

The Royal Australian Artillery **LIAISON LETTER**

2022 Edition

**Special QUEEN ELIZABETH II Banner
Edition**



**The Official Journal of the Royal Regiment of Australian Artillery
Incorporating the Australian Gunner Magazine**

Published Continuously Since 1948



**150 AUSTRALIAN
YEARS ARTILLERY**
1871 - 2021

RAA LIAISON LETTER

2022 Edition

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NEXT EDITION DEADLINE

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Royal Regiment of Australian Artillery

“In Memoriam Garden”

The “In Memoriam Garden” is a living memorial to mark and commemorate the service of fellow Gunners who have departed this world to parade with their colleagues in the permanent Gun Park. The Garden provides a means for individuals, associations and/or organizations to create a permanent record recognising the service of fellow Gunners who were friends and colleagues.



In Memoriam Garden Roll Call

Life donations made in memory of these deceased Gunners:

Brigadier JW (Jim) Ryan, AM. (Donor Anonymous). Jim was a distinguished gunner, having among other things been awarded a Mentioned In Despatches (MID) for his part as forward observer with Bravo Company, 6th Battalion Royal Australian Regiment during the battle referred to as ‘Operation Bribie’ in South Vietnam in February 1967. He was both an Instructor-in-Gunnery and Senior Instructor Gunnery Wing at the School of Artillery, and Commanding Officer of 4th Field Regiment.

Major Peter William Spencer. (Donors Helen, Glynn and Rhiannon Spencer) Peter joined 5th/11th Field Regiment an Army Reserve unit on 19th July 1977 working his way to Sergeant. He transferred to the Officer Cadet Training Unit, 1st Training Group on 29th November 1982, after graduating he re-joined 5/11. He transferred to the Regular Army on 1st February 1988 with 1st Field Regiment, he was posted to School of Artillery on 16th January 1989 as Adjutant, he then served with 8th/12th Medium Regiment from 15th January 1989 and Land Headquarters from 15th January 1991. He transferred back to the General reserve at Headquarters 1st Division from 1 February 1993, then Army Personnel Agency Brisbane from 13th May 1995 to 30th December 1997.

How to Enter a Name on the Roll

The cost of having the memory of a fellow Gunner recorded on the Roll is a life donation to the Regimental (Gunners') Fund. The current cost of a life donation is \$260 and the payment details are as follows:

Cheque: Cheque payable to “RAA Regimental Fund” and send to MAJ Gary Down, 171 Bennetts Road, Longlea, VIC 3551

Direct Debit: The account details of the RAA Regimental Fund are:

Financial Institution: Australian Military Bank **Account Name:** RAA Regt Fund **BSB:** 642 170

Account Number: 100026037 **Reference:** Include Your name

Name and Details of Gunner Nominated for Entry in the Roll

In addition to your payment, please forward an email to both SO2 HOR (gary.down@defence.gov.au) & SO to HOR (terry.brennan@defence.gov.au) with the details of the person nominated including rank, full name (including preferred), post nominals and a paragraph to be included with their name. State if the nomination is anonymous or provide the details of the name to be recorded as the donor.

Editors Comment



Hello and welcome to the only edition of the Liaison Letter for 2022. A lot of water has passed under the “bridge” since the last one as the compilation of this edition has been drawn out. Consequently you will find there is some

coverage of early 2023 events. From the Royal Regiment’s perspective 2022 was a watershed year. Not only were there major capability announcements which will set the Regiment on a course of expansion, but it saw the death of our Captain General and the COVID delayed presentation of the new Queen’s Banner (1871-2021). There is comprehensive coverage of these in this edition.

We also have a good cross section of reports and articles from across the Regiment as well as a range of Professional Papers.

The Royal Regiment’s representation and participation in Her Late Majesty’s funeral as our contribution to Operation London Bridge is captured in a series of vignettes from those who travelled to England including HOR and RMG. What lifelong memories and tales they will have from their experiences.

I was fortunate to attend the presentation parade for the Banner of Her Majesty Queen Elizabeth II (1871 – 2021) at Victoria Barracks in Sydney. The DHOR, Lieutenant Colonel Matt Hodda and Regimental Master Gunner, Warrant Officer Class One Tony Horte OAM deserve the Royal Regiment’s congratulations and accolades for delivering what was an outstanding parade and related social events. Due to COVID this event was delayed for a year which brought a range of challenges into play especially for the RMG as the primary parade organiser. These days the Royal Regiment does not conduct a significant number of ceremonial parades which made the performance of the members from all Regiments even more impressive. I would also like to thank the previous DHOR Lieutenant Colonel Benny Gray and former Regimental Master Gunner Warrant Officer Class One David Nutini for all the groundwork done by them in 2020 and 2021 prior to the parade being postponed. Having said that I was a spectator of the beating of the retreat

by 1st Regiment RAA at the 7th Brigade Open Day in July last year and their display was an outstanding dress rehearsal for the Banner parade.

The new year saw the passing of Brigadier GT (George) Salmon AM a well-known and respected Gunner officer who not only influenced a generation and but left his indelible mark on anyone whose path crossed his including those of us on the ROBC in 1980 at the School of Artillery on North Head, Manly. My lasting memory of that time apart from being a very bad student, was that it was then Lieutenant Colonel Salmon, Commanding Officer / Chief Instructor School of Artillery who wrote a personal letter to me at the Officer Cadet School Portsea just prior to my graduation, welcoming me to the Royal Regiment. I still have his letter and it will always be a memorable keepsake. This is a tradition that is still maintained by the Head of Regiment for all RMC graduates joining the Gunners.

Brigadier Salmon was Representative Colonel Commandant and Colonel Commandant Eastern Region from 1996 to 2000. These were challenging times for those holding honorary appointments, especially him as the Representative Colonel Commandant with the disbandment of the Directorate of Artillery and the move of the School of Artillery from North Head to Puckapunyal. I recall he was the host officer at the closing parade at North Head in 1997 and for the opening ceremony at Puckapunyal the following year. During this period it could be said that all things Regimental especially history, heritage, along with customs and traditions were either at best glossed over or in some cases completely forgotten with the ever cascading “core” distractions, on top of that throw in the “New” corporate support program.

I think most of us posted to the School of Artillery during this period were paddling like ducks whilst slowly sinking. We were all being asked to do more and more my lasting memory was the manning of RHQ School of Artillery in 1999, it was 4 then 5 people ... CO/CI, OPSO (I recall he may have been briefly called the XO), RSM, OPS WO and eventually a public servant clerical / financial admin assistant. I bump into this many people in the ops area alone today.

Throughout this time Brigadier Salmon held the Regimental Committee together, marshalled the CCs and did not let the CO/CI forget about his DHOR responsibilities in this area and was

always ready to provide sage advice ... some may say not always necessarily sought. His lengthy emails and attention to detail were legendary. He was not afraid to make the decisions required to ensure the Regimental Committee and Regiment Fund survived this period of neglect through no one's fault just circumstance. He was a passionate supporter of the Liaison Letter and I recall it was his frustration that there was no edition produced in 1998 and that the subsequent disappointing combined 1998 / 1999 edition that started my involvement as the editor in 2000 and continues to this day ... 24 years and countless editions later.

He never seemed to forget a name and face and would always greet you in his loud distinctive voice, the volume due to his deafness, no matter where you were at the time. I can recall many years after he retired, he saw me in the Melbourne QANTAS Club, and I could not avoid being drawn to his location in the room.

Memorial Garden Initiative

In the last edition I announced this initiative from a reader to establish a 'living memorial' to permanently commemorate deceased colleagues. I welcome the addition of Major Peter Spencer to the roll by his family. I encourage everyone to consider making use of it.

Unit & Sub-Unit Titles

Since I wrote about this topic in my last editorial some 12 months ago there has been movement on the matter. I can confidently say that the Regiment has commenced a capability journey of unprecedented proportion not witnessed by anyone currently serving and probably most former Gunners. Below is an extract from Brigadier Damian Hill's HOR message located elsewhere in this section.

... The new fires formation, 10th Brigade, will prepare to assume command of units such as 9 Regt, 16 Regt, and soon to be 14 Regt and continue their development as a key enabling node for Defence's Multi Domain Strike and Integrated Air and Missile Defence capabilities.

This outcome, only achieved through a great deal of hard work by Gunners, has meant the acquisition and expansion of new capabilities that the Regiment will deliver to support Army win the next war. This quite rightly is the priority focus for both our Regimental Leadership and that of Army.

I understand in this hectic world there is always a desire to make the decision and move onto even more pressing immediate matters Personally I feel the driven focus and determination to achieve these capability outcomes has resulted in lost opportunities for Artillery history and heritage. We have a rich history which is the envy of other Corps, often misunderstood by some, and yet we at times appear to not want to promote it within the broader Army.

At the recent Regimental Committee Meeting the HOR explained that the Fires Formation was not an artillery formation. Therefore I accept that the numbering of the formation does not have to be linked to any Australian artillery lineage.

That said in my opinion the icing on the cake is to get our linked history and heritage right to support this development and promote the esprit de corps of those Gunners who will serve and deliver these capabilities on the battlefield.

In way of addressing this the HOR has invited the RAA Regimental History Committee to research and recommend the titles of the sub-units being raised with the new units. This is wonderful news and I know work is underway to achieve this task.

I understand the title for the first regiment to be raised was based on the next number available that has not been used, therefore "14". I am not aware of this list or where it is held. My personal disappointment is that we have a raft of historical Regiments with rich histories dating back to the Great War just waiting to be re-raised.

With "14" a done deal, we can certainly offer to research and recommend the title of any other Regiment that is raised during the next few years.

There is of course now an opportunity to research the 14 Regiment title to identify and ensure what linked history it brings is well known and published.

While we are at it perhaps it is time to visit re-introducing 'descriptors' into our unit and sub-unit titles.

The sage advice regarding the identification of titles for new organisations I was sent last year from a senior Gunner officer echoes loudly in my head ...

We should discuss this and have a set of Regimental views otherwise staff at AHQ may allocate names and numbers for us.

Historical Fact vs Convenient Truth

Leading up to 150th anniversary of the establishment of a permanent Australian Artillery presence there was considerable discussion regarding the relationship between A Battery and this milestone. This matter was raised in a detailed and well researched paper by Keith Glyde a member of the Regimental History Committee. In the paper he challenged the premise that A Battery was the permanent battery raised on the 1 August 1871.

This led to a great deal of uncomfortable discussion, culminating in a meeting in 2019 between key members of the Regimental Committee and the Head of the Australian Army History Unit. The outcome was a commitment from the Head of AAHU to have his staff undertake further research in consultation with RAA Regimental History Committee. Unfortunately this consultation did not occur, I assume due to the time pressures to clarify the matter prior to the 150th anniversary in 2021.

A formal brief was submitted to the Chief of Army recommending that he reaffirm that A Battery was established on 1 August 1871. The brief included comment that the Army had no policy on how to interpret and apply lineage. The brief proffered that A Battery was raised on 1 August 1876 from elements (personnel and equipment) from the Battery established on 1 August 1871.

The Chief of Army endorsed the recommendation that A Battery was established on 1 August 1871 based on the information presented to him.

In recent discussions with the Chair of Regimental History Committee he observed that there were two schools of lineage thinking ... “Seeders” and “Legislators” based on published Establishment dates.

Whilst I see the rationale of both schools of thought, more recent examples of the “Seeder” approach to raise a battery has not seen the “newly” raised sub-unit adopt the establishment date of the sub-unit that provided the personnel and equipment, for example 107th Field Battery. The “Seeder” argument becomes untenable if the personnel and equipment are sourced from multiple sub-units which is more likely to be the case. The exception to this was when A Battery was established as prior to it being raised there was only a single permanent Australian battery in existence.

There is no dispute that A Battery is the Army’s longest continuous serving sub-unit. Nor is there any disagreement that when A Battery was established on 1 August 1876 that it was probable that limited key personnel and equipment may have been sourced from the older battery established in 1871. However as this battery was the only one in existence it would have been negligent on the part of those charged with the defence of the colony to strip it to raise another. This logic gives substantial weight to the argument that most of the personnel and equipment would have been procured elsewhere. HOR has directed that the AAHU “Seeder” approach be accepted, and the matter be closed. I support this goal with the observation that the Regiment owes it to those who follow us to ensure that our history is based on primary source material and not blurred by more recent secondary historical sources that have been based, at times, on research that has been less than rigorously scrutinised and tested.

The flip side to this is that the “Legislator” concept should not be dismissed as “the” battery established in 1871 was disbanded before the end of the 19th century.

I believe the solution is a paper that outlines the rationale behind both dates and the schools of thought that lead to different establishment date outcomes. Conclude by noting that neither date is definitively correct but concede the “Seeder” concept has been adopted. The content of this paper should be included in RAA SO in order to ensure that should this topic be revisited there is a sound basis to begin discussions.

Conclusion

To paraphrase the words of Sir Humphrey from Yes Minister and Yes Prime Minister the path to setting our history and heritage on a sound course is the art of making “courageous” decisions.

I would like to thank those units and individuals who have contributed to this edition. The contents are only as good as what you provide me.

Ubique

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Major

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Representative Colonel Commandant

Brigadier S (Don) Roach, AM

Fellow Gunners,



The year of 2022 will certainly be one to reflect on, and we may well choose to recall it as one of the most significant for the Royal Regiment in recent history.

It was the year of the passing of our Captain General after

decades of service to Regiments worldwide. And whilst it was not our 150th anniversary year it was the year in which we received the new Banner of Queen Elizabeth II, only the third such banner in the history of the Regiment.

Importantly, as we continued to emerge from the COVID 19 Pandemic as a nation, as an Army and as the gunner community an air of optimism was largely fulfilled, and a genuine training and capability focus was pursued and achieved. There is much being achieved and there remains much promise for the future of the Regiment in the coming years.

The passing of Her Majesty Queen Elizabeth II and the most splendid funeral at which we were well represented is an event which I think we all acknowledged in our own personal and in a collective RAA manner. I wrote on behalf of the Regiment to His Majesty King Charles III offering our deepest condolences and prayers to all members of the Royal Family, and the people of the United Kingdom. The RAA had a very privileged relationship with Her Late Majesty for some 60 years as our first Captain General and we

will miss her professional interest, dedication, and leadership.

The parade for the presentation of the new Banner of Queen Elizabeth II at Victoria Barracks on 5th November will be recalled for both its poignancy and its uplifting uniqueness. The trooping of the ‘old’ Banner which was presented in 1971 and the consecration of the new Banner were both completed with grace and precision and have appropriately underlined a period of history and a transition for the Regiment. As an event it was also a great drawing together of gunners past and present for the milestone.

The Governor General and the Chief of Army both commented to me on the quality of the parade and on the significance of having representation of all of the serving Regiments and

the RAA Band on Parade together. Congratulations and many thanks to the RMG and the Head of Regiment team on the preparations for the event.

In October the Land Forces exposition was again held in Brisbane and the profile of the RAA

remains high under the new Chief of Army. Projects and new capabilities for Joint Effects, Targeting, Protected Mobile Fires, (K9 Huntsman), Long Range Fires (HIMARS), UAS

(Integrator), GBAD (NASAMS), Remote Autonomous Systems and Artificial Intelligence, Guided Weapons Enterprise and the suite of Ammunition developments are underway and are emblematic of the bright future of the RAA and come with significant implications, opportunities, and challenges. Confirmation of the HIMARS acquisition in early 2023 and prior to the outcomes of the Defence Strategic Review was particularly well received.

As 2022 concludes and as we launch into 2023 may I pass my congratulations to the new



L-R: Representative Colonel Commandant, Brigadier Don Roach AM; Head of Regiment, Brigadier Damian Hill AM, RNZA Colonel Commandant, Brigadier Paul Southwell at the conclusion of the Banner Parade.

command teams, leaders and appointments and of course to the new graduates and members of the Regiment. May I also pass my thanks to those departing the appointments for your stewardship of the units and sub-units of the Regiment and wish you the best in your next endeavours.

On a final note of acknowledgement, I represented Head of Regiment and all Gunners at the funeral of Brigadier George Salmon at RMC Chapel on 13 January 2023. Battery Commander 107 Field Battery in Vietnam, CO/CI of the School of Artillery and a previous Representative Colonel Commandant, George made an outstanding contribution to the Regiment, and it was pleasing to see so many of the RAA community in attendance at the funeral.

As I look forward in earnest to 2023, I am very pleased that we will be able to achieve a return to the tradition of the Regimental Conference in Puckapunyal and to convening the Regimental Committee for its important contribution to the life of the Regiment. *Ubique*

before we were forced to postpone last year. Our Head of Regiment team, specifically Majors Gary Down and Terry Brennan, deserve much praise for their herding of the cats. Of course, the Regimental Master Gunner and the parade participants should be rightfully proud of the show they put together, aided admirably by the support staff of the school and our hosts 9th Regiment RAA.



L-R: Head of Regiment, Brigadier Damian Hill AM acknowledging the service of his predecessor Brigadier (now Major General) Richard Vagg DSC after the Banner Parade.

Head of Regiment

Brigadier Damian Hill, AM

Ladies and Gentlemen of the Artillery,



As I write, the dust has only just settled on the parade for the presentation and consecration of the Banner of Queen Elizabeth the Second. To say I was proud to have hosted the

Governor General on behalf of the Regiment is an understatement as you would imagine His Excellency was genuinely invested in the parade and was gracious in his praise both at the time and afterwards with some of the participants. As I said after the parade, a significant amount of the credit for all the behind the scenes work should be given to Brigadier Richard Vagg and Warrant Officer Dave Nutini who had done much of the planning

As 2022 draws to a close, there is much for us to reflect on and prepare for all at once. Gunners from across the country and from all Regiments have been involved in responding to the COVID pandemic, undertaking important work where resources have worn thin. While we might say this kind of work isn't what many of us signed up to do, it is genuinely important service to the community we are drawn from. That our fellow Australians called, and we answered that call should be remembered first and foremost – we are after all prepared to be called upon for much less desirable, but by no means less vital tasks should we be needed. As we bear witness to large-scale weather events across the country, we should remain prepared to support our communities in time of emergency.

There is much happening in the Regiment that we look forward to. As we enter another busy training year, Army's involvement in the region will only increase, and we should prepare to contribute to improving Defence's engagement in the region through exchanges, exercises, and training courses. Our air defence capabilities will take a renewed focus as 16 Regt RAA begins introducing the eNASAMS in earnest. The new fires formation, 10th Brigade, will prepare to

assume command of units such as 9 Regt, 16 Regt, and soon to be 14 Regt and continue their development as a key enabling node for Defence's Multi Domain Strike and Integrated Air and Missile Defence capabilities. Army has taken up the mantle to lead Multi Domain Strike, the future joint fires end effects concept, and will shape the ADF's strike capabilities across the joint force as it refines its scope and guides Defence-wide projects to deliver a coherent, integrated, and convincing deterrence and response capability. Army Headquarters will forge ahead with the Protected Mobile Fires, Long Range Fires (including Land Based Maritime Strike), and Short Range Ground Based Air Defence capabilities, with 4th Regiment RAA continuing to make plans to receive the first self-propelled guns from 2024. While 20th Regiment RAA has been assigned to 16 Aviation Brigade, they will have to establish mature working relationships across 10th and 16th Brigades to bring their capabilities to bear while maintaining a world-class Unmanned Aerial System.

As we await some important strategic decisions and subsequent discussion to come from the Defence Strategic Review, there is much to consider about the future of the Regiment. A long period of decline and neglect of Gunners in the eyes of Army is still in the Regiment's living memory, but we should not hasten to reinstate our old ways. We should continue to look for opportunities to improve from where we are, rather than anchor to the past. I'll continue to work with our Gunner staff in influential positions across Defence to ensure that the Regiment's mission is served well, not just for the Regiment's sake.

I wish everyone an excellent close to 2022 and pray a happy Christmas break before returning restored and eager to 2023. I look forward to visiting the Regiments as often as I can, and hearing from you all how you're meeting the challenges and shortcomings equally.

Ubique



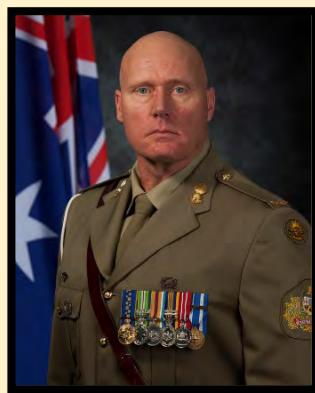
Head of Regiment Coin

Regimental Master Gunner

Warrant Officer Class One Anthony M Horte, OAM

'It takes courage to check a man met on the road for not saluting properly or for slovenly appearance, but, every time he does, it adds to his stock of moral courage, and whatever the soldier may say he has a respect for the officer who does put him up'.

Field Marshal Viscount Slim of Burma, 1956



If one felt 2020 and 2021 were chaotic, I raise you 2022, what a year.

I was fortunate to visit 8/12 Regiment, RAA and elements of 9 Regiment, RAA at Cultana, and again

Puckapunyal Range. I am hoping

I can continue the trend next year by visiting all units in the field.

I also had the unfortunate privilege to be present at the funeral of Her Majesty, the Late Queen Elizabeth II, our Sovereign, and our Captain General. The Head of Regiment and I were joined by; Captain Craig Stephenson, Bombardier Sam Russo and Gunner Nick Burrough to travel to the United Kingdom and represent the RRAA within the Commonwealth Group of the Funeral Procession. For myself personally, the day of the funeral galvanised the sadness, the grief, the humility, the honour and the privilege I had to be a part of this momentous occasion in farewelling our Captain-General, a day a shall never forget.

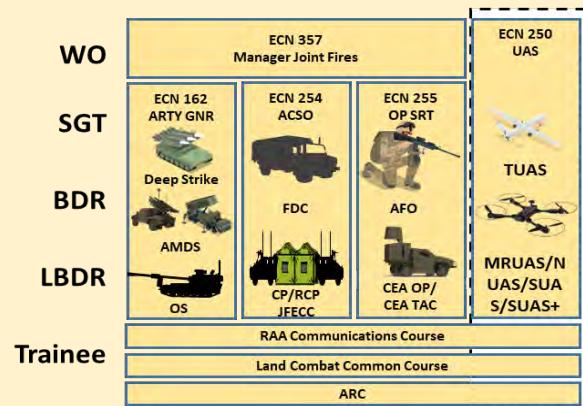
As for the new Banner, what an event, the Parade was also a day I will not forget. I must say now that the contribution and assistance provided by 9 Regiment, RAA to the HOR Cell was above and beyond and greatly appreciated. Special mention must go to the RSM, WO1 Craig Woodhall, WO2 George O'Connel and last but not least and the actual workhorse behind the success of the day, the RQ, WO2 Jason Lee.

The new capabilities of the RAA are 'motoring' ahead with 20 Regiment, RAA training on the Integrator Tactical UAS and 16 Regiment, RAA

personnel familiarising themselves and preparing for the introduction of the eNASAMS Capability. The PMF and LRF programs are gaining momentum as well, with RAA personnel from the Regiments heavily involved with AHQ.

As for the Land Combat Capability Review, which was due to be ‘signed off’ ready for 2023, well that took a pause. Now, despite this disruption and some new and fascinating injections and questions, we are back on track (albeit for 2024) with some subtle amendments. So, the RAA submission to the LCC Work Segment Review have seen new RAA Trade Model accepted at the Employment Category Review and Endorsement Meeting (ECREM) in late 2023.

It is important to note the contribution the SO2 (MAJ M. Sullivan) and WO2s M. Broughton and J. Hallam (OS and AMD ECMs) have poured into the structure. They have been the guiding influences for those of us who posted into the cell in January 2022. After a great deal of deliberation and analysis, the new RAA trade models are broadly described below:



Essentially the new RAA trade models will see the amalgamation of ECN 237 (Operator Air Missile and Defence Systems) into three broadened trades – Platform Operator, Command Systems Operator and Sensor Operator. ECN 250 (Operator UAS) will remain a stand-alone trade as per the current structure. 9 Regt RAA will transition from a mortar capability to a SUAS trade model and will transition from the 2nd Division to Forces Command (Fires Brigade) from January 2024. The new RAA trade models will allow for a future SERCAT neutral RAA workforce in accordance with Defence’s Total Workforce System.

As a result, of the new trade structures the Employment Category Managers still have a

great body of work to complete, rewriting the employment specifications for the new RAA trades and developing implementation plans to support the proposed changes to the RAA trades and embedding the new capabilities into sustainment training continuum.

My final note, I would like to take this opportunity to congratulate two stalwarts of the Regiment: SO2, MAJ Matthew Sullivan, he has guided and well and truly left his mark on the RAA TT Cell. His stewardship of the cell, his sage advice and counsel to subordinates, peers and superiors, his leadership and mentoring has influenced the Regiment in ways hard to describe. It is comforting to know he will no doubt continue to influence and shape the Regiment from the Fires Formation. And finally, WO2 Jim Hallam as he departs the cell, not only on posting, but also on promotion to Captain, good luck Jim on your next adventure, your passion and mirth will be missed, especially by Maurice.

Now is a great time to be a gunner within the RAA. Once again, thank you all for your continued support to me and the RAA TT Cell.

UBIQUE

VALE: BRIGADIER GEORGE SALMON AM (RETD)

Representative Colonel Commandant & CC Eastern Region – 1996 to 2000

By Peter Bruce, OAM



Born on 3 September 1938 in Mosman NSW, George Salmon was educated at Fort St Opportunity School, North Sydney Boys High School; the Royal Military

College, Duntroon; The University of Sydney; the Royal Military College of Science, Shrivenham, UK; and the University of New England.

George joined the 4th Class of the Corps of Staff Cadets at Duntroon and became a member of Kapyong Company in early 1956. In December 1959 he was commissioned from Duntroon and allocated to the Royal Australian Artillery. He attended Sydney University in 1960-61, gaining

the degree of Bachelor of Engineering (Electrical). From 1961 to 1965 he served in 4th Field Regiment, Royal Australian Artillery at Wacol, Queensland. In 1965 and 1966 he attended a Gunnery Staff Course at the School of Artillery, Larkhill, UK and served as an instructor at the Royal Artillery Gunnery Training Establishment, British Army of the Rhine. He then returned to Australia as an instructor at the School of Artillery, Manly, NSW.

In August 1969 he became Battery Commander, 107th Field Battery, 4th Field Regiment in Townsville and served in this appointment in South Vietnam in 1970.

In late 1970 on return from Vietnam to Townsville, he served briefly as Deputy Assistant Adjutant General of 3rd Task Force/North Queensland Area.

He attended a Guided Weapons Systems Course at the Royal Military College of Science, Shrivenham, UK in 1971, gaining the degree of Master of Science. In 1972 he served in the Rapier Project Management Office in the UK Ministry of Defence (Procurement Executive), returning to Australia as the Australian Rapier Project Manager in Materiel Branch, Department of Defence (Army Office) later that year.

After attendance at the Australian Army Staff College, Queenscliff in 1974, he was promoted to Lieutenant Colonel and occupied appointments of Staff Officer Grade 1 in Armaments, and then Guns and Guided Weapons in Materiel Branch, Department of Defence (Army Office), from 1975 to 1977.

He commanded the School of Artillery, Manly, NSW in 1978 – 80, attended the Australian Joint Services Staff College in 1981 and in July 1981 was promoted to Colonel as Director of Logistic Plans, Department of Defence (Army Office).

In 1983 and 1984, he served on exchange as a Member of the Ordnance Board, UK Ministry of Defence in London.

In 1985 he was promoted to Brigadier and appointed Commander, Army Engineering Development Establishment, Maribyrnong, Victoria. He was appointed Director General of Materiel-Army in October 1987, occupying this position until he retired from the Army on 2 September 1993.

For services to Army materiel procurement, in 1990 he was appointed a Member of the Order of Australia and in August 1993 he was awarded a Chief of the General Staff's Commendation.

After retiring from the Army, he worked as a part-time Defence Consultant, principally to Martin Marietta Defence Systems, Lockheed Martin

Defence Systems and L-3 Communications Systems, from 1995 to 2002.

From March 1996 to November 2000, he was the Royal Regiment of Australian Artillery Colonel Commandant Eastern Region and Royal Regiment of Australian Artillery (National) Representative Colonel Commandant.

George was passionately involved with Legacy and had been a member of The Legacy Club of Canberra since 1991. He was involved in many aspects of Legacy. He was the Club President in 1998-99, and its Treasurer or Chairman of its Finance Committee for 23 years. George spent 25 years of his 31 years with Legacy on the Club's Board of Management. He also served on the Board of Legacy Australia and was responsible for writing an operations guide for the Welfare role of Canberra Legacy.

He and his wife Tess, who died in 2018, had four children, Paul, Andrew, Mark and Therese. Mark was killed in a motorcycle accident in 1987 at 18 years of age. His interests include golf, bushwalking and gardening. He and Tess, accompanied on many occasions by their children, walked extensively in Australia, New Zealand and Europe.

George Thomas Salmon died at 2315 hours on 6 January 2023. He was 84. George had some medical setbacks following heart surgery in mid-December. He died peacefully in no pain after seeing all his grandchildren and with family present. Not long before his death he said to the children, "I have lived a full and wonderful life". A funeral for George was held on Friday 13 January 2023 at the Royal Military College Chapel, Duntroon. His funeral was very well attended, and live streamed for anyone unable to attend. His interment was conducted later in the day with only immediate family present. George had prearranged a wake at the Royal Canberra Golf Club at Yarralumla which was well attended by many of his friends and Army mates. George's family also hosted a BYO pizza party later in the evening at Georges home in Lyons.

As in life, George was diligent, meticulous with a professional approach to his work, and had laid out the planning and consequences of his death. He had prearranged much of his funeral, and other formalities. His children had a list of who to contact after his death. Such was the man who had a Regular Army career spanning thirty-seven years. His legacy will remain with many for a long time.

ACKNOWLEDGEMENTS: JOHN BERTRAM FOR THE MILITARY EULOGY; PAUL STEVENS FOR A LEGACY TRIBUTE AND PAUL, ANDREW AND THERESE FOR THEIR WORDS AT GEORGE'S FUNERAL.

Colonel David Edwards, CSC

New Colonel Commandant School of Artillery



Colonel David Edwards was born on 4 March 1974 in New South Wales. He is a graduate of the Australian Defence Force Academy and Royal Military College Duntroon. In 1995 he was assigned to the Royal Regiment of Australian Artillery.

He completed several foundational junior leadership appointments at 4th Field Regiment from 1997 to 2000 and deployed to East Timor as a Forward Observer as part of Operation WARDEN in 1999.

Colonel Edwards served at the School of Artillery as an Instructor-in-Gunnery in 2001 to 2002. He was selected to deploy to Bosnia in 2002 and was attached to the United Kingdom Battle Group for Operation OSIER as the Recon Company Second-in-Command. On return to Australia in 2003, he was posted to the Royal Military College Duntroon as a Combined Arms Tactics Instructor and a Company Commander.

In 2005, Colonel Edwards returned to 4th Field Regiment as the Battery Commander of 108th Field Battery. He was deployed to Iraq as the Battery Commander for Overwatch Battle Group (West) 1 in 2006, where he commanded a diverse range of Combat Support force elements within the Battle Group. On return from operations in 2007, Colonel Edwards served as SO2 Global Plans at Headquarters Joint Operations Command.

In 2008, Colonel Edwards attended the Australian Command and Staff College. He achieved first in his class and was awarded the Governor Generals' Prize for his overall performance.

In 2009, he was posted to Army Headquarters as the inaugural Staff Officer to Director General Development and Plans – Army. He was promoted to Lieutenant Colonel in 2010 and appointed SO1 Organisation. Colonel Edwards deployed in 2011 on Operation SLIPPER serving in Future Plans for HQ ISAF Joint Command. He

returned to Army Headquarters in 2012 as SO1 The Army Plan.

Colonel Edwards was the Commanding Officer and Chief Instructor of the School of Artillery from 2013 to 2015. This period coincided with significant modernisation and change to RAA capabilities including digitisation of the Joint Fires system and assuming responsibility for UAV training in Australia. He was awarded the Conspicuous Service Cross in the 2016 Australia Day Awards for his leadership and contribution to modernisation at the School of Artillery.

Colonel Edwards was promoted in 2016 served as the first Director of Preparedness, Plans and Joint Collective Training at Army Headquarters. During this appointment he deployed as part of the lead reconnaissance for Operation AUGURY (Philippines).

In January 2018, he was appointed as the Director of Studies – Land at Australian Command and Staff College. In 2019, he established the Director Joint Professional Military Education at the Australian Defence College. During this tenure he led the development of the Joint Professional Military Education Continuum. In 2020 Colonel Edwards was a student on the Defence Strategic Studies Course.

Colonel Edwards served as Colonel Training at Headquarters Forces Command in 2021-22 where he redesigned the collective training campaign and served as Chief of Operations for Exercise Talisman Sabre 21.

Colonel Edwards transitioned from full-time service in December 2022. He continues to serve in a Reserve capacity as a Director of the Army Amenities Fund Company and as an author for joint and Army doctrine.

Colonel Edwards holds a Bachelor of Arts (Honours) in Politics, a Master of Strategy and Security and a Master of International Relations. He represented Army at the 2017 Asia Pacific Senior Officer Programme in Singapore and is a graduate of the AICD Company Directors Course. Colonel Edwards is married to Anne who is a consultant, strategic writer and editor. They have a 15 year old daughter, Evelyn. He enjoys travelling abroad, attempting to grow things in his garden, rugby, volleyball and lifting heavy things in the gym.

NOTE: COLONEL DAVID EDWARDS REPLACED COLONEL COMMANDANT COL STEVE GOLTZ ON 25 FEB 2023.

Dedicated Royal Regiment Career

Tim Gellel, Head of the Army History Unit

Major Martin Gowling enlisted in the Australian Army in 1977 serving with the Royal Regiment of Australian Artillery in senior roles including responsibilities for Artillery Trade Management (2010-2017), the Master Gunner (2008-2009) and as the Regimental Sergeant Major at the Army Recruit Training Centre, Kapooka (2006-2008), the Combined Arms Training Centre (2004-2005) and the 131st Divisional Locating Battery (1999-2001). His service includes deployments to Afghanistan (2009-2010) and East Timor (1999, 2001).



In his various Regimental Sergeant Major appointments, Major Gowling enhanced Army's relationships and integration with local Seymour and Wagga Wagga communities through his leadership of community engagement activities, including organising Area Open Days, a Military Tattoo and Beating the Retreat ceremonies. As Regimental Master Gunner and Acting Staff Officer Grade Two Artillery Trade Policy, Major Gowling's analysis into the development of Gunnery Learning and Training Objectives identified significant training overlap, the subsequent rectification of which saved time and resources in future gunnery training courses.

As Manager of the Army Fort Queenscliff Museum since 2018, Major Gowling displayed superior leadership and professionalism, in promoting Army's history and protecting Army's heritage. His management of the Army Fort Queenscliff Museum's operations have underpinned Army's relations with the local

Borough of Queenscliff. In his tenure, the Fort Queenscliff Museum has remained the Borough's most popular attraction, drawing over 20,000 public visitors, including over 7,000 school students.

His highly effective communication with stakeholders, including with Defence-appointed tour operators and Base Management staff, guided Fort Queenscliff's COVID-Safe operations through eight different lockdowns across 2020-2021. Although not formally responsible for estate management, MAJ Gowling's foresight ensured the protection of this Australian National Heritage Listed site. He initiated works requests which positioned Fort Queenscliff to accept \$7 million in Commonwealth COVID-19 Stimulus Package funding for major remedial works. The rapid initiation of these works allowed Defence to apply these funds to the benefit of the Bellarine Peninsula's economy, in accordance with the Commonwealth Government's intentions.

Shortly before his retirement, the Chief of Army recognised Major Gowling's outstanding leadership and exceptional dedication through a formal commendation. What few people know is that Major Gowling is possibly the only member of the Australian Army to have been so formally commended at the beginning and the conclusion of his long career: Recruit Gowling received a Chief of the General Staff Commendation for saving the life of a fellow recruit at Kapooka in 1977. Reading through his career history, there is no doubt that Major Gowling's career has been one of commendable excellence and commitment to duty from beginning to end.



The Death of our Captain General

The Late Queen Elizabeth II





CHIEF OF THE DEFENCE FORCE ORDER OF THE DAY

OPERATION LONDON BRIDGE 22

On Thursday 8 September 2022, Her Majesty Queen Elizabeth II, the longest serving British sovereign in history, passed away. The impact of her reign upon the United Kingdom (UK), the Commonwealth, Australia, and the Australian Defence Force (ADF) was immeasurable.

Her Majesty held a special relationship with the ADF, serving as Captain-General of the Royal Regiment of Australian Artillery, Air Commodore-in-Chief of the Royal Australian Air Force Reserve, and Colonel-in-Chief of the: Royal Australian Engineers; Royal Australian Infantry Corps; Royal Australian Army Ordnance Corps; and Royal Australian Army Nursing Corps. All vessels within the Royal Australian Navy were also Her Majesty's Australian Ships.

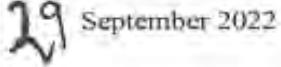
I was extremely proud to see each of those Special Relationship Organisations represented in the UK for Her Majesty's Funeral on 19 September, and I would like to acknowledge the ADF personnel who marched in Her Majesty's funeral procession. The Royal Australian Air Force also provided vital support, assisting with the safe transportation of the Australian Government delegation to the UK, as well as delegations from our friends and partners in the Pacific.

Additionally, the ADF performed many important duties in Australia after the passing of Her Majesty, and for the Proclamation of His Majesty King Charles III.

The Australian Federation Guard fired a 96 gun salute at Australian Parliament House on Friday 9 September, recognising each year of Her Majesty's life. On Sunday 11 September, the Australian Federation Guard, Royal Military College Band, and 53 Battery, School of Artillery, supported the national Proclamation of King Charles III with a Royal Guard and 21 gun salute. Further, personnel from HMAS *Parramatta*, and 9 Regiment, Royal Australian Artillery, provided support to the New South Wales Proclamation Ceremony with a Royal Guard and 21 gun salute at New South Wales Parliament House and Government House.

I am deeply grateful to all ADF and APS personnel for the significant contributions they made in support of these activities. The skill, dedication and professionalism displayed by all involved was in keeping with the finest traditions of the Australian Defence Force.


Angus J Campbell, AO, DSC
General
Chief of the Defence Force

 29 September 2022





CHIEF OF THE DEFENCE FORCE ORDER OF THE DAY

A MESSAGE FROM HIS MAJESTY KING CHARLES III

Please find a message below from His Majesty King Charles III expressing his deep gratitude and appreciation to the men and women of the Australian Defence Force.



BUCKINGHAM PALACE

On the occasion of my Accession as Sovereign, I would like to send to all who serve in the Australian Defence Force my heartfelt gratitude for the unstinting loyalty and professionalism you displayed throughout the reign of my beloved mother.

I know that The Queen took the greatest possible pride in the way servicemen and women from Australia performed their duties in many parts of the world, and often in the most testing and difficult circumstances.

I share my mother's high regard for your courage and commitment. I know, for my part, that you will continue to serve your country with the dedication and bravery which you have demonstrated with such success over the years.



**MESSAGE FROM THE MASTER GUNNER ST JAMES'S PARK
LIEUTENANT GENERAL SIR ANDREW GREGORY KBE CB DL**

“I know that all current and former members of the Royal Regiment of Artillery and the Royal Artilleries of the Commonwealth are greatly saddened to hear of the death of our Captain General, Her Majesty Queen Elizabeth II. As the longest serving British Monarch in history, Her Majesty’s unquestioning duty and dedication to the Nation, to the Commonwealth and to Her Armed Forces will be deeply and profoundly missed.

Her Majesty’s interest in, and engagement with, all aspects of Her Royal Regiments throughout Her reign has been of the greatest importance. As the Nation and the World mourns, our thoughts are with His Majesty The King and all members of the Royal Family; I know that I speak on behalf of all current and former members of the Royal Regiment of Artillery and the Royal Artilleries of the Commonwealth in offering our deepest and most heartfelt condolences at this difficult time.”

GOD SAVE THE KING

Royal Regiment of Australian Artillery

The sad news of the passing of Her Majesty Queen Elizabeth II our Captain General and longest-serving monarch having reigned for 70 years witnessed the end of an era for the Royal Regiment of Australian Artillery. A very large part of this period was as Captain General.

As Australian Gunners we have had a very privileged and unique relationship with Her Majesty over a very long period. Her Majesty decided to become our Captain General on 19th September 1962, almost 60 years ago (the same date she agreed for the Royal Australian Artillery to become the Royal Regiment).

Her decision was an indication of how highly she thought of the Royal Australian Artillery as this placed the Regiment on an equal footing in her eyes to the Royal Artillery having been their Captain General since her coronation in 1952, assuming this role from her father King George VI.

Her imposing presence and leadership as Captain General will be missed by all Gunners, however the new Banner of Queen Elizabeth II (1871-2021) will serve as a fitting memorial to an outstanding person and a great monarch.



Australian Army

Royal Regiment of Australian Artillery

BQ41474467

Sir Edward Young KCVO
Private Secretary to His Majesty the King
Buckingham Palace
London SW1A 1AA
United Kingdom

Dear Private Secretary,

Please convey my humble duty to His Majesty The King, and inform His Majesty that the Representative Colonel Commandant, and All Ranks of the Royal Regiment of Australian Artillery, both serving and retired, join with all our fellow Australians and members of the Commonwealth in offering our deepest condolences and prayers to all members of the Royal Family, and the people of the United Kingdom, on the death of Her Late Majesty Queen Elizabeth II.

On the 19th September 1962, Her Late Majesty not only became our Captain- General but also agreed to the Royal Australian Artillery becoming a Royal Regiment. As Australian Gunners therefore, we had the honour of a very privileged relationship with Her Late Majesty for some 60 years. As such, all Gunners will sorely miss Her Late Majesty's professional interest, dedication, and leadership as our Captain-General. However, the new Banner of Queen Elizabeth II (1871-2021), which is to be presented to the Royal Regiment in November this year, will serve as a fitting reminder of our first Captain-General.

Her Late Majesty's life was one of service, devotion and duty that will remain an enduring legacy and a worthy example to us all.

Ubique,

S Roach AM
Brigadier (Retired)
Representative Colonel Commandant
Royal Regiment of Australian Artillery

C/- Post Office Box 112
PUCKAPUNYAL
Victoria 3662
AUSTRALIA

13th September 2022

Background of Operation London Bridge

Open Source Material

Funerals and coronations of members of the royal family are typically organised by the Earl Marshal and the officers in the College of Arms.

Preparations for Queen Elizabeth II's death and funeral date back to the 1960s, with the plan having undergone multiple changes in the decades since. The plan was updated three times a year through a meeting involving government department officials, the police, and broadcasters. The plan that outlines the process between the death of the Queen and her funeral was codenamed Operation London Bridge.

On the death of the Queen, her private secretary would be the first official (i.e., not one of her relatives or part of a medical team) to convey the news. Their first act would be to contact the prime minister, where civil servants would convey the code phrase "London Bridge is down" to the prime minister. The cabinet secretary and the Privy Council Office would also be informed by the private secretary. The cabinet secretary would then convey the news to ministers and senior civil servants. The Foreign, Commonwealth and Development Office's Global Response Centre, would communicate the news to the governments of the 14 other countries of which Elizabeth was queen (the Commonwealth realms), and to the governments of the other countries of the Commonwealth of Nations. Government websites and social media accounts, as well as the royal family's website, would turn black.

