

The Two Dozen The 24 who kick started the FAA

> Hot Rod Man The genius of Ed Heinemann

School For NGS Teaching dumb Birdies to spot

Unmanned Manning

So What's the Advantage?

FOREWORD By CDRE David Frost, COMFAA

Ladies and Gentlemen,

Our Navy has certainly received a lot of air time over the last few months with significant announcements and changes in light of the rapidly changing Geo-Political environment. AUKUS will significantly reshape our Navy and the Defence Strategic Review will also bring changes to the ADF. For the

Fleet Air Arm, our course was set early last year with Government announcements relating to the acquisition of more Romeo MH-60R Maritime Combat Helicopters in parallel with a commitment to introducing Remote and Autonomous Systems. The FAA continues to evolve to meet the rapidly changing landscape and contribute to the joint fighting force.

In 2023 the Fleet Air Arm will introduce a 'Romeo Group' into the FAA hierarchical structure. An intermediate headquarters between the HQFAA and the three MH-60R squadrons. This permits a better service to the Romeo Enterprise as well as the optimisation of resources. We will execute this soon, and it will see 808 and 816 Squadrons share the frontline combat helicopter burden, ably supported by 725 Squadron. This change is one of the most significant structural changes I have seen in my time within the FAA. In parallel, we will continue to take our UAS flights into the operational environment and grow our tactics and procedures in partnership with our crewed systems. I can also report that the Helicopter Aircrew Training System is working at great efficiency and the flying rates are impressively continuing month on month, laying the strong foundation for our aviators of the future. AMAFTU personnel routinely keep their hand in with flying opportunities across the FAAparticularly at 723, but in the years ahead the demand on AMAFTU will only increase and I will have to ensure we support them as a critical enabler of embarked aviation. As I write AMAFTU are executing two concurrent flight trials embarked and they will have an increasing importance as the FAA navigates the speed of relevance with UAS and other remote and autonomous systems.

There is however one Achilles heel with current growth plan. Having the right person, with the right skills, in the right position to ensure a capability effect. We have excellent people, but we want and need more of our young Australians serving our nation and doing so as a member of our community. As I did at the FAAAA AGM I am seeking your ongoing support to champion professions and roles within our FAA enterprise. You have all served and shaped the legacy we are currently custodians of. You know what it takes for Naval Aviation to succeed and only we can truly tell the stories of sheer skill and aptitude required to be a part of it. Please encourage, support and champion people wanting to be a part of our community and we will continue to deliver for Fleet and the Australian Public

In the anniversary of our 75th year it was a privilege to engage with many of you here at home plate and across the nation. Together, we've done an excellent job raising the profile of the FAA and I truly believe this is because we're cut from the same cloth as a rich community of serving and veteran FAA personnel. I will return throughout this year with further updates but until then, keep celebrating and cheering what we have and what we continue to achieve.

Fly Navy.

CDRE David Frost, RAN.



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Dear Editor.

I recently received a document from Pete McGurk (Pussers Greenie) relating to the use of insecticides, which may be relevant to our members.

HFV people aside, during my time on 723 Squadron we used to spray flies using the Hueys. We first laid down a barrier to kill any flies which landed in that zone and then sprayed a knock down to kill those within. This was repeated after a period of time which allowed the eggs to hatch.

We were never told what the chemicals were but we had to notify people to cover fish ponds, remove clothing from outside clothes lines and also cover their car to protect the paintwork.

The RAAF borrowed our rig and used it at Darwin and the crewman advised me that they had to wear full PPE suits with breathers whereas Pilot Mike Perrott had just his flying suit and Pump Operator John Macartney wore his No. 8s. Both Mike and I are still alive so it must not have been too bad.

After all this time is there any record of what chemicals were used in the early 70's? A RAAF bloke developed Parkinson's and I managed to get his claim accepted due to his exposure to Malathion.

The document, by John Mordike, may be of interest to anyone wishing to know a little more about what went on at the time.

Cheers, John Macartney.

By Editor. The document to which Mac refers is too long to include here and is quite technical, but *I have posted it on the website for those who may be* interested. The link is here.

Dear Editor.

TAX REFUND INFORMATION

If any of your members have been affected by the Douglas Full Federal Court decision for the 2010-11 to 2019-20 income years, and have not yet re-

guested a review for prior years, they may receive a letter from the Australian Taxation Office (ATO) in the coming months.

The Douglas decision covers invalidity pensions paid to veterans under the Military Super Benefit Scheme (MSBS) or Defence Force Retirement and Death Benefits Scheme (DFRDBS) that commenced on or after 20 September 2007.

Most of the 2,500 veterans who asked to have their prior year assessments amended since the Court decision have received tax refunds.

The letter will include a brief form to complete, and a reply-paid envelope. Veterans should consider their personal circumstances and if participating in the ATO's review process is right for them.

The ATO will notify tax agents that they are sending the letters, so advance warning will be given to those who use a tax agent, but veterans are reminded that the unique nature of each case adds to the turnaround time of refunds.

The latest information about the Douglas decision and the simplified review process is available on the ATO's website here.

RSL NSW

By Editor;

The "Douglas Decision" refers to a 2020 ruling in the Federal Court, finding that certain invalidity pension payments for veterans (and their beneficiaries) should be treated as superannuation lump sums, rather than superannuation income streams. This affects the way those payments are taxed.

Most veterans who fall into this group should be better off under the new tax arrangements.

The technicalities of the actual decision don't really matter: what's important is that if you are a Veteran on an invalidity pension that started on or after 20^{th} September 2007 under either the DFRDB or MSB schemes, you may be eligible for a tax refund for eligible years prior to the decision. This will depend on your circumstances and you'll need to apply for the refund, as per the letter above.

If you think you are eligible you should read the ATO data page here, and/or speak to your Accountant/Financial Adviser. +

Dear Editor

Pathway forward: Defence & Veteran Suicides

Recently, we were saddened to learn the circumstances of the death of another veteran whose fight with Department of Veterans' Affairs (DVA) for



entitlements, among other reasons, contributed to his untimely passing. This received wide coverage in the media after his family revealed his last written words, which touched the hearts of many.

We've been hearing about a sense of hopelessness and despair in the veteran community following this event.

It's important that we acknowledge the immense pain left when someone takes their life - for family, friends, the Defence and veteran communities. This sense of loss might cause you to wonder what could possibly be achieved by this Royal Commission and whether this is just another inguiry which will be ignored by Government.

Let us assure you that we three Commissioners have made a very strong commitment to work together to bring about long-lasting cultural and systemic change to improve the lives of serving and ex-serving ADF members. In doing so, we want to focus attention on the national tragedy of suicide and suicidality in the Defence and veteran communities.

And we renew that pledge here and now to each and every one of you.

The deeply personal stories shared through submissions, public hearings, and private sessions have shone a bright light on how we, as a nation with a proud military past, have failed time and again to protect the health and wellbeing of the men and women who go to work each day to protect us.

Many serving and ex-serving members, in recounting their experiences of military life, have revealed harrowing incidents of abuse, bullying, dis-

Do you need support?

The Royal Commission has a team of Enquiries Officers and Counsellors who can support you if any of this media coverage raises any questions or impacts you in any way.

You can contact the Commission on 1800 329 095 or +61 2 5122 3105, 9:00 am -5:00 pm Monday to Friday AEDT, excluding public holidays. Or email us here.

If you need urgent or crisis support see the Commission's Crisis Support web page for a list of 24/7 services that can help you. +

crimination, harassment and hazing, as well as the additional trauma caused by the organisation failing to acknowledge what they've been through. This has been disturbing.

And then there's the fight for entitlements which has made life difficult for far too many serving and ex-serving members ... and, indeed, cost lives.

Despite how bleak the situation is, there is cause for optimism and hope.

You'll remember we delivered our Interim Report last August comprising 13 urgent recommendations to improve the lives of serving and ex-serving members. The Government has so far adopted 11 of our recommendations – this is a positive sign.

Notably, consultation has commenced to improve the laws governing veterans' compensation. These laws are set to be overhauled, consolidating three complex compensation schemes into one simplified system. DVA has committed to bring on additional resources to eliminate the backlog of 42,000 unprocessed claims by March next vear.

And we've signed an agreement with Defence and DVA to ensure serving and ex-serving members and Departmental staff can share information with us without the fear of punishment or reprisals.

It's heartening to see some progress, but we still have a lot of work to do - and the issues under examination are complex, multi-layered ... and many.

We're acutely aware of the significance of our inguiry. Our recommendations must help to change the environment – build the case for change – and ensure that action is taken by Government, Defence and DVA. The success or otherwise of the measures adopted from our recommendations must also continue to be assessed.

Continued on page 7



NASA

803

Last Month we asked readers to identify the aircraft whose tail section is shown above and, for a bonus point, why it became notable in Hollywood.

We feel sure (honest!) that if we tell you the second part first, you'll be sure to identify the type...so here goes.

Remember **Steve Austin** who crashed in a popular TV series? Tough to spear in at the best of times, but there was a silver lining for the lucky Colonel - he was rebuilt, using the very best technology of the day. His right arm, both legs and left eye were replaced by bionic implants that enhanced his strength, speed and vision far above human norms. He could run at over 60mph, and he had 20/20 vision with a 20x zoom lens and infrared capability. All a bit of a novelty back in '73. Nowadays, not so much.

Still no wiser? Well here's another clue: it cost **\$6m** to do Steve's medical work (equivalent to about \$75m today). Let's hope he had health insurance.

Give up? OK...it was a TV series called, fittingly, *"The Six Million Dollar Man"*, and Austin crashed in a **Northrop M2-F3**, otherwise known as 'the wingless plane'. No wonder it crashed! Austin should have known better, but there's no record of the medics replacing his defective brain.

Joking aside, the M2-F2 was designed as a 'lifting body' (where the body itself produces lift). It crashed in 1967 due to pilot induced oscillation on landing, essentially because there was insufficient roll authority. The pilot was also distracted by a rescue helicopter which posed a collision threat. The M2-F2 rolled over six times before coming to rest upside down (see photo below). The pilot (not Steve Austin) was rushed to hospital and subsequently recovered without bionic implants. The film of his accident (watch here) was used in the opening scene of "The Six Million Dollar Man".

The M2-F2 was rebuilt with a third fin added, which can be seen in the Mystery Photo above. As a research vehicle it was deemed a success. \Rightarrow



From page 5

We're keen to make one thing very clear: this Royal Commission is not about portraying our troops and veterans as 'broken'. The large majority have fulfilling careers both in the military and after they leave the services. Nor do we seek to undermine Australia's Defence capability or proud military history.

To the contrary. We aim to bring about long-lasting structural and cultural change to better support our serving and ex-serving members and their families; and build a stronger, more resilient and better ADF for Australia's future defence needs.

Commissioners Kaldas, Brown and Douglas

By Editor,

This was received as an Open Letter through an update to the Royal Commission into Defence and Veteran Suicide. +

Dear Editor,

Just Along For The Ride

In January 1961 the late Graham "Count". Falkiner and I were tasked to carry out "touch and go's" on *Melbourne* in Gannet XA 329.

I was a sprog observer sitting in the centre cockpit and of course, just along for the ride. After this I would be relegated to the rear telegraphist's

cockpit for the next year or so. We were due to embark for *Melbourne's* long cruise to the Far East in a fortnight's time.

I was an old hand at this, having after all done half a dozen flights off the ship on a short cruise to Harvey Bay the previous year, shortly after graduation from No. 5 Observer course.

Ho hum, might bring a book along in case I get bored.

