japanese forces during WWII, particularly in Papua New Guinea where he lived from 1966-71. He published hundreds of articles and research projects, as well as the books *Great Air Escapes* and *The Hidden Chapters*. He also gave expert evidence for many Administrative Appeals Tribunal judgments determining service pensions for Air Force veterans.

During the 1960s-90s, he worked

with Richard Leahy in identifying aircraft crash sites in the New Guinea area, locating the remains of 32 American airmen who were then recovered and repatriated for burial.

Bob recently produced a document identifying 37 previously unknown Japanese airmen buried at Cowra War Cemetery, NSW, who had been shot down in the Northern Territory during WWII. In 2018, he and Misako were awarded a commendation from the Japanese foreign minister for the promotion of mutual understanding between Japan and Australia.

Bob passed away after a short battle with cancer, and is survived by his wife Misako, four children and 10 grandchildren.



REVIEW BY Bob Treloar

AIR BATTLE FOR BURMA: ALLIED PILOTS' FIGHT FOR SUPREMACY

By **BRYN EVANS**

Pen and Sword, \$13.95 (hardcover)

AIR BATTLE FOR BURMA is an excellent history of the Allied efforts to defend Burma in WWII from a seemingly invincible Japanese Army Air Force.

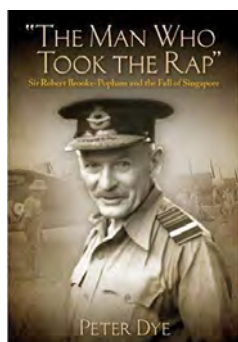
Bryn Evans, a member of the Air Force Association NSW, has blended the strategic context of the battle for Burma with descriptions of individual dogfights – from the frantic and desperate early battles between Hurricanes and the overwhelming and better equipped Japanese Zeros to the reversal of fortune with Britain's introduction of the Spitfire.

Emphasising the vital need to attain air superiority so land forces could survive and fight, he also explores the challenges faced by the armies fighting grinding battles in the jungle below.

He brings the epic aerial battles alive with the personal accounts of fighter pilots and the result is gripping. The reader is able to relate to the men who flew Spitfires, Hurricanes and Thunderbolts in dogfights, the transport force of Dakotas and the Curtiss Commandos tasked with supplying large armies over remote and featureless jungles, the Hudsons and B-17 bombers who blunted the Japanese land forces and the Catalina reconnaissance aircraft that enhanced the early safety of outnumbered naval forces.

RAAF Wing Commander Noel Constantine flew Hurricanes in the early dogfights and survived to lead the most successful Spitfire squadron in Burma. His exploits and insights, along with those of many other pilots, are blended into the history of the battle as it unfolds.

Well-written and researched, this is an unexpectedly exciting account of the air battle and of the men who fought it.



REVIEW BY Bob Treloar

"THE MAN WHO TOOK THE RAP": SIR ROBERT BROOKE-POPHAM AND THE FALL OF SINGAPORE

By **PETER DYE**

Naval Institute Press, \$44.95 (hardcover)

IF YOU HAVE heard of Air Chief Marshal Sir Robert Brooke-Popham, it is likely to be associated with the fall of Singapore. Yet the achievements of this man were remarkable and reflect the development of air power from before WWI and the evolution of the Royal Flying Corps (RFC) and Royal Air Force (RAF).

During WWI Brooke-Popham served in France with responsibilities for the administrative and logistic support for the RFC. During his appointment, the RFC grew from four squadrons and 860 personnel to 23 squadrons and 6,506 personnel. Returning to active duty in WWII, he was responsible for establishing the Empire Air Training Scheme in Canada and South Africa, which supplied aircrew to Bomber Command.

At age 62, Brooke-Popham had had a distinguished career, but he is mainly remembered for his appointment as Commander-in Chief Far East in October 1940. His removal from command in November 1941 was assisted by members of the colonial administration who resisted his directive to place the colonies on a war footing, considering the continued supply of tin and rubber to Great Britain more important.

This remarkable story is well told by Peter Dye who, while acknowledged as a professional disciple of Brooke-Popham, provides an objective biography. I recommend it to anyone with an interest in the strategic development and organisation of airpower and those who would like to consider another aspect of the fall of the "impregnable fortress".



REVIEW BY Doug Roser

DREADFUL LADY OVER THE MEKONG DELTA: AN ANALYSIS OF RAAF CANBERRA OPERATIONS IN THE VIETNAM WAR

By **BOB HOWE**

Air Power Development Centre, \$18 (hardcover)

MUCH MORE THAN the title suggests, this book not only covers the operations of the RAAF Canberra bombers, it offers a reminder that military conflicts are not won by a single operation or battle.

Given his training and experience, Wing Commander Bob Howe (Ret'd), a member of the United Services Institute of the ACT, is well qualified to address the elements impacting the operations of the Canberra aircraft in Vietnam.

After a brief history of Vietnam and an overview of the geography and importance of the Mekong Delta, Howe outlines the numerous forces involved in the riverine operations in the Delta and highlights the enormous problems of their cohesive command and control.

He explains the establishment of the Mobile Riverine Force in June 1967, and a range of exercises conducted in 1968 and 1969 that allowed the allies to command the Delta's waterways. The Canberra bombers of RAAF No. 2 Squadron operated as part of the US Air Force 35th Tactical Fighter Wing and Howe details the suitability of the Canberra Mark 20 jet bomber for the riverine operations. Reviewing the Canberra operations and the political constraints that limited their effectiveness, he concludes the squadron performed to the best of its ability.

I recommend the book to anyone interested in understanding the Vietnam conflict, the political and other constraints, the application of air power and the effectiveness of the RAAF Canberra bombers. An excellent analysis.

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