The media would be informed by announcement to PA Media and the BBC through the Radio Alert Transmission System and to commercial radio on the Independent Radio News through a network of blue "obit lights" which would alert presenters to play "inoffensive music" and prepare for a news flash, while BBC Two would suspend scheduled programming and switch to BBC One's broadcast of the announcement. BBC News

would air a pre-recorded sequence of portraits, during which the presenters on duty at the time would prepare for the formal announcement by putting on dark clothing prepared for this purpose. The Guardian reported that The Times had 11 days of prepared coverage ready and that ITN and Sky News had long rehearsed her death, substituting the name "Mrs Robinson" for the Queen's.

A footman would pin a dark-edged notice to the gates of Buckingham Palace. At the same time, the palace website would display the same notice. The Parliament of the United Kingdom and the Scottish, Welsh and Northern Irish parliaments would meet as soon as was practical or be recalled if they are not sitting. The prime minister would address the House of Commons. The new monarch would host a meeting with the prime minister and then deliver a speech to the nation at 6 pm, the evening following the Queen's death. Whitehall and local government buildings would fly flags at half-mast and books of condolence may be opened; ceremonial ornaments, such as ceremonial maces or council chains, were to be put in black purses. Gun salutes would take place at saluting stations and a service of remembrance, to be attended by the prime minister and senior ministers, would be held at St Paul's Cathedral.

Ten days after the Queen's death, a state funeral led by the Archbishop of Canterbury would be held at Westminster Abbey. A funeral procession was also planned, with the Queen deciding on the order of the procession. A two minutes' silence would take place across the United Kingdom at midday and processions would gather in London and Windsor. Her body would then be buried in a prepared tomb at King George VI Memorial Chapel in St George's Chapel, Windsor Castle, alongside Prince Philip, Duke of Edinburgh, whose coffin would be moved from the Royal Vault. A committal service would be held at St George's Chapel before the burial. As agreed by the Queen and the prime minister, the day of the funeral would be declared a day of national mourning, although a bank holiday would not be granted.

A 96-gun salute and day of mourning: Here's how Australia is marking the Queen's death

BY CHARIS CHANG, SBS NEWS
PUBLISHED 9 SEPTEMBER 2022

AUSTRALIA IS MOURNING THE PASSING OF THE NATION'S HEAD OF STATE WITH A NUMBER OF EVENTS TO MARK QUEEN ELIZABETH II'S DEATH, INCLUDING FLYING FLAGS AT HALF MAST, THE SIGNING OF CONDOLENCE BOOKS, AND THE FIRING OF A 96-GUN SALUTE IN CANBERRA - ONE FOR EVERY YEAR OF HER LIFE.

Prime Minister Anthony Albanese, former prime ministers and the opposition leader have led Australian tributes to the late Queen Elizabeth II. Around the country, people laid flowers and signed condolence books after hearing the seven-decade reign of the Queen had ended following her death aged 96 in the early hours of Friday morning.

To mark her passing, Australia's Federation Guard fired a Gun Salute from the forecourt of Parliament House, using six Howitzer Ceremonial Guns firing one round for each year of the Queen's life at 10-second intervals.

Under constitutional law, King Charles III immediately became king when his mother died in Scotland.

Flags flew at half-mast across Australia and while the country is not expected to observe an official mourning period, a national memorial is expected.

Australians woke on Friday morning to news the Queen had died peacefully at Balmoral in Scotland, at the age of 96 years old.

On Saturday, the Governor-General David Hurley, Prime Minister Anthony Albanese and other members of parliament will lay a wreath at the Queen's Terrace.

Parliament will be suspended for 15 days and flags will likely remain at half-mast until the day after the Queen's funeral, except for Saturday, when Prince Charles is proclaimed as the new sovereign.

A National Day of Mourning will be held following the return of the prime minister and Governor-General from London, with a moment's silence to be observed.

Mr Albanese offered sincere condolences to the government and people of the United Kingdom and Prime Minister Truss gave her condolences to all Australians at this sad time.

The two leaders spoke about Queen Elizabeth II's remarkable life, legacy, and dedication to duty. Mr Albanese congratulated Ms Truss on her election and the two prime ministers

committed to build on the deep links between their two nations.

The NSW and Victorian governments have announced tributes to the Queen.

In Sydney, bells rang around midday on Friday at the GPO clock tower, Town Hall and St Andrews. The bells were tolled 96 times, representing each year of the Queen's life.

The Sydney Opera House sails lit up from the early evening to midnight on Friday and will be lit up from 6.30pm to midnight on Saturday.

"The late Queen Elizabeth II played an important role to the people of Australia during her reign and the lighting of the Sydney Opera House is a fitting tribute on behalf of the people of Australia," Mr Albanese said in a statement.

NSW Premier Dominic Perrottet said the tribute on the country's most recognised icon would be a symbolic gesture on behalf of the NSW government.

"The tribute on the sails will recognise Her late Majesty's immense contribution to our state and nation, a fitting tribute as she officially opened the Sydney Opera House in 1973," Mr Perrottet said.

Mourners wishing to lay a floral tribute are being asked to leave these near the gates of Government House Sydney, at the Parade Ground inside the Royal Botanic Garden Sydney. However, a donation to charity is being encouraged.

In Melbourne, mourners can lay flowers at the gates of Government House, and a tribute book will be available for people to sign.

Members of the public have also been placing flowers outside St Andrew's Cathedral in Sydney and signing a condolence book there.

People can also leave a message of condolence at Parliament House, or on the Prime Minister and Cabinet's website at pmc.gov.au, or the Governor-General's website at gg.gov.au.

Flowers can be left at the curved walls outside Australia's Parliament House.

On Friday, Mr Albanese remembered the late Queen as a monarch who "let her humanity show" and someone who performed her duty with "fidelity, integrity and humour".

"There is comfort to be found in Her Majesty's own words: 'Grief is the price we pay for love', " Mr Albanese said in a statement.

"She celebrated our good times, she stood with us in the bad. Happy and glorious but steadfast too. In particular, we recall the sympathy and personal kindness she extended to Australians afflicted by tragedy and disaster."

Mr Albanese said the Queen's passing marks "the end of an era".

Inside Australia's secret plan of action in the wake of the Queen's death and the poignant Palace code words that signalled the end of an epic era

- Queen Elizabeth II has died at age 96, Buckingham Palace has announced
- Her Majesty passed away at Balmoral Castle in Aberdeenshire, Scotland
- Secret plans for the Queen's funeral and mourning process have been revealed
- They include a potential national holiday for Australia after the mourning period
- Sixteen Australians will attend the Queen's funeral at Westminster Abbey

BY PETER VINCENT FOR DAILY MAIL AUSTRALIA, PUBLISHED: 02:24 AEDT, 9 SEPTEMBER 2022 | UPDATED: 07:16 AEDT, 9 SEPTEMBER 2022

As the news of Queen Elizabeth's death creates shockwaves across the globe, Australia is setting in motion a secret plan seven decades in the making.

The heartbreaking reality that her Majesty, 96, has died after 73 years as ruler of Britain and head of state for Australia and the Commonwealth, means a series of protocols will now be enacted in Canberra.

The code words from Buckingham Palace that 'London Bridge is Down' will start a 10-day process beginning with naming Charles as King and ending in her funeral.

Australian Prime Minister Anthony Albanese was told of the Queen's death an hour before the rest of the world was informed via an official announcement.

The plans have been decades in the making and were revised in 2017 before being passed on to Mr Albanese as the incoming Australian prime minister.

But fittingly the announcement will have to wait until the Queen is farewelled.

Her funeral will take place in ten days, with a procession to Westminster Abbey at 11am, a committal at 3.55pm at Windsor Castle and a private burial at the castle at 7pm.

There will be four official Australian mourners - Mr Albanese, his girlfriend Jodie Haydon, current

Governor-General David Hurley and his wife Linda Hurley.

Mr Albanese will have a ceremonial role for the service in the United Kingdom as well as at home in Australia.

A further ten to 12 notable Australians will be invited to attend the Queen's funeral.

They are expected to include Indigenous Australians, representatives from charitable, religious, sporting and community organisations.

The plans include two RAAF planes collecting Pacific leaders and flying them to London for the Queen's funeral.

An Australian service will be held at a yet-to-be confirmed Anglican cathedral after the state funeral.

The day that happens is likely to be named an Australian national holiday.

Charles's new full title will be the elaborate 'Charles the Third, by the Grace of God King of Australia and His other Realms and Territories, Head of the Commonwealth'.

Charles's wife, Camilla Parker Bowles, will assume the title of queen consort, as confirmed by the Queen earlier this year.

Prince Charles will become Charles III, proclaimed in Britain at St James's Palace.

'When, in the fullness of time, my son Charles becomes King, I know you will give him and his wife Camilla the same support that you have given me,' she said.

'It is my sincere wish that, when that time comes, Camilla will be known as queen consort as she continues her own loyal service.'

She will not have any authority or title in Australia other than social and diplomatic, but she will be known to the world as Queen Camilla.

Current governor-general David Hurley will be an official mourner at the Queen's funeral.

A framed notice has been placed on the fence of Buckingham Palace informing the public of the Queen Elizabeth's death.

The palace floodlights have been extinguished in a poignant but traditional piece of symbolism.

Flags will be flown at half-mast in the UK and Australia for ten days.

From Lieutenant General Sir Andrew Gregory KBE CB DL



**Artillery House
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PA to MGStJP: Jennifer.McGrath924@mod.gov.uk

Master Gunner St James's Park

Brigadier D Hill
Head of Regiment
The Royal Regiment of Australian Artillery

4th October 2022

Dear Damien,

Now, as the dust settles on what has been a truly momentous event, I am writing not only in my official capacity as Master Gunner St James's Park, but personally as well, to congratulate your officers and soldiers on their outstanding, professional support during Her late Majesty our Captain General's funeral.

As you are all too aware, your Regiment, provided a marching contingent who journeyed across the time zones and oceans, to represent the Royal Regiment of Australian Artillery. As one who was also involved in the solemn parades on the day I can vouch that the overwhelming effects on those soldiers who took part was, and will remain, unforgettable and was something that the television recordings couldn't quite capture. Unperturbed with facing the largest audience in the world, with the additional and invisible pressure of countless media and personal cameras, all waiting to record the slightest of mishaps, your marching contingent (as reported to me) performed their duties faultlessly. I appreciate also that the constant preparation and drill practice necessary to produce such a high standard, demanded much from the small contingent, especially in the immediate days before the funeral. This personal effort from all individuals paid off. Recognition should also be given to those in your RHQ who worked behind the scenes monitoring the Op BRIDGE Instructions as they came in. Small cogs, but essential to the smooth delivery of the support.

In my position as Master Gunner St James's Park, I was able to bask in the praise and compliments that were showered on me for the performance of our Royal Regiments. Such praise rightly belongs to all members of our Regiments involved that day. All ranks can be justifiably proud of themselves and in the part they played, whether great or small, at the very centre of what was a world event. They have upheld the pride of their own Regiment and have, through their smartness on parade and their involvement, been instrumental in marking their Regiment's farewell to Her Majesty our Captain General.

Please ensure my congratulations and personal thanks are passed to all ranks of your marching contingent.

*Yours ever,
Andrew*

Operation London Bridge

Royal Regiment Contingent Personal Reflections

**Brigadier Damian Hill, AM
Head of Regiment**

8 DAYS THAT FELT MORE LIKE 8 MINUTES. A SINGULAR PRIVILEGE TO REPRESENT THE TENS OF THOUSANDS OF GUNNERS WHO HAVE SERVED IN THE RAA DURING HM REIGN. I AM STILL PROCESSING THE EXPERIENCE, EVEN NOW IT FEELS SOMEWHAT SURREAL.



Head of Regiment at Westminster Abbey

The ceremony at Westminster Abbey was the first spine tingling moment. The last stanza of every hymn was sung with such vigour it was difficult not to get swept up in the emotion. The second moment was the left wheel onto Pall Mall during the procession. Pall Mall is impressive at the best of times, but to witness the Mall surrounded by hundreds of thousands of people, the environment silent except for the Royal Marine Band was truly an unforgettable moment.

I am very proud of the contribution our small RAA contingent performed, and humbled to know that HM personally identified where the RAA would participate in her funeral. Our British hosts did a superb job, demanded exacting standards, and provided a fitting farewell to such a loved and respected monarch.

**Warrant Officer Class One Anthony Horte, OAM
Regimental Master Gunner**

IT IS RATHER STRANGE AND DIFFICULT TO EXPRESS THOUGHTS ABOUT BEING PART OF THE BIGGEST EVENT IN A LIFETIME, PARTICULARLY WHEN THE EVENT IS A FUNERAL. NEVERTHELESS, OPERATION LONDON BRIDGE WILL TRULY BE AN EXPERIENCE I WILL NEVER FORGET.



Regimental Master Gunner marching as part of the Commonwealth contingent

It became somewhat of a task, opposed to a time to grieve, and reflect on the exceptional service our Captain-General gave to not only us but also the Commonwealth. I felt the occasion for me was going to be another simple parade; until, on the day a simple video and message from my wife along with the drive to Wellington Barracks, brought me back to the significance of the funeral.

My wife had sent me the Jubilee video of HM the Queen and Paddington Bear along with a message from my family. Paddington Bears final statement "... and thank you for everything" along with the spectacle of billboards enroute to Wellington Barracks made me 'well-up'. That moment on the bus brought home the sadness, the grief, the humility, the honour and the privilege I had to be a part of this momentous occasion in farewelling our Captain-General, our Sovereign.

Captain Craig Stephenson

Adjutant School of Artillery

“IT DOESN’T NEED TO BE SAID THAT THIS IS THE MOST IMPORTANT PARADE THAT ANY OF US WILL EVER TAKE PART IN, AND HER MAJESTY DESERVES YOUR BEST EFFORTS”. THIS STATEMENT FROM WARRANT OFFICER CLASS ONE OLIVER OF THE GRENADIER GUARDS AT THE COMMENCEMENT OF OUR FIRST REHEARSAL SAT AT THE FOREFRONT OF MY MIND ALL WEEK.

The realisation of exactly what I was about to be part of did not come on suddenly though. Each day brought a fresh experience that gradually made the gravity and solemnity of the moment sink in. A 0300 rehearsal through the deserted streets of London that ended with the rising sun shining off of the Queen Victoria Memorial as we marched passed, the Master Gunner St James Park raising one of his final toasts to the Queen as our Captain-General, one of my peers personally expressing his condolences to the Prince and Princess of Wales, and phone calls and messages from back home when photos and videos of us started to surface in the media. These moments built my experience and led to my realisation of exactly how momentous this occasion was. But the memory that will probably stay with me for the longest, is standing at attention near the Horse Guard’s Parade Ground while the national anthem played from inside Westminster Abbey and the thousands of spectators lining the street joined in singing. We did our best for her, and I hope Her Majesty would have been pleased with our efforts.

Bombardier Samuel Russo

Air Missile Defence Wing Instructor

THERE IS REALLY NO WAY TO DESCRIBE HER MAJESTY’S FUNERAL BECAUSE THERE WILL NEVER BE AN EVENT QUITE LIKE IT AGAIN, ALIKE TO THE QUEEN, THERE WILL NOT BE ANOTHER ONE QUITE AS EXCEPTIONAL.

There were few moments to really appreciate the task at hand throughout the week of rehearsals leading up the funeral. It was not until after the queen was transferred from the gun carriage to the hearse and the commonwealth contingent was marched back into Wellington Barracks that the magnitude of the event sunk in. It was truly

an honour to march alongside not only military members of the commonwealth, but it was a privilege to represent the Royal Australian Artillery on such a historic day.

It fills me with great pride looking back on that day and I hope that we have farewelled our Captain-General, Queen Elizabeth II, to the standard she deserved.

Lance Bombardier Nicholas Burrough

53 Battery

EVEN 3 WEEKS ON FROM HER MAJESTIES FUNERAL IT STILL DOESN’T FEEL REAL. ALL MY LIFE AND ALMOST EVERYBODY ON THIS PLANET HAS ONLY KNOWN HER MAJESTY TO BE AT THE HEAD OF THE MONARCH.

With that playing in my mind throughout all the restless days and 0300 dress rehearsals it put it all in perspective. She was the epitome of professionalism and didn’t let it slip once throughout her almost entire lifetime of being on the throne. The amount of sacrifice that would have entailed put what pain or restlessness I had whilst rehearsing to the back of my mind, to stand proud, tall and not waver in the midst of pain is exactly what she would have done, so that’s exactly what I did.

Inevitably throughout the time in England I was swept up in the motion of the tasks and rehearsals, at times losing focus of the real reason I was there. What truly snapped me back into focus and realisation was when His Royal Highness William the Prince of Wales came to meet members of the contingent. He said “this is a moment I never thought would happen and I’m dreading the funeral”, this is when it truly hit me that not only is she the Queen, she is a mother, grandmother, partner and sibling to her family. From that moment for me we weren’t just doing this for the Queen or the Commonwealth but for her family and whilst marching past Buckingham Palace all I could think about was how heartbreakingly this day is for her family. That feeling of heartache for her and her family will never ever leave me.

Defence News: Defence prepares to honour the Queen

Lieutenant Commander John Thompson
16 September 2022

The Australian Defence Force is preparing to remember and honour Her Majesty Queen Elizabeth II at her funeral ceremony in London on Monday.

About 40 personnel, representing each of the services and military organisations with which the Queen had a special relationship, have arrived in the United Kingdom over the past few days in preparation for the ceremony.

The personnel will march alongside Canadian and New Zealand defence force members in a Commonwealth contingent as part of the ceremony. Commodore Ray Leggatt is heading up the Australian contingent. “This is indeed a solemn moment for all of us – the opportunity to express our sorrow for the loss of Her Majesty and thanksgiving for her life – on behalf of the entire Australian Defence Force,” Commodore Leggatt said.

There has been little down time for those taking part, which also involves Australian service members currently on deployment in the UK.

Training started within 24 hours of personnel arriving, including before-dawn dress rehearsals at Wellington Barracks near Buckingham Palace.

The Head of Defence Staff in London, Brigadier Grant Mason, said, despite the training, no amount of planning, preparation or processes you put in place could prepare you for the impact of the death of the Queen. “We are extremely grateful for Her Majesty’s service and commitment throughout her 70-year reign and deeply humbled by the opportunity to recognise her dedication to duty at her funeral on Monday,” Brigadier Mason said.

The Queen had a special affinity with several Defence Organisations, serving as the Colonel-in-Chief of:

- Royal Australian Engineers (RAE)
- Royal Australian Infantry Corps (RAINF)
- Royal Australian Army Ordnance Corps (RAAOC)
- Royal Australian Army Nursing Corps (RAANC)

As well as:

- Captain-General of the Royal Regiment of Australian Artillery (RAA)
- Air-Commodore-in-Chief of the Royal Australian Air Force – Reserve

Additionally, all vessels within the Royal Australian Navy were recognised as Her Majesty’s Australian Ships.

The Sydney Morning Herald

Australians march to a different beat to farewell the Queen

By Latika Bourke 16 September 2022

London: In the early hours on the streets of London a group of Australians have been practising marching to a different beat to be part of the funeral proceedings for the Queen.

Thirty-nine members of the Australian Defence Force have arrived in London and begun rehearsing to be part of the procession after the funeral on Monday at Westminster Abbey.

They are part of a wider Commonwealth contingent that also includes members of the Canadian and New Zealand forces.

They began rehearsing at 2am on Thursday London time. It lasted five hours.

The rehearsal is vital as the post-funeral march will be set to a beat of around 35 beats per minute, which is vastly slower than the regular tempo that members of the Australian defence force march to.

They will march around 40 minutes on Monday between the Abbey and Wellington Arch as the Queen’s hearse is hauled the 2.1 kilometres atop a historic gun carriage. Commodore Ray Leggatt said it was a privilege to lead the historic event and confessed to feeling some nerves.



Soldiers stand in formation in front of the Houses of Parliament during a rehearsal on September 15, 2022 for Queen Elizabeth II's funeral.

“There are nerves ... this is indeed an honour for all of us who are participating,” he told journalists outside Australia House in London.

“There’s sadness but it’s also a truly humbling experience to be a part of this - it’s a privilege and a humbling experience.

“The team have been hard at work at training at all hours of the day and night, including a full dress rehearsal at two o’clock this morning and during the day they have been practising and rehearsing at the army training centre in Pirbright,” he said.

"There's absolutely nothing left to chance and the team are continuing practising right up to the event," he said.

The members chosen to march are drawn from contingents in the military with whom the Queen had an affiliation or special relationship and was colonel-in-chief.

These include the Royal Australian Engineers, the Royal Australian Infantry, the Royal Australian Army Ordnance Corps and the Royal Australian Army Nursing Corps.

"Some were handpicked, myself I was in a specific position where that position was identified to represent the Royal Australian Navy," he said.

"Everyone here is of the highest calibre and incredibly honoured and privileged to be here," he said.

The Queen's funeral will begin at 11am local time on Monday and last for one hour.

Her hearse will be carried through London in a procession until it reaches Wellington Arch, after which it will be driven in a hearse to Windsor Castle, where she will be buried alongside her husband, Prince Phillip in St George's Chapel on Monday night in a ceremony that will be only attended by undisclosed members of the royal family and not televised.



The Queen's final journey: Palace releases picture of resting place

members. Australian Army Brigadier Mick Garraway said the rehearsal started within 24 hours of personnel arriving.

"It's a tremendous opportunity and it's a great privilege for us to be involved in this historic event," he told *Today*.

"Things happened pretty quickly.

"Most of us got the word last Friday and gathered in Sydney and then flew through over here to London. And there's been a lot of rehearsals."

The rehearsal started within 24 hours of personnel arriving, including a 2am before-dawn dress rehearsal at Wellington Barracks near Buckingham Palace.

"Essentially we have been rehearsing the parade itself after hours here in London, because of the requirement to close streets," Garraway said.

"There has also been rehearsals on a nearby army base. The troops have been working hard to prepare themselves for a style of a drill and style of marching which we don't normally do in Australia.



Buckingham Palace staff pay their respects

"The troops have been working really hard." Those marching include personnel from the Royal Australian Engineers, the Royal

'Great privilege': Australian Army personnel to march at Queen Elizabeth's II funeral

Allanah Sciberras, Channel Nine 18th September 2022

Training started almost immediately for the 39 Australian Army personnel who were selected to march as part of the funeral proceedings for Queen Elizabeth II.

It hasn't been an easy task, but they were prepared, with the members jumping on one of the first flights to London after hearing of the Monarch's death last week.

Australian Army Brigadier Mick Garraway will be among those marching alongside Australian, Canadian and New Zealand defence force

Australian Infantry, the Royal Australian Army Ordnance Corps and the Royal Australian Army Nursing Corps.

"They have been looking forward to representing their country in this historic event," Garraway said.

Soldiers march through Parliament Square during a rehearsal for Queen Elizabeth II's funeral in London. (Getty)

"Together in this environment, for many of us when we deploy in operations we're often away with the Brits, the Canadians and the Kiwis, so it's great to get together in that Commonwealth team and be part of something historic."

The Queen's funeral will begin at 8pm (AEST) on Monday at Westminster Abbey in London.

After the funeral, the coffin will travel in procession to Wellington Arch and then on to Windsor where the Queen will be laid to rest next to her husband, Prince Philip.

ADF and NZDF rehearse for Queen's funeral

Contact Website 16 September 2022.
Posted by Brian Hartigan Managing Editor

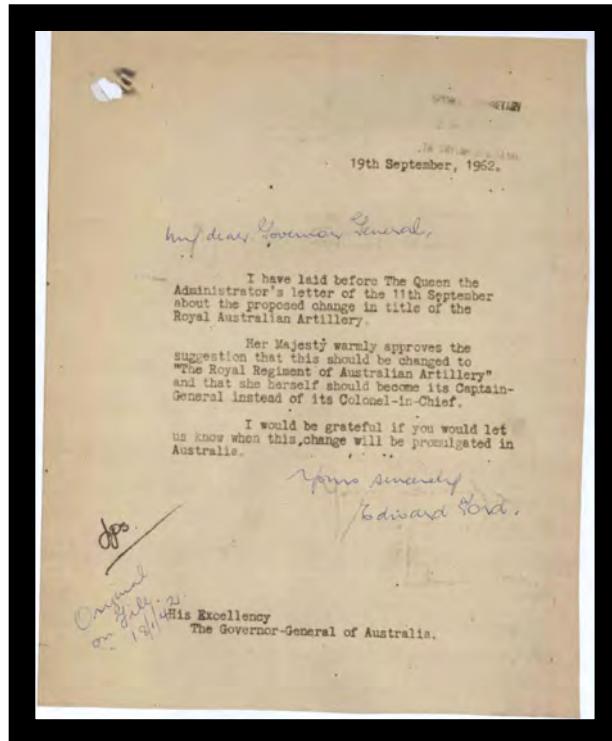
Forty Australian Defence Force and 24 New Zealand Defence Force personnel will represent our Southern Hemisphere nations in the United Kingdom following the passing of Her Majesty Queen Elizabeth II on 8 September 2022.

On behalf of the three services and Australian Defence organisations which the Queen was directly associated with, the 40 ADF personnel will participate in official commemoration and memorial ceremonies as part of the official national contingent alongside the Governor General and Prime Minister of Australia.

A main marching party of 24 NZDF personnel will march alongside their Australian and Canadian counterparts with UK Armed Forces and other Commonwealth countries who had significant links to the late Queen. Both contingents have been drilling at Army Training Centre Pirbright in Surrey and have also taken part in an early morning rehearsal in central London.

A main marching party of 24 NZDF personnel will march alongside their Australian and Canadian counterparts with UK Armed Forces and other Commonwealth countries who had significant links to the late Queen. Both

contingents have been drilling at Army Training Centre Pirbright in Surrey and have also taken part in an early morning rehearsal in central London.



Letter containing advice that Queen Elizabeth II had approved the change of title from the RAA to the Royal Regiment of Australian Artillery and that shec would become Captain General.



For Sale: 150th Anniversary Print

Numbered & unnumbered prints of the painting are available for purchase. Contact MAJ Gary Down, email: gary.down@defence.gov.au

Regimental



Head of Regiment

St Barbara's Day Message 2022

I extend my greetings and best wishes on behalf of the Representative Colonel Commandant, Brigadier S Roach AM (Retired), and our Colonels Commandant for your Saint Barbara's Day Celebrations on 4th December 2022.

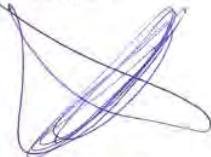
As we celebrate Saint Barbara's Day, let us reflect on what we have achieved in 2022 and prepare for new challenges in 2023. This year has once again been extremely busy with the usual tempo of exercises, and significant work in the capability and modernisation areas to progress Gunner projects and introduce new equipment.

It also saw many of us gather in Sydney in early November for the consecration and presentation of the new Queen's Banner (1871-2021). It was a magnificent day for all Australian gunners, and one that will not only be remembered for many years to come, but also will take its rightful place in our history.

I congratulate all who will be taking up new appointments in January next year as Commanding Officers, Battery Commanders and Regimental and Battery Sergeant Majors. It is also a day when many are promoted to the next rank, being recognised for their continued potential. To you, I pass on my congratulations for your ongoing commitment to the Royal Regiment and the Army.

Finally, I congratulate and thank all ranks of the Royal Regiment of Australian Artillery, serving and retired, for their continued service and wish all Gunners serving overseas good shooting and a safe return to their families.

Ubique,



DJ Hill, AM
Brigadier
Head of Regiment

4 December 2022

New Commanding Officers

LIEUTENANT COLONEL KHALID ELKHALIGI

1st Regiment RAA



LTCOL Khalid Elkhaliqi was born on 06 Jan 1986 in Sydney, New South Wales. He grew up in Sydney's North West, completing his Higher School Certificate at Galston High School in 2003. In 2005, he entered the Royal Military College Duntroon and was

appointed to the Royal Regiment of Australian Artillery upon graduation in June 2006.

LTCOL Elkhaliqi's regimental experience includes service in the 7th and 3rd Brigades. As a Lieutenant in 1st Field Regiment, he served as a Section commander, Gun Position Officer and Troop Commander from 2006-2009. On promotion to Captain he posted to 4th Field Regiment, serving as a Forward Observer and Adjutant from 2010-2012. On promotion to Major, LTCOL Elkhaliqi completed Sub Unit Command in the 1st Regiment RAA as Battery Commander Operations Support Battery / Operations Officer in 2016, prior to Command of 105 Battery in 2017. In 2022, LTCOL Elkhaliqi has been selected to Command the 1st Regiment RAA from 2023-2024.

LTCOL Elkhaliqi's instructional experience commenced with service at the Royal Military College Duntroon from 2013-2014 as a Small Group Instructor, Package Master Field Training and Package Master Complex Warfighting. During this time, he was required to teach, train and mentor Staff Cadets in tactics and leadership. He gained further experience from 2019-2020 as Package Master Operations and Senior Instructor for the All Corps Captains Course. During this time he was required to train junior officers in operational staff planning and sub-unit 2IC duties.

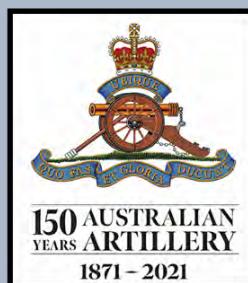
LTCOL Elkhaliqi's staff and representational experience commenced with service as the Aide-de-Camp to Commander 2nd Division in 2015. He passed the ACSC(J) in 2018, graduating with a Masters of Military and Defence Studies.

LTCOL Elkhaliqi posted to HQ 1st Division in 2021 on promotion, however deployed shortly after on 02 Feb 21. In 2022, he resumed duties as an Operational Plans Team lead, responsible for Divisional Joint Warfighter series planning and oversight of South East Asia International Engagement activity coordination.

LTCOL Elkhaliqi's operational experience commenced with deployment on Operation Herrick 10 with the UK Army in 2009 to Helmand Province, Afghanistan. He was the Troop Commander of a combined British / Australian Light Gun Troop, providing fire support to ISAF patrols. In 2011, LTCOL Elkhaliqi deployed on Operation Slipper with Mentoring Task Force 3. He was the Forward Observer and lead planner for A Coy, coordinating ISTAR, Offensive Support and Combat Team plans. In 2021, LTCOL Elkhaliqi deployed on Operation Inherent Resolve. He served for 9.5 months as the Deputy Chief of Operations and later Night Chief of Operations for the US led CJTF HQ in Kuwait, responsible for leading the CJOC to coordinate operational effects in Iraq and Syria.

LTCOL Elkhaliqi was awarded an Army Bronze Commendation for his efforts preparing his troop for deployment in 2008. In 2011, he was awarded the Commendation for Distinguished Service for his efforts as a Light Gun Troop Commander in Afghanistan. In 2016, he was awarded an Army Bronze commendation for his efforts as Aide-de-Camp to Commander 2nd Division. In 2018, he was awarded the Commandant's Prize for greatest contribution to ACSC-J. In 2021, he was awarded the United States Joint Service Commendation Medal for his efforts as the Deputy Chief of Operations for Operation Inherent resolve.

LTCOL Elkhaliqi and his wife Suzanne Elkhaliqi have been married for sixteen years and have no children. LTCOL Elkhaliqi's interests include playing and watching rugby union, stoic philosophy and keeping fit.



LIEUTENANT COLONEL SAMUEL COLCLOUGH

8th/12th Regiment RAA



LTCOL Samuel Colclough was born on 18 Dec 1985 in Melbourne, Victoria. He completed his secondary education at Chatswood High School, in the northern suburbs of Sydney, in 2003. In 2006, he entered the Royal Military College Duntroon and was allocated to the Royal

Regiment of Australian Artillery upon graduation in December 2007.

LTCOL Colclough has Regimental experience serving in the 3rd and 7th Brigades. As a Lieutenant in 4th Field Regiment he was employed as a troop commander and Joint Fires Team Commander from 2008 - 2012. He posted to the 1st Regiment in 2015 and was employed as the Adjutant for two years. LTCOL Colclough was also selected for Sub Unit Command in the 1st Regiment as Battery Commander, 'A' Battery.

LTCOL Colclough has extensive instructional experience from serving at the School of Artillery; where he was employed as the lead Instructor in Gunnery within the Command Cell from 2013-2014. LTCOL Colclough was also selected to promote to major early in order to instruct on Combat Officers Advanced Course in 2016.

LTCOL Colclough gained valuable staff experience serving as the Senior Artillery Mentor to the Director of Artillery Training in the Afghanistan National Army Training Command from 2011 to 2012. LTCOL Colclough served as Staff Officer 1 Campaigning at Joint Operations Command and was responsible for managing the Theatre Campaign Plan and the Theatre Command and Control concept on behalf of the Chief of Joint Operations.

LTCOL Colclough has further operational experience in Afghanistan where he deployed with Mentoring and Reconstruction Task Force 2 in 2009. He was employed as a Joint Fires Observer and mentor within Operational Mentoring and Liaison Teams Charlie and Delta. He was responsible for planning and coordinating

all Joint Fires in support of Afghanistan National Army-led security operations.

LTCOL Colclough completed a Masters of Business through the University of New South Wales in 2016. LTCOL Colclough also attended Marine Corps University in Quantico, Virginia where he completed a Masters of Military Studies and a Masters of Operational Studies while attending Command and Staff College and the School of Advanced Warfighting, of which he is a distinguished graduate.

LTCOL Colclough is married to Erin and they have two daughters, Claire and Eleanor. He enjoys reading history, camping, and Brazilian Jiu-Jitsu.

LIEUTENANT COLONEL JAMES FLOYD

16th Regiment RAA



Lieutenant Colonel James Floyd graduated RMC-D in 2007 and commissioned into the Royal Regiment of Australian Artillery (RAA), posting to the 16th Air Defence Regiment. In addition to undertaking lieutenant roles he was selected for detachment to the Joint

Electronic Warfare Operational Support Unit to enhance Army air defence capabilities as well as supporting the rapid introduction of the ADF Counter Rocket Artillery Mortar (CRAM) system.

On promotion to Captain, James served as the Senior Military Recruiting Officer – Tasmania from 2011. This was an invaluable experience in the tri-service environment in addition to working with the public and contractors as a representative of the ADF.

In 2013 James posted to the 16th Air Land Regiment (16 ALR) and fulfilled a variety of roles including Adjutant. Notable experiences included supporting Brigade and Divisional JFECCs and working in the plans function within a United States led air operations centre in Hawaii on Talisman Sabre 2015. During this time he deployed to Afghanistan on OP SLIPPER, embedded in the US 4th Infantry Division's

CJOC in Regional Command – South. In addition to further cementing his divisional level experience he was awarded a US Army Commendation Medal for his support to divisional operations.

James posted to Special Operations Command in 2016 as the inaugural Staff Officer to Commander Special Forces. James supported strategic-level decision making, international engagement and other activities. This posting proved an excellent broadening experience in a very dynamic command with a critical national role.

In 2017 James was promoted to be Battery Commander of 111 Battery, 16 ALR. He was responsible for the operational availability and employment of Army's sole CRAM and air surveillance radar systems in addition to conventional air defence activities. These two years allowed James to utilise his strong technical affinity for his trade and lead a unique and talented sub-unit. This command represents the personal highlight of his career thus far.

After graduating Staff College in 2019, James was selected as the RAA Career Advisor and subsequently SO2 Post Group within the Directorate of Officer Career Management – Army. His role representing the RAA officers as both individuals and as a collective during recent changes to the RAA career model gave him exceptional insight into the RAA workforce. This was complemented by planning and executing main round posting selections in Post Group, providing significant experience in the Total Workforce System and Army level decision making.

In addition to a Masters in Military and Defence Studies, James holds a Bachelor of Arts in history and politics. He continues to actively read and engage widely to further both his and his trade's professional development. Focusing on military aviation, futures, simulation and integrated air and missile defence (IAMD) he also supports RAA activities and the Combat Officers' Advanced Course whenever able. Away from work, James enjoys cycling, swimming, snow skiing, reading and strategy games. James and his wife currently live near Adelaide in South Australia with their son.

As of 2022 James has been engaged in Mission Engineering as the Deputy Director Joint Fires and Targeting within the Vice Chief of the Defence Force Executive. He will assume command of 16 Regiment RAA in December 2022.

LIEUTENANT COLONEL DAVID HICKEY

20th Regiment RAA



Lieutenant Colonel Dave Hickey was born in 1982 in Townsville, Queensland and grew up across Australia. After commissioning in 2005 to the Royal Australian Artillery, he posted to the 1st Field Regiment.

As a junior officer he was employed in a variety of regimental roles including Troop Command, Forward Observer and Fire Support Officer with highlights including Operation ACOLYTE and Rifle Company Butterworth.

Lieutenant Colonel Hickey deployed to Afghanistan with Operation SLIPPER in 2010 and 2012. As the Fire Support Officer for the 1st Mentoring Task Force he coordinated joint fires and effects for the Battle Group. Lieutenant Colonel Hickey returned to Afghanistan in 2012 as a Forward Observer with the 4th Mentoring Task Force. For his exceptional leadership and technical mastery during this deployment, he was awarded a Chief of Joint Operations Gold Commendation.

Upon return from operations, Lieutenant Colonel Hickey completed two instructional appointments. First, to the School of Artillery where he led the digitisation and international reaccreditation of Army's Joint Fires Observer capability. Second, after promotion to Major, he was posted to the Fires Centre of Excellence in Fort Sill, Oklahoma. In this role he instructed future United States Army and Marine Battery Commanders on joint fires and effects, including the employment of self-propelled howitzers and long range fires. For his superior performance and dedication as a leader he was awarded the United States Meritorious Service Medal.

Lieutenant Colonel Hickey commanded the 102nd (Coral) Battery and Operations Support Battery of the 8th/12th Regiment. Highlights of this time include the integration of joint assets with artillery during various multinational exercises, advancing the use of simulation for combined arms training within the Brigade, and establishing a relationship between the Battery and its veterans in time for the 40th anniversary of the Battle of Coral.

Lieutenant Colonel Hickey completed Australian Command and Staff College in 2019, enjoying the opportunity to grow his network with joint and international peers. He subsequently posted to Headquarters Joint Operations Command as an operational planner, prior to taking up a position in Headquarters 6th Brigade as Staff Officer Grade One – Futures, responsible for a broad range Force Modernisation outcomes. In 2022 Lieutenant Colonel Hickey deployed on Operation OKRA as the Deputy Director for Strategy and Plans for Operation INHERENT RESOLVE. He assumed command of the 20th Regiment, Royal Australian Artillery late in 2022 and looks forward to developing the unit's preparedness and agility through the introduction into service of the RQ-21 Integrator.

Lieutenant Colonel Hickey's partner Shenae is a public servant, currently working for the Department of Defence. He has two boys, Eli aged thirteen and Edward aged eleven. Together they enjoy traveling at any opportunity, camping and gardening.



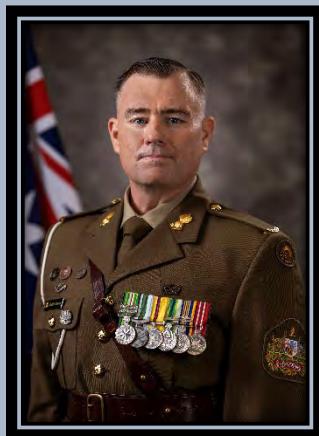
OFFICER, WO & SNCO FAREWELLS

If you have 20 or more years full-time and/or part-time service & have not been farewelled & still wish to be, please contact Major DT (Terry) Brennan for officers & WO1 A (Tony) Horte for WO & SNCOs. Alternatively, if you are aware of anyone who was overlooked no matter how long ago and they still wish to be invited please pass on their contact details. It is never too late to attend the Regimental farewells.

New Regimental Sergeant Majors

WARRANT OFFICER CLASS ONE DANIEL STEWART

9th Regiment RAA



Warrant Officer Class One Daniel Stewart grew up in country South Australia. He enlisted in the Australian Army in 1995 and, on completion of basic recruit training; he was allocated to the Royal Regiment of Australian Artillery where he was subsequently posted

to 4th Field Regiment, RAA in Townsville.

Warrant Officer Stewart has served in a number of Australian Army Combat and Training units including 4th Field Regiment, 8th/12th Medium Regiment, The Combat Training Centre, School of Artillery and 4th Regiment Royal Australian Artillery. During his tenure in these postings, he has fulfilled many positions and roles including Detachment Commander on multiple artillery platforms, Section Commander, Regimental Signals Sergeant, Battery Commander's Assistant, Offensive Support Supervisor, Observer Trainer, Sergeant Major Instructor Gunnery, Operations Warrant Officer, Battery Sergeant Major and Master Gunner.

Warrant Officer Stewart has seen operational service in Timor-Leste (East Timor) on Operation WARDEN in 1999 with 4th Field Regiment, the Solomon Islands on Operation ANODE with 8th/12th Medium Regiment in 2006, and Iraq on Operation CATALYST with 5th Battalion Royal Australian Regiment in 2007. Domestic operational service includes Operation QUEENSLAND ASSIST in 2017 and Operation NORTH QUEENSLAND FLOOD ASSIST in 2019.

Warrant Officer Stewart has been awarded, the Australian Active Service Medal (INTERFET and Iraq Clasps); the INTERFET and Iraq campaign medals, the Australian Service Medal (Solomon Islands II Clasp); the Defence Force Service Medal; the Defence Long Service Medal; the Australian Defence Medal; Soldiers

Medallion for Exemplary Service; Army Bronze Commendation and, the Army Combat Badge.

Warrant Officer Stewart is married to Mercy and has three children, two of which are adults and have children of their own. He has many interests including American style barbequing, camping and the outdoors. He is an avid AFL (Adelaide Crows Football Club) and Rugby League (North Queensland Cowboys) supporter.

He commenced his current appointment as the Regimental Sergeant Major of 9th Regiment, the Royal Regiment of Australian Artillery from 16th January 2023.

WARRANT OFFICER CLASS ONE ADAM LAW

16th Regiment RAA



Warrant Officer Class One Adam Law was born and raised in Kilmarnock, Scotland and enlisted into the Royal Regiment of Artillery, British Army in June 1984. He served until April 2009 with a career spanning 25 years, fulfilling postings within Europe and operational deployments to Northern Ireland and Iraq. His British Army career culminated with a commission to Captain from Warrant Officer Class One (WO1).

During his time in the British Army he gained numerous qualifications and experience. He passed a number of arduous courses, including the Commando Course, the Military Ski, Mountain, Arctic and Jungle Warfare Instructors Courses. These qualifications enabled him to deploy with 3 Commando Brigade, to train and instruct in the arctic of Norway and the jungles of Brunei.

Adam was promoted to Warrant Officer Class Two (WO2) in 1999 and was appointed as a Sergeant Major Instructor Gunnery Air Defence. He was employed as a missile, gun and equipment safety officer in Germany, Poland, Canada, United States of America and the Falkland Islands. He was appointed Battery Sergeant Major (BSM) of 20 Commando Battery

2002 – 2004. Adam promoted to WO1 in 2006 and was employed as a Master Gunner where he posted to the Royal Artillery Trials and Development Unit as the Trials and Development Officer. In 2008 he commissioned to Captain and posted to 1st Regiment Royal Horse Artillery where he was employed as the Regimental Signals Officer.