We were somewhere east of JB with *Melbourne* steaming into a strong southerly.

After several "hook up" approaches with the the carrier only visible from the centre cockpit downwind and on the turn onto final, the excitement of the heavy touchdown and throttle wide open to go round again, I think the novelty must have started to wear off.

Concentration waning a bit after that last takeoff, I was suddenly alert to a radio call along the lines of "Mayday, Mayday, Mayday, Gannet 329, engine failure, ditching". That got my attention so I hit the intercom with "S.t Graham, someone's in trouble"

The reply was a bit of a worry: "Shut up you f....wit it's me" (note: not even "us")

I looked over the side to see an angry sea 20 feet

below with no discernible climb rate. After what seemed an eternity we slowly climbed away and headed for Albatross. Nothing was spoken between us until after touchdown and even then I don't remember them as being very nice words.

The anticipator valve that regulates fuel into the combustion chambers with rapid throttle opening on take off had failed and the "rapid" bit didn't happen.

Good old "Count" managed to keep "us" out of the drink!

God bless you Graham.

Arthur Johnson. +



Here's a topical thought!

If the USN could put helos on submarines back in the 60s, why can't we do it with the new Virginia Class SSNs we are going to spend so much money on?

Thinking about it, even the Kriegsmarine deployed rotary-wing spotting aircraft on some of their U-boats in the latter years of the war (I feel an article about that coming on), so its hardly a new concept.

Food for thought for the forthcoming Strategic Review: and you'd get Flying and Submarine Service Allowance! *

The Brain of an Elderly Person

The director of the George Washington University College of Medicine argues that the brain of an elderly person is much more plastic than is commonly believed. At this age, the interaction of the right and left hemispheres of the brain becomes harmonious, which expands our creative possibilities. That is why among people over 60 you can find many personalities who have just started their creative activities.

Of course, the brain is no longer as fast as it was in youth. However, it wins in flexibility. That is why, with age, we are more likely to make the right decisions and are less exposed to negative emotions. The peak of human intellectual activity occurs at about 70 years old, when the brain begins to work at full strength.

Over time, the amount of myelin in the brain increases, a substance that facilitates the rapid passage of signals between neurons. Due to this, intellectual abilities are increased by 300% compared to the average.

And the peak of active production of this substance falls on 60-80 years of age. Also interesting is the fact that after 60 years, a person can use 2 hemispheres at the same time. This allows you to solve much more complex problems.

Professor Monchi Uri from the University of Montreal believes that the brain of an elderly person chooses the least energy-intensive path, cutting unnecessary and leaving only the right options for Worried about declining mental capacity as you get older? Don't be. A respected study shows that, if you have a healthy lifestyle your brain can be at its best in your later years.

solving the problem. A study was conducted in which different age groups took part. Young people were confused a lot when passing the tests, while those over 60 made the right decisions.

Now let's look at the features of the brain at the age of 60-80. They are really rosy.

FEATURES OF THE BRAIN OF AN ELDERLY PERSON.

1. The neurons of the brain do not die off. Connections between them simply disappear if a person does not engage in mental work.

2. Absent-mindedness and forgetfulness appear due to an overabundance of information. There-

fore, you do not need to focus your whole life on unnecessary trifles.

3. Beginning at the age of 60, a person, when making decisions, uses not one hemisphere at the same time, like young people, but both.

4. Conclusion: if a person leads a healthy lifestyle, exercises, has a feasible physical activity and has full mental activity, intellectual abilities DO NOT decrease with age, but only GROW, reaching a peak by the age of 80-90 years.

So don't be afraid of old age. Strive to develop intellectually. Learn new crafts, make music, learn to play musical instruments, paint pictures! Dance! Take an interest in life, meet and communicate with friends, make plans for the future, travel as best you can. Don't forget to go to shops, cafes,

This confirms that a person's best and most productive years are between 60 and 80 years of age.

This study was published by a team of doctors and psychologists in the NEW ENGLAND JOURNAL OF MEDICINE.

SOURCE: New England Journal of Medicine (Abridged). +



DVA may issue a Commonwealth Seniors Health Card to veterans with qualifying service at age 60 and partners of eligible veterans. An income test applies that includes adjusted taxable income and deemed income earned on account based pensions.

Briefly some of the benefits provided include medical prescriptions under the Pharmaceutical Benefits Scheme at the concession rate of \$7.30, and free prescriptions once the costs spent reaches up to the PBS Safety Net in a calendar year.

Other discounts and concessions are available from the State and Territory of residence and the Local Government authorities.

Application for the Commonwealth Seniors Health Card can be undertaken online through DVA My-Service or by completing the DVA Form d3056, Application for Commonwealth Seniors Health Card. A copy is attached. This form can be completed on a computer & saved, and will need to be printed, signed and submitted the DVA Postal Address at Department of Veterans Affairs, GPO Box 9998, Brisbane QLD 4001.

The complete guide to the eligibility requirements and entitlements can be read here, +



Order No. 52 is now open for applications, with the following applications currently in the queue:

M. Cowley 0112461 LEUT Jul72 - Oct93.

J. O'Regan R107494 POATWL Apr70 - Apr82

A.R. Milsom O120392 CMDR GLEX (AvWI) Jul76-Oct14

B.J. White R94352 CPO ATWI Jan64 - Jan91

Now is the time for you to order a plaque for yourself if you have not already.

For those who don't know, the Wall of Service is a way to preserve your name and details of your Fleet Air Arm Service in perpetuity, by means of a bronze plaque mounted on a custom-built wall just outside the FAA museum. The plaque has your name and brief details on it (see background to photo above).

There are over 1000 names on the Wall to date and, as far as we know, it is a unique facility unmatched anywhere else in the world. It is a really great way to have your service to Australia recorded.

It is easy to apply for a plaque and the cost is reasonable. Simply click <u>here</u> for all details, and for the application form. \rightarrow

Commonwealth Seniors Health Card



Born just five years after the first manned flight, Gustave "Ed" Heinemann was best known for his design of the A4 Skyhawk.

But before then he conceived a long list of some of the most potent military aircraft in the world, earning him the title of one of the greatest aviation designers of all time.

Richard Kenderdine looks at his legacy.

man descent. Within his community there were many boys named Gustave so at an early age Heinemann decided he wanted to be known as Edward. In 1915 the family moved to the warmth of California and it was at the Panama Pacific International Exposition held in San Francisco that Edward first experienced the marvel of aviation.

Ed showed an aptitude from an early age for all things mechanical and this was developed at Los Angeles Manual Arts High, an institution designed to instil the necessary skills in those destined for trade work. He was placed in an experimental group of 50 who had above-average mechanical engineering aptitude, undertaking a special course for college prep. There was one instructor for mathematics, one for drafting and a third for electrical, pattern, machine, sheet metal and forge shops. Ed read everything he could find on

mathematics, mechanics, aerodynamics, physics, chemistry and meteorology and asked many questions of those he thought could help.

Ed decided not to return to school in 1925 as he had an urge to apply what he had learned in a real job. He applied for work at Douglas Aircraft but didn't receive a reply so obtained work elsewhere until he received a call from Douglas's chief draftsman in early 1926. He was subsequently interviewed and given employment by the chief engineer, Dutch Kindelberger (later with North American), as a tracer, working under the supervision of Jack Northrop, with Gerry Vultee occupying an adiacent desk. This unfortunately didn't last as Douglas failed to win anticipated contracts and laid off

During the next four years Ed obtained work with a number of employers, both aviation and non-aviation related. Two events stand out as important milestones in Ed's career. First he learned to fly at Burdett Flying Field in a JN4 Jenny. The owner also had an International F-16 Violet biplane and was not happy with the landing gear. Ed was asked if he could design a replacement and successfully took up the challenge to create the first oleo-pneumatic system fitted to a light aeroplane.

Secondly, Ed was later appointed chief engineer at Moreland Aircraft Company (at age 21) and designed his first aeroplane, the Moreland Trainer, that flew in the latter half of 1929.

The early 1930s were a difficult time for most. Ed left Lockheed after a brief period as he could see that the immediate prospects for that company were not bright. Fortunately he was able to find a job back with Douglas at their Santa Monica plant, reviewing drawings done by others. He requested, and was granted in January 1932, the ability to work with Jack Northrop who had set up an operation at El Segundo for Douglas, with the latter holding a 51% controlling interest. Thus begun a thirtyone year productive period for Heinemann with Douglas Aircraft.



Northrop El Segundo

The Northrop El Segundo organisation was producing similarly designed Gamma (freight and mail carrier) and Delta (passenger) single-engine monoplanes. Future prospects looked bright until one day in 1933 the Civil Aviation Administration issued a directive that all passenger-carrying aircraft had to have more than one engine or else be subject to numerous restrictions. While this was a boost to the DC series at the Santa Monica plant it stopped production of both the Delta and ultimately the Gamma. However not all was lost as the Gamma was converted into an attack bomber and a series of variants achieved overseas sales with the A-17 version adopted by the US Army Air Corps.

The military market now became the subject of focus and Northrop developed the XFT-1, a highperformance, all metal monoplane fighter for the

The Northrop XFT-1. It was not accepted by the US military but was the basis of future designs that were.





Another opportunity opened up when the Navy sought proposals for a carrier-based dive bomber that could achieve stable, vertical dives, using speed brakes to keep airspeed below 250 knots, withstand 9G pullouts and carry a 1000lb bomb. Northrop used a development of the A-17, with a reduced wingspan, called the XBT-1 which was the first all-metal, low-wing bomber for the Navy. Heinemann designed split trailing edge flaps, the lower flap used for take-off and landing while both upper and lower were extended for dives.

Vance Breese was contracted for the test flights and all went well with horizontal flight and slowspeed shallow dives. However tail flutter occurred as the dives became steeper. Heinemann decided to occupy the rear seat and photograph the tail section as Breese made dive after dive with 9G pullouts, the horizontal tail tips moving through about 2 feet in the process. It became apparent that the vortex effect from airflow over the open flap surfaces was severe enough to create instability. Although Heinemann tried various fixes nothing worked until Charlie Helm from the National Advisory Committee for Aeronautics was sent to El Segundo. He advised cutting holes in the flap sections, hoping to replace large vortices with smaller ones. Initially holes were cut in the inner third of the

Northrop XBT a derivative of the The XFT-1 shown on the previous page. This was the first all-metal low wing dive bomber constructed for the Navy and featured some interesting innovations which allowed it, amongst other things, to achieve a stable speed of under 250 knots in a vertical dive. Heinemann was instrumental in some of the design features but was not credited as designer in his own right.

flaps with favourable results. With further testing it was decided to cut holes in the whole length of the flaps and this became a characteristic of the BT-1 and following Navy dive-bombers.

SBD Dauntless

The BT-1 was the basis of a new design called the XBT-2. Jack Northrop left Douglas in January 1938 to start another company and consequently the T in the designation, which denoted Northrop, was changed to D for Douglas and the aircraft was classified as a Scout Bomber instead of purely Bomber. The thus named SBD Dauntless was the first Douglas product for which Heinemann was credited as designer.

Marine squadron VMB-2 was one of the first to equip with the SBD and they took them to Guantanamo Bay, Cuba, for training in Autumn 1940. During December it was noticed that several aircraft developed wrinkles at the wing roots and Heinemann was sent to investigate. He suspected that there was a problem with the landing technique and after observing some landings decided he need further data. He did this by lying on the runway, perpendicular to the centreline, approximately six feet away from the anticipated touchdown point and took numerous photographs of SBD landings. These photos clearly showed that the landing gear struts were compressing completely, placing great stress on the wings.

The Dauntless was to play a prominent role in the Battle of the Coral Sea in May 1942 and later at Midway. It was a very effective dive bomber, some claiming it was the best.

DB-7, A-20 Boston

Douglas started developing a multiengine attack aircraft in March 1936 in anticipation of future US-AAC needs. Jack Northrop was general manager and chief engineer of the bomber program and Heinemann was assigned as project engineer. In mid-1937 Heinemann was asked if he would like





to be chief engineer, an offer he accepted provided he could reorganise the department, giving individuals full responsibility for certain phases of the operation.

This aircraft was developed into the DB-7A and DB-7B for the France and the A-20 for the US-AAC. Many were used by the RAF under lendlease arrangements and named Bostons.

A-26 Invader

On his return from Cuba Heinemann visited Wright Field where he was asked if a 75mm cannon could

Above: The DB-7, otherwise known as the A-20 or Boston, for which Heinemann was appointed Chief Engineer. It was multi-role, serving in several Allied Air Forces as an attack, light bomber, intruder and night fighter. The night fighter and intruder variants were usually known as the 'Havoc'. It was an extremely successful design, earning the reputation as a tough, dependable aircraft which was pleasant to fly and very maneuverable.

be built into the nose of the A-20. He had already looked into this and concluded that the fuselage was too narrow but agreed to a possible new aircraft. Two weeks later he was able to present An A-26 invader, designed to operate at high speed and low level, with laminar flow wings giving it excellent stability for that role. It also featured a huge 75mm cannon embedded in the nose. \rightarrow

drawings of what became the A-26 Invader which was designed to operate at high speed and low level. It was hoped that laminar flow wings would provide the required stability and through the use of the large wind-tunnel at NACA's Langley Field Heinemann was able to obtain a large amount of data that proved valuable to the project and also to the wider aviation industry. Up to that time only NACA tested models in their wind-tunnel so Heinemann was able to achieve an industry first.

DC-5

By 1938 Douglas's Santa Monica plant had produced more than 300 of the DC-1, -2, -3 and -4 range and were looking into developing a twin-engine aircraft for private and military use with a high wing and tricycle undercarriage. El Segundo were given the job of building it as they had plenty of experience with tricycle gear on the DB-7 and Santa Monica were busy with the DC-3.

The first example was sold to William Boeing as his personal transport and three others to KLM. The US Navy ordered seven, designated R3D-1s and R3D-2s.

Flight testing produced what the pilot described as a slight tremor in the vicinity of the horizontal tail. As part of the investigation as to the cause Heinemann wrestled his way into the tail and, with his head jammed between the rudder and elevator control cables, tried unsuccessfully to detect any irregularities. Eventually his team was able to show that wing turbulence reached almost to the

horizontal tail and as a consequence the DC-5 was given a dihedral tail.

> One R3D-1 was lost, along with the flight crew, on a test flight as a result of the reversal of the aileron cables even though the cables were supposedly designed in such a way as to make this impossible.

> > In 1941 the USAAC decided

that for efficiency reasons Douglas should only build one type of transport and they decided on the DC-3 over the DC-5, thus ending production of the latter.

SB2D BTD

The Curtiss-Wright SB2C Helldiver won the competition for a successor to the SBD. Eventually El Segundo received a contract to develop a replacement for the Helldiver, with Curtiss also in the running. The Navy specifications were onerous: R-3350 18 cylinder twin-row radial engine, tricycle undercarriage, remotely-controlled upper and lower twin 0.5 calibre gun turrets, wing and tail deicing, laminar flow aerofoils and high-lift slotted flaps.

The SB2D prototype flew seventeen months after contract signing, weighting 2500lbs over specifications. The test pilot, LaVerne Brown, described it as 'nothing to write home about'. A second prototype was built but the aircraft was cancelled in June 1944. Heinemann vowed to learn from the experience and, by eliminating the turrets and second crew member, redesigned the aircraft into the BTD Destroyer, eight examples being built. This time the competition came from the Martin XBTM Mauler and the Fleetwing XBTK as well as entries from Curtiss and Boeing. However there was no clear winner and the Navy's Bureau of Aeronautics (BuAer) organised a series of meetings with the companies. The meeting with Douglas lasted most of the day and seemed to be making little progress. Eventually Heinemann requested that the Navy cancel the contract with Douglas and use the remaining funds to build an entirely new bomber. He had been working on a more basic design in previous weeks and sought a period of 30 days to draw up and present the design. All BuAer was willing to give was 9am the next morning so Heinemann worked into the early hours writing the specification changes and drawing the general arrangement while his assistant Leo Devlin concentrated on weight and strength calculations and Gene Root did the aerodynamics and performance figures. Fortunately BuAer allowed them to continue with the project, with a mock-up of the BT2D approved later in 1944.

Pacific interlude

In 1944 BuAer invited manufacturers of naval aircraft to send representatives to the Pacific to observe operations with the aim of helping designers have a better understanding of how their products were used. Douglas responded guickly and Heinemann ended up being the only representative to take up the opportunity. He joined the USS Ticonderoga (Hellcats, Helldivers and Avengers) in Pearl Harbour on 17 October 1944 and sailed for operations the next day. During the next fortnight Heinemann was able to talk to aircrew. maintainers and air officers and also observe flight deck activities. Additionally he visited the carriers Es-

sex, Hornet and Lexington and overall learned valuable lessons that were put to use in future designs.

A-1 (AD, BT2D) Skyraider

Tooling up for the BT2D commenced on 4 August 1944 with completion scheduled for 31 March 1945 and stringent weight control was applied throughout. For example, compared with the BTD, the use of a single as opposed to a multiple fuel tank arrangement saved 270lbs, elimination of the bomb bay saved 200lbs and the use of continuous wing centre section and horizontal tail saved 120lbs. This attention to detail allowed the carriage of large amount of ordnance, the normal load being a 2000lb bomb or torpedo with a safe overload of 6000lbs. Additionally, six rocket launchers

Right Main: The first design to carry the Douglas prefix "Sky', A-1 Skyraider drops two Napalm cannisters onto Viet Cong positions (Wikipedia). Inset: A Skyraider, still flying fifty years later. They fought in both Korea and Vietnam, earning a reputation as a tough aircraft able to deliver formidable ordnance onto the target. \rightarrow





and two 20mm cannon were installed on each wing.

As a result of Heinemann's Pacific trip much attention was made on cleaning up the cockpit and also making it capable of withstanding 40g crash landing impacts, thus making it a more comfortable environment for the pilot.

It was calculated that wing type dive brakes would need to extend to the outer wing in order to provide sufficient drag. Because of this, combined with the buffeting effect, poorer control in a dive and reduction in lift, it was decided to use fuselage dive brakes instead and these worked well.

A change in the Navy's designations resulted in the BT2D becoming AD (Attack, Douglas) and later A-1. Douglas was assigned the prefix 'Sky' for naming its aircraft.



The Skyraider proved to be versatile, reliable, tough and a formidable carrier of ordnance, acquitting itself well in both the Korean and Vietnam conflicts. A total of 3180 in seven versions and 19 subvariants had been delivered when production ended in 1957. Some consider the Skyraider to have been the best attack aircraft ever built.

During test bombing an incident occurred that yielded Douglas a new area of work. One bomb lost its tail and it was realised the bombs were manufactured in 1925. Douglas received permission to redesign bombs and fuel tanks, resulting in Heinemann producing the Aero 1A shape, all with a fineness ratio of 8.3 : 1 (length to diameter).

D-558 Skystreak Skyrocket

In early 1945 Douglas met with the Navy and NACA to discuss the production of aircraft to investigate the transonic speed range. At that time subsonic wind tunnels weren't effective when speeds reached 0.8 - 0.9 Mach and supersonic

Left: A Skyknight cockpit. With over 300 switches and circuit breakers, it was, in Heinemann's opinion, far too complicated and he resolved to make future designs cleaner.

tunnels were only effective above 1.2 Mach. Douglas were given the contract in June 1945 for the production of three Mach 1 and three Mach 2 research aircraft and Heinemann was involved in the design phase of the D-558-1 Skystreak.

To save time and reduce the number of unknown factors any innovations in the design were kept to a minimum, a straight low aspect wing being combined with a rear fuselage and tail simi-

lar to the Skyraider. The fuselage was built from the skin inwards (as was the Fairey Gannet). First flight took place on 28 May 1947 and so began a deliberately slow investigation of transonic speeds upwards from 0.8 Mach. This was not to be a gung-ho race to exceed Mach 1.

In August the Skystreak took the world's speed record, first at 640.7mph then 650.6 five days later but was only able to get to 0.99 Mach in level flight. Although it received much publicity it was overshadowed by the USAF's Bell X-1.

By contrast, the D-558-2 Skyrocket had a more futuristic appearance with swept wings and tail and a pointed nose. The Westinghouse turbojet was augmented by a Reaction Motors rocket for speed runs that exceeded Mach 1 routinely from the middle of 1949. In 1951 the Skyrocket was handed over to NACA and flights continued air-launched from a B-29, including a world-first achievement of Mach 2.



F3D Skyknight

The Navy issued a requirement in 1945 for a radar-equipped night fighter, able to detect an enemy aircraft at a range of 125 miles, flying at 40000 ft and 500 mph. Douglas was issued with a contract in April 1946 for three prototypes and Heinemann was initially concerned about his ability to satisfy the requirements. The resulting, rather corpulent, straight-wing design had a tail section similar to the Skyraider and twin Westinghouse J34 engines installed in the lower fuselage, although these left the Skyknight underpowered. Wingtip tanks were considered but rejected for a number of reasons; one engineer wondered how they could be filled when the wings were folded (comparisons with the Sea Venom might be interesting).

Ejection seats for the two crew were thought to be unreliable, too expensive and too heavy so Heinemann developed an escape chute that was tested with volunteers at speeds up to 444 mph.

Heinemann was not satisfied with the design of the cockpit as there were over 300 switches and circuit-breakers, many associated with the radar system, and he made a vow to avoid such complicated cockpits in future. The Westinghouse AN/ APQ-35 radar contained around 300 vacuum tubes, each with an average life of one year and therefore having the potential to become a maintenance nightmare.

The Skyknight saw service in Korea and is believed to have achieved the first night jet-to-jet shoot down when one encountered a Yak-15 on 2 November 1952. It later served in Vietnam with the Marines in the electronic countermeasure role until 1969.

Although the Skyknight was given some unflattering nicknames Heinemann was fond of his creation and the fact that it was in service for almost two decades gave testimony to its usefulness.

A2D Skyshark

While the Skyknight was a conventional and rather unexciting aircraft the opposite was true for Heinemann's next creation. In 1945 theoretical studies had looked at the pros and cons of turboprop en-

Left: Douglas F4D-1 Skyray in flight, April 1957. Described as 'a fighter pilot's dream' Capable of reaching 38,000 feet in just $2\frac{1}{2}$ minutes, its performance far exceeded the original design spec. One problem was that the thin alloy on the wing was easily damaged by excessive handling. \Rightarrow



Above: A3D-2 nosewheel collapse USS Saratoga. The original analysis suggested an aircraft of 100,000 lbs would be necessary to meet specifications, but Heinemann's winning design was almost 33% lighter. This allowed it to be operated from the Midway class of carriers. (Wikipedia).

gines and clearly showed significant advantages in speed, range and load carrying ability compared to piston engines. Further, their rapid response and high power compared to early jet engines made turboprops preferred for carrier-borne naval aircraft. The maximum power available in the Skyraider was 2700hp, in contrast the corresponding figure for the turboprop was over 5000hp.