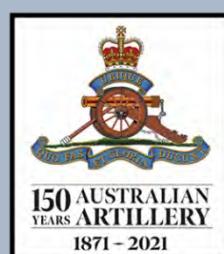
Adam was fortunate to be successful in transferring from the British Army to the Australian Defence Force in 2009 where his first appointment was to 16 Air Defence Regiment Royal Australian Artillery at the rank of WO2.

Adam has previously been employed as a Troop Sergeant Major (TSM), Operations Warrant Officer (OPSWO) and deployed on operations to Afghanistan as the Counter Rockets Artillery Mortars TSM. Upon returning from operations he was posted to the Land Warfare Centre, Warrant Officer and Non Commissioned Officer Academy as the lead package master for the Military Justice System, as part of the Defence Force Discipline Act syllabus.

Adam returned to 16 Air Land Regiment in Woodside as BSM Combat Service Support Battery in January 2015 until December 2017. Whilst employed as a BSM he was awarded the Commander Forces Command Bronze Commendation.

In January 2018 he posted to the Adelaide Universities Regiment where he was employed as an OPSWO and Course Manager. He was awarded the Australia Day Medallion in 2019 and received an Army Bronze Commendation in 2020. He promoted to WO1 on the 18 January 2021 on posting to 16 Regiment Royal Australian Artillery as the Master Gunner.

Adam assumed the appointment of RSM 16 Regiment Royal Australian Artillery in January 2022. He is married to Terri and has two sons, Joshua and Thomas. His interests include hiking and keeping fit. He has a dog who travelled with him from the United Kingdom in 2009 called Chester and a cat called Sox who has wrecked the family home carpets and 'fly screens'.



WARRANT OFFICER CLASS ONE MELVYN WOOD

20th Regiment RAA



Warrant Officer Melvyn (Mel) Wood was born in Doncaster, South Yorkshire United Kingdom. He enlisted into the British Army on 23 April 1986 as a Gunner in the Royal Artillery.

On completion of his initial recruit training at the 17th (Training)

Regiment, Woolwich, London, Warrant Officer Wood was initially posted to the 1st Regiment Royal Horse Artillery followed by a number of other regiments culminating in 5th Regiment Royal Artillery which is a Surveillance and Target Acquisition regiment. During his time in the British Army, Warrant Officer Wood served as a soldier, Detachment Commander, Troop Sergeant, Troop Sergeant Major, and Sergeant Major Signals. Warrant Officer Wood also served with 131st Target and Acquisition Battery on Exercise Long Look in 2000 on the ANTPQ 36 Radar. This was an excellent experience that changed his outlook of other armies. In 2002, he was promoted to Staff Sergeant and was selected for the prestigious Gunnery Careers Course (Depth Fire). This was a twelve month technical course that trains technical advisors for field regiments. In 2003, he was selected for promotion to Warrant Officer Class Two.

In 2009, Warrant Officer Wood joined the Australian Regular Army and was posted to the School of Artillery at Puckapunyal. He was employed at this time as an instructor in Ground Surveillance Radar and thermal imaging systems. His duties also included Course Manager within the Surveillance and Target Acquisition Wing.

Warrant Officer Wood was subsequently posted to the 20th Surveillance and Target Acquisition Regiment as an Unmanned Air Systems Operator, and served as the Battery Guide of the 131st Battery. In 2013, Warrant Officer Wood deployed as the Warrant Officer Flight Instructor for Shadow Group three to Tarin Kowt Afghanistan, providing force protection for ground based assets.

In 2014, Warrant Officer Wood was posted to the Warrant Officer and Non Commissioned Officer

Academy in Canungra as a Package Master for Command, Leadership and Management. In 2015, Warrant Officer Wood was then posted into the Warrant Officer Training Team as the lead instructor for Military Justice System.

In 2017, Warrant Officer Wood was selected for Battery Sergeant Major of 131st Target and Acquisition Battery where he completed a three year tenure. This was a pivotal part of his career, culminating in a deployment to Rifle Company Butterworth as Company Sergeant Major for a composite company from the 6th Brigade.

In 2019, Warrant Officer Wood was selected for the position of Master Gunner of 20th Regiment Royal Australian Artillery and promoted, where he served in the Regimental Standards Cell.

In 2022, Warrant Officer Wood was selected for the position of Regimental Sergeant Major of 20th Regiment Royal Australian Artillery where he is extremely proud to serve. His long term goal is to tier progress to a tier B position.

During his 36 years in the Army, Warrant Officer Wood has been deployed on multiple operations to Northern Ireland, Iraq, Bosnia, Cyprus, and Afghanistan.

Warrant Officer Wood has been married to Jeannie for 30 years and they have one daughter, Jennifer, who is 28. As a family, they enjoy keeping fit, overseas travel and beach life.

Senior Officer Appointments 2023

Correct as at 31st January 2023

NOTE: THE LIST HAS BEEN COMPILED FROM INFORMATION AVAILABLE TO THE EDITOR. SHOULD A READER IDENTIFY AN OMISSION OR ERROR, PLEASE ADVISE THE EDITOR.

Full-time

- Lieutenant General Gregory Charles **BILTON AO, CSC** - Chief of Joint Operations, Headquarters Joint Operations Command & COL COMDT 4th Regiment, RAA
- Major General Richard Anthony **VAGG**, DSC – Head Land Capability
- Brigadier Nicholas James **FOXALL**, AM, DSM – Commander 1st Brigade

- Brigadier Damian John **HILL**, AM - Director General Joint Collective Training Branch, Headquarters JOC & Head of Regiment
- Brigadier David John **KELLY**, AM, DSM, CSC – Military Attaché Washington
- Colonel Robin John **ALSWORTH**, Director Strategic Effects & Targeting, Australian Defence Force Headquarters
- Colonel Nicholas Keith **BOLTON** – Director Strategic Governance, AG-A
- Colonel Andrew Michael **CALLAGHAN**, Director Combat Support SPO, Land Systems Division
- Colonel John Angus **DOUGALL** - Director Business Intelligence, Army Headquarters
- Colonel Bede Thomas **GALVIN**, CSC and Bar – Commandant Army Knowledge Centre
- Colonel Casey B **GUIDOLIN** – Director ADF MDS Program
- Colonel Simon John **HUNTER** – Director Indo Pacific (J35), HQ JOC
- Colonel Brendan **KELLAWAY** – Director Research & Development Capability Division (CFTS)
- Colonel Michael Robert Carver **KENNEDY**, AM - Director Senior Officer Management, People Services
- Colonel Andrew R **LANGFORD** – Student CDSS
- Colonel John Brendan **MACLEAN**, CSC – Director Protected Mobile Fires (Land 8116) and Colonel Commandant 16 Regiment RAA
- Colonel Mark Kingsley Leopold **MANKOWSKI** – Colonel Effects, Headquarters 1st Division
- Colonel David Andrew **RYAN** – Director DSCM-A
- Colonel Robert John **RYAN** – Student CDSS
- Colonel Corey Jason **SHILLABEER**, CSC – Director Command Initiative Group, Army Headquarters
- Colonel Charles C **SLINGER**, CSM – Director Land Combat Support Program, Army Headquarters

- Colonel Richard Henry **WATSON** – Director Land Training Capability, Army Headquarters
- Colonel Nicholas **WILSON** – Director Sensitive & Strategic Issues Management - Army, Army Headquarters
- Colonel Brandon Ashley **WOOD** – Defence Adviser – Kuala Lumpur

Active Reserve

- Brigadier Tim **O'BRIEN** - Assistant Commander - 2nd Division
- Colonel Jason Leonard Maxwell **COOKE** – HRIS Officer, CMA
- Colonel Warwick A **YOUNG**, OAM – Assistant Chief of Staff Headquarters Forces Command

Reserve List &/or DA26 Pool

- Major General David Peter **COGHLAN**, AM (DA 26 Pool) Defence Industry Policy Division
- Major General Michael Peter **CRANE**, AM, DSC and Bar (Reserve In-Active) - Safe Base Review, Defence Security Authority
- Major General Craig Denis **FURINI**, AM, CSC (Reserve I-Active) Senior Officer & COL COMDT 8th/12th Regiment RAA
- Brigadier Wayne T **GOODMAN** (DA26 Pool - JHC) – Head - ADF Arts for Recovery Resilience Teamwork and Skills, Joint Health Command
- Brigadier Neil Thomas **SWEENEY**, AM (DA26 - Pool – HQ FORCOMD) & COL COMDT 9th Regiment RAA
- Brigadier Philip Douglas **WINTER**, AM, CSC (DA26 Pool JSSD) - Director General ADF Sports Cell, Joint Capabilities Group
- Colonel Michael Rodney **AHERN**, CSC (Army Offs In-Active Reserve) Senior Analyst Defence Test & Evaluation
- Colonel Scott E **CLINGAN** (DA26 Pool – HQ JOC) – Director Strategic Events
- Colonel David Mark **EDWARDS CSC** (DA 26 Pool HQ JOC) CSC – Joint Doctrine
- Colonel Stephen T **GOLTZ** (DA26 Pool – HQ 1 DIV) - JFECC Projects & COL COMDT School of Artillery

- Colonel Andrew Mark **HAEBICH**, CSC – (Army Offs In-Active Res)
- Colonel Stuart Nicholas **KENNY**, CSC and Bar, DSM (DA 26 Pool HQ JOC) Joint Collective Training Evaluation (J83)
- Colonel Paul **LANDFORD**, CSC (DA26 Pool - FUEL SB JLC) – Inquiries Officer
- Colonel Douglas W **MALLETT**, AM – (Army Offs In-Active Res)
- Colonel Andrew Alfred **PLANT**, CSM (Army Offs In-Active Res) - Director Training, Australian Army Cadets
- Colonel Sean Thomas **RYAN** (Army Offs In-Active Reserve) – Research Assistant, ADC
- Colonel Stephen Michael **SADDINGTON** (DA26 Pool -Joint Information Warfare, Joint Capabilities Group)
- Colonel Charles Peter Howard **WELLER**, CSC and Bar (DA 26 Pool)

Senior Soldier Appointments 2023

Tier C

Vacant

Tier B:

- WO1 David **NUTINI** – RSM 13 BDE
- WO1 David **MCGARRY** – JOSS SEQLD
- WO1 Anthony **HORTLE** – RMG CATC
- WO1 Nathan **COLE** - USAUMA

Tier A - RSM:

- WO1 Brendan **COLLES** – RSM 8/12 Regt
- WO1 Luke **BURGESS** – RSM 4 Regt
- WO1 Matthew **DAWSON** – RSM 1 Regt
- WO1 Daniel **STEWART** - RSM 9 Regt
- WO1 Reece **HAYS** – RSM WAUR
- WO1 Melvyn **WOOD** – RSM 20 Regt
- WO1 Gavino **MURA** – RSM SOARTY
- WO1 Adam **LAW** – RSM 16 Regt
- WO1 Anthony **CHARLES** – RSM CIT FIRES BDE

Tier A - MG:

- WO1 BEN **GILBERT** – MG 8/12 Regt

- WO1 James **WILSON** - MG 4 Regt
- WO1 William **DAVIS** – MG 9 Regt (ARES)
- WO1 Scott **CHIVERS** – MG 16 Regt
- WO1 Matt **GREEN** – MG IFS CAS-G
- WO1 John **BERGER** – MG 20 Regt
- WO1 Daniel **BRAUMAN** – MG 1Regt
- WO1 Kayne **FALCONER** – MG NETT SOARTY
- WO1 Ben **BROWN** – MG STANDARDS SOARTY
- WO1 Nicholas **WINDRIDGE** – MG PEE&E Port Wakefield
- WO1 William **GAYTHWAITE** – MG AMDS JF AHQ
- WO1 Geoff **BRUHN** – MG AVN STDS
- WO1 Matthew **HAZLETON** – MG JF AHQ
- WO1 Matthew **MORANTE** – MG OS JF AHQ
- WO1 Mathew **CRAIG** – MG Lethality & SA AHQ
- WO2 Thomas **GRIEVE** – MG FIRES BDE

TIER A - RAA WO1 ALL CORPS:

- WO1 Scott **CASWELL** – SI WONCO LWC SA
- WO1 Matthew **MILLAR** – CM RAA DSCM-A
- WO1 Grant **BOYCE** – APSU NSW
- WO1 Michael **DEWAR** – AHQ
- WO1 Richard **ANDERSEN** - CATC LRS
- WO1 David **GRUNDELL** – SOARTY NETT

ROYAL MILITARY COLLEGE, DUNTROON

June 2022 Graduates

LIEUTENANT's

- TONG, Joshua – 1 Regt
- GLOSSOP, Aaron – 1 Regt
- ROACH, Barclay – 4 Regt *

* Brigadier WJ Urquhart Trophy Recipient

- MORRISON, Teleah – 8/12 Regt
- OTWAY, Jasper – 20 Regt

- KIMPTON, Thomas – 20 Regt
- GODDARD, Nicholas – 16 Regt

AUSTINT

- MACKIE, Alexander – 4 Regt

December 2022 Graduates

LIEUTENANT's

- BOYLE, Deklan Philip – 1 Regt
- HICKS, Samuel Peterv – 1 Regt
- OPRAY, Lachlan Geoffrey – 1 Regt
- BLAKE, Fergus James Tisdall – 4 Regt
- HEALEY, Jake Charlie – 4 Regt *

* Brigadier WJ Urquhart Trophy Recipient

- BUCHANAN, Benjamin Anselan Nomchong – 8/12 Regt
- JONES, Israel Alexander – 8/12 Regt
- SANDER, Michael Lajos – 8/12 Regt
- COYLE, Patrick Cameron – 16 Regt
- HARRINGTON, Oscar John – 16 Regt
- RADFORD, Luke Patrick – 16 Regt
- WAIGHTS, Justin Cameron – 16 Regt
- YOUNG, Tayla Jane – 16 Regt
- ALCORDO, Samuel Matthew – 20 Regt
- ATU, Jesse Joseph – 20 Regt
- MILNE, Oliver Ronald – 20 Regt

AUSINT

- STOWER, Madeleine Evette – 8/12 Regt
- KARAN, Mahala Ruby – 20 Regt



Honours & Awards

AUSTRALIA DAY 2020

DISTINGUISHED SERVICE MEDAL (DSM)

Bombardier Michael Richard COBB

FOR DISTINGUISHED LEADERSHIP IN WARLIKE OPERATIONS AS THE AUSTRALIAN COUNTER UNMANNED AERIAL SYSTEMS DETACHMENT COMMANDER WITHIN HEADQUARTERS JOINT TASK FORCE 633, WHILST DEPLOYED TO THE MIDDLE EAST REGION FROM OCTOBER 2017 TO JUNE 2018.



Bombardier Cobb's superior leadership, initiative and technical mastery has contributed to the successful operational testing and evaluation of a new capability and subsequent integration of Australian Counter Unmanned Aerial Systems into a Coalition environment at Al Asad Airbase, Iraq. His initiative and technical mastery while conducting a trial of the system on board HMAS Warramunga critically informed future and subsequent acquisition considerations.

AUSTRALIA DAY 2022

MEMBER (AM) IN THE MILITARY DIVISION OF THE ORDER OF AUSTRALIA

Colonel Griffith Charles THOMAS



FOR EXCEPTIONAL SERVICE TO THE AUSTRALIAN DEFENCE FORCE IN PEOPLE CAPABILITY DEVELOPMENT.

Colonel Thomas has made an outstanding and prolonged contribution to Army's people capability. Colonel Thomas has overseen and contributed to a number of the most significant human resource reform initiatives and associated policies that have modernised personnel administration across

Army. His dedicated service, strategic foresight, tirelessness and innovation has had a significant and positive short and long-term effect on Army's people capability. His achievements will continue to have positive outcomes for Army personnel into the future.

CONSPICUOUS SERVICE MEDAL (CSM)

Major James Rohan ELING

FOR MERITORIOUS ACHIEVEMENT AS A JOINT TASK GROUP 629.2 STRATEGIC PLANNER SUPPORTING EMERGENCY MANAGEMENT VICTORIA STATE CONTROL CENTRE DURING OPERATION COVID 19 ASSIST.



Major Eling's outstanding achievements delivered highly collaborative solutions for Victoria Government agencies in response to the COVID-19 outbreak in 2020. His leadership and ability to influence key stakeholders was key to unifying plans and policy. His performance directly contributed to improved interagency engagement amongst the Australian Defence

Force, Emergency Management Victoria, and Victorian Government agencies.

Warrant Officer Class Two Samuel Anthony JENKINS

FOR MERITORIOUS ACHIEVEMENT IN THE DESIGN AND DEVELOPMENT OF DIGITAL SAFETY PROCESSES FOR ARMY'S CURRENT AND FUTURE LAND-BASED FIRES.



Warrant Officer Jenkins' innovative solutions towards design and development of digital safety processes enabled efficient, accurate and responsive engagements from land-based fires and have been adopted by all field artillery units within the Australian Regular Army. His visionary modernisation efforts have reduced training burdens, increased safety, increased responsiveness and realism of training and enabled the digital expansion of the Joint Fires enterprise.

Warrant Officer Class Two Graham Douglas GRIESHABER

FOR MERITORIOUS DEVOTION TO DUTY AS THE OPERATIONS WARRANT OFFICER OF THE ROYAL MILITARY COLLEGE OF AUSTRALIA.



Warrant Officer Grieshaber demonstrated meritorious conduct and dedication to duty over a sustained period, greatly enhancing the reputation of the Australian Defence Force and the capability of the Royal Military College. His personal steadfastness in his performance of garrison security duties, analysis of training support requirements, as well as his support to Defence and government agencies in times of national emergency has enhanced interoperability across Defence, local government and Emergency Service partners.

MEDAL (OAM) OF THE ORDER OF AUSTRALIA IN THE GENERAL DIVISION

Colonel Ian Francis AHEARN (Retd)

FOR SERVICE TO VETERANS.



Royal Australian Artillery

- Colonel Commandant Eastern Region, 2010-2019
- President, Royal Australian Artillery Association (ACT), 1991-1995 & member, 1998 - 2019.

Royal Australian Artillery Historical Company

- Chair, since 2019 & Vice Chair, 2010-2018
- Project Manager, 18 Pounder Gun Centennial Project, 2012-2019
- Editor RAAHC E-newsletter Airburst

Returned and Services League of Australia

- National Committee Member - Australian Defence Force Conditions, 2003-2010
- Member, Woden Valley Sub-Branch

Federal Golf Club

- President, 2005-2006 & Member, 24 years.

Other

- Vice-Chair, Australian Industry and Defence Network, 1998-2000

- Contributor, Battle of Coral / Balmoral display, Australian War Memorial
- Guest Lecturer, Royal Military College, current
- Australian Regular Army, 1963-1998

QUEENS BIRTHDAY 2022

OFFICER (AO) IN THE MILITARY DIVISION OF THE ORDER OF AUSTRALIA

Major General David Peter COGHLAN AM



FOR DISTINGUISHED SERVICE IN THE FIELD OF DEFENCE CAPABILITY ACQUISITION AND SUSTAINMENT AS HEAD OF LAND SYSTEMS DIVISION AND HEAD ARMOURED VEHICLE DIVISION.

Major General Coglan's exceptional

leadership in capability acquisition and sustainment over six years has directly enhanced land power for the Australian Defence Force. His foresight, professionalism and personal commitment has enabled the Australian Defence Force to meet current and posture for future operational requirements with credible and resilient integrated land combat capabilities. His service represents the highest ideals of the Australian Defence Force and reflects great credit upon himself and the Australian Army.

BAR TO THE CONSPICUOUS SERVICE CROSS (CSC AND BAR)

Colonel Stuart Nicholas KENNY CSC DSM



FOR OUTSTANDING DEVOTION TO DUTY IN THE AREAS OF OPERATIONAL PLANNING FOR THE AUSTRALIAN DEFENCE FORCE, IN PARTICULAR AS THE DIRECTOR OF JOINT COLLECTIVE TRAINING IN HEADQUARTERS JOINT OPERATIONS COMMAND.

AUSTRALIAN BRAVERY DECORATIONS AUGUST 2021

BRAVERY MEDAL (BM)

Sergeant Martin Ainsley STAGG

DISPLAYED CONSIDERABLE BRAVERY DURING THE RESCUE OF A PERSON FROM TREACHEROUS SURF AT STOCKTON BEACH NEAR NEWCASTLE, NEW SOUTH WALES ON 26 MARCH 2016.



In the early evening, Army Sergeant Martin Stagg was exercising on Stockton Beach when he was approached by a concerned couple who advised a woman had been missing in the water for 20 minutes.

Sergeant Stagg approached and spoke to the missing woman's distressed husband. On scanning the horizon the woman was located about 300 metres from shore, and caught in a strong rip.

Despite the hazardous conditions, including 2 metre high waves, Sergeant Stagg entered the water and began to swim to the woman. After swimming for 10 minutes, he reached the exhausted woman, who was now about 500 metres from the shore.

He held the woman in his arms and began to swim back to shore. After 15 minutes of swimming, he reached the safety of the beach and helped the woman to a vehicle while they waited for an ambulance.

AUSTRALIA DAY HONOURS 2023

MEMBER (AM) IN THE MILITARY DIVISION OF THE ORDER OF AUSTRALIA

Brigadier David John KELLY CSC, DSM



For exceptional service as Chief of Staff Army Headquarters, Divisional Chief Transregional Threats Coordination Cell, Plans Branch, United States Joint Chiefs of Staff, and Director of Workforce Strategy - Army.

Brigadier Kelly's leadership and strategic foresight has directly

enhanced capability within the Australian Army. His contribution to Australia's national interests through enhancing workforce capacity within the Australian Army, enabling the integration of like-minded nations to counter violent extremist organisations and support decision making within the Department of Defence has directly contributed to Australian Defence objectives and Australia's national interests. Brigadier Kelly's outstanding achievements have brought great credit upon him and are in the finest traditions of the Australian Defence Force.

COMMENDATION FOR DISTINGUISHED SERVICE (CDS)

Lieutenant Colonel Khalid EL KHALIGI



For distinguished performance of duty in warlike operations as the Deputy Chief of Operations in the Headquarters of the Combined Joint Task Force - Operation Inherent Resolve, on Operation OKRA from February 2021 to November 2021.

Lieutenant Colonel El Khaligi displayed outstanding leadership and devotion to duty as part of the Joint Operations Centre leadership team. His firm leadership, decision-making and depth of operational knowledge directly impacted the effective management of complex operational contingencies and increased the proficiency and cohesiveness of the Joint Operations Centre.

CONSPICUOUS SERVICE CROSS (CSC)

Lieutenant Colonel David SILVERSTONE



For outstanding achievement as Director Operations and Director Plans in Headquarters Joint Task Force 633 on Operation ACCORDION from February to September 2021.

Lieutenant Colonel Silverstone's extraordinary operational planning and execution skills, inspirational leadership and team building, substantially contributed to positive outcomes in every major activity of Joint Task Force 633 in Afghanistan and the Middle

East region during his deployment. His professionalism and outstanding achievements assisted in achieving excellent tactical to strategic level outcomes for the Australian Defence Force

CONSPICUOUS SERVICE MEDAL (CSM)

Lieutenant Colonel Leigh Scott CRAWFORD



For meritorious achievement in innovation and international engagement as Commanding Officer of the Australian Defence Force Peace Operations Training Centre.

Lieutenant Colonel Crawford has significantly contributed to building international relationships and peace operations training through outstanding innovation, rare insight, and exemplary leadership. Due to his efforts, twelve nations have joined in a peace operations partnership framework. As a result, Lieutenant Colonel Crawford's experience, abilities and professionalism have enhanced regional training collaboration and promoted Australia as a regional provider of choice for United Nations peace operations training.

MEDAL (OAM) OF THE ORDER OF AUSTRALIA IN THE GENERAL DIVISION

Mr Ronald Norman BASSAN

For service to the community through a range of organisations.



'A' Field Battery Association, Royal Australian Artillery

- President, 2006-2018.
- Secretary, 2011-2021.
- Member, since 1997.

Mackay Group, Australian Native Orchid Society

- Former President.
- Member, since 1990.
- Vice-President.
- Delegate, Tropical

Queensland Orchid Council, many years.

- Accredited Judge, Australian Orchid Council, since 1996.

Mackay and District Orchid Society

- Former President.
- Former Vice-President.

- Committee Member, current.
- Member, since 1980s.
- Life Member.

Community - Other

- Vice President, Mackay and District Philatelic Society, current and Member, over 30 years.
- Former President, Farleigh Northern Beaches Sub-Branch, Returned and Services
- League of Australia, 15 years, and Member, current.
- Life Member, Returned and Services League of Australia.

Australian Regular Army

- Member, 1954-1975.

Awards and Recognition include:

- General Service Medal 1918-1962 with Clasp 'MALAYA'.
- Australian Active Service Medal 1945-1975 with Clasps 'MALAYA' and 'VIETNAM'.
- Vietnam Medal.
- Australian Service Medal 1945-1975 with Clasps 'SE ASIA'.
- Defence Force Service Medal with First Clasp.
- Long Service and Good Conduct Medal.
- National Medal.
- Australian Defence Medal.
- Pingat Jasa Malaysia Medal, and
- Vietnamese Medal 1962.

HEAD OF REGIMENT**COMMENDATIONS***Correct as at 7th November 2022*

Medallion	Recipient	Comment
001	MAJ DJ Kelly OAM	
002	LTCOL NH Floyd	
003	Not awarded	Damaged
004	SGT JP Goss	Now WO2
005 - 010	JNCOs of the Year 2018 nominees	
011 - 016	GNRs of the Year 2018 nominees	
017	GNR JI Lewis	
018	BDR BR Byrne	JNCO of the

019	BDR DT Campbell	Year 2019 nominees
020	BDR AJ Orellana	
021	BDR IR Watson	
022	BDR ML Plant	
023	BDR MJ Hamer	
024	GNR BP Alder	GNR of the Year 2019 nominees
025	GNR FB De Nardi	
026	GNR DE Smith	
027	GNR RD Boyar	
028	GNR Z Farrugia	
029	GNR HA Whatley	
030	GNR AW Yang	9 Regt RAA
031	WO1 ME Wood	20 Regt RAA
032	BDR BP Beach	
033	Dr A Lopez	
034	WO2 DR Rogers	20 Regt RAA
035	LCPL RD Gillum	
036	CPL DJ Ingram	
037	CPL JS Caswell	
038	Not Awarded	Damaged
039	Not Awarded	
040	WO1 C Woodhall	Banner Parade Sunnort
041	BDR S Russo	Op Bridges
042	WO2 J Lee	Banner Parade Sunnort
043	LBDR N Burrough	Op Bridges
044	CAPT C Stephenson	Op Bridges

SOLDIERS MEDALLION FOR EXEMPLARY SERVICE

8493870 Bombardier Anthony Garry Bruce Riedel

BOMBARDIER ANTHONY GARRY BRUCE RIEDEL, ROYAL AUSTRALIAN ARTILLERY, IS AWARDED THE SOLDIER'S MEDALLION FOR EXEMPLARY SERVICE WHILST POSTED AS AN ARTILLERY FORWARD OBSERVER ASSISTANT OF 5TH/11TH BATTERY OF 9TH REGIMENT, ROYAL AUSTRALIAN ARTILLERY.

You are an enthusiastic, conscientious and dedicated soldier who always puts the welfare and development of your subordinates at the forefront of everything you do. Your solution driven attitude and highly innovative and creative mindset have often been the key to 5th/11th Battery success and your well-regarded reputation. Your diligent and tireless efforts as a member of 9th Regiment, Royal Australian Artillery has significantly contributed to the Regiment's capability.

Your contributions, advice, commitment to service and professionalism have been well above that normally expected of a Junior Non-Commissioned Officer. You have selflessly ensured that the level of training required, to improve capability, is of the highest standard to support the members of the regiment. Your initiative, maturity and dedication to service have set a fine example for the soldiers of 9th Regiment, Royal Australian Artillery.

Your performance has been exemplary and in keeping with the finest traditions of the Royal Regiment of Australian Artillery. Your dedicated application and determination has earned you high regard from your superiors and the respect of your peers and subordinates. Your efforts have brought great credit upon yourself, your family, your Regiment and the Australian Army.

8605420 Corporal Farrah Lee Goodier

CORPORAL FARRAH LEE GOODIER, ROYAL AUSTRALIAN ARMY ORDNANCE CORPS, IS AWARDED THE SOLDIER'S MEDALLION FOR EXEMPLARY SERVICE WHILST POSTED AS THE COMMAND SUPPORT CLERK CORPORAL OF REGIMENTAL HEADQUARTERS OF 9TH REGIMENT, ROYAL AUSTRALIAN ARTILLERY.

You are an efficient, conscientious and empathetic soldier whose enthusiasm is reflected in the execution of your duties. Your diligent and

tireless efforts of 9th Regiment, Royal Australian Artillery has significantly contributed to the Regiment's capability.

Your contributions, advice, commitment to service and professionalism have been well above that normally expected of a Junior Non-Commissioned Officer. You have selflessly ensured that the level of training required, to improve administrative and clerk capability, is of the highest standard to support the members of the regiment. Your initiative, maturity and dedication to service have set a fine example for the soldiers of 9th Regiment, Royal Australian Artillery.

Your performance has been exemplary and in keeping with the finest traditions of the Royal Australian Army Ordnance Corps. Your dedicated application and determination has earned you high regard from your superiors and the respect of your peers and subordinates. Your efforts have brought great credit upon yourself, your family, your corps and the Australian Army.

8650867 Private Karen Glenys Barnaby

PRIVATE KAREN GLENYS BARNABY, ROYAL AUSTRALIAN ARMY ORDNANCE CORPS, IS AWARDED THE SOLDIER'S MEDALLION FOR EXEMPLARY SERVICE WHILST POSTED AS THE DISTRIBUTION OPERATOR PRIVATE OF 5TH/11TH BATTERY OF 9TH REGIMENT, ROYAL AUSTRALIAN ARTILLERY.

You consistently demonstrate an incredible drive and enthusiasm that is reflected in the execution of your duties. Your dependable, diligent and tireless efforts as a member of 9th Regiment, Royal Australian Artillery has significantly contributed to the Regiment's capability.

Your contributions, advice, commitment to service and professionalism have been well above that normally expected of a Private soldier. You have selflessly ensured that the level of logistic support required, to assure capability, is of the highest standard to support the members of the regiment. Your initiative, maturity and dedication to service have set a fine example for the soldiers of 9th Regiment, Royal Australian Artillery.

Your performance has been exemplary and in keeping with the finest traditions of the Royal Australian Army Ordnance Corps. Your dedicated application and determination has earned you high regard from your superiors and the respect of your peers and subordinates. Your efforts have brought great credit upon yourself, your family, your corps and the Australian Army.

- Corporal T Selleck - 1 Regt
- Bombardier J Maguire - 1 Regt
- Private H Croft - 8/12 Regt
- Gunner A Harper - 4 Regt
- Gunner I Osborne-O'Keefe - 4 Regt
- Gunner G Hladyszew - 8/12 Regt
- Lance Bombardier M Vaughan - 8/12 Regt
- Private C Littlehales - 8/12 Regt
- Gunner C Pearson - 8/12 Regt
- Corporal Chloe Marie Loftus - 16 Regt
- Bombardier Adam John Nicholls - 16 Regt
- Private Dmitry Chebotarev - 16 Regt
- Signaller K Rankin - 20 Regt
- Corporal M Fawcett - 20 Regt
- Corporal D Goldsmith - 20 Regt

COMMENDATIONS

ARMY SILVER LEVEL

8566085 Bombardier Timothy David De La Zilwa

I COMMEND YOU FOR YOUR TIRELESS EFFORTS AND EXEMPLARY PERFORMANCE IN THE EXECUTION OF YOUR DUTIES AS AN ARTILLERY LIGHT SECTION COMMANDER OF THE 2ND/10TH BATTERY, 9TH REGIMENT, ROYAL AUSTRALIAN ARTILLERY.

Your contributions to the introduction into service of new systems and capabilities, management of Uncrewed Aerial Systems, execution of courses to assure capability have contributed significantly to enhancing the execution of Battery and Regimental level operations in both war fighting and domestic operations contexts, within the 9th Regiment, Royal Australian Artillery and more broadly the 2nd Division.

You have displayed superior levels of initiative, dedication to duty and skills as a lead developer of 9th Regiment, Royal Australian Artillery's Uncrewed Aerial System capability which will have an enduring impact within the 9th Regiment and the 2nd Division. Your dedication and devotion to exercise an excellent level of initiative, considered approach to currency and

compliance has ensured the 2nd Division is able to achieve operational outcomes now and into the future.

Your achievements are in keeping with the finest traditions of the Royal Regiment of Australian Artillery and the Australian Army.

8253196 Corporal Helen Blair Therese Scully

I COMMEND YOU FOR YOUR TIRELESS EFFORTS AND EXEMPLARY PERFORMANCE IN THE EXECUTION OF YOUR DUTIES AS THE ESTABLISHMENTS CLERK AND TRADE ADMINISTRATION CLERK OF 9TH REGIMENT, ROYAL AUSTRALIAN ARTILLERY AND REMUNERATION CELL, DIRECTORATE OF RESERVE SOLDIER CAREER MANAGEMENT - ARMY.

You are an efficient, conscientious and empathetic soldier whose enthusiasm is reflected in the execution of your duties. Your diligent and tireless efforts as a member of 9th Regiment, Royal Australian Artillery and to the Directorate of Reserve Soldier Career Management – Army has significantly contributed to the Regiment and Army's capability.

Your contributions, advice, commitment to service and professionalism have been well above that normally expected of a Junior Non-Commissioned Officer. You have selflessly ensured that the level of trade administration and Unit Establishment management, is of the highest standard to support the members of the regiment and the Total Workforce as a whole. Your initiative, maturity and dedication to service have set a fine example for the soldiers of 9th Regiment, Royal Australian Artillery.

Your achievements are in keeping with the finest traditions of the Royal Australian Army Ordnance Corps and the Australian Army.

8226338 WO2 Mark John Green

I COMMEND YOU FOR YOUR TIRELESS EFFORTS AND EXEMPLARY PERFORMANCE IN THE EXECUTION OF YOUR DUTIES AS THE SERGEANT MAJOR INSTRUCTOR GUNNERY OF THE 5TH/11TH BATTERY, 9TH REGIMENT, ROYAL AUSTRALIAN ARTILLERY.

Your contributions to mentoring and advising the Battery Chain of Command, improving efficiency of training, execution of Regimental courses at short notice and digital fires systems integration within the 2nd Division have contributed significantly to enhancing the execution of Battery- and Regimental-level operations in both warfighting and domestic

operations contexts, within the 9th Regiment, Royal Australian Artillery and more broadly the 2nd Division.

You have displayed technical knowledge, mentoring abilities and foresight of the highest order in the improvement of business practices, execution of courses, digital fires systems integration and trade training which will have an enduring impact within the 9th Regiment and the 2nd Division. Your ability to prioritise tasks, exercise an excellent level of initiative to solve problems and devote yourself to your position beyond the call of duty has ensured that the 2nd Division is able to achieve directed training and operational outcomes now and into the future. Your achievements are in keeping with the finest traditions of the Royal Regiment of Australian Artillery and the Australian Army.

Group Commendation



- 8516041 Major, Cooper Henry, James Dale – 16 Regiment
- 8593282 CFN Jayke Raymond Joe Mc Nellee – 16 Regiment

FORCOMD Commendation

Silver

- 8556177 Captain Ben William Hutchinson – 16 Regiment

Bronze

- 8270746 Major John David Wescott – 16 Regiment
- 8667420 Major Gregory Michael Youngblood – 16 Regiment
- 8618151 Captain Benjamin Aaron Tait – 16 Regiment
- 8508204 WO2 Todd James Makins – 16 Regiment

Jonathon Church Award

- 8638338 LBDR Jack Duncan Randell – 16 Regiment

THE CHIEF OF ARMY'S JONATHAN CHURCH AWARD IS AWARDED ANNUALLY TO JUNIOR SOLDIERS AND OFFICERS WHO PERSONIFY COMPASSIONATE AND ETHICAL SOLDIERING.

The award is named in honour of Trooper Jonathan Church. Trooper Church was a Special Air Service Regiment combat medic who served with the United Nations Assistance Mission for Rwanda (UNAMIR) and in 1995 he helped save children whose parents were massacred. Trooper Church's actions were historically captured by George Gittoes in the image above but poignantly, his soldiering personified Army's ten core behaviours and the ethical dimension of the profession of arms. Trooper Church was one of the 18 soldiers killed in a training accident when two Black Hawk helicopters crashed at High Range near Townsville on 12 June 1996.

Award recipients are selected by the Chief of Army on an annual basis with several recipients also named as Ambassadors. In 2015, nine recipients were named, three of which were selected as Ambassadors. All award recipients become representatives for the Australian Army and receive a fully funded intensive overseas study tour of an Australian Campaign. These tours coincide with commemorative events such as Anzac Day and anniversaries of major battles. The recipients are also on call for 12 months to act as representatives for the Army across both internal and external engagements such as speaking at schools, community/media engagements, key military activities, and commemorative ceremonies and dinners.

The award is open to Privates-to-Corporals and Second Lieutenants-to-Captains with nominations made by Commanding Officers. This award is stressed as a nomination not an application process therefore it is something to keep in mind if you are in command of exceptional junior soldiers or officers to recognise their achievements.

See the Army Headquarters website or your respective career management website on DPN for further information and links to the Jonathan Church Ethical Soldier Award directive.

Overall, the Jonathan Church Ethical Soldier Award highlights ethical and compassionate soldiering to all members of the Australian Army while individually awarding soldiers and junior officers who exemplify these traits as a central pillar to Army's ten core behaviours.

EWEN & MATTNER AWARDS

EWEN AWARD FOR RAA JNCO OF THE YEAR 2022

LANCE BOMBARDIER MATT FREEGARD - 4TH REGIMENT, ROYAL AUSTRALIAN ARTILLERY

FOR OUTSTANDING SERVICE WITHIN THE 109TH BATTERY, 4TH REGIMENT, ROYAL REGIMENT OF AUSTRALIAN ARTILLERY



Lance Bombardier Matt Freegard consistently performs to an excellent standard. He distinguishes himself through his exceptional leadership, judgement, interpersonal skills, and dedication to individual and collective excellence.

As an ECN 255 he attended his SUB 4 at the School of Artillery in April 2022, where he was recognised for his performance by being awarded the student of merit. Upon return his leadership and excellent trade and all corps skills were recognised with his appointment as the Commander of a Joint Fires Team (JFT) within 109th Battery. This appointment is generally for someone senior in rank and experience. He has embraced this leadership opportunity, driving focused and realistic training based on lethality, survivability, and communication.

Lance Bombardier Freegard has led his party on multiple exercises, most notably Ex Chau Pha '22 and Ex Brolga Run '22. During Ex Chau Pha his party executed accurate and timely live fire missions, culminating in delivering a live FO Quick Fire Plan during which he was composed and applied judgement and leadership beyond his years.

During Exercise Brolga Run '22 his party was attached to the NZDF combat team. The NZ OC acknowledged his professionalism and work ethic. Subsequently he was attached to reconnaissance patrols at the forward edge of the area of operations. He was recognised within BG Kapyong for his elite physical fitness alongside his high levels of technical and soldier skills. He

professionally demonstrated what JFTs provided to BG Kapyong and 3 Brigade.

He has been pivotal in the preparation and readiness of the JFTs within 109th Battery. Their high levels of physical fitness and teamwork is a result of his leadership and dedication. Their high level of physical fitness was recognised by the Commanding Officer of the 3rd Battalion, Royal Australian Regiment.

His technical skills, aptitude and pursuit of excellence have been recognised through his selection for the Joint Terminal Attack Controller course.

Lance Bombardier Freegard is as a role model to his peers and subordinates and is an invaluable member of 109th Battery. His superior performance in all aspects of soldiering, gunnery, teamwork, and leadership is in keeping within the finest traditions of the Royal Regiment of Australian Artillery and the Australian Army.

Citation

THE EWEN AWARD

Major John Can- Ewen, MC, DCM, MM)

ROYAL AUSTRALIAN ARTILLERY JUNIOR NON COMMISSIONED OFFICER OF THE YEAR – 2022

8633877 LANCE BOMBARDIER MATT FREEGARD

109TH BATTERY, 4TH REGIMENT RAA

I commend you on your excellent achievement of consistently demonstrating a commitment to Army's values and professional excellence. The passion and enthusiasm you display towards your duty is of the highest standard and serves as an example to those around you.

You have regularly been required to perform higher duties which you have confidently taken in your stride. You have approached these duties with professionalism, vigour and an excellent attitude, performing all tasks to an exceptional standard.

During your committed and devoted duty to 109th Battery, 4th Regiment, you have displayed outstanding intellect, professionalism, teamwork, and professional and personal mastery.

Your excellent achievements are in keeping with the finest traditions of the Royal Regiment of Australian Artillery and the Australian Army.

DJ HILL, AM

Brigadier
Head of Regiment
Royal Australian Artillery

5th November 2022

MATTNER AWARD FOR RAA GUNNER OF THE YEAR 2022

GUNNER LIAM HADFIELD 4TH REGIMENT RAA

FOR OUTSTANDING SERVICE WITHIN THE 109TH BATTERY, 4TH REGIMENT, ROYAL REGIMENT OF AUSTRALIAN ARTILLERY.



across trade and all corps skillsets, and the coordination and delivery of PT within 109th Battery as an ADF Fitness Leader.

As an ECN 162 Gun Number he is active in seeking out opportunities to train and mentor his peers and junior soldiers. His technical knowledge of the M777A2 Howitzer and various heavy weapons and small arms is of the highest standard. On his own accord he formulated and distributed gun drill pocket aide memoires to his peers to support their individual development and the collective proficiency of the Battery. His professionalism and knowledge are well above what is expected of his rank and is highly commended.

Gunner Hadfield has regularly fulfilled higher duties throughout this year, including as the Number 10 position on a gun detachment for Exercise CHAU PHA 22. His performed these higher duties to an excellent standard, resulting in the achievement of training milestones for his detachment and the battery.

His intellect was evident when he was considered for the Laser Safety Officer Course and potential future appointment as a Laser Safety Officer for 4th Regiment, a position traditionally reserved for Officers or SNCOs. As the Live-In supervisor for 109th Battery he monitors accommodation standards and acts as the liaison to remedy any issues. This speaks to his high level of maturity and leadership amongst his peers.

As an ADF Fitness Leader he plans and executes battery PT which is trade-relevant, effective,

inclusive, as well as conducting remedial PT. The Battery's high fitness levels, and preparedness are a direct reflection of Gunner Hadfield.

Gunner Hadfield's commitment to maintaining a high level of personal fitness is exceptional. He currently holds several records within the 4th Regiment gym and represented 4th Regiment in the 3 BDE Fitness Competition. His external representational duties include representing 4th Regiment in Sydney by competing in the ANZAC Day Round of the NRL gun-race.

Gunner Hadfield's performance in all aspects of soldiering, gunnery, teamwork and leadership is in keeping within the finest traditions of the Royal Regiment of Australian Artillery and the Australian Army.