In 1947 Douglas received a letter of intent to develop an attack aircraft powered by an Allison T40, using contra-rotating propellers to absorb the power. Progress was slowed by problems with the engine and gearbox and it wasn't until 26 May 1950 that the Skyshark took to the air. Many more problems surfaced with the engine/gearbox combination over the next two years. Heinemann held a meeting with Allison and told them if the problems weren't solved he would recommend cancelling the project as he was working on an alternative – this would later see light of day as the Skyhawk.

Further testing took place until the Navy cancelled the project in 1954. (See also *FlyBy* 38 (October 2020)).

F4D Skyray F5D Skylancer

After VE Day captured German documents became available to Allied governments and aircraft designers were naturally interested in high speed research. Dr Alexander Lippisch was an advocate of tailless delta wings and Heinemann began look-



Above. A shot of the USS Forrestal with her complement of aircraft shows how successful Douglas was in meeting USS procurement needs. Aside from a single Crusader, the air wing comprises Skyraiders, Skyrays, Skyhawks and Skywarriors. **Right**: A table showing the production runs of Heinemann designs (source: Douglas Aircraft Company/Military Wiki/Fandom. **Opposite**: Heinemann with the final production run Skyhawk, an A-4M model number 2960. →

Aircraft	First flight	Number built
Dauntless	1938	5936
Boston	1938	7478
Invader	1942	2452
DC-5	1939	12
SB2D, BTD	1943	2 (XSB2D), 30 (BTD)
Skyraider	1945	3180
Skystreak, Skyrocket	1947/48	6
Skyknight	1948	265
Skyshark	1950	12
Skyray + Skylancer	1951	422 + 4
Skywarrior	1952	282 (plus 294 B-66)
Skyhawk	1954	2960



ing into such a design and comparing with a pure flying wing, an idea promoted by Jack Northrop in the 1930s. Testing of balsa models indicated that the delta wing was stable in flight.

In 1947 BuAer told Heinemann that they wanted an aircraft that could reach 40000 ft in 5 minutes or less; the resulting Douglas proposed design anticipated 38000ft in two and a half minutes. First flight occurred on 25 January 1951 and one of the test pilots declared the Skyray as 'a fighter pilot's dream'. One problem that surfaced was due to the very thin (1/32 inch) alloy used for wing skins – on one occasion a sudden pitch-up instantly wrinkled the skin to write-off the aircraft.

The Skyray fulfilled its promise but Heinemann was called in at one stage to fix an unforeseen problem. Pilots were blasting out of NAS Alameda in seventy degree climbs, beyond normal vision angles, much to the consternation of local commercial pilots. A reduction in the climb angle to fifty degrees solved the problem.

A follow-on version of the Skyray was the F5D Skylancer and, although it was highly praised, did not receive a contract.

Heinemann was awarded the Collier Trophy in 1953 for the Skyray, co-winner with Dutch KIndelberger for the North American F-100.

A3D Skywarrior

In 1948 the Navy initiated discussion for a longrange, heavy attack jet bomber with nuclear capability to replace the North American Savage and operate from a super carrier 1000ft long and displacing 65,000 tons. The first, USS United States, was on the drawing board. The Rand research company, at the time a subsidiary of Douglas, determined that the requirement could be met with an aircraft that weighed 100,000 lbs. Heinemann



"Mr Attack Aviation" Ed Heinemann 1908 - 1991

was sceptical that the super carrier would ever be built (it was cancelled in April 1949) and that a suitable lighter aircraft could be produced so that it could operate from the Midway class carriers with weight limit of 68000 lbs. Heinemann was even less convinced that the Rand analysis was correct when he visited their headquarters one day and observed two gentlemen sitting at a table, one tossing a coin and the other taking notes. Upon making enguiries Heinemann was told the two scientists were determining the probability of a coin showing heads over an extended period.

Six companies submitted bids towards the end of 1948 and these were eventually reduced to Douglas and Curtiss-Wright, with Douglas signing a contract to continue in July 1949, using the weight limit of 68000 lbs. Extensive wind-tunnel tests were required to fix the wing sweep and aspect ratio and also placement of the wing-mounted engine nacelles. Minimum high speed drag could be achieved by placing them such that the top of the nacelle coincided with the wing's upper surface or moving them forward. Wing flutter problems also arose and 1000 flutter situations were analysed, also influencing the location of the nacelles. Interestingly, flutter was noticeable with the original Westinghouse J40 engine nacelles but this was absent when replaced by Pratt and Whitney J57s.

Emergency escape was again via a chute as it was considered that provision of ejection seats was too difficult with crew in close proximity.

The Skywarrior went on to successfully serve in other roles including tanker, reconnaissance and electronic countermea-

A-4 Skyhawk

The A-4 epitomised Heinemann's design principles. The story of its development and subsequent service has been told many times.

> Hawker design engineer turned aviation journalist Roy Braybrook questioned whether the A-4 was 'A Long-Lasting Lightweight of Exaggerated Excellence' but after examining the facts concluded that 'the Skyhawk was the result of a very determined effort by Douglas to produce a low-cost aircraft by means of simplicity and the most thorough weightsaving...it was no wonder weapon...but served as an outstandingly useful attack aircraft with a proven record of survivability....it has achieved a status in military aviation history that few post-war aircraft have surpassed' (Air International, November 1981).

Post Skyhawk

Heinemann worked on a variety of projects with Douglas and was promoted to Vice-President for Military Aircraft in 1959. He was widely respected throughout the aviation industry generally, and in the USN in particular, where he earned the nickname "Mr Attack Aviation". In 1960 he was asked by Donald Douglas Jr, who was president of the company while his father was chairman of the board, to head the Douglas sales office in Europe. This did not suit Heinemann and he resigned later that year, joining Summers Gyroscope until 1962 when he started a consultancy. One of his clients was General Dynamics and was later persuaded to join them as corporate vice president in charge of engineering, becoming involved in, amongst others, the F-111, Atlas and Centaur missiles. YF-16, various ship and atomic reactor projects before retiring in April 1973. He died from kidney failure on 26 November 1991 at the age of 83. +

Acknowledgements.

Combat Aircraft Designer, Heinemann and Rausa, Jane's Publishing Company, 1980.

Editor's Note. This article was in response to a request made in a past copy of "FlyBy', asking if anyone would like to put together a story (or two) about the great aircraft designers of the last century. Richard kindly took up the offer with this Heinemann piece, but there are plenty of others to chose from - Sikorsky, Fairey, Camm, Blackburn and so on. You can take it from any angle you like - perhaps the story of the man, or perhaps, as in Richard's article, on the aircraft he built. Click here to find out how to help.→

About The Author

Having a father in the Fleet Air Arm meant an early interest in aviation. deepened by making plastic models and reading books and magazines and the occasional visit to NAS Nowra's control tower.

Although a military aviation career was on the radar in the teenage years, university study led to the realisation of a greater aptitude for mathematics and subsequent further study and employment in first the actuarial and then the surveying professions. The recession in the early/mid 1990's provided an opportunity to become a self-employed maths tutor for high school and university students, a role that continues to provide fulfilment each day. Concurrent further study culminated in a PhD in spatial statistics.

Although I wouldn't call myself a Total Aviation Person (TAP) I maintain an interest in aviation and the FAA, particularly the carrier era. I remain forever grateful to the (very) low-flying Wessex pilots who made walks along Seven Mile Beach in the mid 1970's more interesting.

Photo: Dr. Richard Kenderdine on the occasion of his PhD graduation, December 2011. +







Guldrose, perched in the far west of Cornwall not far from where successive Atlantic cold fronts march across the coast as endless harbingers of damp and misery, was notorious for 'clampers' in the winter months. And if the spiky blue line on the met. chart was sufficiently virulent, and the isobars crimped tightly enough together, it would invariably mean a few days without much flying.

On such occasions the Senior Pilot of 826 Squadron would cast around for things for us to do, and so it was unsurprising when we were bundled into a pusser's bus one wet morning and sent off to the Naval Gunnery Support (NGS) School, a few hours drive up the A30.

Unlike our brethren who flew in support of the Royal Marines/Commandos, we were mostly occupied with Anti Submarine work, so NGS was a complete mystery. I knew nothing of it, other than a well-established principle to stay well out of the way of anything fired in my general direction, no matter how many safety arcs were allegedly put in place.

Besides, the notion of using a helicopter to direct shells the size of a small car seemed somewhat akin to black magic. My own attempts at shooting always produced somewhat haphazard results, although admittedly it was small calibre and the Gin and Tonics of the night before hadn't helped. The notion of being able to accurately direct rounds fired from a moving platform twenty odd miles away seemed, well, unlikely.

The NGS school, such as it was, turned out to be a single large room rather like the old plotting stations of WW2. Perhaps it had been – certainly the huge table at its centre could have served that purpose, but it was now covered completely with a detailed model of an English country scene. Remember, this was largely before the days of plastic, so each hill, house and tree was rendered from some other substance: papier-mâché for the topography, cardboard for dwellings and pipe-cleaners and sponge for vegetation. Every piece had been carefully crafted and lovingly painted, right down to the little cars that plied the narrow country lanes, and the tiny postman who plodded up the winding hill just outside the town.

We were greeted by a well-passed-over Major who immediately instilled confidence. His bushy moustache would have been in fashion when the Russian guns tore the Light Brigade to shreds, and one could almost imagine him as a younger GLO hiding in a foreign ditch somewhere, calmly feeding corrections to the massive weaponry of an offshore Ironclad.

The Major spent some time teaching us the basics, refreshing our knowledge of grid references and how guns were ranged and corrections were made, before we got down to the nitty-gritties of NGS.

The hard work was all done by the Gunnery Department aboard the ship, he explained, which made the spotter's job easy: all you had to do was give them the target location and description and order the ship to fire a ranging shell or two. You observed how far the impact point was from the target, and then adjusted it by giving up/down/left/ right corrections expressed in yards.

"I'll show you what I mean," he said, waving at the massive model behind him. "Let's imagine you wish to destroy that armour up on the hill there." He stabbed a nicotine stained finger in the direction of an outcrop in the middle, and sure enough the turret of a tank could be seen poking from behind some low bushes..

"We know the ship is east of us, so the bearing of fire will be around 270 degrees. We'll over correct a bit to make sure we don't hit those houses on the ranging shots."

He donned a headset, adjusted his microphone and turned to the model, squinting at it with seasoned eyes before speaking again in crisp tones.

"Tiger, this is Spotter one do you read?"

The speaker behind him crackled convincingly. "Spotter one, loud and clear."

"Roger, Tiger. Target is grid reference 127496. One armoured vehicle in open ground. One gun, one round, fire for observation. Over."

'Roger, Spotter one. Stand by'.

The Major turned back to us. "They'll be working out the firing solution now," he said conversationally, "and loading the selected turret with HE armour-piercing. I've worked with *Tiger* before and they're pretty good." He turned back to the model and regarded it with eyes like a hawk about to fall on its prey.

After a brief pause the speaker above him crackled. "Spotter. One gun fired."

"The flight time at that range is about thirty seconds," the Major announced. "Now, remember you probably won't hear the impact if the wind isn't in your favour, and you may not even see a flash. What you *will* see is smoke and debris."

And sure enough, about half a minute later a brief puff of smoke shot up from the model about two feet beyond the tank.

Nobody said anything, but we were all thinking the same thing. This was a toy-town procedural trainer of paper and glue, probably built by the local boy scouts just after the war. How the hell had they incorporated a smoke generator?

"Down one hundred yards, left fifty." The Major muttered into his headphone. "One gun one salvo fire for observation."

Thirty seconds later another puff of smoke appeared on the model, closer to the tank. Even more impressive – the smoke generator could move, silently and right on cue.

The major turned to us. "So what would you do now?"

"Fire for effect." Peter Fish was our team leader and, being General List, probably had a much better idea of what was going on.

"Right." The major ordered a salvo of eight rounds and watched as they struck on and around the target. "I'd say that tank is gone," he announced, "wouldn't you?"

We all nodded in agreement, and then broke into groups of two to fire imaginary shells at other features on the model, watching as many successive puffs of smoke marched across the papier-mâché fields and meadows to engulf our unfortunate targets. But was it our imagination, or were the shell bursts getting smaller?

At length the Major drew a stop to the proceedings. "Well done, everyone," he said. "Time for a brew, I think.. Any questions? No? Righto Bill, you can come out now."

There was a grunt from under the table and a moment later a figure appeared, lying on his back on one of those little servicing trolleys used in car workshops. He rolled off and staggered upright with some difficulty.



dusted his torso like chronic dandruff, and his breath whistled from between hypoxic lips.

"Gawd," he rasped, "you lot just about did me in. Two packs of fags and you still kept going."

Even in those days when smoking was the norm, I remember thinking that Bill was not long for this world, and wondering who else they might find who was prepared to shorten his life for the sake of NGS students.

Fast forward a year or two and *Tiger*, to which I was attached, was in the Med.

We received a signal from the Royal Navy's armament depot, buried somewhere in Wales, advising they had a stock of six-inch shells which needed to be expended. As one of only two ships which used that calibre, would we like to do a little gunnery practice?

The news stirred the gunnery department into a frenzy. Their sole activity for the whole of that deployment had been endlessly polishing the many guns on the ship, except for one notable and exciting day when they had discharged a burst from a 6.72mm light machine gun at a stray inflatable raft deemed a hazard to shipping. The notion of firing Tiger's main armament at a real target was almost too much for them to comprehend.

A Sea King from 826 Squadron was tasked to take part, and I was lucky enough to be in the crew. After a very long briefing, most of which was given by the gunnery officer telling us how good they were, we took off, ensured the Range was clear of shipping, and then positioned ourselves for spotting.

Tiger was over the horizon, but we knew her bearing from the target and I'd brushed up on the patter the good Major had taught us at the NGS School a vear or two before.

All went well and we ordered Mum to fire two rounds for spotting. A minute or so afterwards, columns of water rose very close to the target, which was a low concrete barge about the size of the ship's Flight Deck.

There was no correction necessary, so we ordered Tiger to fire for effect and watched as the waterspouts straddled the target. Impressive stuff.

Over the next hour or so *Tiger* pounded that barge with everything she had. The six inchers dropped shells all around it, as did the secondary 3-inch guns when the ship closed a little. I think they even fired a SeaCat missile at it, which bounced off the surface and skimmed over the top. But nothing actually hit the barge and it remained stubbornly afloat. At length, with the ship now in visual range, she ceased fire and we were ordered to close the target and report any damage.

As we hovered alongside, it was evident the target was grievously hurt, but not fatally. Shell splinters had punched gaping holes in the hull above the water line, but the sea was as flat as a tack and, short of *Tiger* ramming it, the barge was never going to sink.

But then a miracle happened. As we hovered, the copilot noticed our downwash was sufficient to cause the barge to take on water - just a little bit at first, but if we jiggled from side to side to generate even bigger waves, they were eagerly devoured by the shell holes. Our unarmed Sea King had become a lethal weapon.

I know. The decent thing to do would have been to withdraw and let the Gunnery Officer have his day. But I suppose the spectre of the drill instructors at Dartmouth came back to haunt me. I recalled their loud voices and their little pace sticks and ugly red faces, and I remembered how they'd made our lives so miserable for those six months. No, it was time for payback.

It didn't take long. We jiggled alongside a bit more, watching as the gaping holes gradually disap-



peared below the waterline one by one as the hull settled. From there it was just a matter of sitting back and observing as the precious target finally went to Davy Jones' locker with a few puffs of expelled air. Score one for the Squadron campaign Board!

That night the Gunnery Officer sidled up to me in the bar.

"I saw what you did," he hissed.

"What?"



The RAN Gazelle LEUT Vince Di Pietro's last flight out of 705 Squadron in Cornwall after the QHI exchange was different on many levels! With the aid and accomplice of **Dave Rollo**, who some may recall as the Service contract manager at Airwork/Fields, Royal Naval Gazelle 38 was doctored to look a little different. If one masks the O.Y.L and a.v.Y out of the Royal Navy tailboom marking, it spells a perfectly spaced "RAN". A big orange sticker sheet can then be the source of a kangaroo for the roundel, and the kangaroo with a packing case can replace the black Shark logo on the fin. 'NW' in place of 'CU' was not even a challenge!

Put them together on the one aircraft, call yourself 'AusOne' and then go for a ride around Cornwall for one last time! WINGS loved it but CO 705 (Trevor Lockwood) not so much!

Attached are two photos supplied by Vince.

Date: 14 March 1984. Aircraft tail number XX 441, side number 38, pilot VDP, co-pilot Lieutenant Paul McIntosh RN. We are reliably informed the aircraft was returned to the RN inventory on completion of the flight. →

"You sank my target."

"Never."

"You did," he said bitterly, "bloody Birdies!", and he wandered off, close to tears, to console himself with a Horse's Neck.

We never did get to paint a small target on the side of the aircraft, but the event is in the Squadron Line Book somewhere. It's of historical interest as it was, as far as I know, the only time an 826 Squadron Sea King ever sank anything at all. +

Around The Traps

Prompted by the sad passing of Jim Buchanan last month, Guy Cooper posted this old picture of an 817 Squadron flight embarked in HMAS Svdnev in 1967/68 on a trooping run to Vietnam. He says it was the last time he saw Jim. They were, according to his log book, "bombing with live depth charges on a splash target towed by the ship. A bit different from the usual Wessex sorties and great fun. The Depth Charges were surplus ones the Navy was trying to get rid of". The photo is interesting as three of the pilots in the photo later won DFCs flying in Vietnam with the RANHFV and 9 SQN RAAF and one of the Observers was mentioned in Despatches also with the RANHFV. Those in the photo are (back row L to R): POA Frank Trainor, LEUT Guy Cooper, LEUT Pat Arthur, LEUT Carl Daley [dec], LEUT "Lofty" Kimpton MID [dec], LCDR Rowley Waddell-Wood DFC, LEUT Jim Buchanan DFC (dec), LEUT Bob Waldron, LEUT Bert Webster (AEO) and POA Steve Cook. Front Row L-R: LSA Squizzy Taylor, SBLT Mike Bayliss, SBLT Frank Wyllie, SBLT Bob Giffen DFC (dec), SBLT Murray Buckett and LSA Joe Kroeger. (Guy Cooper, FaceBook). +



Maybe my favourite geography trivia: Travelling south-southwest from Hawaii towards Antarctica, there's a perfectly straight track (black line) which crosses the International Date (red) Line 7 times, going today-tomorrow-today-tomorrow-today-tomorrow-today-tomorrow. Source: buff.ly/2USAOYm

So what's going on? These three photos appeared on various FaceBook posts, all showing a Navy Bell 429 - but in different livery. The Navy only had this type as an interim helicopter for a few years, so its hard to imagine having them all in different colours.

Most photographs show the 429 in the Gull Grey (bottom right photo), which appears to be the standard. Perhaps the others were photoshopped? Anyone know what was going on? +











It's always the way, isn't it? Just as Letters to the Editor about flying under the Bridge dry up, you find the picture you were looking for! Unknown artist, but it featured in the 817 Squadron line book. Mr. Heffron, for those that don't remember, was Premier of NSW from '59 to '64. +

ROLL ON THE CLOCK!

Also from a FaceBook page are these images from Owen Nicholls, who savs: "In May 1968 five members of BATC 1/68 left Cerberus to join No.69 pilots course at Point Cook. Pictured are (L-R) Alan Clark, Jim Gumley, Barry Bromfield [dec], George Harvison [dec], Clark Stitz [dec], Peter Wilkinson and Owen Nicholls. Harvison, Stitz and Nicholls went on to fly Trackers as pilots. Wilkinson and Bromfield became S2 Observers and Gumlev flew helicopters. Roll the clock forward nearly 55 years to the colour photo on the right, with Owen Nicholls, Peter Wilkinson and Alan Clark getting together to tell tall tales and true". +









How times have changed! The left image was how passengers aboard a Qantas Super Constellation felt about cabin service in the '50s. The lower one is the sad reality of the average offering today - and you get your luggage lost as part of the bargain. *Mike McGree, The Aviation Stuff Telegraph.* →



Times Change, Excellence Doesn't

I was reading through some material from an FAA veteran the other day, and the following passage struck me:

'I sometimes hear some of my crustier colleagues saying that 'people today could never do what we did'. It's just a heartbeat away from saying 'The Navy isn't what it was' and I really dislike it.

I could not be prouder of the Fleet Air Arm of today, and the people who make it what it is. The Navy (and the Fleet Air Arm) has always changed, and always will. What doesn't change is the integrity, honesty and excellence of its people. I treasure my time in the Fleet Air Arm - it's the formulative experience of my life.'

I couldn't agree more. The Navy, just like any other organisation, has to weather woke, sometimes extraordinary OH&S restrictions and the relentless judgement of social media, leading to risk adversity. But underneath all of that it is a brilliant organisation that does its job well, with extraordinary people doing it. 'Nuff said. + Here's a thought! Instead of unmanned helicopters on pusser's ships, just get a couple of Carbon Cubs, which can land on the helo spot. Have your doubts? Check out the video here. >





Ahoy All 723 Squadron Veterans!

A group of young 723 people are getting together to mark an (about) 20 year anniversary. It is called the "Fighting 723rd 20-ish Year Reunion" and they would love to have some of the older members of 723 to come along and tell them just how hard we had back in the good old days.

Here's your chance to interact with younger people from the Fleet Air Arm.

The event will be held on **29 April** at the Worrigee Sports Club at a cost of around \$40 per person for finger food, tea, coffee and some drinks as well as some great company.

So if you are interested please contact **Dave** Freeman-Smith on 040 063 161 or email <u>here</u>.+

MRH-90 Ditching

Well, it took the Press a few days to work out that "Army" on the side of the ditched MRH-90 meant that, well, it was an Army helicopter, rather than Navy. Perhaps they were confused because it was towed to the beach by Navy boats. Whatever.

Gotta say the recovery was slick, though. Here is is suspended above the deck on the ADV (Australian Defence Vessel) *Reliant*.

No hot goss on what caused it (does anyone have any)? Witnesses describe various events such as 'fire shooting out of a rotor blade', which is a euphemism for "what would I know, I didn't have my glasses on." I guess we'll have to wait for the investigation to give us a more coherent reason for the accident. →



For The Diary Vietnam Veterans' Day at Old Bar

Last year COMFAA came up along with an EC135 and support crew and they were treated like rock stars by the kids; and with luck they will come again this year to show us what a modern helicopter looks like.

I have been in contact with HARS and at this early stage it is looking promising to have 898 visit us for a couple days. The vast majority of us will have had contact with this old bird so lots of tears of nostalgia. I'll keep you posted on this.

The Old Bar Public School has applied for a grant to mount a polished black granite memorial in the school grounds which will be an obelisk 1500 high and 400 square at the base. If DVA comes good with \$9350 I will invite the US Ambassador and the US Military Attaché to come up and do the honours.