Citation

THE MATTNER AWARD

Lieutenant Edward William Mattner, MC, DCM, MM

ROYAL AUSTRALIAN ARTILLERY

GUNNER OF THE YEAR - 2022

8650331 GUNNER LIAM HADFIELD

109TH BATTERY, 4TH REGIMENT, RAA

I commend you on your excellent achievement of consistently demonstrating a commitment to Army's values and professional excellence. The passion and enthusiasm you display towards your duty is of the highest standard and serves as an example to those around you.

You have regularly been required to perform higher duties which you have confidently taken in your stride. You have approached these duties with professionalism, vigour and an excellent attitude, performing all tasks to an excellent standard.

During your committed and devoted duty to 109th Battery, 4th Regiment, you have displayed outstanding intellect, professionalism, teamwork and professional and personal mastery.

Your excellent achievements are in keeping with the finest traditions of the Royal Regiment of Australian Artillery and the Australian Army.

DJ HILL AM

Brigadier
Head of Regiment
Royal Australian Artillery

5th November 2022

CITIZEN GUNNER OF THE YEAR 2022

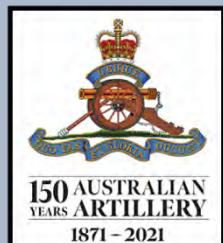
LANCE BOMBARDIER ANNIE YANG 9TH REGIMENT, ROYAL AUSTRALIAN ARTILLERY

FOR OUTSTANDING SERVICE AS A SERVICE CATEGORY 5 GUNNER IN 23RD BATTERY, 9TH REGIMENT ROYAL AUSTRALIAN ARTILLERY.

Lance Bombardier Yang enlisted into the Australian Army in 2018 as a Gap Year Air Defender and was posted to the 16th Regiment Royal Australian Artillery. On the conclusion of her unit experience she transferred to SERCAT 5 and was posted to 23rd Battery, 9th Regiment, Royal Australian Artillery. Over the course of 2022 Lance Bombardier Yang deployed on Operation FLOOD ASSIST 22, was promoted to the rank of Lance Bombardier, represented 9th Regiment as the Unit Flag Bearer on the 2nd Division Change of Functional Command Parade and represented her Battery and Regiment at the Royal Australian Artillery 150th Anniversary Queen's Banner (1871-2021) Parade.

As a Joint Intelligence and Surveillance Team (JIST) member, Lance Bombardier Yang deployed to Northern New South Wales for Operation FLOOD ASSIST, where she provided valuable technical skills and experience in the deployment of Unmanned Aerial Systems in support of task group information requirements. Furthermore, Lance Bombardier Yang remains the subject matter expert within her Battery on her core trade skills as an Artillery Light Command Post Operator (CPO). Lance Bombardier Yang operated effectively within the field as CPO for the duration of Exercise EL ADEM. Her knowledge and skills were invaluable in the smooth operation of the Command Post.

She is a role model as a Junior Non-Commissioned Officer displaying superior potential and commitment with distinguishing efforts in keeping with the finest traditions of the Royal Regiment of Australian Artillery and the Australian Army.



The Citizen Gunner Award

ROYAL AUSTRALIAN ARTILLERY CITIZEN GUNNER OF THE YEAR - 2022 LANCE BOMBARDIER ANNIE YANG 9TH REGIMENT, ROYAL AUSTRALIA ARTILLERY

I commend you on your excellent achievement of consistently displaying superior leadership, determination, and initiative to provide support to the Australian community during a time of need. You have demonstrated moral courage, respect, and integrity, being a strong role model for your peers not only within your Battery, but also the Regiment as a whole, displaying the highest standards. Your commitment and willingness to participate in all Regimental activities, (representing 9th Regiment as the flag-bearer at the 2nd Division Change of Functional Command Parade and also as a member of the guard for the Royal Australian Artillery Parade for the presentation of the new Queen's Banner (1871-2021) of Her Late Majesty Queen Elizabeth II), further highlights your commitment to service to the Royal Australian Artillery.

You are a very effective Junior Non-Commissioned Officer, and an asset to 9th Regiment, displaying an excellent understanding of the Defence Values whilst embodying the required culture, shared values, attitudes, and beliefs under 'Good Soldiering' ensuring the best of physical, moral, and intellectual standards within the Royal Australian Artillery and the Australian Army.

Your excellent achievements are in keeping with the finest traditions of the Royal Regiment of Australian Artillery and the Australian Army.

DJ HILL, AM

BRIG

Head of Regiment

Royal Regiment of Australian Artillery

4 Dec 2022

IMPORTANT NOTICE
THE NEXT
Regimental Officer Farewells
are planned, but not confirmed for
Friday 23rd February 2024.
IMPORTANT ACTION REQUIRED IF YOU WISH
TO BE FAREWELLED NEXT YEAR CONTACT
SO TO HOR ASAP

REGIMENTAL FAREWELLS NOTICE

OFFICERS LEAVING THE ROYAL REGIMENT AFTER 20 OR MORE YEARS OF SERVICE

If you wish to be formally farewelled from the Royal Regiment you must provide your post Army contact details (prior to separation) to the SO to HOR (Major DT (Terry) Brennan).

Whilst it is appreciated transition from military life to civilian life is a very busy period if you do not provide your contact details it is highly probable that you will not receive an invitation to be farewelled. **This not because the Regiment does not wish to farewell you – it is simply that the HOR staff does not have visibility of when you leave the Army or your post-service contact details.**

Eligibility: Full-Time and Part-Time officers who have completed 20 or more years effective service.

Options: Full-Time officers who, after 20 plus years' service, transition to Part-Time service may elect to be farewelled at the end of their Full-Time service rather than wait until they have fully retired – It is entirely up to you. Please advise HOR staff of your intention as part of your transition.

Information required:

Full-Name

Postal Address (non-military)

Email (non-military)

Mobile (non-military)

SO to HOR can be contacted on:

Email: terry.brennan59@yahoo.com.au and/or

Email: terry.brennan@defence.gov.au

Mobile: 0419 179 974

NOTE: YOU ARE ENTITLED TO ONLY ONE
REGIMENTAL FAREWELL

WARRANT OFFICER & SNCO FAREWELLS

For further information on eligibility etc contact the Regimental Master Gunner - WO1 Tony Horte.

Mobile: 0419 860 707

Email: anthony.horte@defence.gov.au

JNCO & GUNNER FAREWELLS

JNCOs & Gunners who have served for 20 plus years should be farewelled under local unit arrangements. HOR staff should be contacted to arrange for a Regimental Cypher to be sent to the unit concerned for framing and presentation.

CAN YOU HELP

The Pagan Cup remains elusive – Information regarding its whereabouts would be most appreciated.

Originally the Cup was linked to AD units in 2 MD. When last competed for (due to the demise of AD in 2 MD) the rules were amended and linked to the Gordon Bennett Trophy (the G-B was amended to battery gunline performance) and the Pagan Cup (rules were amended for the OP). The last record of it being awarded was to 1 Battery, 23 Field Regiment in 1974-75.

Heath Trophy – This was for 'attendance' which today can be interpreted as recruiting / retention. HOR staff have no idea where it is currently located.

If any reader knows the whereabouts of these trophies be part of reinvigorating our heritage and advise HOR staff HOR appreciates any assistance in locating the awards.

Contact Major Gary Down or Major Terry Brennan



AN ODE TO ALL SERVICE PERSONNEL

On this day we sit and think of those that have served before,

We sit and reminisce, discuss and chat of times we wish we had once more.

To those that have worn the uniform, written their blank check and promised their all,

We say to you...thank you, for our family, the cherished, our children and the small.

The sacrifice we have offered has been a whirlwind of our life,

It is our minds, our bodies and our and our families that have often paid the price.

For without the sacrifice, we have all given so willingly,

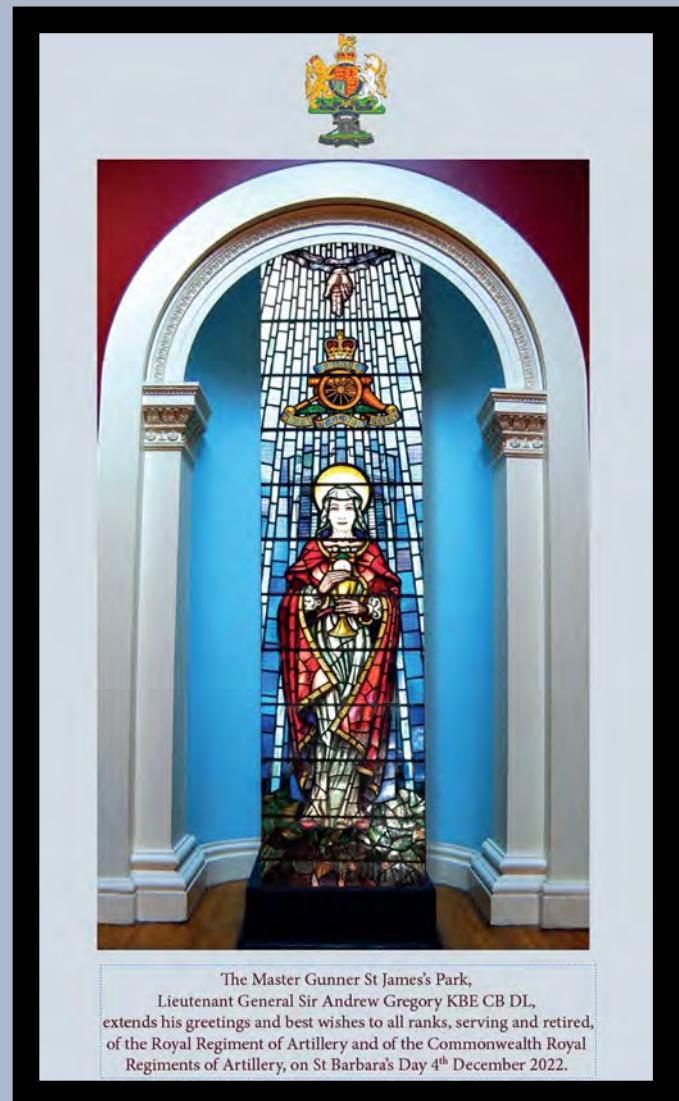
We would not have this beautiful country, that we love and hold so close and dearly.

So on this day, bow your head and give the deserved respect,

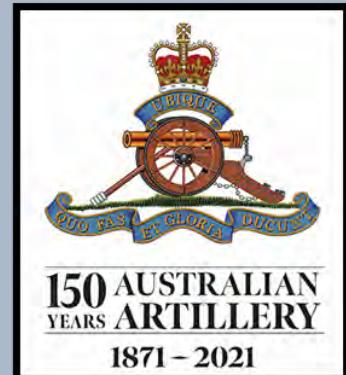
Some of these men and women gave their all and we owe it to them to reflect.

**Major Simon Byth
16th Regiment, RAA
09 October 2022**

Authors Note. I wrote the poem thinking of my family military history, as well as speaking to many other veterans and listening to their stories and their family histories. My family military history includes my Great-Great Grand Father who fought in the Boar War, my Grand Father who fought in New Brittan in WW2 and my Great Uncle who was a Spitfire pilot and was shot down over France in 1941. I thought it important to write something that meant something to all services.



The Master Gunner St James's Park,
Lieutenant General Sir Andrew Gregory KBE CB DL,
extends his greetings and best wishes to all ranks, serving and retired,
of the Royal Regiment of Artillery and of the Commonwealth Royal
Regiments of Artillery, on St Barbara's Day 4th December 2022.



The Banner of Queen Elizabeth II - 1871 - 2021

Background & Presentation Parade



Australian Army

Royal Regiment of Australian Artillery

BQ2949469

The Right Honourable Edward Young CVO
Private Secretary to Her Majesty the Queen
Buckingham Palace
London SW1A 1AA
United Kingdom

I would be grateful if you would convey my humble duty to Her Majesty The Queen, and inform Her Majesty of the following.

In 1970, Her Majesty, as Captain-General of the Royal Regiment of Australian Artillery, graciously approved the presentation of a Banner to the Royal Regiment to mark its Centenary on 1st August 1971. The Banner was formally presented, on behalf of Her Majesty, by His Excellency Sir Paul Hasluck, The Governor General of Australia at the time.

The Banner is therefore over 45 years old and, considering its age, looks in reasonable condition. However, in July 2017 it underwent certain professional repairs and it was confirmed that its useable time was well over and that plans should be put in place for a replacement. The Regimental Committee agreed to this course of action and the necessary formal request was staffed at the beginning of this year for a replacement Queen's Banner to be annotated 1871 – 2021.

The 1st of August 2021 will mark the 150th anniversary of the establishment of a permanent Australian artillery capability that has evolved into, and continues today as, the Royal Australian Artillery. One of the units from that era, A Battery RAA, remains on the Army's order of battle as its oldest continuously serving sub-unit. As such, this anniversary will be a significant milestone for the Nation, The Army and the Royal Regiment. Central to the anniversary activities will be an event weekend, including a formal parade. In addition, other lower-profile events will likely occur during the year at various locations across Australia.

It would be fitting therefore that the new Queen's Banner be formally presented to the Royal Regiment of Australian Artillery as the highlight of the 150th Anniversary event weekend and a distinct honour for the entire Royal Regiment if the Banner could be presented, on behalf of Her Majesty, by a member of the Royal Family.

A handwritten signature in black ink, appearing to read "S. Roach AM".

S Roach AM
Brigadier (Retired)
Representative Colonel Commandant
Royal Regiment of Australian Artillery

C/- Headquarters School of Artillery
Bridges Barracks
Puckapunyal Victoria 3662 Australia

May 2019

Gunners: Accurate, Responsive, Dependable and Joint





MESSAGE FROM THE MASTER GUNNER ST JAMES'S PARK

LIEUTENANT GENERAL SIR ANDREW GREGORY KBE CB DL

As Master Gunner St James's Park, I would like to pass on, on behalf of all ranks, serving and retired, of the Royal Regiment of Artillery, our very best wishes and congratulations, to all ranks, serving and retired, of the Royal Regiment of Australian Artillery, on the occasion of your belated celebrations of the 150th Anniversary of your formation.

The delay in your celebrations were, we know, caused by a commonly faced pandemic, an enemy, which, through science and personal sacrifice and fortitude, the world has largely brought to heel. Such delays to your originally planned celebrations should not detract from the historically important milestone that your Regiment has reached. As I wrote last year, these occasions, “give pause for thought and reflection on the countless numbers of your forebears who have served your Regiment with dedication and honour, and on those who continue today to uphold your Regiment’s traditions in the face of any adversity.”

I regret very much not being able to accept the kind invitation from your Head of Regiment to join your celebrations, but I want personally to wish all Australian Gunners an excellent day (and evening) and extend, once again, our Regiment’s sincere and very best wishes for your forthcoming Anniversary celebrations and for your next 150 years.

IMPORTANT ADVICE ON CAPTAIN GENERAL APPOINTMENT

From the Staff Officer to Master Gunner St James Park

The title of Captain General passing automatically to The King, is not a given. The King, when the Prince of Wales (for the last 50 + years) held numerous appointments and patronages, both military and civil, and so some of these may have to pass to Prince William as the new Prince of Wales if The King wants to take over Her Majesty’s roles and patronages.

The Regiment certainly hopes that The King will assume the mantle of Captain General. The Master Gunner St James's Park, Lt Gen Sir Andrew Gregory, has written to His Majesty requesting that he considers assuming and continuing the appointment of Captain General to the Royal Regiment of Artillery, held until recently by Her late Majesty Queen Elizabeth The Second. As well he asked His Majesty to consider assuming and continuing the appointment of Captain General to the Royal Regiment of Canadian Artillery, the Royal Regiment of Australian Artillery and the Royal Regiment of New Zealand Artillery.

It should not be assumed that His Majesty will automatically transition to the role of Captain General, although this is what we would wish and hope for. Therefore, until the roles are formally accepted by His Majesty, it should not appear pre-emptively on letterheads, on signage, in correspondence or in journal articles etc. If accepted, the appointments will appear in the London Gazette.



Head of Regiment Order of the Day

By Brigadier D. J. Hill, AM

Presentation of the Banner of Queen Elizabeth II (1871-2021)

Today, the Royal Regiment of Australian Artillery will be presented with the Banner of Queen Elizabeth II (1871-2021) by His Excellency, The Honourable, General David Hurley, AC, DSC (Retd) on behalf of Her Late Majesty Queen Elizabeth II, our former Captain-General.

The Royal Regiment has the unique privilege and honour to have been presented three successive Banners by two reigning Sovereigns; the first having been presented over 110 years ago. Thus, the renewal of the original Queen's Banner, to mark the 150th anniversary of Australian artillery, perpetuates this proud heritage and connection to Her Late Majesty, Queen Elizabeth II.

The original Banner, known as the King's Banner, was presented in November 1904 on behalf of His Majesty King Edward VII in recognition of the Regiment's valuable service to the Empire during the Second Boer War (1899-1902). In 1970, Her Late Majesty Queen Elizabeth II approved the presentation of a new banner to the Regiment to coincide with the Regiment's Centenary on the 1st of August 1971. On that day, the Queen's Banner (1871-1971) replaced the King's Banner, which was then laid up in the Australian War Memorial on ANZAC Day 1972.

In 2019, Her Late Majesty approved the presentation of a new Banner, and for it to be coincident with the commemoration of the 150th Anniversary of Australian artillery on the 1st of August 2021. The presentation parade was scheduled for Saturday the 6th of November 2021, but unfortunately the COVID pandemic, and associated restrictions, necessitated a postponement.

In September this year we witnessed the end of an era for the Royal Regiment with the sad news of the death of Her Late Majesty Queen Elizabeth II, the longest-serving British monarch having reigned for over 70 years; a very large part of which Her Late Majesty was our Captain-General.

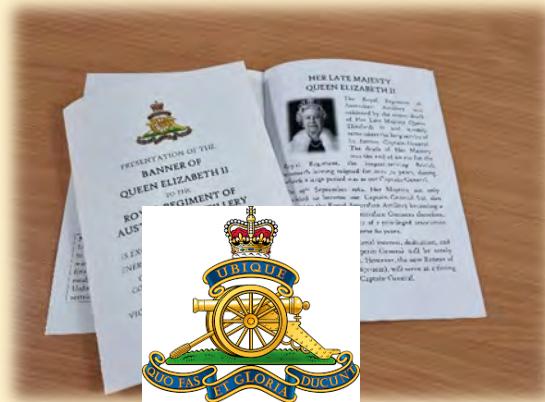
On the 19th of September 1962, Her Late Majesty not only decided to become our Captain-General but also agreed to the Royal Australian Artillery becoming a Royal Regiment. As Australian Gunners therefore, we had the honour of a very privileged relationship with Her Late Majesty for some 60 years.

Her Late Majesty's professional interest, dedication, and leadership as our Captain-General will be sorely missed by all Gunners. However, the new Banner of Queen Elizabeth II (1871-2021), to be presented to the Regiment today, will serve as a fitting reminder of our first Captain-General.

Ubique,

5th November 2022

Banner Parade Program Booklet



PRESENTATION OF THE
BANNER OF
QUEEN ELIZABETH II
TO THE
ROYAL REGIMENT OF
AUSTRALIAN ARTILLERY
BY
HIS EXCELLENCY THE HONOURABLE
GENERAL DAVID HURLEY, AC, DSC (Retd)
GOVERNOR-GENERAL OF THE
COMMONWEALTH OF AUSTRALIA
AT
VICTORIA BARRACKS, PADDINGTON
NEW SOUTH WALES
Saturday 5th November 2022

NOTICE TO GUESTS PAYING OF COMPLIMENTS

The Master of Ceremonies on occasions will ask guests to pay compliments by standing. Civilians should remove their hats, and Service members in uniform should salute. These occasions are:

- Arrival of His Excellency the Governor-General
- Setting apart of the Banner by the Chaplains
- During the National Anthem

- Royal Salute at the end of the Advance in Review Order
- Departure of His Excellency the Governor-General

Guests are requested to stand and pay compliments for the:

- Trooping of the Queen's Banner 1871-1971
- March Off of the Queen's Banner 1871-1971
- March Off of the Queen's Banner 1871-2021

Note: Today's Banner Parade marks the renewal of Her Late Majesty Queen Elizabeth II's, Queen's Banner 1871 to 1971, to the Queen's Banner 1871 to 2021. This parade was scheduled for Saturday 6th November 2021 as the final event marking the 150th anniversary of the establishment of a permanent Australian artillery. Unfortunately, the COVID pandemic and the associated restrictions necessitated the postponement of the parade.

HER LATE MAJESTY QUEEN ELIZABETH II

The Royal Regiment of Australian Artillery was saddened by the recent death of Her Late Majesty Queen Elizabeth II and warmly remembers the long service of its former Captain-General. The death of Her Majesty was the end of an era for the Royal Regiment, the longest-serving British monarch having reigned for over 70 years; during which a large period was as our Captain-General.

On 19th September 1962, Her Majesty not only decided to become our Captain-General but



also agreed to the Royal Australian Artillery becoming a Royal Regiment. As Australian Gunners therefore, we have had the honour of a privileged association with Her Majesty for some 60 years.

Her Majesty's professional interest, dedication, and leadership as our Captain-General will be sorely missed by all Gunners. However, the new Banner of Queen Elizabeth II (1871-2021), will serve as a fitting reminder of our first Captain-General.

THE ROYAL REGIMENT OF AUSTRALIAN ARTILLERY

CAPTAIN-GENERAL

Formerly Her Late Majesty Queen Elizabeth
II

HEAD OF REGIMENT

Brigadier DJ Hill, AM

REPRESENTATIVE COLONEL

COMMANDANT

Brigadier S Roach, AM (Retd)

DEPUTY HEAD OF REGIMENT & PARADE COMMANDER

Lieutenant Colonel MS Hodda

REGIMENTAL MASTER GUNNER

Warrant Officer Class One AM Horte, OAM

9th Regiment RAA

Brigadier NT Sweeney, AM

16th Regiment RAA

Colonel JB Mclean, CSC

20th Regiment RAA

Honorary Colonel PR Swinsburg

School of Artillery

Colonel ST Goltz

ENSIGN TO THE QUEEN'S BANNER (1871-1971)

Lieutenant AJ Glossop

BEARER OF THE QUEEN'S BANNER (1871-1971)

Warrant Officer Class Two D Fitzgerald

ESCORTS TO THE QUEEN'S BANNER (1871-1971)

Sergeant NJ MacKay Sergeant ZT
Hammond

BANNER MAJOR

Major AD Foster
Battery Commander 'A' Battery

ENSIGN TO THE QUEEN'S BANNER (1871-2021)

Lieutenant FG Carter

BEARER OF THE QUEEN'S BANNER (1871-2021)

Warrant Officer Class Two JT Elms

ESCORTS TO THE QUEEN'S BANNER (1871-2021)

Sergeant DG Stevens Sergeant SM Bellert

COLONELS COMMANDANT

1st Regiment RAA

Brigadier S Roach, AM (Retd)

4th Regiment RAA

Lieutenant General GC Bilton, AO, CSC

8th/12th Regiment RAA

Major General CD Furini, AM, CSC



GUARD COMMANDERS

and

RIGHT GUIDES

No. 1 Guard

(1st Regiment RAA)

LTCOL JM Groves
WO1 MR Dawson

No. 2 Guard

(4th Regiment RAA)

LTCOL D Silverstone
WO1 LG Burgess

No. 3 Guard

(8th/12th Regiment RAA)

LTCOL T Watson
WO1 BM Colles

No. 4 Guard

(9th Regiment RAA)

LTCOL P Wong
WO1 CN Woodhall

No. 5 Guard

(16th Regiment RAA)

LTCOL MC Squire
WO1 A Law

No. 6 Guard

(20th Regiment RAA)

LTCOL SM Armstrong
WO1 ME Wood

CHAPLAINS

Anglican

CHAP TH Sutherland
CHAP JM Hall

Roman Catholic

CHAP DH Styles, CSM
CHAP KJ Onwukwe

Protestant

PRINCHAP DP Jaensch, AM
CHAP MG Stuart



MUSIC

The combined Bands of the 1st Regiment RAA and the Australian Army Band – Sydney, under the musical direction of Officer Commanding and Musical Director Army Band – Sydney, Major CR Earl AABC and the Drum Major Warrant Officer Class Two RE Hingston AABC

PROGRAM

Opening Fanfare

Jacob

March On the RSM's

- RAA Quick March, British Grenadiers Traditional, adapted by Patch

Parade March On

- Voice of the Guns

Alford

General and Royal Salutes

- General – Scipio
- Chief of Army – Waltzing Matilda
- Governor-General – National Anthem (Salute)

Inspection

- El Abanico

Javaloyes

Band Troop

- Men of Harlech

Bonnessian

- Thin Red Line

Alford

Escort Receiving the Queen's Banner (1871-1971)

- British Grenadiers Traditional, adapted by Patch
- National Anthem (Salute)

Trooping the Queen's Banner (1871-1971)

- Duke of York

Fredrick Eley

- By Land and Sea

Alford

March Off the Queen's Banner (1871-1971)

- RAA Slow March

- Auld Lang Syne

Queen's Banner (1871-2021) Received by the Guards

- Point of War

Advance in Review

- British Grenadiers

- National Anthem (Salute)

General and Royal Salutes

- Governor-General – National Anthem (Salute)

- Chief of Army – Waltzing Matilda

- General - Scipio

March Off the Queen's Banner (1871-2021)

- Point of War

- Waltzing Matilda

Ackers

Parade March Off

- Eagle Squadron

Alford

ORDER OF CEREMONY

On the Consecration and Presentation of the Queen's Banner (1871-2021) to the Royal Regiment of Australian Artillery by the Governor-General of the Commonwealth of Australia, His Excellency the Honourable General David Hurley, AC, DSC (Retd).

- Troops Holding Ground mount
- Parade marches on and forms up in Review Order with the Banners cased
- Officers Take Post
- Queen's Banner (1871-1971) is Uncased, by the Regimental Master Gunner, Warrant Officer Class One AM Hortle, OAM, and the Sentries begin their patrol
- Arrival of the Host Officer, Head of Regiment, Brigadier DJ Hill, AM
- Distinguished guests arrive and are received by the Host Officer and the Parade with General Salutes
- Principal Guest, Chief of Army, Lieutenant General SA Stuart, AO, DSC arrives and is received by the Parade with a General Salute
- His Excellency the Governor-General arrives and is received by the Parade with a Royal Salute
- His Excellency Inspects the Parade and the Band
- Queen's Banner (1871-1971) is Trooped down the line of Guards and Off parade
- Parade forms a Hollow Square, and the Drums are Piled
- Queen's Banner (1871-2021) is Uncased and placed on the piled drums
- Parade Commander, Deputy Head of Regiment, Lieutenant Colonel MS Hodda, leads a service of dedication in which all Gunners re-affirm their allegiance to their King and Country
- Banner is Set apart by the Chaplains and consecrated
- His Excellency presents the Ensign the Banner
- His Excellency addresses the Parade
- Parade Commander responds to the address
- Banner is marched, along with the Guards, back into Line and formally received into the Royal Regiment of Australian Artillery with a General Salute and the National Anthem
- Parade Advances in Review Order and gives a Royal Salute

- His Excellency is called forward to present awards and swords
- His Excellency departs followed by the Principal and Distinguished Guests
- Parade marches off

QUEEN'S BANNER

(1871-2021)



Brigadier S Roach, AM, Representative Colonel Commandant, wrote to Her Late Majesty Queen Elizabeth II on 8th May 2019 to convey on behalf of the Regimental Committee, a desire for Her Majesty to consider a replacement for the Queen's Banner 1871-1971 due to its poor condition. This communication was based on a curatorial report, following repair in July 2017, that it had deteriorated to the degree that its useable time was well past. Brigadier Roach sought the Captain-General's concurrence for the presentation of the Queen's Banner 1871-2021 to coincide with the 150th anniversary of Australian artillery in 2021. The Queen's Banner will continue to be displayed in the Regimental Officers Mess when not in use.



CEREMONY OF CONSECRATION

Once the Guards have formed a Hollow Square and the Drums are piled and Banner Set, The Parade Commander (PC) will commence the service by saying the Prelude.

PC: Men have always made for themselves signs and emblems which are a mark of their loyalty to their rulers, and of their duty to honour the laws of the community in which they are placed by God. So, following this custom, we come together before God to ask His blessing on this Banner, which is to represent to us our duty towards our Sovereign and our Country. May this Banner be a sign to

all of us that God is with us always, in all dangers and difficulties. May they increase our faith and hope in him who is King of Kings, and Lord of Lords.

PC: To the honour and service of God.

ALL: We dedicate ourselves.

PC: To the honour of our Sovereign, to the love of our Country, and to the good of all people.

ALL: We dedicate ourselves.

PC: To uphold the honour and sacredness of our promises.

ALL: We dedicate ourselves.

PC: To the protection of all travellers.

ALL: We dedicate ourselves.

PC: To the preservation of order and good government.

ALL: We dedicate ourselves.

PC: To the sacred memory of our comrades, whose courage and endurance have given us the freedom we enjoy, and the heritage we must preserve.

ALL: We dedicate our Banner.

PC: Mindful of these solemn promises and our resolve to keep them.

ALL: We dedicate our Banner.

PC: ‘Parade’ ... ‘Attention’

PC: ‘Reverend Sirs, on behalf of the Regiment, we ask you to bid God’s blessing on this Banner’.

The Anglican chaplain, CHAP TH Sutherland places hand above the Banner.

‘We consecrate and set apart this Banner as a perpetual sign of God’s presence and our duty to the Sovereign and Country, and an inspiration to all who follow them. In the name of the Father, and the Son, and the Holy Spirit’.

ALL: ‘Amen’.

The Roman Catholic chaplain, CHAP DH Styles blesses the Banner.

‘Bless, O Lord, this Banner which we bless in Your Name, that those who follow them, may be ever mindful of Your presence, guided by Your Will, and guarded by Your providence... (making the Sign of the Cross continues) ... In the Name of the Father, and the Son, and the Holy Spirit’.

ALL: ‘Amen’.

The Banner is then sprinkled with Holy Water.

The Protestant Denomination chaplain PRINCHAP DP Jaensch, AM places hand above the Banner.

‘In the Name of the Father and of the Son and of the Holy Spirit, we do dedicate and set apart this Banner, that they may be a sign of our duty towards our Sovereign and our Country in the sight of God’.

ALL: ‘Amen’.

PC: ‘Parade’ ... ‘Stand at Ease’.

ALL: ‘Almighty God, who has called us to be citizens of Australia, enable us to walk worthy of our calling. Unite us all in true Christian love with one another. Help us to fulfil the duties which may be laid upon us. Keep us calm, steadfast, and unselfish. Grant that at all times we may place our whole trust and confidence in your mercy and always live by your commandments, through Jesus Christ our Lord’. ‘Amen’.

PC: Lead-off with the Lord’s Prayer which is said by ALL.

THE ROYAL REGIMENT OF AUSTRALIAN ARTILLERY

The history of Artillery in the service of the Australian Commonwealth and its preceding colonies is long and proud, extending over 150 years. Volunteer artillery batteries were formed in the 1850s in New South Wales, Victoria, South Australia, and Tasmania, and in 1862 a battery was formed in Queensland.



16-Pounder field gun manned by members of A Battery

Gunners of today’s Royal Regiment of Australian Artillery celebrate its beginnings from the departure of

Britain’s colonial garrisons in the 1870s. On 1st August 1871 the Colony of New South Wales raised a permanent battery for its defence. A permanent

artillery presence has endured to this day. By the mid-1890s all the Colonies had raised full-time and part-time artillery units.



These consisted of both garrison and field artillery.

The longest continually serving permanent unit in the Australian Army is 'A' Battery. It is



descended from the original New South Wales Artillery. Members of what later became 'A' Battery served as part of the New South Wales Contingent to the Sudan in 1885.

In July 1899, Queen Victoria granted the title 'Regiments of Royal Australian Artillery' to the permanent artilleries of New South Wales, Victoria, and Queensland. Significantly, this collective title of Royal Australian Artillery was given seventeen months before the creation of the Commonwealth of Australia through Federation in 1901.

Australian Gunners have served in the South African War, the Great War, the Second World War, Korea, Malaya, Malaysia, and Vietnam, during which the 102nd Field Battery

was awarded the Honour Title 'Coral' and a



Unit Citation for Gallantry. More recent service has seen the men and women of the Royal Australian Artillery serve on operations in Timor, Iraq, and Afghanistan and on peacekeeping missions from the Pacific to Africa and Europe.

Hundreds of thousands of Gunners have served in Regular and Reserve forces as both volunteers, conscripted National Servicemen and Universal Trainees, and in volunteer forces raised specifically for service outside

Australia.

Units of the Royal Australian Artillery have served in roles that have

continually evolved to include the provision

of direct and indirect fire using guns, mortars and missiles against land, sea, and airborne targets; the acquisition, location, identification, and engagement of targets using radar, searchlights, manned and unmanned aerial vehicles, visual and acoustic means; and the provision of command, control, and communications for the co-ordination of fires and effects from land, sea, and air.

Queen Elizabeth II granted the Royal Australian Artillery its current title "The Royal Regiment of Australian Artillery" on 19th of September 1962. Accordingly, this unique title means the RAA is regarded as a Regiment rather than a Corps.



In company with its British and many other Commonwealth counterparts, the Regiment does not carry specific battle honours, rather the Regiment carries the battle honour UBIQUE – Everywhere – in recognition that Gunners have served with distinction everywhere Army has fought. Today the Regiment continues to serve wherever the Australian Army is engaged. Along with their Battle Honour, the Regiment continues to be guided by its motto QUO FAS ET GLORIA DUCUNT – Where Right and Glory Lead



KING'S BANNER



The King's Banner was presented to the Royal Australian Artillery in 1904 by His Majesty King Edward VII as a special mark of favour in

recognition of valuable service in the Boer War of 1899 – 1902. The recognition of valued service included the formed units of 'A' Battery of the New South Wales Regiment and the Machine Gun Section of the Queensland Regiment, Royal Australian Artillery. It also extended to around two hundred other individuals from three Colonial Regiments of the Royal Australian Artillery and three Colonial permanent artilleries.

On Thursday, 20th October 1904, LTCOL WT Bridges RAA, as Acting Deputy Adjutant General and Chief Staff Officer on Army Headquarters issued General Order 243 advising arrangements for a Royal Review in Melbourne to coincide with the Birthday of His Majesty King Edward VII on Monday 14 November. The Order included that "His Excellency the Governor-General and Commander in Chief will present, by direction of His Majesty, The King's Colours" to 18 Light Horse Regiments, The Royal Australian Artillery, and the Australian Army Medical Corps in commemoration of Services in South Africa.



The Colour was consecrated and presented by His Excellency the Governor-General the Right Honourable Lord Northcote, GCMG, GCIE, CB to a detachment of an officer and two other members of the Royal Australian

Artillery. They were Captain SE Christian, Battery Sergeant Major W Coleman, and Staff Sergeant R Colburne, all members of 'A' Battery. Military Orders in 1908 changed the title of the Colour to 'King's Banner'. The Banner was laid-up in the Australian War Memorial on ANZAC Day in 1972.

QUEEN'S BANNER (1871-1971)



In approving the presentation of the Queen's Banner on 3rd September 1970, Her Majesty Queen Elizabeth II expressed the wish that the Banner replace the King's Banner

presented by King Edward VII. In this manner, Her Majesty most graciously preserved the unique significance of the original presentation of the King's Banner to the Royal Australian Artillery.

The Queen's Banner was consecrated and presented by His Excellency the Governor-General the Honourable Sir Paul Hasluck, GCMC, GCVO, on 1st August 1971 to coincide with Australian Artillery Centenary. The Director, Royal Artillery, instructed in 1971 that the Queen's Banner was to be held in the custody of the School of Artillery, so that all Gunners could have access.

The Banner will be farewelled by trooping it through the ranks of the Royal Regiment. It will be permanently laid-up in the Artillery and Armour Heritage Centre, Puckapunyal (yet to be constructed), until then, it will be held at the School of Artillery.



BANNERS ON DISPLAY

The Australian War Memorial has kindly loaned the King's Banner to the Victoria Barracks Museum. After trooping the Queen's Banner (1871-1971), it will be placed with the King's Banner within the Museum. The museum will be open to the public immediately after today's parade, so that both

may be viewed together for the first time since August 1971.

Preparation of the historical narrative in this program by the Regimental Historical Committee.

RAA REGIMENTAL SWORDS

Captain General's Sword

The *Captain-General's Sword*, will be carried by the Banner Ensign whenever the Queen's Banner (1871-2021) is on parade. The sword is based on a Royal Artillery 1822 pattern sword with nickel plated scabbard, but the traditional Rose, Shamrock and Thistle pattern has been replaced by a distinct Wattle design. Similarly, the Royal Monogram 'EIIR' is surrounded by wattle, thereby creating a distinct 'RAA



pattern sword'. The blade inscriptions are:

Front. Presented by Her Majesty Queen Elizabeth II Captain-General of the Royal Regiment of the Australian Artillery. On the occasion of the 150th Anniversary of the establishment of a permanent Australian artillery capability – 1st August 2021

Back. "UBIQUE" The Captain-General's Sword.

Spine. P1871 MADE IN ENGLAND, Quo Fas et Gloria Ducunt

Master Gunner's Sword



The second sword, to be known as the *Master Gunner's Sword* and will be carried by the Regimental Master Gunner when on parade or by the RAA Parade RSM when the Queen's Banner (1871-2021) is on parade. It differs from the *Captain-General's Sword* in that it is a traditional RA pattern sword complete with the Rose, Shamrock and Thistle etching. The blade inscriptions are:

Front. Presented by the Master Gunner of St James's Park and All Ranks of the Royal Regiment of Artillery to The Royal Regiment of Australian Artillery on the occasion of the 150th Anniversary of their formation 1 Aug 1871 – 1 Aug 2021

Back.

- VICTORIA 1837 - 1901
- EDWARD VII 1901-10
- GEORGE V 1910-36
- EDWARD VIII 1936-36
- GEORGE VI 1936-52

○ ELIZABETH II 1952

Both swords were kindly donated by Pooley Swords (UK), and the owner, Mr Robert Pooley, has been personally involved in both projects. The wattle design is unique to Pooley Swords. Mr Pooley was also instrumental in two similar swords for the Royal Regiment of Canadian Artillery, which celebrated its 150th anniversary on 20th October 2021.

EWEN AND MATTNER AWARDS

The Ewen and Mattner Awards are presented annually to the best Junior Non-Commissioned Officer and Gunner in the Royal Regiment.

These awards were established in 2016 and with the establishment of 9th Regiment RAA, a separate Citizens Gunner Award. The criteria by which the nominations for these awards are assessed are a combination of Army's values, behaviours, along with specific trade and general soldiering excellence. The criteria for the Junior Non-Commissioned Officer include junior leadership attributes.

John Carr Ewen and Edward William Mattner were chosen as exemplars of Gunners who would have more than met these criteria.

Each unit nominates one high-performing Junior Non-Commissioned Officer and Gunner who have not only displayed the highest levels of technical mastery, but also have proven themselves as excellent leaders and of the highest character. They will also have shown respect for the history and traditions of the RAA and been active in promoting unit / sub-unit and RAA identity and esprit-de-corps. The Regimental Master Gunner identifies worthy individuals serving in non-Corps postings (e.g., Kapooka) for possible nomination.



Major John Carr Ewen, MC, DCM, MM (1892-1951)



John Ewen enlisted in the AIF as a Gunner in October 1915 and was allotted to the 5th Australian Field Artillery Brigade. For actions in August 1916, Ewen was

awarded the Military Medal for maintaining telephone lines under constant heavy shellfire. He was also promoted to Bombardier and promoted again to Sergeant in March 1917.

In 1917 Ewen was serving in 13th Battery. On 17th March the Battery was the target of German counter battery fire and when all the battery officers were wounded, he took command, withdrew spare personnel to safety and brought the guns back into action. For his bravery and selfless dedication to duty he was awarded the Distinguished Conduct Medal and after officer training in Great Britain he was commissioned as a Lieutenant and posted to 11th Battery, 4th Field Artillery Brigade.

In August 1918 he was engaged in several days of heavy fighting (having taken over from an observation post officer who had been killed) and provided information on friendly dispositions and hostile batteries in utter disregard for his own safety. When the Germans withdrew a few days later he brought two guns to within 200 metres of the Front to engage machine guns and a hostile battery setting its ammunition dump alight. He was awarded the Military Cross for these actions. Soon after, he was seriously wounded and almost left for dead. Before returning to duty on 31st March 1919, Lieutenant Ewen received his three awards (MC, DCM, MM) from King George V at Buckingham Palace.

In World War Two, he commanded 53rd Battery, 14th Field Regiment and accompanied the Regiment to New Guinea where his

Battery performed prodigiously in getting two guns forward to engage the Japanese at Iroribaiwa at the southern end of the Kokoda Track.



Lieutenant Edward William Mattner, MC, DCM, MM (1893-1977)

Edward Mattner enlisted in the AIF as a Gunner in September 1915 and was allotted to 18th Battery. On 7th June 1917 he was one of five volunteers who extinguished fires in their Battery position thus saving three 18 pounders and 15,000 rounds of ammunition. Despite being wounded he remained on duty and for his actions was awarded the Military Medal.

In the autumn of 1917, the then Sergeant Mattner was a detachment commander. For keeping 18th Battery in action under heavy fire and getting the wounded away safely he was awarded the Distinguished Conduct Medal.

On 8th October 1917 Mattner was commissioned as a Second Lieutenant. In February 1918 an infantry company, sited near his Battery, was heavily shelled for half an hour. Casualties mounted, and Mattner collected a party of four others, dressed all the wounded, and removed them to a place of safety. Although wounded himself he remained on duty. For his actions he was awarded the Military Cross 'for conspicuous gallantry and devotion to duty'.

In 1939, he was enlisted as a Voyage Only Officer and in 1941/1942 was appointed Second in Command of 13th Field Regiment, including brief service in New Guinea. Prior to World War Two he had been a farmer but in later years he became a Federal Senator.

Note: Ewen and Mattner are two of only six soldiers in the AIF to be awarded the MC, DCM, and MM.



Banner Parade Master of Ceremonies Script

Major James Casey

Prologue

Distinguished guests, Ladies and Gentlemen of the Artillery, our friends and families – good afternoon and welcome to the parade marking the consecration and presentation of the New Banner of Queen Elizabeth the Second to the Royal Regiment of Australian Artillery. The parade formally marks the culmination of the Regiment's celebrations of 150 years of Australian artillery, having been postponed in the wake of the pandemic last year.

On behalf of the Representative Colonel Commandant Brigadier Don Roach, and Head of Regiment Brigadier

Damian Hill, I acknowledge the Traditional Owners of the land on which we gather today, the Gadigal people of the Eora nation, and pay respects to their Elders past and present. We

pay particular respect to those Aboriginal and Torres Strait Islander peoples who have served in the Regiment in times of peace and war.