As usual it will be **16 August** Meet and Greet, **17 August** a lunch and the dinner that night with brunch on **18 August** followed by the service at the school. A final get together for a meal that night and those still around a farewell breakfast on the 19^{th} .

I've also been in contact with the FAAAA and have invited them to join us and make it a FAA Reunion because it has been a long time for many of us to see our old mates we served with way back then.

John Macartney.

Lest we forget

30 News



The Anzac legend was born on 25 April 1915, when some 16.000 soldiers of the Australian and New Zealand Army Corps (ANZAC) landed under fire on the shores of Gallipoli, Türkiye.

The Anzacs on Gallipoli helped shape the Australian story. Once used to refer to those who fought in the First World War, as time has passed, the meaning of 'Anzac' has changed.

The term 'Anzac' expresses the characteristics that are seen as important to **Australians and those** serving in the Australian **Defence Forces, including** courage, equality, endurance and mateship.

While the relevance of the Anzac legend in today's multicultural society may at times be debated, there is little doubt that these characteristics and the meaning of Anzac will endure.

Anzac Day is coming up and we hope that many readers of this magazine will take the opportunity to rise early and participate in a Dawn Service or other ceremony whereever you are. Whether it's in a small town or a large city, your moment of reflection is important -both to remember those that fell to help preserve our way of life, and to sustain the Spirit of the Anzacs, which is so unique to this part of the world.

DVA has been proactive by producing a kitbag of brochures and flyers that you can download They vary from a background brief on Anzac Day, to how to run a ceremony and the kind of words, speeches and music you might consider.

The RSL has released a very comprehensive quide to the Anzac Day services being held around the country. You can find it here.

It's much easier to use than in previous years: simply click on the yellow button of the location you're interested in.

NSW

The official NSW ANZAC Day

Dawn Service will be held at

the Cenotaph in Martin Place

Sydney. RSL Sub-branches

across NSW will host

SYDNEY

LOCAL SERVICES IN NSW

orative events.

The RSL is committed to leading the nation in commemorative services. Dawn Services, Marches, Parades and commemorative events will take place across the country.



ACT / National

ANZAC Day commorations

will be held at the Australian

War Memorial in Canberra to

mark the 108th anniversary of

the Gallipoli landings and

recognise all Australians who

have served and died in

military operations

CANBERRA







Victoria



Order of service

Local Services will also take

place throughout the State of

Victoria.

MELBOURNE

LOCAL SERVICES IN



Queensland In Melbourne, the ANZAC Day Dawn Service will be held at the Shrine of Remembrance

In Brisbane, the ANZAC Day Dawn Service will be held at ANZAC Square at the Shrine of Remembrance. Local Services will also take place across the state.

LOCAL SERVICES IN

EJECTION ROLL

Terry Hetherington kindly sent on this photo, taken at the recent Avalon Airshow. It was at the Martin Baker stand and shows all Australian MB ejections from 1951 (when they were first fitted) to 2011, presumably the last time somebody used one. I've highlighted the RAN ones in red.

But wait, there's less! A quick perusal shows that some people who found it necessary to jump out of our Skyhawks aren't listed: namely, Der Kinderen (1973); Tomlinson (1979); Blennerhassett (1980) and Baddams (1980). Anyone care to explain?

That aside, there's a story behind every line in this image. The first name, for example, had an interesting experience when he was inadvertently ejected whilst in a steep turn. Good story for the grandkids ("...there I was, minding my own business...").

ADF Serials has an excellent little piece by CMDR John Crawley which tells you more. You can see it here.

(PS in case you are wondering, the two blokes in the picture are pointing (more or less) to the double ejectee SQNLDR J. Kindler).

FLY BY BIKE

This innovative fellow has found a way to combine riding with aviation (sort of).

Not sure about the brolly at the back though - its kinda counterproductive, you would think. Going over the handlebars would not recommended either, which would be easy as he's shifted the centre of gravity well forward. Mounting the

power plant on the forks will undoubtedly have affected the steering dynamics too; and steep turns would not be recommended! Nor, for that matter, would negotiating narrow lanes, long grass, water or dust. It would be dreadful in the rain, too, and probably not much better in really hot weather.

So, all in all, probably not such a good idea. You would want to tell him as much but he's undoubtedly stone deaf from the engine noise. \rightarrow





MERLIN MAGIC

Have you ever wanted to own a Rolls Royce Merlin engine? Well, you've just missed your chance.

Made famous by its marriage to the Supermarine Spitfire, the iconic engine was actually fitted to many different aircraft types, including Hawker Hurricane the Avro Lancaster,



The supercharged version of the engine is hard to find, but as an absolute one-off, such a powerplant was fitted to this custom built car christened "The Beast", which recently actioned off in the UK by "Car & Classic". Twenty-seven litres of raw power, delivering an estimated 750hp to the wheels. +

OUTCOMES OF NSW DIVISION AGM

The NSW Division held its Annual General Meeting on 11th March, and Minutes will be released in due course. In broad terms, the main outcomes were:

The Committee was elected with the following office bearers:

President - Phil Carey. Vice President and MLO - Keith Boundy. Secretary - Jeff Dalgliesh. Treasurer - Ron Batchelor. WoS Administrator - John Balazic Todd Glynn. Howard McCallum (re-election deferred until May Committee Meeting).

The annual raffle was drawn with the following prize winners who will be notified separately:

1st Prize Ticket No 0975- Glenn Harley N1300.

2nd Prize Ticket No 3509- Max Altham N1009.

3rd Prize Ticket No 0380- Murray Coppins N3511.

The periodicity of NSW Committee meetings was confirmed as bi-monthly. Normally this will be on the third Wednesday of January, March, May, July, September and December. The exception will be March, which is when the AGMs are held, and which will be on a Saturday.

Honorary Membership was granted to Commodore David Frost.

A member from the floor suggested that the Division approach the National Executive to see if membership fees could be standardised across all Divisions. [This would reduce complexity and allow innovative solutions to be implemented, such as a single payment portal with Credit Card capability].

The Division's Membership fees remained fixed at \$30 for softcopy SS and \$40 for hardcopy.

Next AGM is scheduled for 1030 on Saturday 23rd March 2024. →

Unmanned Manning

A thought-provoking article by Commander Naval Operations in the USN raises the point that unmanned systems invariably require more manpower than manned ones. So why are we doing it?

People have a tendency to believe what they want to believe even in the face of proof to the contrary. One such example is manning for unmanned systems. So many people take it as an article of faith that unmanned systems decrease the overall manning requirement and that's patently false. I documented this back in a 2018 post which quoted Air Force generals stating publicly that unmanned systems required more manpower than manned systems.[1] Here's a quote that was presented in that post:

"The [remotely piloted aircraft] ... requires much more architecture than, say, an F-16 squadron", Kwast said. "While the ratio of people to aircraft in manned aviation is roughly 1.5 to 1... it takes about 10 people to operate one UAV at any given time." [1]

Now we have the Army saying the same thing.

"It's kind of a paradox that our 'unmanned' formations are larger than our manned formations," said Maj. Gen. Michael McCurry, a veteran helicopter pilot who now heads the Army aviation 'schoolhouse' at Fort Rucker, Ala. "We have Apache [attack helicopter] companies that are just over 30 people and we have Grey Eagle [drone] companies that are 135 people [or more]." [2]

Tell me again, now, what's the advantage of unmanned systems and why have jumped straight into the deep end of the unmanned pool with no evidence of its combat usefulness?

There have been no combat exercises that have demonstrated any unmanned combat effectiveness, that I'm aware of. To the contrary, there have been numerous real world examples of unmanned assets being shot down, captured, or driven off.

The only exception to this would be suicide-type





drones in permissive environments – but that's not really combat is it? To repeat, there have been no peer level combat exercises or real world experiences that demonstrate the combat effectiveness of unmanned systems.

There is no cost savings for unmanned systems. If you want an unmanned asset with, say, F-22 type performance, you'll pay F-22 type costs. The manning is greater. There is no demonstrable combat effectiveness against a peer. Why are we doing this?

But, to return to the matter at hand, we keep seeing proof that unmanned systems require more manning than manned systems. Similarly, the LCS, which was designed as a barely manned asset ultimately was found to require more manning than the Perry class frigate it replaced!

There's just no getting around it. Unmanned systems are manning hogs at a time when the Holy Grail of the Navy is reduced manning and yet the Navy continues to pursue unmanned assets as if they were the key to life itself.

The Navy keeps assuring us that manning is the major portion of operating costs so why are we doing this?

We have got to start feeding real world experiences back into our development and force structure efforts even if that feedback contradicts our beliefs.

[1]Navy Matters, "<u>Unmanned Thoughts</u>", 27-Aug-2018,

[2]Breaking Defense, "<u>Unmanned' drones take too</u> <u>many humans to operate, says top Army aviato</u>r", Sydney J. Freedberg, Jr., 27-Feb-2023,

Original article in "Navy Matters" can be seen here.+

File File December By Graeme Lunn

By the beginning of 1945, as the focus of the war shifted to the Pacific, the Fleet Air Arm was desperately short of aircrew.

The answer was to call for volunteers from the RAAF to become Naval Aviators. Two dozen experienced pilots were eventually selected.

This is their story.

n the second week of February 1945 the British Pacific Fleet arrived in Sydney. Task Force 63 under Rear-Admiral Sir Philip Vian KCB KBE DSO** RN included the four armoured-deck fleet carriers *Indomitable, Illustrious, Indefatigable* and *Victorious*. On their passage from Ceylon TF 63 had conducted Operation Meridian against the Japanese-held oil refineries in Sumatra, Meridian One becoming the largest FAA strike of the war with one hundred plus aircraft launched. In this operation *Illustrious* alone lost almost 10% of her aircrew and 24% of her aircraft.

Enduring such losses while operating over fifty carriers meant there were now acute shortages of aircrew. It was also becoming recognised that with the increasing intensity of carrier operations frontline squadron aircrew should have no more than six consecutive months embarked before being rested with four months ashore. Furthermore aircrew were to have no more than 18 months total in an operational squadron, timed from first embarkation, before a second-line tour. Adhering, where possible, to these new rotations exacerbated the shortage.

The original plan had been for reserve aircrew to come to Australia from the UK and training units in Ceylon. 706 squadron assembled at Jervis Bay before moving to *Nabthorpe*/Naval Air Station

Schofields in early March 1945 under Lieutenant-Commander (A) **Robert 'Bobby' Bradshaw** DSC** RN (see sidebar later in this article). There the squadron was to operate as a Crew Pool for the fleet while providing refresher flying for new arrivals, as well as those returning from hospital and leave. For this task 706 was equipped with thirtysix aircraft, six of each front line type - Avenger, Barracuda, Corsair, Firefly, Hellcat and Seafire.

By mid-March the carriers were at Manus, in the Admiralty Islands, where they formed TF 57 to join the US 5th Fleet for Operation Iceberg, the invasion of Okinawa. Back in Australia 706, fully equipped with airframes, was almost totally bereft of replacement aircrew to fly them. The Crew Pool

Palembang, Srivijaya, January 1945. It was losses during Operations such as "Meridian" that led to the shortage of aircrew in the Fleet Air Arm. \rightarrow



was effectively empty. In extremis some squadrons were disbanded as they arrived in the later escort carriers, with their aircrew rushed north to make up numbers in the squadrons of the fleet carriers during those first months of British Pacific Fleet operations.