The parade will commence in approximately 15 minutes and will take approximately 2 hours before concluding. In preparation, now is an opportune time to use the lavatories (located to the rear of the building behind the dias). I would also recommend you take the time now to apply sunscreen and fetch some water before taking your seats before the parade commences. In case of an emergency, you will be guided to an assembly point by the ushers around the parade ground. Please follow their instructions as they direct you to the nearest safe area, the principal assembly area being the main entrance to the Barracks (opposite the dias). It being a warm sunny day, if you feel faint or otherwise unwell,

please seek assistance. A first aid station is located to the left of the seated viewing area.

Before the parade gets underway, an explanation is deserved for those who haven't seen a parade like this before. Today's parade is in two parts: the first ceremony called trooping the banner, where the Old Banner is paraded for the last time before being laid up in perpetuity. The second is the religious consecration and presentation of a New Banner, which will be ceremonially presented by the parade's reviewing officer.

Standards, guidon, colours, and banners (collectively referred to as 'colours') are special types of flags used by militaries across the world. Their origins predate the birth of Christ, such as the use of 'eagles' by the Roman legions. Historically, they were carried in the centre of a military unit and served not only as a rallying point for its soldiers in the heat of battle, but they also allowed the generals to see at a glance where units were, and how they were faring in combat. Colours became central to the lives (and deaths) of the units. If a colour

fell during the battle, it needed to be raised immediately to show the general that the unit was still in the fight. The ultimate dishonour was for a unit still in battle to lose its colour to the enemy – not only had they lost their rallying point, but their general could no longer rely on revered; they were blessed to curry favour from deities; they were solemnly paraded (or trooped) in front of the units before battle so they could be clearly identified; they bore the names of battles in which the unit was honours (battle honours); and they were saluted by all ranks as a mark of esteem to the units they belonged.

For the artillery, the 'colours' are our guns, radars, missile launchers, and mortars – our rallying point in the battle is our equipment. Historically, artillerymen would continue to serve the guns even when under attack – their



support to the infantry and cavalry being more important to the fight than their own protection under all but the direst of circumstances. This isn't just a Napoleonic era trait but has been repeated in the Australian artillery as famously as the Battle of Coral, and as recently as Afghanistan. The guns, radars, missile launchers, and mortars when on parade take the precedence of colours (after standards and guidon of the armoured corps) and are treated as such.

The banner belonging to the Royal Australian Artillery is unique to Commonwealth artillery regiments. After the Second Boer War concluded in 1902, King Edward VII presented 'Kings Banners' to a number of colonial units who had participated in the war as tokens of his regard. Of those, one was awarded in 1904 to what is now known as A Battery, the oldest continuously serving permanent sub-unit in the Australian Army, originally raised as a colonial battery on 1st of August 1871. A Battery's establishment is now regarded as the beginning of the Australian artillery – a 'birthday' if you will.

Colours usually have a useful life of some 25 years – being made of fine silk, paraded regularly, and almost constantly on display; they can degrade and wear quickly. The King's Banner did so, and because of the uniqueness of the origin of the Banner (and the turmoils of the two World Wars), it was laid up in perpetuity. On the occasion of the Regiment's centenary in 1971, Her Late Majesty Queen Elizabeth II presented a new banner in her own name to the Regiment at a parade here at Victoria Barracks, the very same place we meet here today. On that occasion, the banner ensign and escorts from A Field Battery were returned from their tour of duty in Vietnam to participate in the parade. 51 years later, in the year of her Platinum Jubilee, the Banner Her Late Majesty commanded be presented in her name to the Royal Regiment of Australian Artillery is to be accepted by a grateful Regiment. Today the Banner is to be presented on behalf of Her Late Majesty by His Excellency the Governor General. Her Late Majesty was also the Captain General of the Regiment; a title unique in Australia to our

Royal Patron that until 1736 was synonymous with the rank field marshal – a five star general rank.

The Royal Regiment of Australian Artillery is unique in the Army in that it is not a 'corps' – thanks to our British lineage, we are a regiment composed of regiments. The Royal Regiment is composed of traditional field artillery who identify and strike ground targets with surface-to-surface ammunition; air defence artillery who identify and engage hostile aircraft with missiles, surveillance and target acquisition artillery who seek out, identify, and classify hostile artillery and units; and our reserve artillery regiment who contribute to all three streams, mostly in the provision of mortar support to reserve infantry battalions. The Regiment also consisted of coastal batteries until after the Second World War; it is poignant that less than a century later the artillery is poised to acquire weapons that are anticipated to protect Australia's shorelines and sea lanes.

The Regiment is also unique in that it is only ever allowed to hold one sole battle honour. That honour is '*Ubique*', the first of our two mottos. It is Latin for 'everywhere'. When taken with our second motto '*Quo fas et Gloria ducunt*' (where right and glory lead), thus it stands that wherever there is a battle, where there is honour and glory to be found in its makings, the artillery will be there.

The significance of the battle honour cannot be understated: the Gunners distinguish themselves in the battle everywhere they are found.

The parade will shortly commence with the Regimental Master Gunner marching on to the parade ground to post the Regimental Sergeants Major. I invite you now to please take your seats.

RMG Marches On

The Regimental Master Gunner is the senior enlisted Gunner appointment in the Army. They are responsible for managing the day-to-day affairs of the entire Regiment and safeguarding its customs and traditions. The Regimental Master Gunner, Warrant Officer Class One Tony

Hortle, is the senior warrant officer for the parade today. He will order the bugler to sound the call ‘on parade’ before posting the guides and markers and marching on the troops of the Regiment. The troops are accompanied by the combined bands of the 1st Regiment RAA and the Australian Army Band Sydney playing ‘The Voice of the Guns’, an element of the Regimental Quick March.

During the March On

Today’s parade consists of six guards, each representing one of the regiments in seniority order: 1st, 4th, 8th/12th, 9th, 16th, and 20th Regiments. The principal parade appointments are drawn from the School of Artillery. Each regiment’s guard is commanded by their Commanding Officer, with their Regimental Sergeant Major as the right guide. The guards are numbered one through six, with Number 1 guard drawn from the 1st Regiment RAA on the right flank of the parade as they face towards the dais. You will note that some members of 1st Regiment wear their lanyards on the left arm; this is a special custom for those officers and soldiers posted to A Battery, the senior battery of the Royal Regiment and Army’s longest continuous serving sub-unit. Each guard is composed of 20 other ranks, five senior-con commissioned and warrant officers, and three officers. As the first part of the ceremony is the trooping of the Old Banner, the Old Banner is marched into a position to the far right of the dias. When the Banner is cased there is no requirement for standing or saluting. Once the guards are in their positions, the Regimental Master Gunner will dress the parade into ranks ready to be handed over to the Adjutant.

(Open Order & dress)

Handovers

The Regimental Master Gunner will now handover the parade to the Adjutant, Captain Chris Wishart of the School of Artillery. The Adjutant is the principal staff officer of a Regiment, usually the most senior captain, and the mouthpiece of the commanding officer. In the field, it is the Adjutant who commands the

Regimental Command Post, the technical heart of the Regiment. The Adjutant will order the band ‘beat assembly’ before marching on the officers for the parade, in preparation for handover to the Second in Command.

The Adjutant will now handover the parade to the Second in Command, Major Nathan Small of the School of Artillery. The senior major of the Regiment, the Second in Command is the ‘first amongst equals’ and as the name suggests assumes command of a regiment in the absence of the commanding officer. In artillery regiments, while the commanding officer sites his tactical or forward headquarters with the supported brigade or division headquarters, the second in command will command and control the bulk of the regiment (the gun and missile batteries principally), aided by the Adjutant and the Regimental Sergeant Major. Once the Second in Command is satisfied the parade is adequately prepared for the Commanding Officer, he will hand the parade over.

The Commanding Officer will now assume command of the parade. As the name suggests, the Commanding Officer is the senior most officer in a regiment, charged with full responsibility for the regiment’s conduct. They are appointed personally by the Chief of Army. The Commanding Officer for the parade is the Commanding Officer of the School of Artillery and *ex officio* Deputy Head of Regiment, Lieutenant Colonel Matthew Hodda.

Uncase the Banner

The Commanding Officer has commanded the Regimental Master Gunner to uncase the Old Banner, readying it for trooping.

The Banner of Queen Elizabeth the Second was presented to the Regiment by Her Late Majesty the Queen in 1971 during her royal tour. Since then, the Banner has been paraded numerous times, and when not in transit or safekeeping has been displayed in the Officers Mess of the School of Artillery. Now over 50 years old – twice the expected life of a colour – the Banner is paraded for the last time here today. The obverse side bears the cypher of Her Late

Majesty, and on the reverse side the badge of the Regiment. Those with a keen eye will see that the cannon faces what appears to be the ‘wrong way’ – the reason the cannon on the badge faces to the right is a quirk of heraldry; the pike on which the Banner is mounted is considered the ‘forward’ direction, if the Banner were to fly freely in the wind while marching, the cannon would be pointing in the direction of march. Thus, the cannon points towards the pike or to the right as we view it – the opposite direction to how the badge appears on our hats.



Australian Army Regimental Master Gunner Warrant Officer Class One Anthony Horte (left) uncases the Queen's Banner (1871-1971) during the presentation and consecration of the Queen's Banner (1871-2021) to the Royal Regiment of Australian Artillery at Victoria Barracks, Sydney.

As we await the arrival of the host officer, you will see the Banner sentries ‘patrol’ in the vicinity of the Banner. Historically, they would be charged with ensuring the Banner is safe from harm or mischief. They will continue to patrol until the host officer is received by the parade.

Senior Gunner

The Commanding Officer will acknowledge the arrival of the Regiment’s senior serving artilleryman Lieutenant General Greg Bilton, who in addition to being Chief of Joint Operations is also the Colonel Commandant of 4th Regiment RAA.

Host officer – HOR

The parade will now receive the host officer, the Head of Regiment, Brigadier Damian Hill. The Head of Regiment is the professional head of the Regiment, and is an appointment made in addition to the officer’s normal posting. The Head of Regiment will be accorded a general salute.

Principal official guest – CA

The parade will now receive the official guest, the Chief of Army Lieutenant General Simon Stuart. General Stuart will be accorded a general salute by the parade.

Reviewing officer

Ladies and Gentlemen, please stand for the arrival of the reviewing officer His Excellency General the Honourable David Hurley, Governor General of the Commonwealth of Australia, as he is received by the parade. His Excellency will be accorded a royal salute. Gentlemen are to remove their hats while the parade salutes with the present arms.

Thank you, ladies, and gentlemen, please be seated.

Inspection

His Excellency will now be invited by the Commanding Officer to inspect the troops on parade.



Governor-General of the Commonwealth of Australia, His Excellency General the Honourable David Hurley, AC, DSC (Retd), inspects personnel from the Royal Regiment of Australian Artillery during the presentation and consecration of the Queen's Banner (1871-2021)

The practice of inspecting troops on parade dates to the English Restoration, where King Charles the Second returned to English shores from exile in France. Upon making landfall, he was met by a cohort of barons who were accompanied by their regiments. The regiments laid down their arms, and then took them up again in the service of the King – this is believed to be the origin of the ‘present arms’. Expecting doubt and possibly traitors amongst their ranks, the King reportedly inspected the troops personally, looking each man in the eye to gauge their steadfastness as well as their intent. Suffice to say they met his standards; Charles was restored to the throne shortly, thereafter, ending the English Civil War.

It is also customary for the reviewing officer to inspect the band. A quirk of custom, while the reviewing officer walks between the ranks when inspecting the troops on parade, they walk around the outside of the band during the inspection.

Troop

The Commanding Officer will now command the Band to troop, and thereafter the Old Banner will be received by Number 1 Guard, formed by the soldiers and officers of the 1st Regiment. As part of the ceremony, after receiving the command to troop the Banner, Number 1 Guard becomes ‘Escort for the Banner’.

The Band is led by the Bandmaster and Officer Commanding the Army Band Sydney Major Cameron Earl. The Drum Major leading the band with his ceremonial mace is the Band Sergeant Major of the Army Band Sydney Warrant Officer Class Two Ray Hingston.

You will see a single drummer from the band take their place at the right of the Escort for the Banner. The drummer will then play the “Drummers Call” which initiates the trooping of the banner phase of the parade.

(Escort moves - Open order, dress)

The Regimental Master Gunner will now receive the Old Banner from the bearer and present it to the Banner Ensign to be carried. You will note that during the trooping the Banner ceremony, the Regimental Master Gunner draws his sword

– the only such time it occurs. Historically, this was reserved for protecting the colours in battle, and when handing a colour from a fallen subaltern to the next (or closest) officer.



Australian Army Regimental Master Gunner Warrant Officer Class One Anthony Horte receives the Queen’s Banner (1871-1971) during the presentation and consecration of the Queen’s Banner (1871-2021) to the Royal Regiment of Australian Artillery at Victoria Barracks, Sydney.

Historically, the ensign for a colour was the youngest or most junior officer in the unit – indeed the rank ‘ensign’ is still the most junior officer rank in many militaries in the world. This was so that the older, more experienced officers could be relied upon in battle having been largely protected from the worst fighting when carrying the colour previously. In this case, the Ensign of the Old Banner is Lieutenant Glossop of the 1st Regiment RAA.

Now that the Banner Ensign has received the Banner, the Number 1 Guard is now the ‘Escort to the Banner’. The Banner will now take its place with the Escort to the Banner and be marched before the troops on parade.

The trooping of the banner is a tradition that emerged from the routine parading of a unit’s colour as both a matter of routine and in the

prelude to battle, so that every soldier could identify and memorise its appearance. Historically drawn from the illiterate peasant class, the units relied on the pattern of the colour being etched into the memories of the troops, so they could identify it in the heat of battle.

(After CO presents arms)

Trooping the Colour is the parade conducted by the Household Division of the British Army to celebrate the Sovereign's birthday; each year a battalion from one of the foot guards regiments are selected to troop their colour before the Sovereign; the remaining guards on parade being formed from the other four foot guards regiments. The parade is viewed annually by millions of people. That ceremony is the basis upon which the parade today is drawn

March off the Old Banner

Ladies and Gentlemen, having been paraded for the last time before being laid up forever, the Old Banner will now be marched off the parade ground. Please stand as the Banner is marched off. After the Banner passes across the front of the troops and the Commanding Officer orders 'present arms', service personnel are to salute and gentlemen are to remove their hats.

Thank you ladies and gentlemen, please be seated.

Receiving the New Banner

The parade will now prepare to receive the New Banner of Queen Elizabeth the Second.

Ensign takes post

The Commanding Officer will order a hollow square be formed, and the drums be laid for the consecration of the new Banner by ministers of three Christian denominations associated with

the tradition of consecration: Anglican, Roman Catholic, and Protestant.

After inwards dress



Members of the Royal Regiment of Australian Artillery uncases the Queen's Banner (1871-2021) during the presentation and consecration of the Queen's Banner (1871-2021) to the Royal Regiment of Australian Artillery at Victoria Barracks, Sydney.

Laying the drums

The drum corps will now lay their drums. During the Middle Ages, units were formed by nobles for each campaign; the family banner of the lord's family served as their unit's colour. Males of the family would receive a smaller 'bannerette' of their own when they were knighted; these family banners and knight's bannerettes would be blessed by priests to impart the protection of God in battle, thus the religious ceremony of consecration was born.

The use of drums in battle is an ancient custom. The drums were thought to repel evil spirits, and because of their deep resonant tones were also used to signal the approach of a unit over large distances. In battle, distinct rhythms were invented to convey orders or messages over the

din of combat, thus the origin of the sayings such as ‘to beat a hasty retreat’. With the invention of bugles, bagpipes, and other instruments; a regiment’s band would use musical calls as signals in battle – the tune ‘Point of War’ that is played during general salutes was sounded to indicate the colours were in danger and to rally the troops closer to them.

You’ll notice that drums are not related with religious music; long having the reputation as a pagan instrument. From around the 17th Century, drums were stacked to ensure they could not be beaten during an outdoor service; for this reason it’s thought they were used as a makeshift altar, as they are here today. Once in place, the Commanding Officer will commence the service of the consecration of the New Banner.

The Banner will be laid upon the drums by the Banner Major. The Banner Major on this occasion is the Battery Commander of A Battery, Major Aaron Foster. The Banner Ensign is Lieutenant Fred Carter of 20th Regiment RAA.



Australian Army Director General Chaplaincy and Protestant denomination chaplain Darren Jaensch consecrates the Queen's Banner (1871-2021)

The chaplains of the three Christian traditions consecrating the New Banner:

- Anglican: Tracey Sutherland officiating, James Hall assisting.
- Catholic: Damian Styles officiating, Kene Onwukwe assisting.
- Protestant: Darren Jaensch officiating, Matt Stuart assisting.

(Lord's Prayer)

Presenting the New Banner

Having been consecrated in the name of God, His Excellency will now present the New Banner to the Royal Regiment of Australian Artillery. When His Excellency salutes the Banner, gentlemen are to raise their hats from their heads.

His Excellency will now address the parade.

(CO's response)

After the CO's Response

Having accepted the Banner of Queen Elizabeth the Second on behalf of the Regiment, the drum corps will recover their drums and the parade will return to its formation before the Banner takes its place on the parade.

The New Banner was manufactured by Australian company ‘Spear of Fame’. It is made of silk, with hand-stitched embroidery. In the upper canton, near the royal crest, is emblazoned ‘1871-2021’. As with the Old Banner, the obverse side bears the Royal Cypher of Her Late Majesty Queen Elizabeth the Second, and on the reverse side the badge of the Royal Australian Artillery. The royal crest that sits atop the pike is made of solid gilt.

(Inwards dress)



(L-R) Escort to the Queen's Banner Australian Army Sergeant Daniel Stevens, Queen's Banner Ensign Lieutenant Frederic Carter and Escort Sergeant Sean Bellert parade the Queen's Banner (1871-2021).

Ladies and Gentlemen please stand as the Banner is saluted and then joins the Regiment for the first time. During the playing of the musical salute ‘Point of War’ and the National Anthem that follows immediately after, service personnel are to salute, and gentlemen are to remove their hats.

Thank you, ladies, and gentlemen, please be seated.

Advance in Review Order

The advance in review order normally takes place after a march past. It hails from a series of proscribed military manoeuvres used to ascertain the efficiency of units and their commanders; the last manoeuvre of the sequence being the pursuit in follow up a broken enemy. The advance would be followed by a salute to the officer reviewing the manoeuvres to end the display. Please stand for the advance, and during the playing of the Royal Salute that follows, service personnel are to salute and gentlemen are to remove their hats.

Stand easy

Awards and Presentations

His Excellency will now make some presentations to the parade.

The Captain Generals Sword and Master Gunner’s Sword will be accepted by the Commanding Officer and the Regimental Sergeant Major of 8th/12th Regiment RAA, Warrant Officer Class One Brendan Colles on behalf of the Regimental Master Gunner who is protecting the Banner.

The Captain General’s Sword is a gift from Her Late Majesty the Queen our Captain General, in recognition of 150 years’ service to the Crown. It will be carried by the Banner Ensign on all future parades.

The Master Gunner’s Sword is a gift from the Master Gunner St James Park Lieutenant General Andrew Gregory, and the Royal Artillery. The Master Gunner is the head of the Royal Artillery akin to our Head of Regiment and is recognised across the Commonwealth

artilleries as the ceremonial head of the Regiments.

Both swords are specially patterned and inscribed.

Annually the Regiment recognises the best Junior Non Commissioned Officer and Soldier across the Regiments with awards named for two officers formerly from the ranks who were both highly decorated in the First World War: Major John Carr Ewen and Lieutenant Edward William Mattner for best junior NCO and soldier respectively – their biographies are in your programs. In years past, the awardees have undertaken study tours with the Royal Artillery, and have represented the Regiment at important occasions, such as the funeral of Her Late Majesty.

The Ewen Award for best Junior Non Commissioned Officer is awarded to Lance Bombardier Matthew Freegard of 4th Regiment RAA



Bombardier Matt Freegard receives the Ewen Award.

The Mattner Award for best soldier is awarded to Gunner Liam Hadfield of 4th Regiment RAA



Gunner Liam Hadfield receives the Mattner Award

Farewell Reviewing Officer

Ladies and Gentlemen please stand as the parade farewells His Excellency the Governor General as our reviewing officer. During the playing of the Royal Salute, service personnel are to salute and gentlemen are to remove their hats.

Thank you ladies and gentlemen please be seated.

Farewell Principal Official Guest

The parade will now farewell the official guest, Chief of Army Lieutenant General Simon Stuart.

Farewell Host Officer

The parade will now farewell the host officer, Head of Regiment Brigadier Damian Hill.



Ensign to the Queen's Banner Australian Army Lieutenant Frederic Carter, from 20th Regiment, Royal Australian Artillery, holds the Queen's Banner during the consecration and presentation of the Queen's Banner (1871-2021)

March off the New Banner

Ladies and Gentlemen, the Banner of Queen Elizabeth the Second will now be marched off the parade. Please stand for the march off, and during the playing of the musical salute 'Point of War' service personnel are to salute and gentlemen are to remove their hats until the Banner Ensign orders 'attention'. There is no requirement to salute the Banner as it is being marched off the parade.

Thank you, ladies, and gentlemen, please be seated.

Handovers & March Off

The Commanding Officer will now handover the parade to the Second in Command.

The Second in Command will now handover to the Adjutant, who will dismiss the officers from the parade.

The Adjutant will now hand over to the Regimental Master Gunner, who will march the troops from the parade ground.

The Farewell

Ladies and Gentlemen, as the Regimental Master Gunner sees the troops from the parade ground, we come to the conclusion of our commemorations here today. We hope you've enjoyed the parade, and that you have a lovely remainder for the day. For those who wish to see the King's Banner and the Old Banner on display, they can be viewed in the Museum located behind the main building.

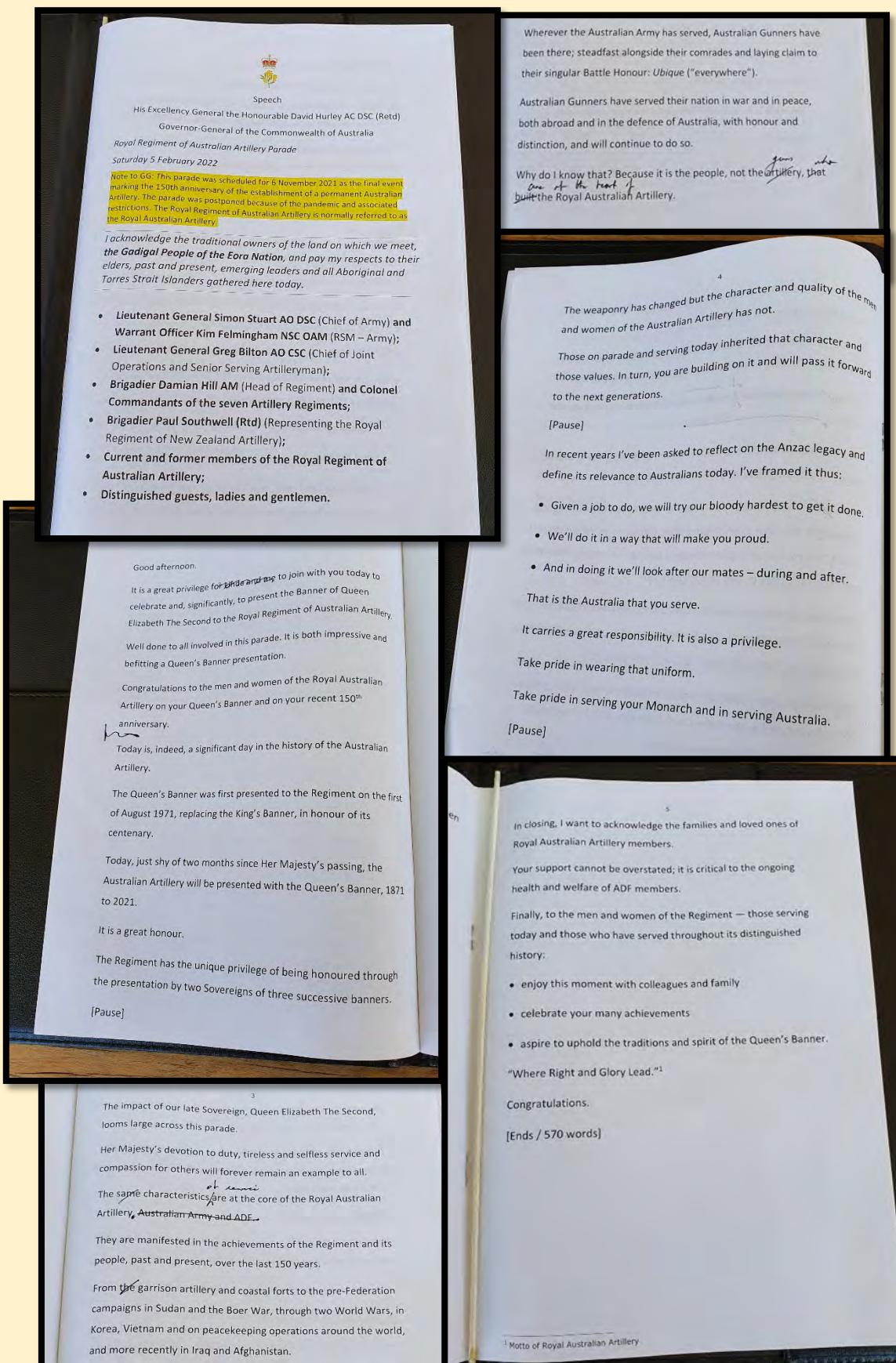
It has been an honour to have you join us on this historic occasion so long in the making. Thank you for joining us here at Victoria Barracks Sydney, and to those who have joined us from afar.

On behalf of a grateful regiment, have a wonderful day, and we bid you safe travels home.

It has been a singular honour to be your Master of Ceremonies today, my name is Major James Casey. *Ubique.*



Spear of Fame Team lead by Ümit Ertürk



Gnr continues tradition

Cpl Jacob Joseph

THE last time the Royal Regiment of Australian Artillery consecrated its Royal Colours in 1971, Gnr Alexander Valente's grandfather escorted the retired King's Banner off the parade ground at Victoria Barracks.

This month, Gnr Valente walked the same path at a parade to present and consecrate a new Queen's Banner to the regiment.

He escorted the ageing Colours, which had been in service since his grandfather's parade, one last time before a new banner was uncased.

"It's a point of pride in the family, considering we were both in A Battery," Gnr Valente said.

"It was a once-in-a-lifetime parade and an honour to do something so prestigious."

To mark the regiment's 100th birthday in 1971, the King's Banner was replaced by the Queen's Banner.

In 2019, the Representative Colonel Commandant for the RAA, Brig Simon Roach, wrote to Her Majesty the Queen requesting a replacement because of wear and tear.

Representatives from all the units of the RAA welcomed the new colours, marking a belated 150th anniversary of the regiment, postponed because of COVID-19 restrictions.

They were joined by the reviewing officer, the Governor-General Gen (retd) David Hurley, and CA Lt-Gen Simon Stuart, who watched the gunners reaffirm their allegiance to the King before chaplain performed a multi-denominational consecration.

Following a tradition of the monarch being the Captain General of the RAA, Her Majesty Queen Elizabeth II was commander in chief.

Regimental Master Gunner WO1 Anthony Horle hoped the position would now pass to His Majesty The King.

However, WO1 Horle said this didn't mean the colours would change to the King's Banner next year when the King is consecrated.

"The Queen's coronation was in 1953 but we still had the King's Banner until 1971," WO1 Horle said.

"The current Queen's Banner is brand new so we probably won't see a new banner for about another 20 years, depending on wear and tear."

When this happens, the Colours will be temporarily laid to rest at Victoria Barracks, the first home of A Battery, Australia's oldest, continuous-permanent military unit, before moving to the Armoury and Artillery Heritage Learning Centre in Puckapunyal, when construction is complete in 2024.



Army Director General Chaplaincy and Protestant denomination Chaplain Darren Jaensch consecrates the new Queen's Banner during a parade at Victoria Barracks.

Photos: Cpl Jacob Joseph



Career woven into history of the Colours

Cpl Jacob Joseph

Australian Army regiments granted the royal prefix.

The reverse side features St Edward's Crown above the letters E and R, with a roman numeral II between, denoting Her Majesty Queen Elizabeth II's royal cypher.

The banner was drawn at a 1:1 scale before the design was transferred to the silk-base fabric.

Work is guaranteed for 25 years but could last much longer, according to Spear of Fame spokesperson Unit Erturk.

"The original banner is over 50 years old and still in very good condition," Mr Erturk said.

Mrs Erturk oversaw the creation of the Queen's Colours for the Air Force's centenary celebrations.

She received an Order of Australia medal in 2003 for her service as a master embroiderer.

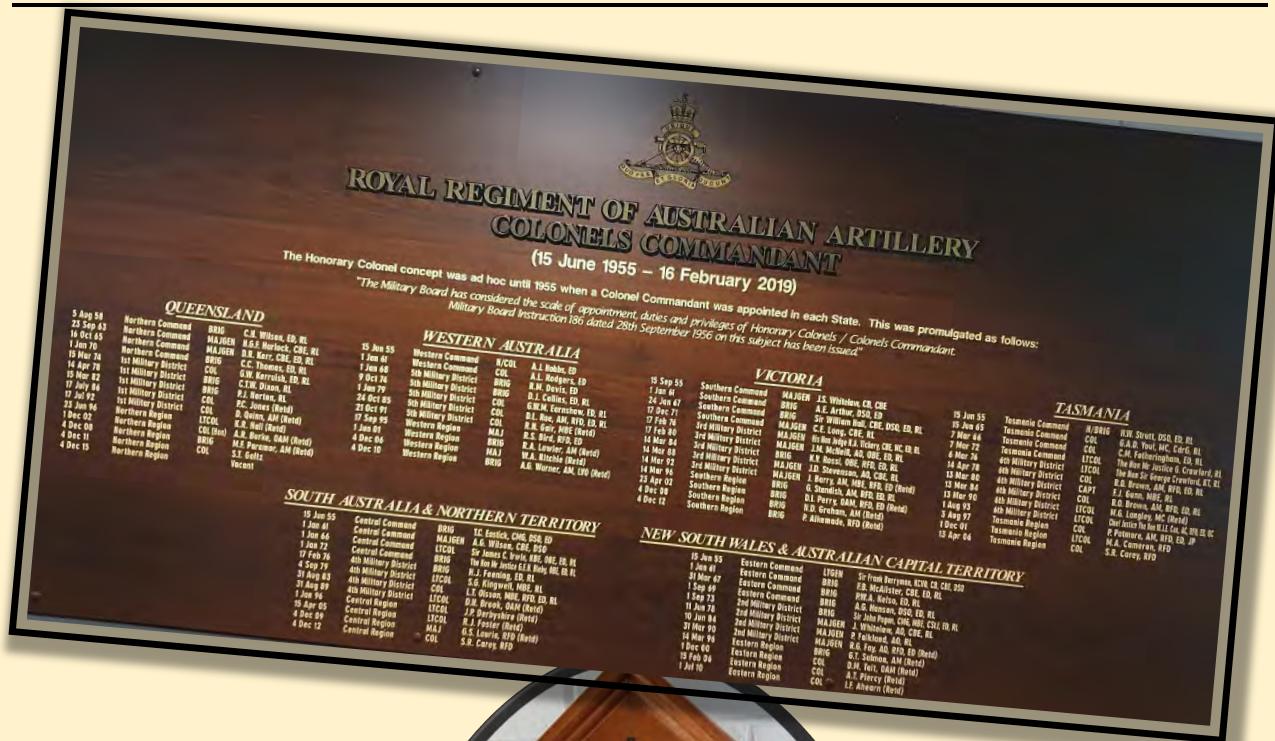


A MEMBERSHIP FORM IS LOCATED IN THE ASSOCIATIONS AND ORGANISATIONS SECTION

150th Anniversary Painting



Numbered & unnumbered prints of the painting are available for purchase. Contact MAJ Gary Down, email: gary.down@defence.gov.au



Around the Regiment

School of Artillery

*Lieutenant Colonel Matt Hodda
Commanding Officer / Chief Instructor
School of Artillery*

The School of Artillery has had another busy year associated with the delivery of training to meet Army's needs now. In parallel, the NETT has been heavily engaged with both the Land Combat Support Program and the Capability Acquisition and Sustainment Group (CASG) working to prepare our instructors and facilities for future capabilities and continue the training modernisation work under the Army's *Future Ready Training System*. Alongside the primary role of the School, our people have continued to support the local community during the recent Victorian floods and have supported Australia's Federation Guard and 9 Regt RAA in multiple gun salutes to mark the passing of the Queen Elizabeth II and the proclamation of His Majesty King Charles III. Of note, three members of the School of Artillery (CAPT Craig Stephenson, BDR Sam Russo and GNR Nicholas Burrough) accompanied the Head of Regiment and the Regimental Master Gunner to the UK as RAA representatives for Her Late Majesty's funeral. All members did an outstanding job in representing the Royal Regiment, with all three members being awarded a Head of Regiment Commendation on Saint Barbara's Day 2022 for their efforts.

Finally, the RAA concentrated in Sydney in November to be presented the Queens Banner (1871-2021) as the final event to mark the RAA's 150th Anniversary. It was an excellent event which appropriately reflected the significance of the occasion. The Head of Regiment team will facilitate the laying up of the Old Banner at the School of Artillery, until its permanent transfer to the Combined Arms Heritage and Learning Centre on its completion, which is expected in 2025.

Finally, I would like to thank LTCOL Benny Gray and WO1 Brendan Colles for their leadership and stewardship of the School of Artillery. They have ensured that the School continued to deliver high quality RAA training

amidst a global pandemic, and handed the unit over to the LTCOL Matt Hodda and WO1 Gav Mura in an excellent condition. Thank you!

Below is a summary of key unit functions and respective wing's achievements this year.

Head of Regiment Cell

Just as we thought the major impacts of the pandemic were past us, the 2022 RAA Conference was (again) limited by COVID. To avoid the risk of group infection and the potential risk to training by hosting the Conference at Puckapunyal, the decision was made to move the Conference from the School of Artillery to Canberra. It allowed the key modernisation programs to seek input from Regimental stakeholders to inform major project deliverables. Regrettably, this came the cost to the traditional events associated with the Conference, including the Officer and SNCO Farewell Dinners and the Regimental Conference. Regardless, the conference achieved its aims. As such we have seen some significant achievements as a result of the working groups including the establishment of the Fires Formation and the decision to acquire HIMARS under L8113.

2023 RAA Capability Development Conference

Planning for the 2023 Regimental Conference is underway. The details of the conference will be released early in 2023. To enable planning, the broad detail for the 2023 Conference are:

- Location – The School of Artillery
- Dates – 22-25 February 2023
- 21 Feb 23 – Conference concentration at Puckapunyal
- 22 Feb 23 – Unit Briefs and Working Group Presentations
- 23 Feb 23 – Key Working Groups followed by the Officer and SNCO Happy Hour
- 24 Feb 23 – Working Group Back Briefs (AM) followed by the Laying Up of the Old Queens Banner (PM). RAA Officer Farewells will be held in the evening.
- 25 Feb 23 – RAA Committee (AM) followed by the SNCO Farewells (evening)

The Land Combat College

The most significant change for the School of Artillery in 2022 has been establishment of the Land Combat College (LCC) with effect 01 March 2022. Associated with the establishment of the LCC was the C2 change of CATC under HQ RMC-A. At the direction of Head Land Capability and Commander Forces Command, the establishment of the LCC and the reorganisation of Army's Training Enterprise seeks to better align individual and collective training models, as well as ensure that the Foundation curriculums (what previously has been referred to as 'All Corps training') and corps specific training curriculums are aligned. There will likely be additional changes to HQ CATC and RMC-A functions in 2024 as part of this C2 change.

As at November 2022, the delivery of training at the School of Artillery has remained consistent with previous delivery models and current Learning Management Packages. There have been some elements of training where we have modified the mode of delivery to make sure that the training that we must deliver at the School maintains its value proposition. Some junior career courses will continue to be delivered in the Regiments as we have always done. However, the introduction of new capability provides an opportunity to look at what Gunners need to know under these new capabilities and structures and how our training is designed to meet these requirements. This will be a major focal point at the 2023 Regimental Conference.

Radio, Digital and Support Wing

For those who may not be familiar with the current structure of the School, Radio, Digital and Support Wing is comprised of three separate components: The Wing HQ, The Training Cell and Samuel Tristram Troop.

Wing Headquarters comprises of the Senior Instructor, Senior Sergeant Major Instructor in Gunnery, as well as including the Communications cell. The training cell is responsible for the course management, delivery of instruction, and conduct of the Basic Combat Communications Course (BCCC), Specialist Combat Communications Course (SCCC) and Common Induction Training (CIT).

Samuel Tristram Troop (STT) remains the School's holding troop. It is designed to receive recruits from Kapooka, or members who have corps/trade transferred and ensure they are prepared for future courses. At its peak STT was

responsible for over 100 trainees in a single session, however, as the army seeks to increase its manning this number will continue to rise.

RDS Training Pathway - Upon a new recruit's completion training of 1 Recruit Training Battalion (Kapooka), trainees will arrive at the school and be allocated to STT whilst they await commencement of their Initial Employment Training (IET) pathway to commence. A trainee will be required to complete the RAA Common Induction Training which includes weapon, ACP and pyrotechnic qualifications as well as lessons on the history and culture of the RAA. Trainees will then complete the Basic Combat Communications Course (BCCC), with specific ECNs undertaking the Specialist Combat Communications Course (SCCC). At the conclusion of this training, the recruits will then be sent to one of the three other wing at the school to complete their IET based on their RAA trade – Gunline, Artillery Command Systems Operator (ACSO), Observer, UAS Operator, or Operator Ground Based Air Defence.

Surveillance and Target Acquisition Wing

2022 has been an active year for the Surveillance and Target Acquisition Wing. The Wing has successfully run and administered fourteen courses across all rank bands instructing over 70 students.

Outside of its role in generating Armies Tactical UAS operators and commanders, STA Wing has also contributed to the continual strengthening of Australia's regional ties. In June the Wing participated in the Five Power Defence Agreement (FPDA) Planning Conference in Penang, Malaysia. WO2 Matthew Dutton attended this year's conference and aided in the planned integration of UAS into the upcoming FPDA exercises scheduled for 2024 and 2025.

Army UAS Force Modernisation over the same period has seen the Small UAS (SUAS) Cell within STA Wing worked together with Strike Cell in Joint Fires Wing to successfully integrate the WASP AE platform with the Remote Operations Video Enhanced Receiver (ROVER) version 6, the latest technology available to ADF members that provides live aerial imagery. In line with this, the Wing also participated in multiple industry led initiatives including a demonstration of UAS swarming technology hosted by Mirragin Aerospace Consulting and Boresight Aerial Targets in Queensland.

The priorities for the wing have been:

- Priority One—Training and Courses
- Priority Two—Modernisation and capability development
- Priority Three—Develop our personnel
- Priority Four—Support to external stakeholders:

Joint Fires Wing

After the severe restriction that were imposed on the School of Artillery in 2021 due to the COVID pandemic, the Joint Fires Wing (JFW) has returned to an ‘almost normal’ business routine in 2022. Fortunately, a nucleus of key staff remained in post within all JFW cells which ensured a good level on continuity for the new calendar year and the new staff that were posted in to the School of Artillery were able to seamlessly transition into their new roles.

The Regimental Training Team continued to focus on the delivery of courses to both junior soldiers and IET’s. Throughout this year the team has delivered outstanding training across five ab-initio and four career courses, with the priority of delivering over 110 newly trained ACSO and Gunner ECN soldiers to field artillery units.

The Career Development Team also delivered outstanding training across the wide suite of courses they deliver to the trained workforce in the continuance of their professional development. Training was also conducted as part of the Officer training continuum to both the new contingent of RAA Officer on the ROBC and trained Officers on ROGC. In total six courses were conducted with over 65 Officer’s and Soldier’s attending.

Strike Cell has focused on delivering courses across the full spectrum of ranks from ab-initio training of IETs to the JFT Commanders course. Two ab-initio courses and three career course were delivered to a total of 85 Officers and Soldiers.

The Mortars Cell have continued delivering the targeted training to the RAINF and have conducted six courses delivered to 115 Officers and Soldiers.

In total, throughout 2022 JFW has delivered 26 courses to 430 personnel and significantly increased the number of trained soldiers within all field artillery RAA Regiments, as well as assisting in the training of RAINF soldiers through the delivery of Mortar courses.

Air and Missile Defence Wing

The Air and Missile Defence Wing hit the ground running in 2022 as it emerged from the challenges of previous years and worked through significant staff turnover. Early on BDR Russo was recognised as the RAA JNCO of the year for 2021 as a result of his outstanding efforts as an instructor and course manager.

The team has done an excellent job to deliver quality individual training across ten ab-initio and career development courses for soldiers and officers in trade. Additionally, the Wing led the delivery of a refreshed Officer Orientation Course and successfully fought to stand up an additional session of the Basic Operator GBAD course.

In the Hangar, the team have done an excellent job in getting on top of their equipment and ensuring that all training is well supported.

The Wing has also made additional strides towards the modernisation and improvement of all courses which will set the trade up for success in the future, and has contributed to the IIS trajectory of eNASAMS under L19Ph7B. This has included participation in numerous working groups, consultation on capstone documents, attendance on trial and pre-requisite courses, and contributions to ongoing professional dialogue.

Throughout the year, members of the Wing have supported or attended numerous displays, demonstrations, exercises, tasks, visits, courses and conferences. A particular highlight In the middle of the year was the Wing week-long retreat to Queenscliff which presented an opportunity to develop as a team and discuss training.

Thanks to all in the Wing for a great year (CAPT Other-Gee, CAPT Storm, WO2 Brown, WO2 Smith, WO2 Matthews, SGT Watt, SGT Hammond, SGT Erwich, BDR Laskowski, BDR Russo, BDR Ferguson, BDR Kronk, BDR Jafary, LBDR Fulham, GNR Sellar, GNR Goldfinch, and GNR Shrimpton) and farewell to those who leave the full time Army to pursue opportunities in the civilian world.

53 Battery

53 Independent Battery has enjoyed a successful year supporting the School of Artillery, and the RAA more widely.

The year begun with the Battery undertaking EX Southern Run in February, designed to qualify the Battery up to ATL 4 to provide support to the wider SOARTY DTR and courses. This exercise also enabled the Battery

to develop its officers and NCOs in complex technical aspects, conducting drills and actions such as pistol gun, AMA movement and Multiple Round Simultaneous Impact missions. Junior officers were also subject to complex planning scenarios in support of RAAC focused operations.

The Battery then undertook several small arms training packages, before supporting Gunner Grade 1 in early March before supporting the Regimental Officer Basic Course (OS) on both its dry and live field exercises.

In June, the Battery had the opportunity to participate in Combined-Arms training on Exercise Gauntlet Strike 2022 (EX GS 22). This exercise was conducted to support School of Armour to qualify new RAAC Lieutenants currently on ROBC, and new RAINF Lieutenants on MROC. In support of EX GS 22 the Battery fired complex live fire plans in support of Mounted Combat Team tactical actions with its observers participating in mounted Battle-Runs.

In July BDR Jack Jennings went to the USA ISO Exercise Bold Quest 22, where he tested DTCS Next Gen and its communications array with partner and coalition nations to prove its validity. This saw him play an instrumental part in ensuring the technologies capability in linking digital threads between DTCS Next Gen, AFATDS, and ODIN. He also gained hands on experience in implementing other nation's equipment for this purpose.

Later, in lieu of Exercise Chong Ju in August, the Battery participated in the CATC Capability Demonstration, where it deployed a gun to conduct live-fire for an audience of several hundred spectators. Shortly after which, the Battery would send another gun and detachment to the Australian Defence Force Academy for its open day, where it showcased Offensive Support capabilities.

As a precursor to the Battery moving into a very busy latter half of the year supporting the School's main effort DTR, we supported Federation Guard in conducting an M2A2 Gun Salute for the President of Timor-Leste, as well as the privilege of conducting several gun salutes commemorating the passing of Queen Elizabeth II in both Canberra and Sydney. The Battery would then move to support another Gunner Grade 1 course, and the Joint Fires Team Commander's Live Fire course which has just now concluded.

53 Battery has to date supported over 30 SOARTY courses through the provision of both

live and dry fire support and fired over 2000 rounds in support of both trainee and warfighting scenarios. The Battery continue to build relationships with CASG and has also provided SME knowledge and support to the AS9 fitout.

The Battery finished the year with a PME Tour in Canberra in late November.

Seeking Your Support

The Gunners' Fund is designed to provide a source of income that can be utilised for the benefit of all Gunners – regardless of rank. This income is generated from fortnightly or annual subscriptions from serving (both ARA and Reserve) and ex-serving members of the RAA, life memberships and various donations. The current size of the Fund is relatively small, especially when compared to other Regiments and Corps funds in the Army. As a result, it is only able to provide relatively modest levels of support within the RAA. This will improve as the subscriber base grows. The Fund is managed as a Non-Public Monies Account by the SO2 Head of Regiment and is with Australian Military Bank.

The Head of Regiment's intent is that the fund is utilised to foster our Regimental spirit, not only by ensuring our past is captured, but also by ensuring we continue to build our identity into the future. As such it is his vision, as the Fund grows, that we can begin to provide greater support to prizes, awards and incentives. Ideally this will encompass recognition of individual and team achievements, written articles, memorial and museum projects, bereavement needs, as well as special projects requested by individual members or sub-units/units of the Royal Regiment and affiliated Associations.

The Gunners' Fund not only belongs to past and present Gunners, but also to our successors. We must leave them a strong and vibrant 'family'. This is only possible with support from individual subscribers. If you have any questions or would like to receive a subscription form, please contact the Fund's Treasurer, Major Gary Down, on mobile 0407 140 036 or email gary.down@defence.gov.au.

Your contribution, along with all the other serving and retired members of the Royal Regiment who are making a similar commitment, is extremely important in ensuring the Regimental Committee can support the fostering of our esprit-de-corps and ensure our unique 'Gunner identity' remains a fundamental part of Army's culture and traditions.

Once a Gunner, always a Gunner!



1st Regiment RAA



EXERCISE BARCE 22

SHOALWATER BAY TRAINING AREA

Exercise Barce 22 saw the Regiment complete deploy into the field at Shoalwater Bay Training Area (SWBTA) to refine our live fire expertise, with bespoke activities for PGK, SMART 155 and LMMR shooting. Each of these non-standard profiles presented their own unique requirements to work through in the field environment.

The PGK shoot was led by 104 Battery and saw the effective employment of the Precision Guidance Kit to great effect. Fuses of this nature allow us to bridge the gap between standard 'dumb' bombs and precision guided munitions such as the Excalibur. Precision has refined the definition of mass allowing for less rounds to have greater impacts on the battle space. Thanks to 104 Battery the digital and gun line procedures were able to be put to the test in the live fire practice.

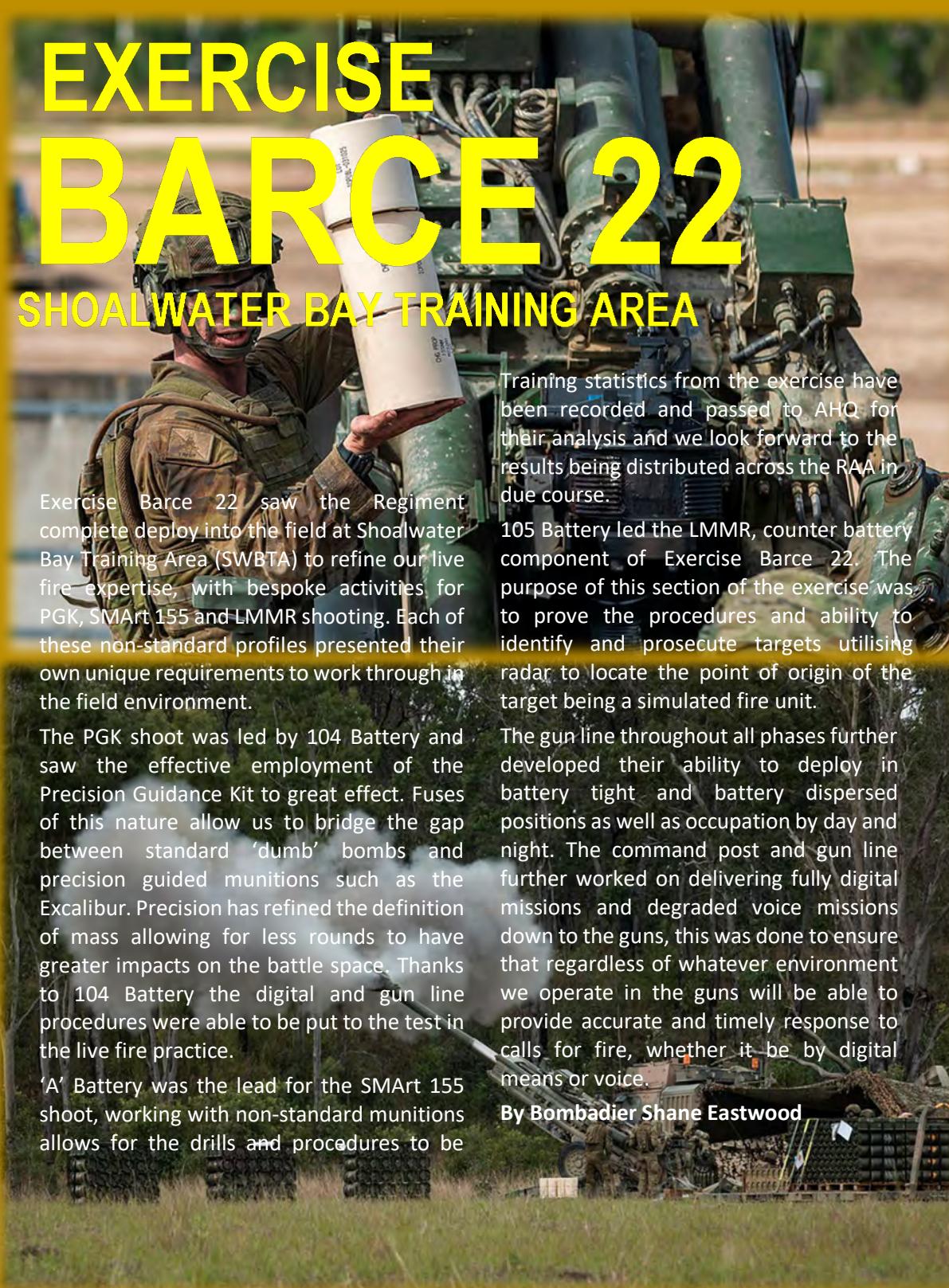
'A' Battery was the lead for the SMART 155 shoot, working with non-standard munitions allows for the drills and procedures to be

Training statistics from the exercise have been recorded and passed to AHQ for their analysis and we look forward to the results being distributed across the RAA in due course.

105 Battery led the LMMR, counter battery component of Exercise Barce 22. The purpose of this section of the exercise was to prove the procedures and ability to identify and prosecute targets utilising radar to locate the point of origin of the target being a simulated fire unit.

The gun line throughout all phases further developed their ability to deploy in battery tight and battery dispersed positions as well as occupation by day and night. The command post and gun line further worked on delivering fully digital missions and degraded voice missions down to the guns, this was done to ensure that regardless of whatever environment we operate in the guns will be able to provide accurate and timely response to calls for fire, whether it be by digital means or voice.

By Bombadier Shane Eastwood



COUNTER FIRES

During Ex BARCE 22, 1 Regt tested its ability to prepare for, locate and destroy a hostile battery during the *Active Phase* of Counter Fires.

Utilising the LMMR as a sensor, 105 Battery engaged simulated hostile batteries with fires to measure speed of response and accuracy. The LMMR tracked an initial engagement from 105 Battery, routed this to the Brigade JFECC, where point of impact (POI) and point of origin (POO) were reversed for safety purposes before a mission was sent back to the Battery. This tested the effectiveness and efficiency of the Regiment's Counter Fires procedures, and how a more contemporary weapon locating radar could support the artillery duel.

While the procedures were found to be immensely effective, what the serials also proved was the significant munitions and preparation required to ensure that a Battery could effectively conduct and sustain counter fires operations. The Battery expended significant quantities of 155mm, which had to be pre-dumped utilising much of the echelon's available transport. It also demonstrated that one sensor is never enough, and that redundancy is essential! In all, the Regiment proved that it could respond and destroy an enemy towed battery before it could displace with its developing procedures and in-service platforms.

By Lieutenant Jackson Drummond



GERM PRIDE



By Lieutenant Joshua Tong

Exercise LONG TAN 2022 provided the opportunity for 104 Battery to conduct field training to prepare for Exercise TALISMAN SABRE 23. Exercise LONG TAN was broken down into two phases and focused on achieving two primary training objectives – technical advanced artillery practices, along with Platoon operations in an Infantry Tactics setting.

The Artillery focused training component of Exercise LONG TAN took place at Singleton Military Area (SMA). This was the first time in over a decade that SMA has been utilised by a Field Regiment. Confronted with terrain affected by recent floods in the region, the Germs encountered the challenge of manoeuvring their heavy equipment around the soft ground throughout SMA. The first two days of the exercise proved an excellent opportunity to test out the recovery capabilities of the vehicles. As the week progressed, the Germs were able to practice deliberate deployments, hide occupation and technical movement of the gun line.

The end of the week saw the Germs conduct live fire serials with a focus on technical danger close of the most successful aspects of this phase was the employment of Pistol Guns in a culminating activity, where individual detachments would occupy a hide, then manoeuvre themselves to conduct a live fire serial.

The second week of Exercise LONG TAN saw the Battery redeploy to Canungra Training Area (CTA) to conduct Platoon Operations in the Jungle Environment. The Germs formed an infantry platoon and pack marched into the training area to occupy a Platoon Defensive

Position. Once established, the Germs commenced a routine involving a priority of work, section serials, along with overnight probing of the position. This provided the opportunity for sections to practice independent ambushing, patrolling, conducting attacks, and occupying observation posts. The main defensive battle was the culmination of this phase providing opportunity for section commanders to conduct defence of their sectors, manage resources and the employ counter penetration.

Exercise GERM PRIDE was the culminating resilience component of Exercise LONG TAN. This phase saw the Germs consolidate as a group, before sections independently conducted an 18-hour resilience activity involving extended casualty evacuations, physical training, debating ethical dilemmas, and a memory task involving the history of the Australian Army Training Team Vietnam (AATTV). For many members of 104 Battery this final phase would be among the hardest challenges they had faced during their time in the Army and set an example of the toughness and resilience of the Germs.

Exercise LONG TAN provided an excellent next step for the Germs. The focus on Gunnery in a new training area provided the opportunity to practice technical danger close and showcase the ability of individual detachments with the employment of pistol guns. The IMT component of the exercise also enabled the Germs to become familiar operating in the hostile and uncomfortable conditions of the Jungle environment. The highlight of the exercise for many was the conduct of Exercise GERM PRIDE which will no doubt be remembered.

Exercise VIGILANT SCIMITAR



G31 deployed on Exercise VIGILANT SCIMITAR this year, a Combat Training Centre enabled Aviation Battlegroup exercise in North Queensland. Attached to D COY 6 RAR, the JFT travelled to Charters Towers in May. Assets made available included Tiger ARHs and CH-47F Chinooks from 1st Aviation Regiment, as well as MRH-90 Taipans and AW-139s from Townsville's 5th Aviation Regiment.

After clearing and securing the airfield at Charters Towers, our main tasks were to conduct constant security patrols and picquets. This was an attempt to discourage the disgruntled locals of Charters Towers from stealing ration packs within the secure area. We found a great way to break up the picquet tedium was to watch Aviation Officers walk around clean skin with brews in hand!

Things quickly became livelier however as various dynamic missions were conducted. This included a snatch-and-grab mission into the deep jungles of Tully, where the only casualty of the mission was the courageous JFT commander, who subsequently endured a 500 meter casualty drag while trying to coordinate ARH onto enemy targets. Other JFT members were embedded into reconnaissance and sniper patrols and airlifted into TFTA, where they proceeded to utilise ARH to destroy armoured vehicles.

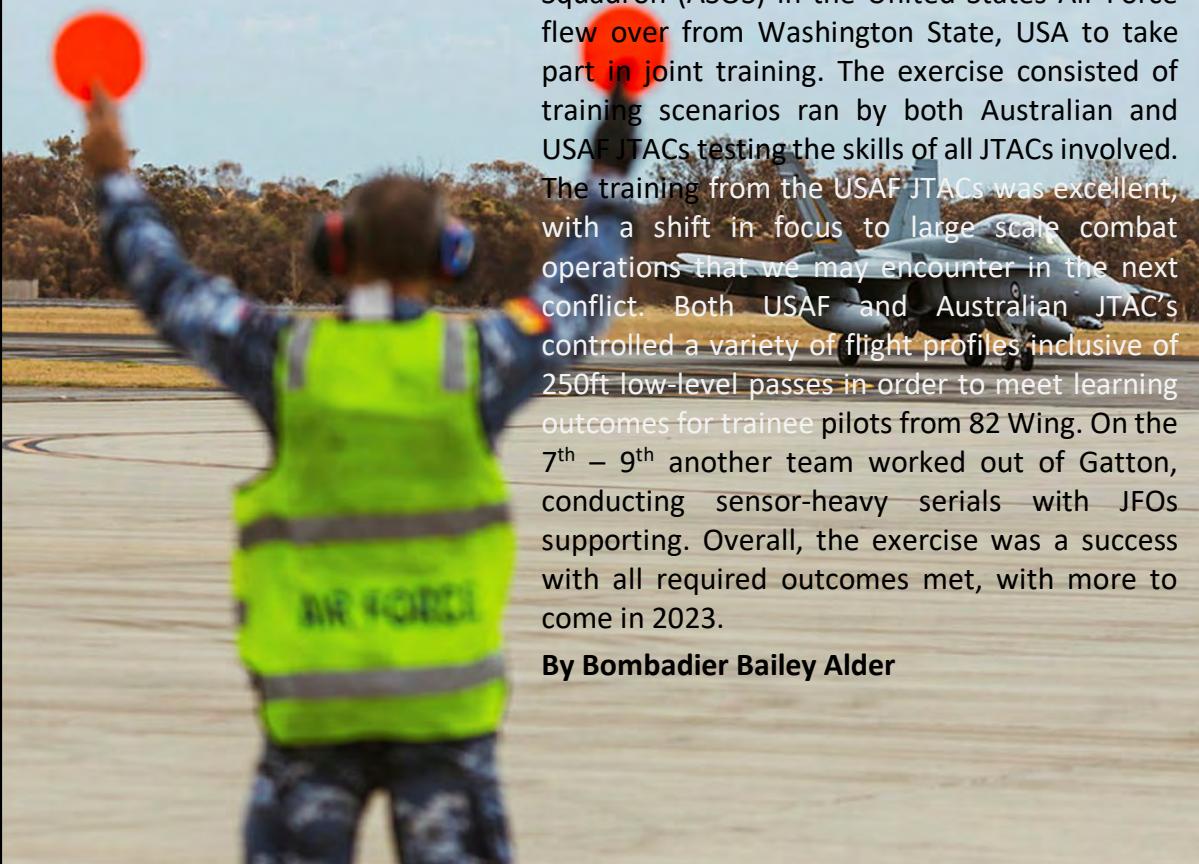
The highlight for the team was a simple clearance of an objective which was expected to take 6 hours. 48 hours later, with two urban clearances, a mass casualty evacuation, and kilometres of pack marching the mission was finally successful!

Chopper rides, Close Air Support and stomping. EX VIGILANT SCIMITAR was exactly why we joined!

By Bombardier F Watters



COALITION INTEROPERABILITY IN THE JTAC COMMUNITY



From the 21st – 29th of October 2022 1 REGT JTACs participated in Exercise Nigrum Pugio 22-2 at RAAF Base Amberley. During this period members from the 5th Air Support Operations Squadron (ASOS) in the United States Air Force flew over from Washington State, USA to take part in joint training. The exercise consisted of training scenarios ran by both Australian and USAF JTACs testing the skills of all JTACs involved. The training from the USAF JTACs was excellent, with a shift in focus to large scale combat operations that we may encounter in the next conflict. Both USAF and Australian JTAC's controlled a variety of flight profiles inclusive of 250ft low-level passes in order to meet learning outcomes for trainee pilots from 82 Wing. On the 7th – 9th another team worked out of Gatton, conducting sensor-heavy serials with JFOs supporting. Overall, the exercise was a success with all required outcomes met, with more to come in 2023.

By Bombadier Bailey Alder

8th/12th Regiment RAA

*Lieutenant Colonel Trevor Watson
Commanding Officer*

The Regiment is characterised by the quality of our people and their highly technical and physical capability. We have continued to support domestic operations throughout 2022 but never let it detract from our focus on training our people as Gunners. I am very proud of the achievements of our people and seen over 2/3rds of the Regiment support Floods in NSW and COVID and Aged Care Assist across Australia. We have continued to pursue the highest standard of gunnery completing a Regimental Ex in Cultana Training Area where we fired Danger Close in proximity of our soldiers, conducted a regimental fire plan and held a fantastic dinner in the field. The dinner was supported by a band from Port Augusta and a comedian out of Adelaide. Taking the time to recognise the efforts of our people was important to reminding them how valuable they truly are.

We have supported exercises 3000km apart with 101st Battery and 102nd (Coral) Battery conducting the Brigade Exercise Predators Run whilst 103rd Battery support the CEA radar trial followed by support to RMC-D Field Training Exercise. CSS Battery achieved incredible feats by sustaining both activities and our people. We have deployed 121 officers and soldiers overseas this year and will continue to be given the best opportunities because of the outstanding efforts of our people and the humility they show when they are recognised for their commitment. Two troop of soldiers from have supported Arafura Warrior in Timor Leste most recently conducting training with the FFDTL. We have also sent people to the USA, UK, Korea, Japan, Philippines, Indonesia, Hawaii, Malaysia and Turkey. In Jan 2023, 46 soldiers from 101st Battery will represent the RAA in the “Best By” competition against the 25th Infantry Division, Divisional Artillery. The competition hosted in Oahu, Hawaii will require our people to demonstrate technical acumen in their specific ECN followed by an arduous Elite Battle Soldier period of 5 days where they will cover over 160km in the Hawaiian mountains. This competition will provide an opportunity for our people to ‘fall in’ on US equipment further demonstrating interoperability and creating

capability for the ADF. Participation in the competition will rotate to 4 Regt, RAA in 2024. I am very proud of all our soldiers and having served across all gun Regiments, I can say with the appropriate level of bias that I have never come across a more capable group of men and women. Most notably is one of our Battery Clerks who was recognised as the soldier of the year in the 1st Brigade. PTE Caitlyn Ristau-Boon was rightly recognised for her outstanding maturity, leadership and integrity throughout 2022. She is one of the finest examples of a soldier I have met.

I leave this outstanding Regiment knowing we have tackled the challenges of supporting domestic operations while still providing the necessary technical pursuit of high level gunnery. We have put the maximum number of guns in the field to ensure our soldiers are commanding their men and women. We have showed compassion, empathy and loyalty to our soldiers and built the trust in the chain of command. We have improved our combat behaviours and demonstrated to Army that they have a legitimate and talented Artillery capability. I am confident that the Regiment will continue to prove it is the best Regiment in the RAA.

Ubique

101st Battery

*Major Benjamin Green
Battery Commander*

As my tenure nears a close, I considered it appropriate to write to you, providing you with a summary of our last two years as a Battery and outline some exciting developments regarding the ongoing management of our Battery history.

As I reflect on the last two years, I am extremely proud to have been afforded the opportunity to serve with the gunners, non-commissioned officers and officers of the 101st Battery. I have continued to be inspired by the levels of resilience, professionalism and cohesion displayed by the men and women who serve or have served within the Battery. These qualities have been extremely critical as we have supported a variety of domestic and international commitments. Central to all our accomplishments in the last 24 months has been the drive to conduct challenging and operationally relevant training aimed at improving our lethality and survivability in preparation for war.

While keeping our technical and tactical skills sharp, we also reinforced a number of civil community operations. Our personnel provided significant contributions to COVID-19 tasks in Northern Territory, New South Wales and Tasmania as community restrictions were still in place across much of the country in 2021. Earlier this year a large contingent of the Battery deployed in the aftermath of the devastating floods across Northern New South Wales, providing needed recovery support to effected communities. Throughout all commitments the Battery has remained agile in its response and resilient to evolving, and at times rapidly changing operational demands. All members of the Battery have demonstrated noteworthy professionalism and remained steadfast in their commitment to the team and their mates.

2021 marked the 150th year of service to Australia by the Royal Australian Artillery. This significant milestone was commemorated by a number of events and ceremonies, notably the conduct of a national gun salute for which the 101st Battery contributed to. Fast forward to 2022, 150th celebrations came to a close with the conduct of the banner parade at Victoria Barracks, Sydney which was attended by a large number of Battery members. This celebration of service to nation doubled as a timely reminder to cherish our own history as an artillery sub-unit.

Recent estate improvements within Ypres Lines in Darwin required us to review historical records and artefacts. The discovery of certain items prompted the requirement for a more comprehensive approach to restoration, cataloguing and displaying. Carriage of the torch has been taken by a committed gunner within the ranks who will seek to remain connected to you through a nominated representative. In doing so we hope that this important initiative remains alive and reciprocal connection can continue to evolve. While in its infancy, we hope that the reinvigoration of our sub-unit historical collections can be done so in a manner that preserves our history while also contributing to it with contemporary examples of the Battery's story.

I leave feeling honoured to have been afforded such a memorable opportunity, excited for what lays ahead for the Battery and appreciative of all the efforts by those who have served within.

Ubique

102nd (Coral) Battery

Major Matthew Fenson, Battery Commander

The first quarter of 2022 saw the units south of the 1 Bde wash point call for Northern Army reinforcements. This consisted of two discrete activities, the first being a team of the 15 finest, led by LT Shetty and BDR Jong in support of the first rotation of Op AGED CARE ASSIST in Tasmania, and the second was the support to OP FLOOD ASSIST 2022 which consisted of 3 platoons led by LT Perkins with SGT Khann, LT Tunks with SGT Hamer, and LT Jenkins with SGT Schwarz.

The 102nd (Coral) Battery deployed as part of Task Unit Tiger, a 5 RAR based Task Group, to support the clean-up efforts in Lismore. A career of tough training in the Darwin humidity and Mt Bundy Training Area set the Battery up well to double the output of southern soldiers whilst based in Casino and Lismore. "Coral" Company" was a strength of 140, consisting of both Army and Navy personnel. The tasks accomplished included rubbish and effects removal from both houses and curbside, reconnaissance/assistance of the outlying properties of the Lismore region that had not yet been checked since the flood, as well as providing subject matter experts on Meteorological conditions. The accommodation for the Company was a large cattle shed situated next to an open sewage treatment facility which assisted with our enthusiasm to get the job done quickly. During our stay, a second flood event was declared as imminent, and when questioned on our trigger to move to higher ground, the trigger was less concerned with water levels in the shed, and more concerned with whether we would be getting unexpected guests from the sewage facility. Overall, it was an incredibly rewarding job, and whilst not anticipated, a great way to form the team in the new year.



**Coral Company – OP FLOOD ASSIST 2022,
Casino NSW**

The second quarter of 2022 began with the dull thud of a good ram, as the Coral Gunners rapidly adjusted from disaster relief support to a Regimental Live Fire Exercise in Cultana Training Area. For those gunners that had arrived from IETs in late 2021, Defence Force Recruiting was right, join the Army and see the world, as they ticked off their 4th state in 5 months. The exercise saw a period of Battery training integrated with a Regimental architecture including an RCP; with highlights being sound adjustment and Urban Live Fire. There was a deliberate pause in the middle of the exercise to refocus ready for the Regimental Phase, and a chance to have a few frothies in the field. The field Dining-In-Night was an overwhelming success, with special thanks to GNR Aidan Webster for hosting the comedian for the night. The smell of cordite and the spirit of St Barbara filled the air during the Regimental phase, as the Regimental Fireplan allowed all three fire units to engage targets in support of a Battle Group attack.

The next phase of the Regimental exercise was memorable for all, with 8/12 conducting Advanced Practices and the Battery executing Danger Close Procedures at 350m in support of G21 led by LT Shetty, and G22 led by LBDR Coleman. The opportunity to conduct Danger Close, particularly after the fuse restriction issues of 2018-2020 was excellent.



102 (Coral) Battery – Ex THUNDER RUN – Cultana SA

The third quarter of 2022 saw 1 Bde (North) becoming whole again for the last time, with 1 AR and 7 RAR coming up to Darwin to conduct Ex PREDATORS RUN out in Mt Bundy Training Area, and a number of non-defence training areas around the NT. The exercise was a great opportunity to test out some early concepts of Littoral manoeuvre for the Brigade, before entering the gates of real soldiering outside Mt Bundy range control. The taste of tough training, as well as southern complaints about the heat and sun, kept morale high. The 101 and 102 gunlines combined to allow us to mass fires in support of several rotations of Combat Teams through a Live Fire Defence and Withdrawal. Both Battery's were lucky to get the opportunity to

rotate different ECNs through both the hill and gunline for days at a time. 102 Bty also hosted a contingent of Malaysian gunners for the duration of the exercise, who participated fully in each activity. The public affairs surrounding this integration enabled the Mushroom Club (102 Boozer) to make substantial profits over the coming weeks.



Australian Army and Malaysian Armed Forces soldiers in front of an M777A2 howitzer 155mm towed artillery platform during Exercise Predators Run.

The fourth quarter of 2022 started with blood, sweat and small arms as the 102 contingent of 25 personnel trained to head to East Timor to train the TNI, teaching everything from Vehicle Checkpoints to Beach Volleyball. This was an excellent opportunity for junior leaders and soldiers who have worked hard in a remote locality to be rewarded with overseas opportunities with Army. The contingent chain of command; CAPT Taylor, LT Exton, WO2 Saliba and SGT Khann, did an exceptional job leading the team and we hope the Regiment continues to get opportunities like this in 2023.



103 Bty Support to AHQ Radar Trial and RMC-D BB2C 2022

103 Battery has been involved in a number of supporting exercises throughout 2022. Post a regimental exercise in Cultana, the Battery was asked by AHQ to assist in testing the new radar suite for operational viability. During EX RADAR, the battery was involved in firing

multiple rounds at varying elevations and velocities in order to allow the radar to identify the location of the firing unit and the destination of the round. The tests resulted in an enhanced understanding of the capability that these new radars will provide and also allowed further development of the radar system itself.



Bravo Detachment Achieving Fire Supremacy ISO RMC-D despite the flash swamp they deployed into – Ex BB2C RMC-D 22

Following the conduct of EX RADAR, 103 Battery was requested by RMC-D to assist in training and developing Staff Cadets during their final phases of assessment. 103 Battery provided three separate enemy party teams who were able to replicate live enemy reactions to offensive operations throughout the entirety of the exercise. This allowed the Staff Cadet cohort to conduct operations up to combat team level and further exposure to new capabilities. The battery also provided outstanding levels of exposure to artillery through the conduct of multiple fireplans and coaching through the all arms call for fire procedure. Multiple Staff Cadets had the opportunity to designate their own targets and have 103 Battery fire in support, this allowed the Staff Cadet cohort to conduct low level combined arms operations which resulted in an enhanced level of training.



BDR Brandon Lademann next to what is left of the “AFV” his detachment engaged in Direct Fire from 4.2 Km’s away (Behind him the escarpment where the gun was deployed) – Ex Radar 22

103 Bty JFT Deployment on Ex Wirra Jaya and Garuda Shield

In the latter half of 2022, Joint Fires Team G33 deployed to South Sumatra for the conduct of both Exercise Super Garuda Shield and Exercise Wirra Jaya.

During Exercise Super Garuda Shield G33, alongside C Company 5 RAR, were exposed to jungle fighting operations in the Bataruja training area, where they operated alongside partner nations such as the USA, Singapore, France and of course TNI.



BDR Jesse Toomey and LBDR Samuel Bradley deliver a concept fires brief to the TNI forces – Ex Wirra Jaya 22

Opportunities were presented to G33 that saw them become heavily involved in artillery specific air mobile operations, the execution of long range fires, attack helicopter coordination and the TNI academics day. As a result they achieved a great deal of exposure to various tactics, techniques and procedures that have driven significant changes in their own standard operating procedures.

Upon returning for Exercise Wirra Jaya, once again alongside C Company, G33 was heavily involved in the conduct of urban breaching, martial arts and all arms call for fire training. They were able to achieve an exceptionally high standard of training and had the opportunity to conduct live CAS engagements alongside a TNI special forces Ground Force Air Control Team.

Ex Arafura Warrior Mobile Training Team – Charlie 04

In Nov 22 103 Bty deployed a 22-personnel contingent making up Mobile Training Team – Charlie 04 to Timor-Leste, consisting of Gunners from the Bty and medics from 1st Health Bn. The MTT-C4 team is the last iteration of 1BDE soldiers and officers working in support of the Defence Cooperation Program in Timor-Leste. Their mission, to deliver Peacekeeping Operations training to the Timor-Leste Defence Force (F-FDTL) in 2022.



BDR Jesse Toomey and GNR Vincent mark and LZ for the deployment of a forward FSB from the US Marine Force on Ex Garuda Shield

The training team operated out of Metinaro and Baucau, conducting training focused on individual up to platoon level skills required to operate on a United Nations Peacekeeping Operation in the future. While doing this they also built a strong training mindset in the F-FDTL and further developed already strong working relationships with some of our closest and oldest allies in the South Pacific Region.

9th Regiment RAA

As the world continued to come to grips with COVID-19 and return to some semblance of the previous normal, the 9th Regiment, RAA welcomed 2022 with great anticipation. In the Regiment's second change of command, LTCOL David Carew handed over to LTCOL Philip Wong, to capitalise on the solid foundations built since the Regiment's inception in 2018.

The Regiment hit the ground running for a successful and high-tempo 2022, fully committed across courses, exercises, and capability expansion. Central to the Regiment's focus for the year was an ongoing commitment to generating operational capabilities for deployment in support of both the 2nd Division and the full-time force. DACC taskings during the catastrophic NSW floods, in addition to search and rescue tasks on Magnetic Island and in the Mackay region, saw the Regiment harness its specialist skills to provide tailored support and timely information to maximise community and Defence responses. The Regiment has also

leveraged these specialist skills in support of Indo-Pacific Endeavour 22, with a capability brick contribution augmenting organic ISR elements of the Australian Amphibious Force (AAF) to enhance situational awareness and provide additional options for international engagement.

Concurrently, the 9th Regiment has maintained a heavy course load in the pursuit of rapidly increasing both specialist and generalist qualifications across the unit: 93 courses have been conducted to date this calendar year, issuing a total of 914 qualifications, with more courses set to run before the end of the year. The Regiment's suite of capabilities has expanded with the introduction of the Lightweight Multi Mode Radar (LMMR) into the Regiment, as well as an increase in the number of UAS in the unit. With an ongoing commitment to fielding a robust and responsive STA capability, a small but vital proportion of courses run in 2022 comprised Small Uncrewed Aerial Systems (SUAS) qualifications. Courses have been conducted around the country for the RQ-12 Wasp, PD-100 Black Hornet and MRUAS, and the Regiment's UAS capability continues to expand apace to enable our support to wider Army. The element embarked with the AAF completed training in the RQ-20 Puma, and the Regimental Wasp capability has tripled in 2022 with further growth planned for the coming months and ongoing into 2023.



Alpine UAS training in July

In what proved an exciting opportunity to test our developing UAS capability, the 9th Regiment undertook an Alpine UAS training serial at Mt Wellington, TAS in July. A cold and gusty day provided significant challenges for the 14-person team, who had to maximise their efficiency to accommodate cold-weather effects on battery life and effectively pilot and use terrain shielding to achieve flight operations.



Alpine UAS training in July

The activity also offered the opportunity to further train and develop UAS observer capabilities, a growing skillset that is invaluable in search and rescue operations. Alpine training is an intriguing and exciting prospect for future to continue building our capacity to provide support across various seasons and terrain.



5/11 Bty, Maj LFX

In 2022, the Regiment began to increase its integration with the full-time force across a range of activities and in a variety of force structures, fielding both formed-body teams and individual augmentees as necessary for the task. This has included a live fire activity with 8/12 Regt at Cultana, SA and the provision of personnel in support of 4 Regt exercises. The Regiment is well-postured to increase the scale of its involvement working with the full-time regiments, into the future.

The Regiment's widespread commitments to both the reserve and full-time force has been reflected in more tangible avenues of expansion, which have seen the establishment of an additional location in Townsville. The 9th Regiment is now dispersed across a total of fifteen locations around Australia, a

development which has been greatly eased by the assistance of 4 Regiment, RAA providing an operating space out of their Regimental lines for the new depot to emerge.



2/10 Bty, June LFX.

In-house, the Regiment conducted nine live-fire activities across the country at Lancelin, WA, Cultana, SA, Murray Bridge, SA, Puckapunul, VIC, Singleton, NSW, Wide Bay, QLD and Stony Head, TAS, and continued its enthusiastic support to ceremonial events throughout 2022. This has included nationwide support to Australia Day ceremonies and gun salutes for the Queen's Platinum Jubilee Birthday celebrations in Melbourne and Sydney, as well as gun salute support for visiting dignitaries. The Regiment also had the honour of contributing to the NSW Government Proclamation Day activities upon the event of Queen Elizabeth II's recent passing, providing a 21-gun salute with support from 53 Bty, School of Artillery.

Finally, the Regiment is honoured to acknowledge the service of several Regiment members who have been recognised for their accomplishments in 2022.

- 9 Regiment XO, MAJ Glynn Potter, transferred to SERCAT 5 after completing a truly inspiring 42 years of service in SERCAT 7, and will continue to fulfil the XO role in his new SERCAT.
- BC 5/11 Bty, MAJ Andrew Crowe, was announced in March as a recipient of the Prince of Wales Award for 2022, which recognises the dedication of reservists and the valued support they receive from their civilian employers.
- MAJ Talbot, former SMIG and BC of 6/13 Bty, was presented his Federation Star by the Deputy Chief of Army, MAJGEN Natasha Fox in April of this year.

Numerous other Regiment members were recognised for their service to Defence through ADMs, DLSMs, several Clasps to the DLSM, and both Bronze and Silver Commendations awarded throughout the unit.



7 Bty Gun Salute, Hobart

The 9th Regiment, RAA achieved significant goals across all levels of the unit throughout 2022, and is well-postured for the range of developments and exciting opportunities that await in 2023. The ongoing transition to Fires Formation will remain of high priority for the Regiment, closely paired with continuing to foster closer, habitual relationships across Army in both the reserve and full-time force, as it cements its status as “Home of the Part-Time Gunner”.

16th Regiment RAA

*Lieutenant Colonel Michael Squire
Commanding Officer*



2022 has been an important transformational period for 16 REGT RAA. On the back of fundamental war-fighting training and domestic operations in 2021, the REGT has continued to prepare itself for a future that includes eNASAMS, CEA Radars and SRGBAD beyond-visual-range capability. Indeed, throughout 2022 the REGT has realised many important developmental milestones.

The year started with a very real reminder as to why we prepare GBAD capabilities - the start of the Russia-Ukraine conflict. Witnessing the employment of SRGBAD and VSHORAD

systems against UAS, Cruise Missiles, attack helicopters and fixed wing aircraft, the REGT was given laser-sharp focus as to what its role and relevance looked like. The performance of MANPADS and laser-guided VSHORAD systems, as well as the deployment of NASAMS, gave encouragement to our training and validated our belief in our capabilities; indeed, it perhaps erased any question as the value of RBS-70 as a system. Less expectedly, the year also started with an amplification of the activities we thought we were reducing after 2021: more DOMOPS. The REGT proudly provided a Tp group to reinforce the 20STA-led Bty. This was a great collaboration between RAA units with excellent results.

For 110 BTY, they progressed through ATL1-5, and then deploy on ExPB22 for an ATL8 experience with RAAF and USMC. As outlined in their article, the BTY progressed through excellent fundamentals and challenging resilience field training. ExPB22 was a true culminating activity, with exceptional deployments, live air, a very realistic scenario and some superb C2 – indeed, it set a benchmark that prepares us well for eNASAMS. Across 111 BTY, the key focus for them was to sustain training standards after 2021 and to increase the individual ‘move, shoot, communicate, survive’ competencies ahead of eNASAMS IIS. In conjunction with the superb work of CSS BTY and the RTC, a large portion of 111 were able to attain a lot of qualifications – driver qualifications, in particular, increased in triple figures across several fleets.

As a key transformation ahead of eNASAMS, the REGT transitioned 1st Air Ground Operations BTY into Operations Support BTY. Fundamental to this was the raising of a REGT CP, complete with staff sections and functions, as well a C2 spine that integrates across the IADS. S1, S2, S3, S45, S5, S6 and S7 cells were all raised; from January 2023, these will become Jointly manned. Containerised CPs were developed with REGT SOPs developed for REGT missions, including the application of a REGT battle rhythm for combined joint operations. ADAFCO/As, TDO/As and FCO/As were all raised, with an internally developed ADAFCO pilot-course realising US Fires Centre-of-Excellence assurance on the back of Ex Coalition Virtual Flag, realising impressive standards (including airborne ADAFCOs). Our first exchange IG embedded with the Maritime Warfare Centre, with a subsequent exchange embed due to start at Air Warfare Centre in 2024.

The 94thAAMDC exchange has gone from strength to strength, helping realise the inaugural Multinational IAMD Conference in Hawaii.

JTAC TP achieved accolades for their impressive training standards. As always, our GL Detachments relentlessly supported RAAF-Army integration and helped realise a future AusBCD construct. Our soldiers celebrated the RAA 150th with Cocktail Parties at Woodside and parades in Sydney. The REGT held its largest ever Open Day in April and then marched through Adelaide for ANZAC Day. Members deployed to the MEAO, and others trekked across the Kokoda Trail. Members skied across mountains and others represented the ADF (and Australia) on the sporting field. Sports and military competitions came back to Woodside in a big way, post-COVID.

As we look towards 2023, CSS BTY is preparing A1 and A2 capabilities, including developing missile re-loading systems. They're also refurbishing a Bofors Gun into working firing order for ceremonial gun salutes. 110 will deploy to the Philippines, and 111 will live fire with US Patriot at SWBTA. The REGT will welcome LTCOL Floyd into his command and look forward to accepting its initial issue of eNASAMS. The future is bright for the REGT and we are on a good trajectory. Ubique.

110 Battery

*Major Keegan Smith
Battery Commander 110 BTY*

In 2022, 110 Battery had the opportunity to return to their primary role of training to defend deployed forces and critical assets from air and surface-to-surface threats in support of the joint force. After three years of support to domestic operations, the Battery was eager to return to the field and conduct foundation warfighting. This saw the battery conduct a series of exercises to progressively train in its core role of air defence, whilst supporting joint training serials and preparing 16 REGT RAA for its upcoming transition to eNASAMs.

Key focus areas for the Battery were on developing our all-corps skills as the foundation for all air defence operations. This reinforced the development of our light-scale air defence capability which sees 16 REGT RAA retain the ability to deploy and fight without vehicle support, as a highly mobile and deployable force. We also consistently worked with Marine Rotational Force – Darwin Low Altitude Air Defence forces to develop TTPs that enhance our interoperability as a combined force.

The culmination of training for 110 Battery in 2022 was the successful deployment on Exercise Pitch Black in support of the activation of RAAF Base Curtin. This allowed us to fully integrate to a joint exercise, establishing a combined integrated air and missile defence system and testing our combined joint air defence kill chain. The digital interoperability achieved during Pitch Black demonstrated the significant capability that an air defence battery provides the joint force and reinforces the need for comprehensive tactical data links down at the sub-unit level. The airmobile deployment to Curtin further demonstrates the robust and scalable capability provided by air defence batteries to defend deployed forces and critical assets within our strategic environment.

Exercise Raptors Crawl 2022: Foundation Warfighting

*Lieutenant Matthew Dennis
B TP COMD, 110 BTY*

The first of the exercises 110 Battery completed during the year was Ex Raptors Crawl. The exercise was aimed at developing basic soldiering skills of the BTY and was conducted at Murray Bridge Training Area. For many of the soldiers it was also the first opportunity to deploy into the field environment since they were at 1 RTB, and for others it was the first since the beginning of Covid. The exercise was broken into two components, the first being dedicated to Infantry Minor Tactics and the second was light scale deployments. Throughout the first component, soldiers conducted a range of missions, such as ambushes, clearances, and patrols by day and by night. As a Troop, the position was continually developed, reaching stage three and establishing an engagement area complete with obstacles. The culmination of their efforts was a Troop level attack of their own position that was re-established by the enemy party.

The second component was an opportunity for B Troop to practice light scale deployments and test SOP that had been the main effort of training during the first part of the year. This was also the first opportunity for the Maverick Passive Radar to be used in the field environment.

The Troop gained valuable experience in both components of the exercise and was also a great chance to challenge and develop their own personal field craft.

Exercise Raptors Strike 2022: Air Defence Foundation Warfighting

*Lieutenant James Parviainen
A TP COMD, 110 BTY*

On 9th May 2022, 110 Battery deployed to the Cultana Training Area to conduct Exercise Raptors Strike, its first dedicated air defence training exercise for the year. Accompanying the Bty was a platoon of USMC Low Altitude Air Defence (LAAD) who are currently deployed on MRF-D, and who jumped at the first opportunity of its kind to conduct practical and realistic field training alongside their coalition partners here in South Australia.

After forward deploying elements to a staging area, the Bty began its deployment in the late hours of the night of the 9th and were in position to conduct their first training serials by the morning of the 10th. Over the next two weeks both Australian and USMC call-signs conducted a variety of air defence tasks spanning all doctrinal deployments, logistical resupply, manoeuvre, and communications training over the length and breadth of Cultana East. Concurrently the Bty also defended against live air raids with aircraft alongside free-roaming enemy on the ground seeking to expose their detachment positions. Through the combination of all these factors the soldiers and marines were provided a diverse, complex, ever evolving tactical scenario and operational environment that served to promote continuous growth and development throughout the exercise.

During the exercise, the Bty took a tactical pause in operations to celebrate its 65th birthday in true regimental style with a field dining in night held in the facilities of Camp Alamein.