The Allied campaign was not forecast to invade the main Japanese island of Honshu in Operation Coronet until 1946. With the supply of aircrew insufficient to cover the expected 'wastage' in operational squadrons, or to form new squadrons for new carriers, the BPF via the RAN approached the RAAF for assistance. In May 1945 permission was given to hold a Selection Board for suitable pilots to transfer from the RAAF to the RAN Volunteer Reserve as Air Branch officers for service with the BPF.

899 (Seafire) Squadron had disembarked from Chaser in April and, to his no-doubt considerable chagrin, Lieutenant-Commander (A) George 'Shorty' Dennison RNVR saw most of his pilots and aircraft promptly detached as replacements to the fleet carriers. Re-organised as an Operational Training Unit at Nabthorpe Shorty was given three non-QFI qualified pilots as instructors, a Deck Landing Control Officer and a Chief Ground Instructor. Building back up to fourteen Seafires they awaited the selected ex-RAAF pilots.

The first Selection Board convened on 8 June. Three requirements were mandated by the RN selectors operational experience in single engine aircraft, a minimum of 500 hours total flight time and under the age of 26. This was considered quite exacting and, although there was a large number of volunteers, most did not meet these criteria. There were also some volunteers who the RAAF declined to release. Those selected had all flown Spitfires or P-40 Kittyhawks on active service in Europe or the South West Pacific. Many were currently languishing in what felt to them like equally dangerous, but boring, instructional units.

Number 1 RANVR Course of twelve converting pilots assembled with much publicity at Nabthorpe on 18 June 1945. There they were welcomed by Commander (P) Douglas Russell RN, Training Commander, Naval Air Stations in Australia. One of several who had to shave off their RAAF issue moustache was Lieutenant (A) Arthur 'Nat' Gould RANVR, who already had the distinction of graduating from No. 1 Course of the Empire Air Training Scheme. As a Sergeant Pilot in 1941 Nat flew a ferried Hurricane off Argus to Murmansk. There he instructed Russian fighter pilots, leading to his nickname sometimes being jocularly extended to 'Natski'. Another dozen pilots in Number 2 RANVR Course followed six weeks later.

Five weeks of shore training, including ground school and ship visits, was allocated for the course. On completion each pilot had flown around forty hours in Seafires and was achieving satisfactory Aerodrome Dummy Deck Landings. With these keen and experi-

Still in their RAAF uniforms. First day at Nabthorpe/Naval Air Station Schofields and inspecting a Seafire. Left to Right: F/O George Brown DFC, F/O Leslie Norton; F/O Robert Davies and Lt Fraser. Both Norton and Brown were to lose their lives in flying accidents after the war.



Australian Flyers Get Service Experience On British Aircraft Carrier





Photographs taken aboard 'Implacable' by a delighted Press, capturing the efforts of the students of 899 Squadron including some of the 24. They were required to achieve ten deck landings to qualify as FAA pilots. *The images made interesting viewing in the morning papers a few days later.* +

second - known only to God and the batsman - cut the engine and drop down to a three-point landing"!

Popular CO Shorty Dennison was also a fine musician, often prevailed upon in the Wardroom to play the piano. During their scant weeks in the Navy Number 1 RANVR Course would certainly have heard, and reflected on, the prophetic verses of that Anthem of the FAA - the A25 (Accident Report) Song:

They say in the Air Force a landing's OK If the pilot gets out and can still walk away, But in the Fleet Air Arm the prospect is grim If the landing's piss-poor and the pilot can't swim.

Chorus: Cracking show, I'm alive, but I still have to render my A25.

I fly for a living, and not just for fun, I'm not awfully anxious to hack down the Hun, And as for deck-landings at night in the dark, As I told Wings this morning, 'Fuck that for a lark'.

Tail up down the flight deck to do an umbrella I remember too late to fine pitch the propeller, So I stamp on the wheel brakes and then get the shits,

As the whole bloody issue goes arse over tits.

When the batsman gives 'Lower' I always go higher,

I drift off to starboard and prang my Seafire, The boys in the Goofers all think that I'm green, But I get my commission from Supermarine.

Press interest was high, and journalists embarked on 24th July to observe the deck qualifications. 899's spokesman, the CGI Acting Lieutenant-Commander (Å)(O) Colin Fraser RN, was at pains to point out to the reporters that crashes were almost invariably associated with carrier training, being considered routine even with capable and experienced pilots. Three students and two instructors had sailed with the carrier and the following day the other nine students flew out to Implacable in three flights.

The first to land was ex-Squadron Leader, now Lieutenant (A) Ian Loudon DFC RANVR. Followed by his course mates their initial mishaps were only a few burst tyres as they set about accruing the required ten landings. There was some early action for the press photographers, and the large number of off-watch 'goofers' including those of the course not flying,

when the Seafire flown by George Brown hit the deck heavily with port drift on, and collapsed the undercarriage.

Shortly afterwards the action for the onlookers improved considerably when a Seafire dropped a wing on landing and skidded over the port guarter, where it disappeared almost without a splash. The student, commendably quick, was out of the cockpit and had his rubber dingy inflated almost as soon as he hit the water. The dripping aviator was quickly hauled aboard the accompanying rescue destroyer to consider what he would write on his A25 Accident Report. With this dip Sub-Lieutenant (A) Charles 'Charlie' Bowley RANVR had well and truly seen any remaining RAAF Blue converted into Navy Blue.

Aviation folklore is that accidents happen in threes so it would have surprised no-one onboard when, a little later, Joseph Crowthers missed all the wires and entered the barrier. There the aircraft assumed the nose on the pecked deck/tail high attitude that had been associated with Seafires since the type first went to sea. The watching journalists were amazed at how quickly the deck crew cleared away broken aircraft after each incident to recom-



Seafires in the hangar deck of HMS Implacable.



mence flight operations. Delighted with their sea-day the press reported it under such vivid newspaper headlines as 'Dramatic Scenes on Aircraft Carrier'.

The second day of embarked training, clear of the gaze and cameras of the press, saw no incidents in fifty-two arrested landings. Day three saw both Smith and Norton break their undercarriages. The carrier drill achieved by the course, with take-off intervals of twelve seconds and landing intervals of thirty seconds, was held to be almost front-line standards.

These training accidents were considered inevitable, indeed almost trivial in the wider context of that final year of World War, and the only injuries to Number 1 RANVR Course were some bruises. The naval hierarchy were well pleased with their new aviators declaring 'a very good standard of deck landings achieved'.

Five weeks later, in early September, Number 2 RANVR Course were allocated *Arbiter* as their training carrier. In the sheltered waters of Hervey Bay, despite the smaller deck of an escort carrier, they did even better with only one burst tyre and one broken tail oleo.

The rapid progress of the first two courses led to the proposal that Number 3 RANVR Course be doubled to a further twenty-four pilots, but the unexpectedly foreshortened war saw that selection board actually sitting on what turned out to be Victory Pacific day. With the Commonwealth Naval Board still navigating through RAAF, Treasury and Defence Department obstacles over whether the RAN's post-war force structure would include an Air Branch, Number 3 Course was cancelled. The future for the new RANVR officers was most uncertain. Six off Number 1 Course had departed immediately to Manus in the ferry carrier *Slinger*, carrying spare airframes of Corsairs, Barracudas and Avengers for the build-up to the invasion of Japan. Available as aircrew replacements for the carriers now operating as TF 37 in joint air operations with the US Third Fleet against the Japanese homeland they saw no action before the war ended on 15 August. All twenty-four new RANVR aviators went on to replace squadron casualties and exhausted aircrew in the immediate aftermath of victory, where they were reported to have settled in well.

Its assigned training task complete, 899 Squadron disbanded on 18 September 1945. Shorty Dennison went to command 887 (Seafire) Squadron aboard *Indefatigable*. The carrier paid a port visit to Melbourne with *Implacable* and *Glory* in January 1946 before sailing home to the United Kingdom where the squadron was disbanded.

The unqualified success of this experienced RAAF aircrew stream into the RANVR was laid at the door of the strict entry criteria, coupled to the training efforts of 899 Squadron. In a formal report of BPF operations it was stated that "The ease with which these RAAF pilots converted to Naval requirements and after a short training period carried out such successful deck landings shows that there is no black magic in deck landings".

On 6 August 1945 the first atomic bomb was dropped on Hiroshima, followed three days later by the second weapon on Nagasaki. Japan capitulated three weeks later. World War 2 was over.

The Supern Seafire

he Royal Navy commenced World War Two with thirty poorly performing Blackburn Roc and Skua fighters on *Ark Royal* and *Glorious*. None were available for *Courageous, Furious, Eagle* or *Hermes* and these carriers were compelled to sortie initially without a single fighter embarked. The Fifth Sea Lord, Vice-Admiral Sir Alexander Ramsay KCVO KCB DSO, reported a shortage of one hundred pilots and seventy-eight observers, with no pool of aircrew and no surplus for training or new squadrons. Such was the price of having Naval Aviation subservient to Air Force priorities throughout the 1930's. Full control was not established by the Admiralty until May 1939. In August the Fifth Sea Lord had projected that it would take until 1943 to overcome the inherited shortcomings.

A desperate Admiralty realized that the quickest way to get sufficient modern fighters to sea was to be allocated deliveries from the existing RAF production lines of single seat types, while continuing their order for Fairey Fulmar two seater fighters and sourcing Grumman Wildcats under Lend-Lease. Hawker Hurricanes proved a reliable stop-gap until they could get 'hooked Spitfires'.

The Sea Spitfire, almost immediately shortened to Seafire, was a navalised version of the RAF's famous Spitfire. A superb land based fighter there were compromises accepted when navalising the aircraft, where lack of time for adequate test flying cost front-line aircrew lives. With Admiralty staff planners estimating the 'wastage rate' for a front line squadron at 20% per month these compromises were considered acceptable, balanced against the benefit of getting large numbers of modern fighters embarked as quickly as possible.

With a narrow undercarriage too weak for the harsh deck environment and an airframe, even with reinforcing strips, not robust enough for the stresses of arrested landings, crashes and unserviceability rates were high. Sensitive in pitch and with little drag from the elliptical wing to quickly decrease airspeed the Seafire too often would float above the arrestor wires down the deck to the barrier. There were instability issues the land based aircraft did not suffer from and the short stroke oleos would see it often hop down the deck towards its crash site. For the deck handlers the main difficulty of the early Seafires, apart from clearing away the debris after crashes, was a wing that did not fold. Despite these shortcomings once clear of the deck its performance as a fleet defence fighter was excellent, albeit having a short endurance.

Early Seafire variants were used in small numbers to supplement Sea Hurricanes in the November 1942 invasion of North Africa. At the invasion of Sicily in July 1943 calm winds, coupled with the slow speed of the escort carriers in their restricted maneuvering areas, saw the one hundred and six Seafires available on D-Day reduced to thirty-nine only two days later. The Merlin 55 powered Seafire III, with four bladed propellor and folding wings, provided excellent service over the invasion beaches of Normandy and Southern France.

On arrival in the Pacific the Seafire outperformed the Zero, especially at low altitudes, and had better climb rates and acceleration than the heavier Grumman Hellcat and Vought Corsair. It particularly excelled providing CAP over the fleet against the new kamikaze threat.

Not operational before the cessation of hostilities the Griffon powered Seafire XV of 1945, while improved in almost every respect for naval operations, highlighted that hidden killer of so many aviators - torque. Torque that now swung the aircraft in the opposite direction to the Merlin powered variants. At full power many found themselves heading for the island despite full opposite rudder desperately applied. A problem solved with the contra-rotating propellors of the Seafire 46.