110 BTY Birthday

The occasion saw the presentation of a number of honours and awards, promotions of Bty members, as well as further opportunities to build relationships and share traditions with our overseas guests. At the end of the evening the

visiting Marines from MRF-D's LAAD platoon were officially welcomed as honorary members of 110 Battery and presented with their own Black Cat patches which were subsequently worn with pride throughout the whole exercise.

Through hard-work and determination, all elements were extremely satisfied with the outcomes of the training they were able to conduct and relieved to be out in the field once again proving their worth as air defenders after a long hiatus supporting domestic operations. This, coupled with the opportunity to integrate with international partners, saw the Bty evolve and grow significantly in a relatively short span of time as old-hands' experience was passed on to fresh faces and knowledge was shared between coalition allies to increase interoperability for future operational deployments.



RBS 70 detachment defending 103 Bty, 8/12 Regt

Culminating the exercise was an opportunity for both call-signs to conduct some close defence of a gunline from 103 Bty, 8/12 REGT RAA as they conducted their own live fire training. This proved to be an excellent opportunity for some cross corps capability sharing and education as well as a rare occasion for our offensive support brethren to experience the comfort of being defended from the ever present, and very real threat of air attack.

Overall Raptors Strike presents an outstanding success for the Bty as its first air defence deployment for 2022 and a strong opportunity for relationship building that saw coalition ties strengthened between Australian and American air defenders here in the region. With such success the exercise represents a new precedent for training and highlights the importance of

continued integration with local and international partners at all levels, from gunners to commanders, for training in the future. Congratulations to 110 Bty on an excellent exercise and *Ubique* to our Marine brothers from the 3rd LAAD Bn, we look forward to seeing you again soon.



A TP, 110 Bty and USMC LAAD PL

Exercise Pitch Black 2022: Combined Integrated Air and Missile Defence

*Lieutenant Matthew Hall
A TP RECON OFFICER, 110 BTY*

Conducted in August of this year, Exercise Pitch Black 22 served as a culminating exercise to a year of major exercises for 110 Battery, 16 REGT RAA.



Ex PB22 saw a Battery airfield defence hone in on joint and coalition integration. This was underscored by 110 Battery's integration into the RAAF lead exercise, serving as a strong foundation for future joint operations. Conduct of air insertion via C-17 relied heavily on RAAF logistic nodes to move and establish positions, allowing VSHORAD systems to deploy with minimal equipment.

The exercise itself provided new considerations for VSHORAD planning, including the

reassessment of deployment locations within RAAF Base Curtin. The bare base is located on level terrain with dense vegetation, which significantly limited visibility and coverage. Due to low altitude threat profiles associated with the mission set, 110 Battery adapted and implemented irregular deployment locations to achieve mission essential coverage of the air defence weapon systems. Through concealment of regular deployments and hardening of positions utilising RAAF infrastructure and assets, positions were improved to create a defendable static defence of the airfield.

Ex PB22 was the first implementation of the Ground Based Air Defence Control Centre since 2019, and saw the coordination of Ops Support Battery and 110 Battery into the Air Base Command Post (ABCP). Additional sources providing feeds into the JICC increased situational awareness and early warning for GBAD Command Posts. The feeds facilitated active reporting both up and down the CoC, and the de-confliction of unknown tracks prior to entering Curtin airspace.

As part of Land 19 Phase 7B, 16 REGT RAA



developed its Air Defence Artillery Fire Control Officer or 'ADACFO' capability. During Ex PB22, the ADACFO section integrated 42 Wing elements who were acting as SADC for the event. A key milestone was the conduct of GBAD Fire Control with 2 SQN E7A airborne integrated with live aircraft. This was a first for Army and 2 SQN and something not regularly practiced with our coalition partners, demonstrating our close relationship with RAAF on the pursuit for IAMD.



The importance of strong working relationships in enabling future operations was made obvious to 16 REGT RAA personnel throughout all aspects of EXPB22. 110 Battery was required to coordinate with members from 1 SECFOR and the MAOT to enable combined success. The generation of a local and combined air picture enabled effective use of airspace control measures in a joint environment, facilitating freedom of manoeuvre for coalition aircraft. For 16 REGT RAA, Link 16 and the JRE were critical in establishing a comprehensive IADS.



A highlight of 110 Battery's involvement in Ex PB22 was our integration with the US Marine Stinger Platoon. Pitch Black saw the combined deployment of a Troop of RBS-70 and a Platoon of stingers, with combined command nodes within detachment sites to strengthen their ability to engage aircraft. Members of both forces were exposed to the strengths and weakness of their respective systems and developed TTPs on conducting combined air defence at the tactical level.

Pitch Black's joint nature allowed for live tracking of 5th generation fighter jets, and the subsequent development of SOPs and TTPs not regularly available to 16 REGT RAA. The ability to train against high end military aircraft conducting realistic defensive counter-air operations, in conjunction with layered air defence of critical assets, provided excellent training value in preparation for future capability and deployments.

As our geo-strategic environment evolves so too has our training continuum, adapting to meet the demands of the modern, complex battlespace. Exercise Pitch Black 22 has served to strengthen

our capacity, our alliances and our combined lethality. *Ubique.*



111 Battery

*Major Talal Moutrage
Battery Commander 111 BTY*

111 Bty this year celebrated its 65th birthday. Having been raised as 111th Light Anti-Aircraft Bty at Middle head NSW on 21 May 1957 under command of Major D Willet.

Exercise Balikatan 22

*Captain James Sandwell
Air Battle Capt, OPS SPT BTY*

Exercise Balikatan is an annual Philippines-led training activity held on Luzon Island and in the Sulu Sea from March 28 to April 8. About 40 soldiers from 2 Cdo Regt and 16 Regt RAA took part in the exercise, which was the biggest since it began in 1991 and involved US (Army, USMC, Navy and Air Force), Philippine and Australian Forces. The exercise included maritime security, amphibious operations, live fire training, urban operations, aviation operations, counter-terrorism, humanitarian assistance and disaster relief.

Three 16 Regt RAA air defence officers joined the US Army's 38th Air Defence Artillery Brigade (38 ADA Bde) to participate as ADAFCOs within the Brigade tac, operating out of Wallace Air Base with a dislocated Sector Area Air Defence Commander from the USAF's 623 Air Control Squadron supporting PATRIOT operations of the 1-1 Air Defense Battalion. This exercise was the first opportunity for Australian officers to participate in an American air defence command post and was also the first opportunity to trial the concept of Australian Army ADAFCOs in a collation environment.

Exercise Wandering Rat 22: Adventure Training

*Captain Luke Wiles
BOPSO, 111 BTY*

On the Week of the 11 July 2022, 26x Regiment members attended Exercise Wandering Rat 22 which saw them attend an Adventure Training activity lead by 111 Bty and Contractor Group 314. The exercise took place in Kosciuszko National Park NSW and was a 4 day cross country skiing expedition from Horse Heads Gap to the summit of Mt Rams Head the 4th highest mountain in Australia. The exercise took members from every Bty and every skill level including many who had never seen the snow.



Wandering Rat 22 was designed to test member's abilities outside of their comfort zones in an unfamiliar and challenging environment. Members were pushed to their limits whilst conducting a cold weather survival exercise over four days in an alpine environment. This included weight loaded walks, cross country skiing and teaching key skills for surviving in below freezing temperatures. It allowed members to understand all of the unique requirements for deploying to areas with such harsh and unforgiving weather and terrain. It furthered participant's resilience whilst exposing them to controlled risk, danger and uncertainty.

Combat Service Support Battery

*Major Andrew Cassar
Battery Commander CSS BTY*

Combat Service Support Battery has had an extremely successful year supporting the current capability of the unit being RBS-70 and preparing for the introduction of the Unit's new capability being NASAMs. This has created numerous friction points that the Battery has overcome to ensure that they have provided the professional, high level of support that is expected of the 16 REGT RAA CSS Battery. In

2022, CSS Bty members were involved in all REGT activities for the year including: OP Flood Assist NSW, Ex Raptors Crawl, Ex Raptors Strike, Ex Pitch Black and Ex Raptors Sting.

Throughout the year CSS Battery has had numerous challenges in preparing the Unit for exercises due to repair parts availability for L121 and PMV-M. TST worked overtime to ensure that they managed the vehicle fleet intimately ensuring that it could meet the requirement of the unit which included detailed maintenance planning as well as extended production hours. TST also ensured that the critical equipment of the RBS-70s and the GAMBs were kept functional and always available for key activities. As always TST were supported in this by LOG Tp who insured that they received parts, tooling and support as required and as fast as possible. LOG Tp ensured that all supply and transport needs were met providing key enablers and capabilities to the unit.

Future Capability

LAND 19 – 7B is an extremely exciting new capability for the REGT but comes with numerous logistic challenges both in the planning function and the execution function. CSS BHQ has had to complete a number of planning activities in order to ensure that the Battery is able to support the new highly technical equipment that is vehicle mounted meaning a steep increase of support required in numerous areas of the Battery including but not limited to maintenance, ammunition, fuel and pallet space. In 2022, LOG Tp ran 19 driver training courses for the unit to upskill the unit personnel prior to the delivery of the new capability placing heavy stress on the Battery as it supported driving training while also supporting current exercises and operations. TST also refurbished the old training GAMB training classrooms into Fires Distribution Centres (FDCs) which have provided critical training aids for the Battery's prior to the delivery of the incoming FDCs as part of the capability.

With the introduction of the new capability in the coming years CSS Battery has a busy and exciting time ahead and will have to overcome numerous logistical challenges to ensure the introduction of the new capability is successful but it is a challenge they are all looking forward too.

Operations Support Battery

*Major Cooper Dale
Battery Commander OPS SPT BTY*

2022 has been a significant year for Regimental Operations. The raising of OPS Spt Bty has seen the former role and responsibilities of 1 AGO Bty absorbed and dispersed enabling 16 REGT to focus on purely on AMD. IIS Driver and Comms training remained a consistent impost on our ready now requirements on our way to realising eNASAMS. The Regimental Training Centre managed these priorities expertly under the control of the Master Gunner and U.S. Exchange officer.

OPS Spt Bty was responsible for planning and executing many exercises and activities this year including multiple IE and SC activities which has enabled the REGT to achieve its CPD requirements and establish itself within the IAMD community

JTAC TP

*Captain Ben Hutchinson
OC JTAC TP, OPS SPT BTY*

Much like the wider RAA, it's a time of change within the tight knit JTAC community and 2022 has been emblematic of the challenges and opportunities presented by the rapidly changing operational and training environment, from mutating microscopic bacteria to the retirement of the reliable air assets, the year has been highly challenging but rewarding for 16 Regiment's JTAC Troop.

During the past 20 years of COIN operations, the JTAC skillset has long been a critical need for manoeuvre commanders and well trained and ready JTACs have always been ready to don the baseball caps, non-issued boots and get the job done safely, on time and on target. With the strategic shift for the ADF and our coalition partners to Large Scale Combat Operations, far from being marginalized, the role of the JTAC has become more critical than ever before. No longer can we assume Air Supremacy and no longer can CAS be conducted safely in isolation to other Joint Fires and Effects. So, what does this mean for Army's JTACs? Training standards need to be pushed, the expectations FORCOMD JTACs from manoeuvre commanders will be raised, integration is essential and JTACs will be asked to do more with less. The less part of this equation is due to a variety of factors:

The retirement of F-18C which accounted for over 50% of FORCOMDs air allocation whilst in service.

Limitation of Hawk-127 to reflect modern CAS platforms due to lack of VDL capability and DACAS support.

Acquisition of the F-35, which is a highly capable 5th generation fighter, however was not purchased for the conduct of CAS.

However, as the RAA knows too well, change is not a threat, but a pathway to new opportunities. 2022 presented excellent opportunities for FORCOMDs JTACs to enable our shift from currency focused competency to the development of integrated CAS proficiency. JTAC Troop demonstrated this approach during two major exercises in 2022, these being Exercise Nigrum Pugio 22-1 and Exercise Black Dagger 68.

Exercise Nigrum Pugio 22-1 (Ex NP)

Ex NP is FORCOMD's biannual CAS Currency week which enables JTACs to achieve their JFS ESC mandated currency controls. Conducted at Lancelin Defence Training Area over the period 13-19 March, 16 x FORCOMD JTACs and JFOs braved the snakes in the accommodation, sharks swimming in the beach and kangaroo's jumping in front of cars to train with 79 Squadron (Hawk) with a mix of live and dry controls.



Nigrum Pugio was approached in 2022 as a proficiency activity vice a currency exercise and enabled participants to maximise their training time with live aircraft. To permit this, Army's state of the art simulation system was utilised prior to the Exercise to conduct all available currency controls and provided the participants a platform to be brilliant at the basics prior to

attendance on the Exercise so they could hit the ground running.

On arrival to Lancelin, JTACs were able to step straight into 18-month evaluations and conduct a multitude of live fire controls on the range that tested participants ability to rapidly acquire and prosecute CAS targets. This preceded a quick transition to proficiency training where JTAC Evaluators from each Regiment developed diverse and challenging scenarios that integrated simulated surface fires, realistic air defence threats, UAS platforms and JFO's to replicate the near peer fight. These scenarios were complex and developed to teach and train (sometimes to failure) JTACs rather than the standard formal assessment which does limit learning opportunities. This approach provided participants the opportunity to truly push themselves and test their (and the pilots) skills.

JTACs from across the Regiments performed to an excellent standard throughout and the training outcomes were greatly enhanced by the attitude and subject matter expertise from FORCOMD JTAC-Es. Ex NP 22-1 has set the template for future Ex NP iterations and will allow FORCOMD to continue to build on our JTACs proficiency and capacity.

Exercise Black Dagger 68



Exercise Black Dagger 68 was the culminating activity for the much-delayed JTAC Course 68. Originally planned to occur at Delamere Air Weapons Range in September, Covid-19 and state border restrictions led to the hasty development of a Plan B. Which turned into Plan C, D, E and eventually Plan F which was to run the Exercise out of Moody Air Force Base in Georgia, USA in April 2022. Co-ordinated by 4 Sqn and JTAC Troop, Exercise Black Dagger had participants from the three JTAC commands, RAAF, FORCOMD and SOCOMD and was run as an intensive 2-week CAS event

supported by HH-60 Pave Hawks and A-10 Thunderbolt's from 74th and 75th Fighter Squadron, USAF.

Originally a last-minute option to solve yet another problem brought about by Covid-19, Exercise Black Dagger was to prove an incredible opportunity to work and network with coalition partners.

“It’s great to work with coalition JTACs because communication is key,” said LTCOL Edward Brady, 75th FS commander. “Subtle differences, such as slang words, may not be a big deal in casual conversation, but on the ground, it can be a major problem when communicating on radios and in stressful situations. Training allows us to learn to mitigate those issues.”

Valuable lessons were learnt not only by the students; while both Australian and US JTACs and pilots use the same set of CAS doctrine (JFIRE and JPUB) there are still barriers that have to be navigated that come from each nations tactics techniques and procedures. The rise of the ‘Australian Standard’ within the ADF Schoolhouse was generally a hindrance to efficient controlling during the Exercise as certain Australian procedures were queried by US pilots. A key recommendation for the ADF Schoolhouse was to critically review all ‘Australian Standards’ for future courses. Such lessons can only be learnt from working with our coalition partners and is something FORCOMD JTACs should strive to do at every opportunity. If the goal is to train as we fight, we should begin to train with who we will be shoulder to shoulder with in the future fight.

“I think just getting that cohesion with all of our partner nations is the most important,” said Capt. Austin Weil, 75th FS, C Flight assistant flight commander. “Getting relationships tight now, in a time of relative peace, is critical. So that if we do have to go fight, we’ve already got that relationship built in order to have a more effective presence on the battlespace.”

Exercise Black Dagger was a highly successful event, with 7 new ADF JTACs from RAAF, FORCOMD and SOCOMD graduating with their Dagger callsigns.

20th Regiment RAA

*Lieutenant Colonel Shamus Armstrong
Commanding Officer*

*Warrant Officer Class One Melvyn Wood
Regimental Sergeant Major*

The Royal Regiment of Australian Artillery has a long and proud history of supporting the land and joint environments in times of uncertainty and danger. For the 20th Regiment, Royal Australia Artillery (20 REGT, RAA), 2022 was no different. As the soldiers and officers of the Regiment return home from their final field exercises and individual training activities, we reflect on what was another busy year for 20 REGT, RAA. As the Commanding Officer, I am exceptionally proud of the efforts of the Regiment and how well it has progressed while it maintains focus on delivering a world-leading surveillance and target acquisition capability for the ADF. I would also like to start by thanking our families for their support. The soldiers and officers of the Regiment can only achieve our mission with the support you provide, I appreciate the toll that our service take on families. While we try to minimise that impact I know from my own experiences that it can be difficult to separate work and home at times. Thank you for your support.

As the Regiment prepared for its first major training and readiness activity for the year a large segment of the capability were assigned to JTF629 in support of Operation Flood Assist in Southeast Queensland and New South Wales. Task Element 6 (TE6) was formed as the composite 6 BDE commitment, and it was led by BC 131 Bty. Members were drawn from 20 REGT, 16 REGT, 7 SIG REGT and 1 MP BN to rapidly deploy in support of the WoG efforts. Over the span of a month, TE6 provided considerable efforts in removing flood debris from residential and commercial areas, reconnecting key routes and services, providing critical food and water sustainment to cut-off communities, as well as key stakeholder and community engagement throughout the area. Our support to the civil community and other-governmental agencies is a key part of our service to the nation, and something our soldiers and officers do with professionalism and in good spirits.

As TE6 returned home in April, battle preparation commenced for the Regiment's initial collective training activities in the Shoalwater Bay Training Area from May onward. The SoArty deployed to the field with 132 Bty and CSS Bty enablers to conduct ab initio UAS training, persevering through the year's second significant wet-weather event. As Regimental support to SoArty was concluded, 131 Bty deployed to conduct surveillance and targeting missions in a joint, collective warfighting activity with 7 Brigade and 16 Aviation Brigade. Concurrently, RHQ and OPS SPT Bty raised and maintained ISTAR execution and planning functions to the 1st Division during Exercise Milne Bay. As with all Regiments, concurrency continues to be the rule in the training year rather than the exception.

The transition to the RQ-21 Integrator has also commenced in 2022, three UAS conversion courses and one maintenance course have already been completed in preparation for IOC in late 2023. Currency and continuation training has commenced at the synthetic training site at the Insitu Pacific Ltd facility at Murarrie while we await the Regiment's organic facilities, which are due for delivery in 2024. In support of the STA Battery's preparation to receive the RQ-21 there was a deliberate focus in generating and maintaining a better foundation warfighting practice this year.

This transformation in training was designed to focus on combat behaviours to prepare soldiers for the changes we anticipate in the operational concept for an RQ-21 based STA capability. It will have greater mobility, survivability and flexibility. To maximise the potential of the system we have invested in the combat skills, knowledge and attitude of our soldiers. These lessons were captured and consolidated in the field environment during subsequent sub-unit deployments to SWBTA. Additional trade training on ancillary equipment such as the Lightweight Multi-Mission Radar and Digital Terminal Control Systems saw our members generate skills in the holistic targeting enterprise, allowing them to better integrate with our customers and contribute to enhancing the sensor-shooter link.

The Regiment's contribution to community and cultural outreach activities also continued this year with a particular emphasis on supporting Legacy. Multiple 'backyard blitz' events throughout the year have been highly successful and enabled the Regiment to demonstrate our support for those who rely on Legacy. These

events have been incredibly humbling for our personnel and also contribute to the development of our esprit de corps.

2022 has also had its share of sadness for the Regiment, I'd like to specifically mention one of those moments. Warrant Officer Class One Kevin Jones passed away in early September this year after a short battle with Motor Neurone Disease. A highly respected soldier that provide nearly 40 years of service across the British and Australian Army, an incredible achievement. I'd like to thank the broader RAA community for your support during that period. It was greatly appreciated by the Regiment.

The year has concluded with the transition of command of the 20 REGT, RAA, to Aviation Command and specifically the 16th Aviation Brigade. This course of action was undertaken as part of Army's plan to prepare for the future. Although our command relationship has changed, the role and mission of the Regiment will endure. The Regiment will continue to train to deliver a world-leading Surveillance and Target Acquisition capability for the ADF.

As we turn toward 2023, I am certain that our people will rise to the challenge of introducing new systems into service while we concurrently maintain the SH200 capability as our ready now capability. Finally, I would like to welcome LTCOL David Hickey to the Regiment. He will take command on 08 December 2022, where we will be able to welcome him and his family into the Regiment. I wish him well and have no doubt his excellent leadership will ensure the capability continues to move forward.

Seek to Strike

1st Division & DJFHQ - J5 Effects

Introduction

This year the J5 Effects staff at Headquarters 1st Division (HQ 1 Div) have prioritised three key lines of effort. These are multilateral training and development, modernisation, and internal upskilling. Multilateral training has supported the development and trial of deployable, survivable and resilient operational command

and control (C2) HQ nodes. Modernisation has focused on the conduct of multi-domain operations against peer adversaries as well as complex joint live fire planning. Finally, HQ 1 Div staff continue to enhance the targeting and effects capability by supporting ADF training courses.

A Deployable, Survivable and Resilient Headquarters

The Marine Air Ground Task Force Warfighter Exercise 3-22 (MAGTF WFX 3-22) conducted by the 1st Marine Division, provided HQ 1 Div staff the opportunity to observe how a peer organisation has approached deployable, survivable and resilience for their headquarters. Key observations from this activity included the advantages of a HQ framework that enhances functional redundancy, whereby C2 authority is rapidly transferred between nodes should one node be rendered combat ineffective or lose communications for an extended period. In addition, the 1st Marine Divisional HQ executed a lean battle rhythm, which increased flexibility and enabled subordinate staff functions to prioritise their own manoeuvre and effects-based planning. These observations, among others, helped HQ 1 Div adapt its HQ design, and its approach to tactics, techniques and procedures associated with C2 and battle rhythm events.

Exercise Milne Bay 22 provided a unique opportunity for the HQ to test and adjust its ability to operate as a land component command and incorporate the observations from the MAGTF WFX 3-22. Whilst it came with its challenges, including a scenario that had reduced access to joint resources, the HQ was able to implement a nodal C2 system that increased resilience and survivability. It also enabled the execution of a battle rhythm, which reduced the impost on staff effort and enabled greater fidelity of planning and concurrent activity, setting the conditions for the HQ 1 Div certification activity (CERTEX).

Force Modernisation

Exercise Vital Prospect 22 will certify HQ 1 Div by exercising it as a Joint Task Force (JTF)-level HQ within a contemporary operating environment. The lessons drawn from this activity will contribute to the modernisation of our HQ.

Modernisation has also focused on support to Exercise Project Convergence 2022 (Ex PC 22) and planning for the Exercise Talisman Sabre 2023 Live Firing Exercise (LFX). Ex PC 22 will

take place from Oct-Nov 22. This exercise, led by Army Headquarters, will support HQ 1 Div's ability to provide joint fires within a coalition framework. It will include the passage of targeting data from allied sensors across extended geographic lines of communication to generate kinetic effects in Australia, thereby achieving new interoperability milestones.

Building upon the complexity and success of the Exercise Talisman Sabre 2021 LFX, the 2023 LFX will integrate a number of allied and partner nation fires capabilities not employed previously in Australia. The planning for the execution LFX will result in a number of events dispersed across Australia. We assess that these activities will significantly contribute to the achievement of Defence's strategic objectives of shape, deter and respond.

Internal Upskilling

This year has seen HQ 1 Div continue to contribute to the professional development and implementation of effects focused and broader joint training. This included instructor support to the Joint Fires and Effects Staff Officers Course (JFETSOC), Joint CIMIC Staff Planning Course (JCSPC), Information Officers Staff Officer Course and Australian Command and Staff Course (ACSC). Of note, 2022 also served as an opportunity for select staff to attend the US Joint Targeting School, furthering individual professional development and the enhancement of HQ 1 Div internal targeting procedures. These activities are of significant benefit and importance to HQ 1 Div as they contribute to individual and organisational development within the realm of targeting and effects.

Conclusion

It has been another busy year for the six full-time members of the Joint Effects staff. Our support to the development of a deployable, survivable and resilient headquarters, our support to modernisation and our support to training are only a brief snapshot of the ongoing work. This year continues to provide opportunities and challenges that enable the branch to identify areas for improvement, enhance integration with coalition partner nations, emphasise strategic messaging and strengthen our contribution to the wider ADF effects community.



A MEMBERSHIP FORM IS LOCATED IN THE ASSOCIATIONS AND ORGANISATIONS SECTION



Capability- JF-Army

LAND COMBAT SUPPORT PROGRAM: JOINT FIRES – ARMY AND AIR AND MISSILE DEFENCE

Joint Fires – Army's principal focus is continuing to realise the capabilities of the Artillery Modernisation Plan (AMP). To ensure the acquisition, introduction and disposal of major systems are tied to or aligned with suitable RAA-wide changes to organisational structures, personnel trades, and training delivery.

National strategy to Shape, Deter and Respond to threats to Australia's interests in terms of capability has been realised by the unprecedented investment ...t

Commissioned to understand the evolving threat space and the impacts of Accelerated Warfare on our existing system, the AMP is a twenty year capability development framework to guide synchronisation of the People, Land Capability and Preparedness Systems; consisting of two broad durations 2020 – 2030 and 2030 – 2040.

National strategy to Shape, Deter and Respond to threats to Australia's interests in terms of capability has been realised by the unprecedented investment in land-based Long Range Fires (LRF) and Air & Missile Defence (AMD) with a command and control framework, enabled by trained personnel and equipped nodes required to contribute to Multi Domain Strike (MDS) and Joint Integrated Air and Missile Defence (IAMD).

Land Combat Support Program continues to prioritise the acquisition, introduction and disposal of major systems that are tied/aligned with RAA changes to organisational structures, personnel trades, and training delivery. In 2022 JF-A has been primarily focused upon Artillery Modernisation initiatives:

CAPABILITY PROGRESSION

LAND 17.1C.1 – Lightweight Towed Howitzer

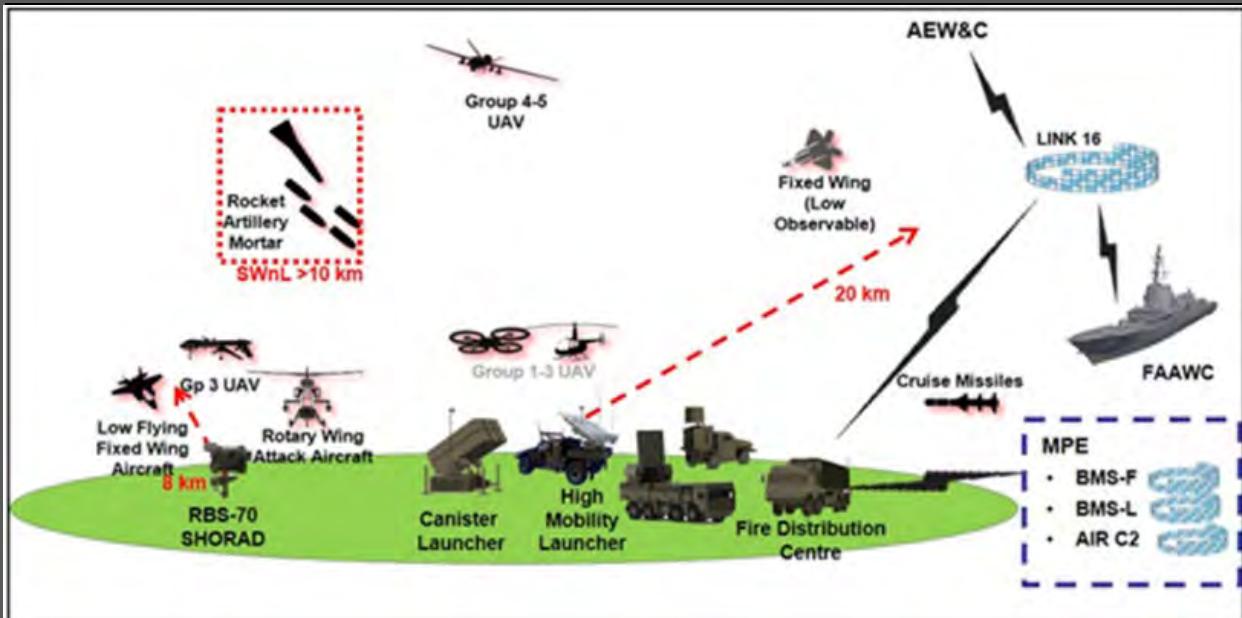
The final operational capability of L17.1C.1 is approaching with the delivery of two Proof Gun Systems that will modernise the approach to testing and proofing requirements within Port Wakefield. This is a marked increase in Proof and Experimentation capability, and ultimately enables operational gun systems to remain available for operational units. It supports future initiatives such as the domestic assembly and manufacture of 155mm munitions. This has been a hugely influential project for the RAA, having introduced additional M777A2 and other requirements of the Offensive Support system including the Dome trainers.

LAND 17-2 – Digital Terminal Control System NextGen

Throughout 2022 LAND 17-2 has worked towards introduction into service of the Digital Terminal Control System NextGen. This capability will be used by Army, Special Forces Group and RAAF elements. To be issued in 2023, it can communicate with elements of all domains. Units have become familiar with early versions of this system, introduced to reduce risk and build the digital capability of the RAA.

LAND 19-7B – Short Range Ground Based Air Defence

LAND 19-7B has continued to mature from concept to reality. AHQ, supporting groups and user units are enabling the project to maintain a strong drive towards an Initial Operating Capability next year. Importantly, planning has commenced for a live fire exercise in December of 2023 as the capstone event for the handover of the capability from AHQ to 16 Regt, RAA. This will form the conclusion of the 'test and evaluation' serials, and allow the Royal Regiment to demonstrate a fundamental change in the way we can protect the deployed force.



The enhanced National Advanced Surface to Air Missile System (eNASAMS) is the foundation to Army's Short Range Ground Based Air Defence (SRGBAD) capability. It will form a deployable inner tier of an IAMD System for the ADF. IAMD will contribute by tracking and neutralising manned, un-crewed, and autonomous systems and missiles. This is critical to providing protection of the Joint Force cross-domain manoeuvre, exploiting the penetration/disintegration effects of adversary A2/AD.



LAND 8113 – Long Range Fires (LRF)

LAND 8113 is progressing to Government Approval of the LRF capability. This HIMARS like system will fundamentally change the scope and application of artillery and represents a keystone capability of the Artillery Modernisation Plan.

LAND 8113 Long Range Fires is an operational and strategic missile system that provides Army with a MDS capability that is interoperable and complementary to security partner capabilities,

deters and coerces Australia's adversaries during competition, and complements RAAF and RAN A2/AD effects in conflict. LAND 8113 Long Range Fires will provide the first land-based long range fires capability for the ADF through the acquisition of launchers, munitions and Weapon Locating Radars (WLRs). The Long Range Fires Program is mutually supported by LAND 4100 Land Based Maritime Strike – a critical capability required to achieve the national strategic aims.

The project will also extend the operational potential for the Joint Task Force and enhance the joint fires capacity to enable Land Force close combat and contribute to MDS from the land. Launchers and munitions are planned to be introduced from the middle of the decade, and joint integration and WLRs planned for towards the end of the decade.



Fires Formation

The raising of the Fires Formation has commenced with the Capability Implementation Team. The Fires Formation will build to become the

organisational backbone to the RAA, with preparations to move 9 Regt and 16 Regt under the command of the Brigade from 2024.

The Land Force contribution to MDS and AMD will be generated via the establishment of the Fires Formation (Jan 23), which will generate capabilities in support of strategic level requirements including A2/AD, Entry Operations, Persistent Engagement, Regional Lead and Coalition Joint Land Combat. The Brigade will provide land-based surface and maritime strike, AMD, and target acquisition capabilities in competition to contribute to the shape, influence and deter effects; and in conflict to defend, deny, and posture along Australia's approaches. This will be achieved via penetration of A2/AD systems to enable strategic and operational manoeuvre of joint forces.

AMP REALISATION > 2030

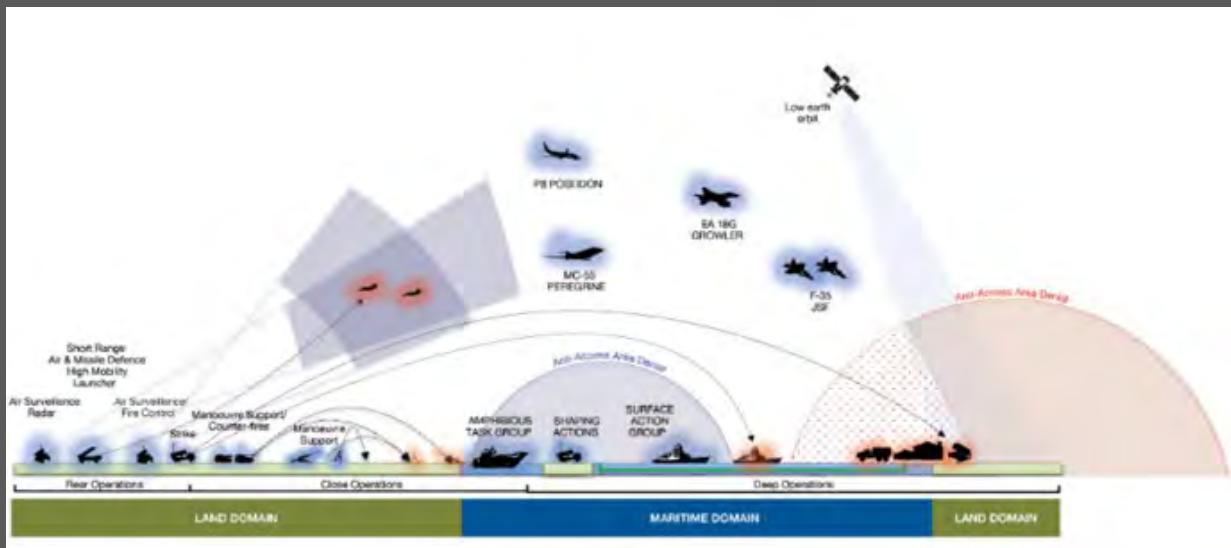
By 2030 the RAA will comprise of tactical and operational weapon locating radars that will target threats in the land, maritime and air domains. It will have unmanned airborne surveillance platforms that will detect the visible and non-visible parts of the spectrum, enabling ground forces with unprecedented access to Joint Fires assets through digital terminal control systems.

Command and Control communication nodes will synthesise intelligence and targeting information from the RAA, ADF and Coalition platforms and generate fires effects that aim to destroy, defeat or cripple adversary systems in the air, maritime and land domains. New surface-to-surface and surface-to-air platforms will launch effectors to deliver

terminal effects, both kinetic, non-kinetic, lethal and non-lethal, that seek to defeat the adversary at range.

Long Range Fires and AMD are complex capabilities to integrate, enable and sustain. The realisation of these capabilities will fundamentally enhance the RAA's ability to fulfil the four roles to enable land and multi-domain operations:

- Suppression of enemy fires via detecting incoming adversary fires —delivered from sea, land or air — to provide early warning, and ensure responsive counter-fires to effectors or key enablers.
- Strike HVT via the provision of wide-area aerial surveillance in support of precision target acquisition, and the coordination of essential Joint Strike assets to engage and destroy key adversary capabilities.
- Shaping the battlespace by providing favourable conditions for friendly decisive action through disrupting and attiring adversary forces via delivering a high volume of fire responsively or a precision effect regardless of weather. Whilst the provision of ground-based air and missile defence affords the intimate protection to critical friendly units, at decisive points within tactical and operational actions.
- Providing fire support to enable manoeuvre by the effective application / synchronisation of fires with manoeuvre.



Land 129-3 Army News Article. – From Army newspaper

Army's new tactical uncrewed aerial system (TUAS) has reached a significant milestone, with personnel from 20 Regt, RAA, Army Aviation Command, and the School of Artillery flying the new Integrator TUAS for the first time.

The Integrator will replace the in-service Shadow 200 that currently provides the primary intelligence, surveillance, target acquisition and reconnaissance (ISTAR) support for land force operations.

The new platform represents a significantly enhanced ISTAR capability and will enable 20 Regt, RAA to meet the demands of modern operations.

The Integrator is prepared for launch during the training course.

Capable of long endurance surveillance, reconnaissance and information gathering beyond visual line of sight, the Integrator can be deployed in land and maritime environments.

In comparison to the Shadow 200, the Integrator has a lower noise signature and requires fewer personnel to launch, fly and recover. It can also be fitted with different payloads.

The designer of the Integrator TUAS, Insitu Pacific, is partnering with Defence to deliver multiple operator training courses over the next two years as well as maintenance training.

This will all be achieved while maintaining a ready-now capability with the Shadow 200.

Mission commander and one of the first Army personnel to qualify as an operator on the Integrator, Bdr Daniel Epps, said he and other people involved with the project had really appreciated the inaugural operator training course held at the end of July.

"My experience with the project so far has been very productive," Bdr Epps said.

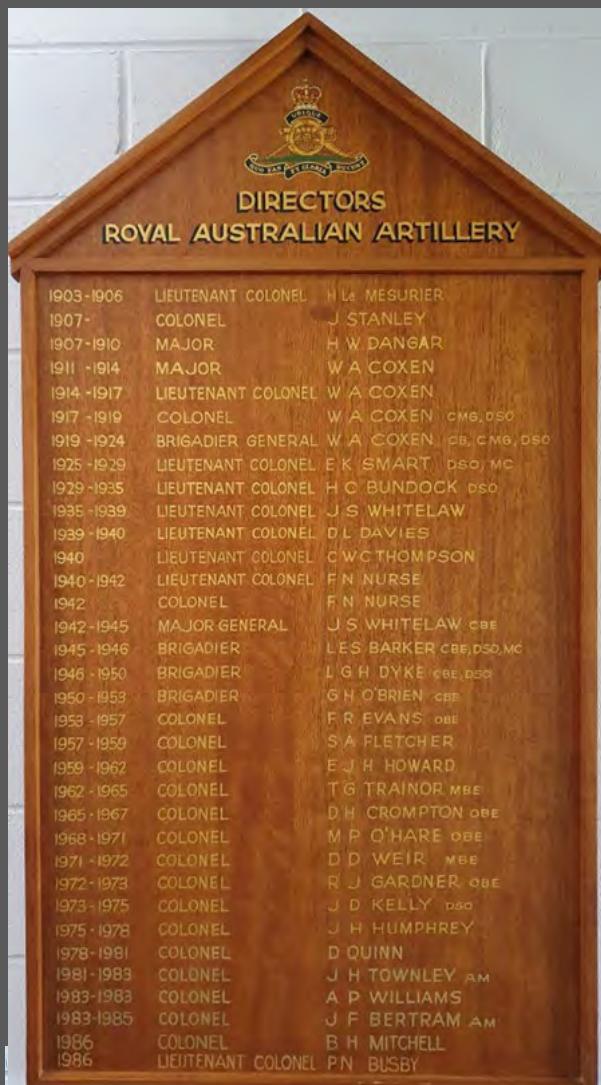
"It has been a chance to work with people from different industry backgrounds to develop a capability from the ground up.

"It has been a positive experience to see the Australian Army include operators at all rank levels in shaping the direction of the project."

Insitu Pacific project manager John Hatley said it was exciting to begin live flying, and training Army personnel in launch and recovery activities.

"The partnership between industry and Defence is a strong one and the training standard was already high, despite this being the first course," Mr Hatley said. "The feedback I've had is that it's been a very successful course, and the relationship between the Army members and our instructors has been excellent.

"We set a very high bar for our training so that Army is ready to operate the system from day one. The trainees have really committed to the course and provided a lot of very useful feedback for us."



Professional Papers

THE FUTURE READY ROYAL AUSTRALIAN ARTILLERY: A PERSPECTIVE

Jeffrey McFarlane and Nick Floyd

Introduction

The Royal Regiment of Australian Artillery (RAA) celebrated 150 years of continuous artillery service to Australia in August 2021. This anniversary provides an opportunity to look back and commemorate the valuable and enduring contribution the RAA and its predecessors have made to Australia's defence capability.

This paper takes this reflective opportunity to now look forward, so we can gain a better understanding of the future direction of the RAA. The opinions expressed within the paper's content are solely those of the authors and do not reflect the opinions or policy of the Australian Army.

Ultimately, artillery is about establishing a competitive advantage, or overmatch, over the opposing force. To do this, the artillery sensors and systems used must keep pace with advances in technology to sustain that contribution effectively. The 2016 *Defence White Paper* (DWP) stressed that "maintaining Australia's technological edge and capability superiority over potential adversaries is an essential element of our strategic planning."¹ The DWP also identifies that "over the next 20 years a large number of regional forces will be able to operate at greater range and with more precision than before."² The 2020 *Defence Strategic Update*, building on the DWP, has outlined significant modernisation projects for the RAA. Additionally, the 2020 *Force Structure Plan*³ reaffirmed the need to build a more potent, capable and agile defence force, including acquiring capabilities that enable Australia to hold adversary forces and warfighting

infrastructure at risk further from Australia. To do this, the Australian Government will invest \$55 billion in land combat capabilities and increase its investment in strike capabilities.⁴

It will then outline the enduring 'gunnery problem' and demonstrate its interrelationship with the range of artillery systems.

This paper reflects on the role of artillery and then considers the current structure and role of each of Australia's artillery units and enabling force elements. It will then outline the enduring 'gunnery problem' and demonstrate its interrelationship with the range of artillery systems. The paper will then look to the future by discussing the six capability areas the recent *Artillery Modernisation Program* encompasses, being: self-propelled artillery, long range missiles and rockets, improved ammunition, new ground based air defence system, unmanned aerial systems and an upgraded digital terminal control system. The paper presents the capabilities for those systems that Australia has already chosen, then explores weapon systems Australia's allies and peers currently have in service that Australia may seek to achieve at least parity with and could potentially acquire to meet the requirements of the program. This will be done drawing from open source information, to illustrate the type of capability and technology already available. It will canvass only some of the many platforms in service; moreover, the platforms chosen and the order they are presented in no way reflect any suggestion that Australia should be purchasing them, or an assessment of their ranking compared to other nations' systems.

Australian Artillery Background

The heritage of Australian Artillery originates on 1st August 1871. Previously, Australian Colonies had their own volunteer and part-time gunners that augmented British forces garrisoned in Australia. When the British forces left, there arose a need to raise permanent artillery forces to sustain the necessary critical technical gunnery proficiency. These first batteries, comprising Australian officers, gunners, guns, and equipment served as both garrison coast artillery and mobile field artillery.⁵

When the British forces left, there arose a need to raise permanent artillery forces to sustain the necessary critical technical gunnery proficiency.

Much has changed from the smoothbore, muzzle-loaded guns horse-drawn on field carriages used by the first Australian expedition during the Sudan War in 1885, to the artillery regiments of today. Today's Australian artillery capability comprises three components:⁶

Offensive Support. The field artillery system is made up of a number of sub-components.

Indirect fire support elements. These are the guns, mortars, command and control, tactical defence and reconnaissance of the units and sub-units that operate the equipment.

Joint Fires and Effects Co-ordination elements. These elements integrate all communications and personnel for the control and co-ordination of all indirect fire support elements.⁷ These include joint fire teams (JFTs) which are the elements that observe and acquire targets and create and send targeting data.