RAN Seafires?

No the RAN never had Seafires, but it's Spitfire cousin was acquired in 1948. Fifteen Merlin 70 powered Spitfires were trucked in as surplus from the RAAF. Given ADF serial numbers starting with AH for Aircraft Handling they were used for deck handling training on the dummy deck at Albatross. When they were no longer required for that role in 1952 they suffered the fate of so many aircraft over the decades - terminal service in the fire training grounds. \rightarrow



Bad Boys' Squadron

706 Squadron in 1945 was known as 'The Bad Boys Squadron, commanded by the baddest boy of all Bobby Bradshaw, who led his squadron under the Sydney Harbour Bridge in defiance of his Admiral's orders.

Midshipman Robert 'Bobby' Bradshaw commenced No. 4 Naval Pilots Course in May 1939. Grandson of an Admiral and son of a Captain (who had died of that great pre-antibiotic naval killer tuberculosis) Bobby joined 826 (Albacore) Squadron aboard Formidable in October 1940.

Within three years he was a twenty-one year old Lieutenant-Commander, commanding the squadron he had served in since joining as a Midshipman. Much of his flying had been ashore in the North African desert, often flying three sorties a night. The squadron specialised at dropping flares to illuminate targets for the big guns of the 7th Cruiser Squadron, as well as the Army and Desert Air Force.

826 dropped 12,000 flares in the four months prior to the Battle of El Álamein in October 1942. On these sorties Bobby would dive down in their light, among the cruiser shells and RAF bombs, to add his own lethal contribution to the illuminated targets. When an Albacore was left behind in a retreat he had another pilot land him beside the aircraft, on the now German occupied strip, jumped quickly into the Albacore and flew it away.

Visiting an RAF friend on leave Bobby talked his way into accompanying the friend on a sortie in a second Hurricane, promptly shooting down a German fighter. Unqualified on type, unauthorized and officially on leave he hurried back to lie low in Cairo leaving his friend to claim the victory.

Forming 852 (Avenger) Squadron Bobby was aboard the escort carrier Nabob in August 1944 providing support forces for Operation Goodwood attacking the Tirpitz in Norway's Altenfjord Torpedoed and in imminent danger of sinking the courageously named Captain Horatio Nelson Lay RN commenced the 1100-mile journey back to Scapa Flow at an initial 3 knots.

To prevent U-354, which had also torpedoed the frigate Bickerton, maneuvering for a third attack Bobby took off from the sloping deck with his crew in an Avenger, shortly followed by a second aircraft. Patrolling defensively around the carrier for four hours the visibility started closing in fast. Nabob risked shining its searchlight as a landing aid in the fog but Bobby missed the wires, snagged the barrier and crashed into two Avengers and two Wildcats in the aircraft park. The depth charges were stopped as they rolled down the flight deck before they could go over the edge and finish the torpedoes' job.

Bobby assembled 706 Squadron, a Fleet Pool unit for aircrew, at Jervis Bay in March 1945 before their move to Schofields. Admired by his squadron and a bane to his superiors, Bobby Bradshaw was Mentioned-in-Despatches three times and decorated with three Distinguished Service Crosses.

By September 1945 all the graduates of Number 1 RANVR Course found themselves posted to No. 30 Naval Fighter Wing. Assigned to Implacable, this wing consisted of 801 (Seafire) and 880 (Seafire) Squadrons. That same month 801 absorbed 880 under Lieutenant-Commander (A) Robert 'Mike' Crosley DSC* RNVR while disembarked at Nabthorpe/Naval Air Station Schofields. With an initial strength of forty-eight aircraft, Mike was determined to have a restful atmosphere ashore after the stress and losses of the previous twelve months, which had included four costly attacks against Tirpitz before sailing to the Pacific. These were deliberately halcyon days which the RANVR aviators joined with enthusiasm.

Mike recognised that his new aviators were not ordinary replacements, vastly experienced and 'gonged-up' as they were, so asked them to form their own flight and to organize their own flying programme. This Aussie Flight arrangement worked well for all concerned under Nat Gould and Ian Loudon as Flight Leaders. With their local knowledge they were able to make useful 'tourist' suggestions to the squadron.

Over the following months, as No. 30 Naval Fighter Wing morphed into part of the 8th Carrier Air Group, detachments in strengths of up to twenty-four Seafires would visit airfields suspiciously near wine growing areas or scenic beaches. November's running of the Melbourne Cup found a large detachment had dropped in on RAAF Point Cook while, fortuitously, enough had landed near Launceston to form a Guard of Honour when Sub-Lieutenant (A) George 'Spanky' Brown DFC RANVR married Joy in December.

On 27 November 1945 the Commander-in-Chief British Pacific Fleet, Admiral Sir Bruce Fraser, visited the station before moving his Sydney based command to Hong Kong. Keen to impress the man who had signed the Japanese Instrument of Surrender on behalf of the United Kingdom a balbo of 36 Seafires was flown.

After the flypast Sub-Lieutenant (A) Lesley 'Les' Norton RANVR commenced a flying display. Doing a slow roll on take-off before a loop and a fast run over the airfield at 425kts he had then planned another loop with a roll off the top. It was a display sequence Les never completed his starboard wing separated and he went in just beyond the wardroom. Due to marry the next day his fiancee and parents were at the station and watched the tragedy unfold. It was quickly ascertained that the recently delivered Mark XV Seafires were structurally unsound, suffering aileron reversal and wing warping at high speed. They were grounded for modification.

801 Squadron embarked on Implacable in January 1946. On 12 March 1946, while disembarking ashore. Sub-Lieutenant (A) Neville 'Junior' Faulks RANVR stalled in front of the ship's bow on launch. His body was never recovered.

Number 2 RANVR Course had been posted on graduation to Indefatigable's No. 24 Fighter Wing (7th CAG). Many members of both courses joined Implacable when she returned to the UK in April 1946 with 801 embarked. Due to disband on arrival, 801 left their eighteen Seafire XVs behind at Nabthorpe. →





es Norton was Discharged Dead in November 1945 after his flying display for the Comman-der-in-Chief, British Pacific Fleet, was tragically cut short when the aircraft broke up in mid-air (see details <u>here</u>). The earliest to Discharge to Shore was Richard Cowley from Number 2 RANVR Course on 26 September 1945, followed by a steady trickle to shore over the next twelve months.

Curley Brydon, who had stalled and crashed his Seafire on New Years Day 1946, started Brydon Motors and raced MGs, winning the Bathurst 500 in 1955. He set up Diners Club in Australia and later became a long-serving Director of News Limited under his friend Rupert Murdoch.

lan Loudon returned to his rubber plantation in PNG where he died in a road traffic accident in 1957. Char**lie Bowly** decided he had been dipped enough and discharged to shore in June 1946, eventually ending up in New Zealand.

Extended service commissions in the RN were granted to those applying, subject to re-transfer to the RAN if subsequently required. Neville "Junior" Faulks had been accepted for the RN only five days before his death off the bows of Implacable when his aircraft stalled on take off. You can read about him here.

Sailing for the UK aboard Implacable were another five who had taken RN commissions. Duncan Caldwell left the RN in September 1946 for a course at Oxford University when he was appointed to the Colonial Service.

Also in Implacable were several who had volunteered to serve away from Australia while still remaining RANVR. Both the new RN and the RANVR group were given valuable training in the UK. This training ranged from Air Administration to Air Warfare Courses as well as conversions to the newest aircraft types. Thomas Payne even-cross trained as an Observer while the RN briefly dallied with the idea of a single aircrew stream.

On his return to Australia at the end of 1947 Dusty Miller discharged to shore and studied medicine. Nat Gould became CO of 816 (Firefly) Squadron in September 1950. He retired at the rank of Commander in 1965, after a long and illustrious career. He died in Sydney in January 2019 at the age of 98. His story is here.

Among those ex-RANVR who served in Sydney off Korea was Keith 'Nails' Clarkson DFM who had seen active service in Africa, Malta, Sicily and Italy. Senior Pilot of 805 (Sea Fury) Squadron in November 1951, Nails was killed diving into a flak trap in Korea in November of 1951. His story is here.

Four of the ex-RANVR aviators went on to command 805 in succession - George Jude, Douglas 'Bunny' Hare, Spanky Brown and Nat Gould. Hare was killed when his wingtip hit the runway at Albatross while practicing a four aircraft formation roll in July 1952. Read his Obituary here.

Spanky Brown, who had added a Korean Mention-in-Dispatches to his RAAF DFC, was by January 1956 a

Commander based at Australia House in London. On 5th January of that year he was flying to Seahawk/Naval Air Station Culdrose for an inspection tour of the new RAN Gannet squadrons, when the Venom he was a passenger in fatally crashed on take-off. The link here gives some detail of the accident.

Converting to Sea Venoms, George Jude reformed 808 Squadron at Heron/Naval Air Station Yeovilton. He embarked his squadron for its voyage out to Australia in March 1956 aboard the recently commissioned Melbourne, which carried sixty-four new Gannets and Sea Venoms for the RAN. In his later career he commanded Diamantina, 817 (Wessex) Squadron, Vampire and the RAN's Destroyer Squadron Two. When he retired in 1980 after three years commanding Albatross, Commodore Jude was hailed as 'The Last of the First'. He died suddenly in Canberra in February 1986. +

No. 2 RANVR Course



and should do well" >>



Right: One of the few surviving certificates issued to the RANVR pilots who had transferred from the Air Force to fly in the Pacific. It was signed by Rear Admiral Portal two weeks after the first atomic bomb was dropped on Hiroshima, but Japan was yet to surrender and hostilities continued.

Below: A newspaper tribute to Commodore George Jude - 'The Last of the First'. Having completed 38 years of faithful service, he retired in 1980 to settle in Canberra before his sudden death eight years later at the age of only 61.+





The Two Dozen (Names in alphabetical order)

No. 1 RANVR Course

Charlie Bowly. George "Spanky" Brown DFC. Roy "Shorty" Carroll. Joseph Crowthers. Robert Davies. Arthur "Nat" Gould. Clifford Harold Gray. Ian Sandford Loudon DFC. Leslie Norton. John Bradley O'Connor. George Edward Pagan. Kenneth Brian Innis Smith. ≯

No. 2 RANVR Course

Cay Armstrong. Malcolm Beaton. Curley Brydon DFC*. Duncan Caldwell. Keith "Nails"Clarkson DFM. Richard Cowley. Neville "Junior" Faulks. Douglas "Bunny" Hare. George Jude. "Dusty" Miller. Thomas Payne. Malcolm Stevenson. →



A Piece of History Shared

On the 66th anniversary of the death of **Midshipman lan Caird**, his sister reached out to us through the FAAA website to share a previously unavailable photograph of her long-lost brother.

Ian was killed, together with **SBLT Warren Browne**, when their Firefly flew into the hills near Foxground, NSW. They had been on a night navigation exercise and it was thought they mistook Kiama lighthouse for the Pt. Perpendicular light, which placed them about 20nm north of intended track on their descent to Albatross.

We remember lan a

COMING SOON

The S70-B-2 Seahawk served in the RAN from early 1989 to the end of 2017: nearly 29 years. During that time the type flew over 100,000 hours in peace and in war, without the loss of a single airframe.

With the help of a range of authors who remember it well, we'll bring you the full story in a little while...



We remember Ian and Warren, whose stories you can read

REST IN PEACE

Since the last edition of FlyBy we have been advised that the following people have Crossed the Bar:



Robert Ray

You can find further details by clicking on the image of the candle. →