Support Elements. All the non-combat members that assist in making the field artillery operate. This includes transport, logistics and the qualified fitter armaments who inspect, repair the equipment used in an artillery unit.

Surveillance and Target Acquisition (STA). STA is the fusion of intelligence, surveillance & reconnaissance planning elements with joint fires & effects planning elements, which together are used to support the battle plan.⁸ STA operations sense and then collect battlespace information and data, and fuse it into a product that can be used as an input into the targeting process, command decision-making and the intelligence cycle.⁹ The equipment used by an STA unit may

include weapon locating systems such as radars and unmanned aerial systems (UAS).¹⁰

Ground Based Air Defence (GBAD). GBAD comprises land-based surface to-air weapon systems designed to defeat or reduce the effectiveness of hostile air action. Weapon systems may include guided weapons, anti-aircraft artillery or non-lethal means, and may include integral surveillance and target acquisition assets.

Role of Artillery

At the end of the First World War, the defined role of artillery used by British and Commonwealth armies was:

To help the infantry to maintain its mobility and offensive power by all the means at its disposal. The primary objects of artillery fire should therefore be to:

- *assist the movements of its own infantry; and,*
- *prevent the movements of the enemy's infantry.*¹¹

The current Australian definition is:

*The role of the Royal Regiment of Australian Artillery is to maximise the combat power of the Australian Defence Force through the provision of offensive support coordination and indirect firepower, surveillance and target acquisition and ground-based air defence.*¹²

The role has changed from primarily supporting the infantry, to incorporate the ubiquitous functions of the RAA, and reflects its ability to synchronise joint fires across all parts of the battlespace.¹³

Artillery provides critical capabilities essential to winning battles. Today's Artillery units provide:

- Indirect fire support over long ranges to destroy, neutralise and disrupt targets to support friendly plans or prevent the enemy from executing their plan.
- Air and missile defence capabilities to destroy enemy aircraft and missiles and deny the adversary use of the airspace.
- Surveillance and target acquisition to inform the intelligence picture and provide the precise target information to enable indirect fire support, air and missile defence systems and other non-artillery systems to accurately engage targets.
- Command, control, and coordination of fire support, air defence and surveillance

capabilities so that they are integrated to maximum effect into combined arms and joint forces.

Current Unit & Responsibilities

Organisationaly, the RAA consists of three fulltime field artillery regiments and one reserve regiment, one surveillance and target acquisition regiment and one air defence regiment, with career training for Gunners delivered by the School of Artillery.

The three fulltime field artillery regiments in the Australian Army are equipped with 155mm M777 towed howitzers, with each regiment providing close support to a combat brigade. Another Reserve regiment is equipped with 81mm mortars and Unmanned Aerial Systems (UAS) and provides Joint Fire & Effects¹⁴ (JFE), command & control, Joint Fire Officers, and 81mm fire support to Reserve battlegroups.

The surveillance & target acquisition regiment is responsible (primarily) to provide JFE-led Intelligence, Surveillance & Reconnaissance (ISR) to Army using UAS. The composite air-land regiment is equipped with missile systems and extended-range radars and is responsible for providing Army's air defence capability. The latter two regiments are divisional-level assets, grouped as part of 6th Combat Support Brigade.

The School of Artillery conducts artillery and JFE training for all RAA job roles (or employment categories), as well as individual training for infantry mortars.

... the RAA collectively provides the land domain element of the ADF's joint fires and effects capability ...

The RAA also provides JFE staff and advice to the wider Army and ADF. The assigned elements include the Divisional Joint Fires & Effects Coordination Centre (JFECC) within HQ 1st Division (Deployable Joint Force Headquarters); the Supported Arms Coordination Centre within Headquarters Amphibious Task Group (RAN); and the Directorate of Army Air Support within RAAF Air Command. These staffs are supported by various embedded artillery entities such as Joint Terminal Attack Controller Troop, Ground Liaison Troop, and the Joint Fires Teams in the Army's amphibious battalion. Additionally, the Regiment contributes staff into higher joint headquarters, such as the Effects Cell within Headquarters Joint Operations Command.

Along with several smaller individual elements embedded across the ADF, the RAA collectively provides the land domain element of the ADF's joint fires and effects capability system. Several key changes in progress, or due to commence in the near future as outlined in the *Army Modernisation Plan*, will further enhance and evolve these capabilities.¹⁵

The Gunnery Problem

In the early twentieth century field artillery evolved from a direct fire weapon system (where there was a direct line of sight from the gun to the target), to an indirect fire weapon system (where the gun and observer were geographically separate from each other). Such a fundamental change added complexity to the task of engaging targets accurately and fast enough that the target could not avoid being engaged or take action of its own. Meteorological, ballistic, geo-rotational and survey corrections had to be incorporated in the calculation of the firing data provided to the guns so they could provide accurate indirect fire.

Such a fundamental change added complexity to the task of engaging targets accurately and fast ...

Thus, the Artillery system's objective is to get an artillery projectile close enough to the target to create a desired effect. The system is made up of an *observer* who identifies and locates the *target*, a *command element* authorising engagement, a *fire control element* that receives the observer's information and then calculates firing data and then relays it to the delivery system (such as a howitzer), and then a *delivery system* to fire on that data to create the effect. A fundamental requirement is knowing the exact co-ordinates on the earth, of the *target*, *observer*, and *delivery system*.

The Modern Gunnery Problem

From the first employment of artillery, delivery systems would be deployed alongside the infantry and cavalry on the battlefield, with the observers co-located with the guns. The artillery systems engaged in direct fire, where the targets could essentially be seen from the delivery system, so communication between the observer and the command post, and the computation of firing data, was minimal.

The Modern Gunnery Problem



Evolution of the Gunnery Problem:

Traditional form:

- Observer co-located with Delivery System
- Direct engagement between Delivery System and Target
- Computation minimal (relative distance to Target)

Modern form:

- Observer, Target and Delivery System dislocated
- Indirect engagement between Delivery System and Target (asserts asymmetric advantage)
- Computation essential (fixation, orientation, standard and non-standard ballistic conditions)
- Command and Fire Control functions disaggregated (allows for rapid switching and massing of fires)
- Recording and sharing of targets developed

Deep Battle application:

- Observer function diversified (Airborne, other units)
- New Target Acquisition methods (Sound-ranging, Flash Spotting, Radar, Acoustic, Seismic, Laser)
- Predicted Targeting supplements immediate Target computation
- New / re-cast delivery systems (rockets, missiles)

Anti-Aircraft role application:

- New delivery systems, new target genre
- Additional computation (Target motion)
- Reversion to Direct (gun and SR missile) engagement between Delivery System and Target
- Retention of Indirect (LR missile) engagement between Delivery System and Target

Anti-Tank role application:

- New delivery systems, new target genre
- Reversion to direct (gun) engagement between Delivery System and Target
- Role (both gun and missile systems) transferred to manoeuvre arms

Figure 1 – Modern Gunnery Problem

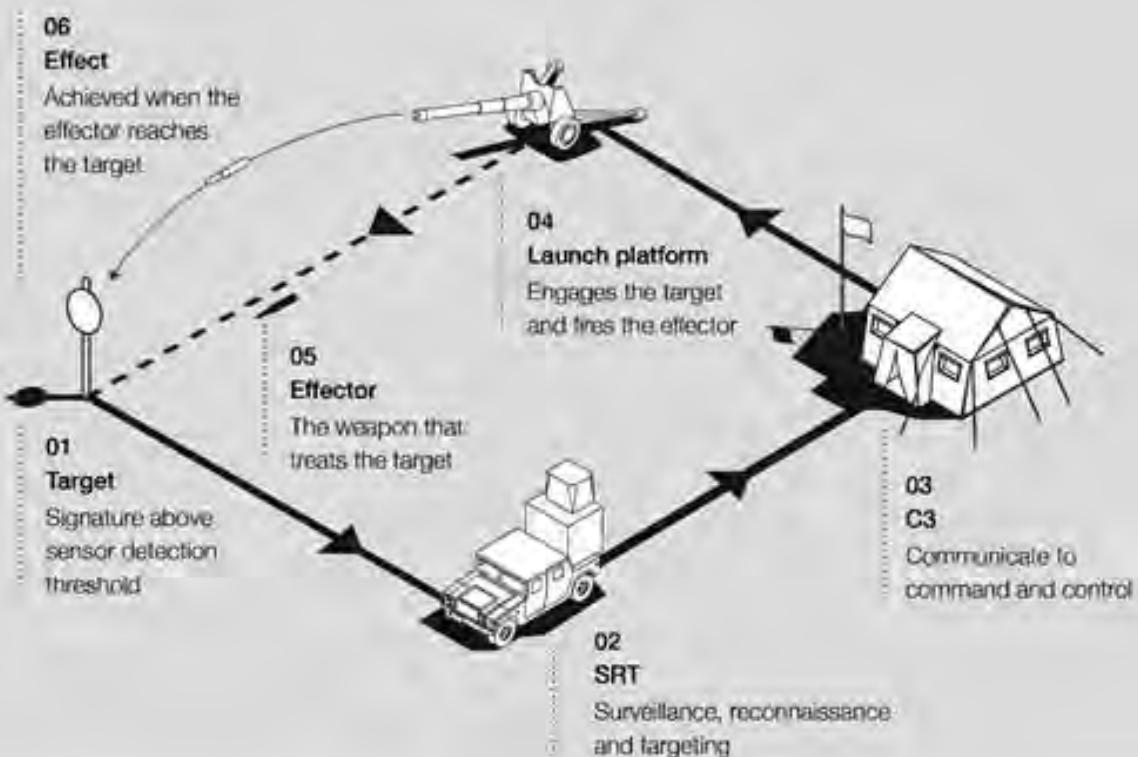


Figure 2: Modern field artillery system depiction

The diagram above graphically represents the modern gunnery problem from a field artillery perspective and is representative of employment of all types of field artillery such as towed and self-propelled artillery, and also surface-to-surface rocket artillery systems.

In contrast, ground-based air defence artillery applies the same conceptual model, but against engagements with enemy aviation systems. In the RAA these are confined to short-range engagements using missiles, but other forces employ long-range missiles, as well as cannon-based anti-aircraft artillery systems. Currently, missiles can be used in either *direct* or *indirect* forms of engagement, depending on the location of the acquisition device and targeting mechanism. Typically, targets are fast and move in three dimensions. This adds complexity as there is now additional computation required to be completed in sufficient time, so that the weapon system can then still engage the target, while it is in the engagement window.

Surveillance and target acquisition artillery units directly support the observer component of the Gunnery Problem and focus on identifying and selecting targets 'deep' behind enemy lines. This means the observer function has been diversified to other sensor units. Now, not only is the observer geographically separated from the delivery system, but the sensor may also be spatially separated from the observer.

Observers may also use technology such as radars, unmanned vehicles or other sensors. These sensors transmit data collected from ships, aircraft or other intelligence gathering platforms. The technology used in the way this data is transmitted, and the distance the artillery delivery system is separated from other components, demands complex computations. Initially, tanks and armoured vehicles could only be engaged effectively by modified and, later, dedicated anti-tank artillery systems. Later, as anti-tank rocket and missile systems became smaller, more prolific and even man-portable, the anti-tank role has generally been consigned to infantry and armoured forces.

Over time, the importance of having the latest technology is continually demonstrated by the complexity of the artillery systems used, resulting in an increased requirement for technical and tactical training of RAA personnel. The Australian Army's *Artillery Modernisation Plan* aims to upgrade the technology the RAA uses to solve the twenty-first century version of the Gunnery Problem, in order to fulfil its purpose.

Artillery Modernisation Plan

The Modern Gunnery Problem:

- Observer, Target and Delivery System dislocated
- Indirect engagement between Delivery System and Target (asserts asymmetric advantage)
- Computation essential (fixation, orientation, standard and non-standard ballistic conditions)
- Command and Fire Control functions disaggregated (allows for rapid switching and massing of fires)
- Recording and sharing of targets developed

Long Range Fires application:

- Observer function diversified (Airborne, other units)
- New Target Acquisition methods (Sound-ranging, Flash Spotting, Radar, Acoustic, Seismic, Laser)
- Predicted Targeting supplements immediate Target computation
- New / re-cast delivery systems (rockets, missiles)

GBAD role application:

- New delivery systems, new target genre
- Additional computation (Target motion)
- Reversion to Direct (gun and SR missile) engagement between Delivery System and Target
- Retention of Indirect (LR missile) engagement between Delivery System and Target

Anti-Tank role application:

- New delivery systems, new target genre
- Reversion to direct (gun) engagement between Delivery System and Target
- Role (both gun and missile systems) transferred to manoeuvre arms

Figure 3: Gunnery Problem Application

The *Artillery Modernisation Plan* (AMP) is a twenty-year capability development framework to ensure the acquisition, introduction and disposal of new major systems are tied to or aligned with changes to organisational structures, personnel trades and training delivery. It encompasses two broad time periods of 2020–2030 and 2030–2040. Essentially, the 2020–2030 epoch's focus will be on introducing new capability for the RAA, while the 2030 – 2040 epoch's focus will be on upgrading and improving the systems to ensure the RAA's effectiveness into the future. This paper will focus on the first epoch.¹⁷

There are six major projects currently being managed to deliver modernised weapons platforms and sensors to the RAA:

- Protected Mobile Fires - Self-propelled artillery

- Long Range Fires – Long-range multiple launch rocket and missile systems
- Improved ammunition (guidance, firing, range)
- Short Range Ground Based Air Defence (SR-GBAD) - Air and missile defence
- Tactical Unmanned Aerial Vehicle Enhancements/Upgrades – Unmanned Aerial Systems
- Digital Terminal Control System – Ability to coordinate targeting information from the latest platforms operating in the air, maritime and land.¹⁸

Protected Mobile Fires – Self Propelled Artillery

The role of field artillery is to provide timely and accurate indirect fire support.¹⁹ This fire support is provided through the following field artillery tasks or fire mission profiles:

- Suppression;²⁰
- Neutralisation;²¹
- Destruction;²²
- Harassment;²³
- Illumination;²⁴
- Interdiction;²⁵
- counter-battery fire (CBF);²⁶
- coordination of fires.²⁷

LAND 8116-1 Protected Mobile Fires

This project will introduce a protected and mobile 155mm artillery platform to the preparedness system. It will be able to support the ADF's manoeuvre system of armoured vehicles, providing rapid lethal fires while conducting counter battery fires against threat artillery systems. It will provide a domestic manufacturing and maintenance capability to the support system with heavy grade repair being conducted from the Geelong region. This capability will realise changes to existing employment categories²⁸ and simulation systems within the people system²⁹.³⁰

LAND 8116-3 Protected Mobile Fires (Capability Assurance Program).

This option seeks to update hardware and software of the ADF's protected mobile fires capability, delivered under phases 1 and 2 (an additional Regt), to ensure that it remains a

capable, up to date weapons system. It will ensure that the latest ammunition and communications systems are included, allowing the protected mobility fires units to remain a key part of the integrated Joint Force. This option will enhance the Joint Capability Effect of Land Control³¹.³²

Australia: Hanwha - *Huntsman*



[Image 1: Hanwha Huntsman](#)
[155mm SPH \(courtesy](#)
[ADM³³](#)

The aim of LAND 8116 is to provide “a tracked mobility, protection and firepower capability that can operate in medium to high intensity warfare in support of highly manoeuvrable armoured vehicles.” Under Phase 1 of the project, the Australian Government has entered into an agreement with South Korean company Hanwha to purchase 30 tracked self-propelled 155mm, 52-calibre howitzers, to be known as AS9 ‘*Huntsman*’, and 15 armoured ammunition resupply vehicles,³⁴ with this balance of provisioning reflecting the importance of ammunition replenishment.

There are four essential components to this system. The first is the weapon platform itself which fires the projectiles. The second is the ammunition resupply vehicle which connects to the back of the *Huntsman* so that ammunition transfer can occur with continued protection for the crews. The third component is a weapon-locating radar to ensure the accuracy of fire, and aids in survivability by detecting counter-battery fire.³⁵ The fourth component is an armoured artillery command post vehicle, based on the ammunition resupply vehicle, with an interior workspace for 6-7 personnel. Its design means it could act as a forward command post and ground control station for artillery UAVs.³⁶

The *Huntsman* is operated by five crew and fitted with an automatic shell-handling and ramming system, and is compatible with all standard NATO 155mm ammunition. It can achieve ranges out to 30 km, with a range out to 40km with rocket-assisted shells. It has a maximum rate of fire of six rounds per minute, and a sustained rate of two rounds per minute. The *Huntsman* is capable of multiple-round simultaneous-impact firing, meaning it can launch 3 rounds in 15 seconds, each at different trajectories, so that all of the shells arrive on target, at the same time.

The *Huntsman* takes 60 seconds to prepare for firing from traveling order. It is equipped with a nuclear, biological and chemical protection

system, and has been reported that this weapon's platform is the most protected howitzer in its class.³⁷

The K-9 *Thunder* is currently in service with Turkey, Poland, Finland, India, Norway and Estonia.³⁸



[Image 2: AS10 Ammunition Resupply Vehicle \(courtesy Military Today\)](#)³⁹

Other Nations: Self-Propelled Howitzer Systems

United States of America: BAE Systems - *Paladin*



[Image 3: BAE Systems Paladin M109A6 \(courtesy BAE Systems / Business Wire\)](#)⁴⁰

Developed from the M109A6, the BAE Systems *Paladin* M109A7 is an armoured, self-propelled 155mm, 58-calibre howitzer, with a range of 24km using unassisted rounds or 30km using assisted rounds. The *Paladin* achieves a maximum firing rate of up to eight rounds a minute, or three rounds in 15 seconds and a sustained firing rate of one round every three minutes. The *Paladin* is complemented by the M992A3 ammunition carrier. *Paladin* is in service with US Army and was used in support of Operation Iraqi Freedom in March-April 2003, and later in ongoing operations in Iraq and Afghanistan.⁴¹



[Image 4: M109A6 live firing \(courtesy BAE Systems / Business Wire\)](#)⁴²

People's Republic of China: China North Industries Group Corporation - *PLZ-05*



[Image 5: PLZ-05 155mm SPH \(courtesy Army Recognition\)](#)⁴³

The *PLZ-05* is an armoured, tracked, self-propelled 155mm 52- or 54-calibre howitzer, with a range of 30km with rocket assisted projectiles out to 39km. The *PLZ-05* has a maximum rate of fire of 8–10 rounds per minute. The *PLZ-05* entered service in 2008 and the Chinese military has nearly 300 platforms.⁴⁴



[Image 6: PLZ-05 155mm SPH \(courtesy Military Today\)](#)⁴⁵

Federal Republic of Germany: Krauss-Maffei Wegmann – *Panzerhaubitze (PzH) 2000*.



[Image 7: KMW PzH 2000 155mm SPH \(courtesy Military Today\)](#)⁴⁶

The KMW *PzH 2000* is a German-made armoured, tracked self-propelled 155mm, 52-calibre howitzer. It has a crew of five and an automatic loading system which can load 60 shells and propelling charges in 12 minutes. Its maximum unassisted range is 30km and can reach 40km with assisted rounds. The maximum rate of fire in burst mode is three rounds in 9 seconds, or 12 rounds in one minute. It has a continuous rate of fire of 10 -13 rounds per minute. The *PzH 2000* can fire 5 rounds with simultaneous impact.

Self-Propelled Artillery

Self-propelled platforms have a slight range advantage over comparative towed artillery platforms, but also the advantage of being operated by a smaller, better-protected crew that can reload and fire at an improved rate.

The RAA's modernisation to self-propelled artillery will allow it to better support armoured assets in a peer-to-peer battle. These new systems are protected, more mobile, and able to employ 'shoot-and-scoot' tactics to improve survivability from counter-battery fire. They also allow continual fire support to be given to mechanised units as they advance at pace. They will enable the development of new tactics, techniques and procedures. For example, one *Huntsman* with its multiple-launch, simultaneous-impact firing ability, can now provide what traditionally would require 3 guns, or half a battery. This means three Huntsmen could deliver a weight of fire that traditionally would have required one and a half batteries, but with a lot less communication and co-ordination.

Long-Range Fires – Surface-To-Surface Rockets and Missiles

The 2020 *Defence Strategic Update* outlines the importance long-range fires has in ensuring the objective of "connected, protected, lethal and

enabled” land forces. The *Update* outlines that “long-range lethality will be strengthened through additional long-range rocket systems” and ‘enhanced missile development.⁴⁷ Currently there is no land-based long-range missile platform in ADF service. The ADF’s only long-range missile strike capability is the AGM-158 *Joint Air-to Surface Strike Munition* (JASSM) carried by the RAAF, which has a range out to 370 km.⁴⁸

The Army, through the *Artillery Modernisation Plan* (AMP), seeks to rectify this by acquiring a long-range strike missile capability. With the addition of sensors and co-ordination with the other services, Australia is creating what is known as an ‘anti-access and area-denial’ system (A2AD). This is of enormous significance for the Army and shifts its place in the hierarchy of the nation’s defence. Dr Albert Palazzo in an Occasional Paper written for the Army notes that contemporary missiles are available with ranges in excess of 2,000 kilometres. The platforms are easily deployable or can be mounted on a ship.⁴⁹

Army through the RAA will thus be actively engaging in ‘deep’ battle beyond the immediate tactical fight. This opens up a larger and extended range of targets. This will require a change to how the RAA finds, identifies and track targets for passing on to long-range fire assets, and how command and control selects and chooses the priority of targets to engage.

LAND 8113 Long Range Fires.

This project will introduce a rocket and missile artillery capability to the preparedness system that will be capable of engaging targets beyond 500km. The launcher system will be highly mobile, rapidly deployable and be capable of incorporating technological updates in the future, such as robotics and automation.⁵⁰

LAND 8113 Long Range Fires Future Phases (Including Enhanced Munitions).

This option seeks to provide a spiral munitions upgrade⁵¹ for the long-range offensive support system selected under Land 8113. It will enhance the Joint Capability Effect of Land Control by providing accuracy and range enhancements. Options will also be considered to build on the size of the capability delivered under phase 1.⁵²

One of the capabilities that the AMP is looking to reintroduce is weapon-locating radars.⁵³ Both the Protected Mobile Fires and Long Range Fires

projects will re-introduce weapon locating radar capabilities in the RAA to support Land and Joint operations. These radars locate hostile artillery, mortars and rocket launchers, as well as track friendly fire to locate the impact point of friendly artillery fire to provide necessary corrections. The radar is designed to detect projectiles with small cross-sections across the battlespace and can handle simultaneous fire from weapons deployed in multiple locations. This renewed capability will feed into the identification and tracking of targets for the command and control elements to prioritise, or for the observer to create targeting data.⁵⁴

Other Nations: Long-Range Fires Systems

United States of America: Lockheed Martin - High Mobility Artillery Rocket System (HIMARS)



[Image 8: High Mobility Artillery Rocket System \(courtesy Military.com\)](#)⁵⁵

The M142 *HiMARS* Rocket Launcher is a six-wheeled, protected, precision fire launcher that is operated by a 3-person crew from the cabin of the launcher vehicle. It is C-130 Hercules transportable, and can be fitted with the Guided Multiple Launch Rocket System (GMLRS) which has 6 missiles able to fire out to 70km with the extended range version having a range of 150km.



[Image 9: High Mobility Artillery Rocket System \(courtesy Military.com\)](#)⁵⁶

Alternatively, it can be configured with Precision Strike Missile (PrSM) systems, which has two missiles that have a range in excess of 500km. Currently Lockheed Martin have delivered more than 400 HIMARS launchers.⁵⁷

Russian Federation: NPO *Splav* – 9A52-4 *Tornado*



[Image 10: NPO Splav – 9A52-4 Tornado \(courtesy Wikipedia\)](#)⁵⁸

The 9A52-4 is an eight-wheeled, protected, multiple launch rocket

system that has a range out to 90km. It is fitted with a single container of six, 300mm rocket launching tubes. It can fire all current *Smerch*⁵⁹ rockets, including HE-FRAG, incendiary, fuel-air explosive, and cluster with anti-personnel or anti-tank mines. Cluster rounds may also carry self-targeting anti-tank munitions.



[Image 11: NPO Splav-9A52-4 Tornado \(courtesy Russia Defence Forum\)](#)⁶⁰

A crew of two prepares the system for firing within 3 minutes, from the cabin. The launch vehicle is fitted with automated laying and fire control system. It is also fitted with autonomous satellite navigation and positioning system. A launch vehicle exchanges positioning and firing data with a command vehicle, and rockets can be launched directly from the cab, or remotely from the vehicle. The 9A52-4 can launch a single rocket, several of them, or a full salvo that has a duration of 20 seconds and be reloaded within 8 minutes.⁶¹

Federal Republic of Germany: Krauss-Maffei Wegmann (KMW) - MARS II



[Image 12: KMW MARS II \(courtesy KMW\)](#)⁶²

The *Medium Artillery Rocket System (MARS) II* is an armoured, tracked, multiple rocket-launcher, served by a crew of 3, which can achieve ranges greater than 70km. It has one rocket launcher with 12 tubes, and can achieve a rate of fire of 12 rockets in 60 seconds.

MARS II is the upgraded version of the M270 MLRS which was jointly developed by the United Kingdom, United States, West Germany, France and Italy in 1983. It has an electric laying system which enables rapid laying, and reduces maintenance and repair effort compared to hydraulic systems. The *MARS II* can fire unguided rockets as well as UNITARY and SMArt precision rounds.⁶³



[Image 13: KMW MARS II \(courtesy Military Leak\)](#)⁶⁴

Long Range Fires Options

The above examples demonstrate that there is currently a range of proven artillery rocket systems that have been battle-tested by coalition partners. Australia would benefit from acquiring systems that are in a mature phase of their development, and ideally, allow interoperability

with allied countries. This will enhance Australia's ability to influence and effect the 'deep' battle, adding to the ADF's joint fires and effects options.

Future Ammunition

It is a long-held maxim that 'the weapon of artillery is the projectile', and indeed this focus remains true in principle across all forms of artillery. Regardless of the artillery delivery system, the *potency* of the projectile (or the effect delivered by that system) is paramount. What gives this potency a truly strategic advantage is *reach*. If a combat force can influence the 'deep battle', this not only delivers lethal effects onto opposing combat troops, including engaging in counter-battery fire; it also constrains adversary considerations for siting rear logistics and higher headquarters locations, creating extra imposts in distance and time in transit between combat units and these locations, while remaining out of range of the adversary.

In the realm of field artillery, the ammunition projectile is constantly in evolution to improve the characteristics of range, accuracy, precision and terminal effect. Precision is enabled both through on-board guidance systems in the projectile, but equally, ongoing improvements in firing calculations and consistency within delivery systems, as well as more accurate and longer distance targeting technology. Together, these deliver unprecedented degrees of precision in modern unguided munitions.

LAND 17-1C.2 Future Artillery Ammunition.

This project will increase the range, improve the effects available to the preparedness system and provide more insensitive munitions (IM) compliant natures. It will provide a secondary source of ammunition supply to the support system with opportunities for domestic manufacture, which in turn will increase supply line assurance.⁶⁵

LAND 8110-1 Future Artillery Ammunition Replacement.

The Phase 1 Future Artillery Ammunition Replacement Program will introduce into service for the ADF modern explosive ordnance natures to optimise the 155mm Indirect Fire System, with a particular focus on Artillery Precision Guided Munitions (APGM). The future ammunition system will have reduced vulnerability in storage, transportation and operational use. It will also have improved range and a greater variety of

lethal and non-lethal effects. LAND 8110 Phase 1 particularly supports Joint Fires and Effects in Land Combat Operations.⁶⁶

LAND 8115 1 Mortar Ammunition Replacement.

LAND 8115 will procure 60 mm and 81 mm ammunition, including high-lethality and IM compliant natures. The later will deliver a similar effect as a 120 mm round, achieving greater target effects whilst reducing the number of rounds required per target. It is expected that the ADF will gain access to sufficient data to inform a future purchase, and potentially incorporate the data into future domestic production. Included in the project is an 81 mm practice round load-assembly-package (LAP) activity to confirm the viability of local assembly of practice rounds based on stockpiled components.⁶⁷

Until recently, the range that artillery weapon systems could achieve had not radically changed since the end of World War I. Currently, there are multiple companies seeking to improve the range, effects and accuracy of ammunition across several weapons platforms.

Other Nations: Ammunition Manufacturers

Rheinmetall – Germany



[Image 14: DM-52-21 gun fires 155mm Very Long Artillery Projectile 67 km \(courtesy RDM\)](#)⁶⁸

Rheinmetall⁶⁹ is currently focusing on achieving an enhanced range 155mm artillery round fitted with a precision guidance kit, as well as on developing a new 155mm projectile with an improved integrated propulsion system. Rheinmetall's *Velocity Enhanced Long-Range Artillery Projectile* (V-LAP) round achieves a range of 76km, which is the longest range of a conventional artillery projectile.⁷⁰ The unique projectile design enables simultaneous use of rocket propellant, using specially designed nozzles and base-bleed charges.⁷¹



[Image 15: 155 mm HE ERFB RA/BB \(VLAP\) projectile \(courtesy Yugolimport\)](#)⁷²

NAMMO – Norway



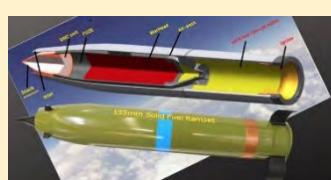
[Image 16: Illustration showing 155mm artillery shell and range options \(courtesy Nammo\)](#)⁷³

Nammo⁷⁴ is a provider of specialty ammunition and rocket motors. With their 155mm ammunition series, Nammo offers base-bleed enhanced rounds and rocket-assisted shells, and are in the process of developing a Ramjet-powered shell. The latter munition presents massive potential, as Nammo claim they can reach farther than any other 155mm round in production, with a range of up to 100km.⁷⁵

A solid-fuel Ramjet-powered shell works by using the force of the launch to get the round moving fast enough to start the ramjet motor. The solid fuel source then propels the projectile up to a maximum speed of Mach 3 and keeps it moving at that speed for approximately 50 seconds. This type of motor has the added benefit of reducing drag on the shell itself, since it actively 'pulls' the projectile through the air.⁷⁶

The NAMMO 40km-capable 155mm HE-ER has been chosen by Finland for its K9 Thunder platform,⁷⁷ meaning it could be used by the *Huntsman* when it enters service.

[Image 17: Diagram of 155mm Solid Fuel RamJet](#)



(courtesy Indian Defense News)⁷⁸

Raytheon Technologies– United States of America



[Image 18: M982 Excalibur Guided artillery shell \(courtesy Military Today\)](#)⁷⁹

Raytheon⁸⁰ is known for its extended-range, precision munition named *Excalibur*. This projectile provides accurate first-round effects at all ranges in all weather conditions. It has a reach out to 50km, and impacts at a radial 'miss distance' of less than two metres from a target. US Army analysis has shown it can require at least 10 conventional munitions to accomplish what one *Excalibur* round can.⁸¹

Excalibur projectiles employ Global Positioning System (GPS)-aided inertial guidance and navigation (INS), free spinning base fins, four-axis canard airframe control, base bleed technology, and a trajectory glide to achieve

increased accuracy and extended ranges.⁸² The programmable guidance system allows a field artillery detachment to set the *Excalibur* to strike a specific geographic location.⁸³

Raytheon are currently developing the *Excalibur* S; this builds on the earlier variant's use of GPS guidance by adding a toughened digital semi-active laser seeker. After launch, the shell follows GPS guidance until it detects the laser energy from a designator that operators use to point out a target. This means the system can engage targets when exact co-ordinates are not readily available, with a reduced chance of the flight path being blocked by radar-jamming devices. More importantly, it means that artillery systems can now engage moving targets.⁸⁴

In May 2020, Raytheon announced that it was working with NAMMO to build an *Excalibur* round with a ramjet engine and stated that it will be able to strike moving and stationary high-value targets on land and at sea, while being compatible with legacy and future 155mm artillery systems. The projectile will most likely feature some form of multi-mode guidance, such as using GPS-INS to get to the target area and then switching over to a combination of millimetre-wave radar or imaging infrared to find and then strike the target.⁸⁵



[Image 19: Diagram showing flight profile of a notional XML155mm shell \(courtesy US Army\)](#)⁸⁶

Future Ammunition

These new ammunition technologies will allow the ADF to hit targets at ranges almost triple what was capable in World War I. This allows field artillery to influence more of the battlespace, and improves their survivability by being able to be located further from the front line. It also allows artillery units to support more units over a broader area, and reduces the time they are unable to fire while moving to follow-on locations to keep pace with the movement of the supported mechanised force. It also aids in field artillery survivability, as the units will have an increased range from which to engage in counter-battery fire.

Integrating these rounds with improved guidance systems improves first-round accuracy, which ensures less collateral damage, with a lower cost and smaller logistics requirement. By having this capability, field artillery can contribute to the ADF's joint fires by delivering effects on a target that currently only the Air Force could achieve,

freeing up those resources and allowing the ADF to project deeper into the battlespace.

These new ammunition natures will also change artillery tactics. Whereas traditionally field artillery was used for engaging fixed targets, or disrupting the movement of enemy forces, moving targets can now be engaged. This will enhance artillery's lethality against manoeuvre formations, and its ability to transform the shape of battlefields.

Ground Based Air Defence

The role of ground-based air defence (GBAD) is to defeat or reduce the effectiveness of enemy offensive airpower.⁸⁷ GBAD is an integral part of air, land and, in littoral cases, maritime battles. GBAD contributes to land forces manoeuvre by engaging hostile aircraft with missiles; collecting information for the ADF's air battle management system (ABMS), and providing advice to commanders, their staff and units on the air threat and passive AD measures.⁸⁸ GBAD units will often be tasked to defend vital assets or location against an air threat. These units will also be tasked to destroy any air asset. Aircraft are a valuable and scarce resource, so their destruction both protects friendly forces and allows unhindered movement over the battlefield, while weakening the adversary.⁸⁹

The RAA is tasked to provide Short-Range (SR)-GBAD in support of ADF operations. Specifically, the RAA defends deployed forces and critical assets from air threats, and facilitates the integration and synchronisation of air and land effects. An integrated air and missile defence will be a core component of SR-GBAD, as will the ability to track and neutralise unmanned and autonomous systems.⁹⁰

LAND 19-7B Short Range Ground Based Air Defence (SR-GBAD).

This project will introduce a modern SR-GBAD capability, able to protect the Joint land force⁹¹ and provide interoperability into the wider ADF Integrated Air and Missile Defence (IAMD) Systems⁹². It will introduce a highly mobile capability able to protect manoeuvre forces with advanced sensor systems able to contribute to the threat picture enabling Joint assets and land fires platforms.⁹³ The advanced, highly technical nature of this project will require changes to existing training and simulation systems within the people system.⁹⁴

Australia: Kongsberg – Norwegian/National Advanced Surface to Air Missile System (NASAMS)



[Image 20: NASAMS air defence system \(courtesy Kongsberg\)⁹⁵](#)

The NASAMS is a distributed and networked medium- to long-range air-defence system. A typical unit comprises of a command post, an active 3D radar, a passive electro-optical and infrared sensor and a number of missile canister launchers. The system uses Advanced Medium-Range Air-to-Air Missiles (AMRAAM) and holds six missiles per Multi-Missile Launcher. The launcher supports firing of AIM-120 AMRAAM B/C5/C7, AMRAAM ER, and AIM 9-X Sidewinder Block II.⁹⁶ The AMRAAM missiles will have a range of about 20 km.⁹⁷



[Image 21: Multi-Missile Launcher \(courtesy Kongsberg\)⁹⁸](#)

Other Nations: Ground Based Air Defence Systems

Russian Federation: Ulyanovsk Mechanical Plant - *Pantsir S-1*



[Image 22: Pantsir-S1 \(courtesy Vitaly V. Kuzmin/Wikimedia\)⁹⁹](#)

The *Pantsir-S1* is an 8x8 truck-mounted, medium-range anti-aircraft gun and missile system. The system incorporates two 30mm cannons, and up to 12 missiles allowing it to engage up to four targets simultaneously. Its missions vary from intercepting tactical aircraft, precision-guided munitions and UAVs. It has been in service since 2003 and the latest upgraded models have a range out to 40km. It is currently operated by 13 countries, including Algeria, Brazil, Jordan, UAE and Vietnam.¹⁰⁰



[Image 23: Pantsir-S1 Weapon System \(courtesy Vitaly V. Kuzmin/Wikipedia\)¹⁰¹](#)

United Kingdom: Matra BAE Dynamics – JERNAS / Rapier FSC



[Image 24: Rapier FSC \(courtesy Army Technology\)¹⁰²](#)

The *Rapier FSC* is a towed trailer launcher, short-range missile system. It is mounted with eight missiles and is able to fire two simultaneously, with a full reload carried out manually in 2 minutes. It is capable of engaging supersonic, low-level, high manoeuvrability aircraft, as well as UAVs, cruise missiles and rotary-wing aircraft.¹⁰³ *Rapier FSC* has been in service since 1996 and has a range out to 8km, with a radar detection range in excess of 15km. It uses electro-optical tracking device and passive infra-red sensors, and is controlled by an operator at a weapon control terminal.¹⁰⁴ *Rapier FSC* is currently operated by 11 countries, including Iran, Indonesia, UAE, Malaysia and Singapore.



[Image 25: Rapier FSC firing \(courtesy Missile Defense Advocacy\)¹⁰⁵](#)

ISRAEL: Rafael Advanced Defense Systems - SPYDER



[Image 26: SPYDER Air Defence System \(courtesy Military Today\)¹⁰⁶](#)

Named after the *Python 5* and *Derby* missiles the system uses, the *Surface-to-air Python and Derby (SPYDER)* is a short- to medium-range, truck-mounted air defence system. It can be mounted on multiple truck chassis, with the short-range variant holding four missiles, and the medium-range variant holding eight. It is capable of engaging aircraft, helicopters, UAVs and precision-guided munitions.

SPYDER entered service in 2008; its short-range variant has a range out to 15km and ceiling of 30,000ft, while the medium-range variant has a range of 35km and a ceiling of 50,000ft. The radar unit has a range of 40km and can track up to 60 targets. A unit can be geographically dispersed up to 10km, and takes 5 minutes to be set up. Once this occurs, the first missile can be launched in 5 seconds. Countries with *SPYDER* currently in service include India, Georgia, Peru, Singapore and Vietnam.¹⁰⁷



[Image 27: SPYDER Surface-to-Air Launcher \(courtesy Army Technology\)¹⁰⁸](#)

Ground-Based Air Defence

The outlined GBAD systems illustrate short- to medium-ranges of around 8 to 40km distance. The role these systems play is changing from

traditional fast air and rotary-wing platforms to engaging UAVs and, in some cases, missiles. New technology has provided for these systems to be operated in all weather, day or night, with improved ability to identify, track and effect targets.

The latest GBAD systems also take advantage of the latest datalink technology, which allows GBAD units to have weapon systems geographically dispersed but still connected. This also allows the sensors to both receive and send data, adding to the wider air defence picture.

Surveillance And Target Acquisition

The role of surveillance and target acquisition (STA) is to conduct systematic surveillance and accurate target acquisition and targeting in order to enable field artillery to provide fire support.¹⁰⁹ STA systems combine the means of acquiring information and targets, and carrying out an appropriate level of target information processing. The STA system incorporates a cyclical process which informs, directs and updates the priorities and the rate of the collection effort.¹¹⁰ As such, STA systems perform the function of observer in the Gunnery Problem, informing the delivery systems of target information.

STA units conduct both *surveillance*,¹¹¹ in conjunction with other arms, to collect and disseminate tactical information, as well as dedicated *target acquisition*¹¹² of enemy forces. The location of enemy artillery (including mortars) is vital to prosecute counter-battery fire against an adversary's indirect fire threat.¹¹³

The type of payloads that aerial STA systems can carry include advanced electro-optical and infrared systems, planned synthetic-aperture radar and moving target indicator, hyperspectral imagery, lightweight communications relay package, marker/illuminator, laser rangefinder, and target designator.¹¹⁴ This suite allows the observer/controller to identify and gain targeting information for a target, as well as build the intelligence picture to support deployment of artillery assets. It also can aid in battle damage assessment after an artillery mission.

LAND 129-3 Tactical Unmanned Aerial Vehicle Enhancements/Upgrades.

This project will increase the Surveillance, Reconnaissance and Targeting function of the preparedness system¹¹⁵ to observe the

environment in multiple spectra¹¹⁶, providing greater flexibility and situational awareness. The support system will be capable of introducing new sensor pods to maintain capability assurance¹¹⁷ throughout life and be capable of accepting technological updates. This project will require personnel growth to the current capability and advancement in simulation systems within the people system.¹¹⁸

LAND 129-4 Unmanned Aerial Vehicle (UAV).

Small Unmanned Aerial System (SUAS) will deliver enhanced situational awareness and increased force protection. The project is a new capability which will provide organic Intelligence, Surveillance and Reconnaissance (ISR) support primarily for land force operations. LAND 129 – 4 particularly supports Battlespace Awareness in Land Combat operations including Littoral Manoeuvre¹¹⁹. Land 129-4 SUAS will provide the tactical commander with a 'flying pair of binoculars' capability for enhanced day/night surveillance and reconnaissance in order to reduce the threat to soldiers attempting to identify enemy locations or activity.¹²⁰

Australia: AAI Corporation (Textron Systems) – RQ-7B Shadow 200



[Image 28: RQ-7B Shadow 200 \(courtesy Defence Image Gallery\)](#)¹²¹

The *Shadow 200* UAV is used to locate, recognise and identify targets up to 125km from an operations centre. It operates at an altitude of 8,000ft and carries a suite of high resolution cameras and sends footage and data in real-time to ground terminals. It has approximately 8hrs endurance and can carry a payload of 27kg.

The system can be catapult-launched from a hydraulic rail launcher, and can use a conventional wheeled landing on a flat surface, or a deployable arresting hook for ground based arresting cables.¹²²



[Image 29: RQ-7B Shadow 200 and hydraulic rail launcher \(courtesy Army Technology\)](#)¹²³

Other Nations: Surveillance and Target Acquisition Systems

A selection of comparable Class and Tier UAVs operated by military forces around the globe include the following examples.

United Kingdom: Thales – WK450 Watchkeeper



[Image 30: WK450 Watchkeeper \(courtesy Army Technology\)](#)¹²⁴

The *Watchkeeper* is a dual-sensor, all-weather UAV used in theatre by the Royal Artillery. It has a range of 150km from a ground control station, can fly at altitudes of 16,000ft with a maximum speed of 77kts and has an endurance of 14hrs. It has a payload capacity of 150kgs and has an automatic take-off and landing capability.¹²⁵

Watchkeeper's primary purpose is to provide targeting data for artillery and rocket strikes.¹²⁶ Additionally, *Watchkeeper* also provides intelligence, surveillance, target acquisition and reconnaissance through its payload, which includes day/night sensors, a laser designator and a synthetic-aperture radar/ground moving target indicator.¹²⁷



[Image 31: Watchkeeper UAV \(courtesy Army Technology\)](#)¹²⁸

People's Republic of China: Chengdu Aircraft Industry Group – Wing Loong II



[Image 32: Wing Loong II UAV on parade \(courtesy Airforce Technology\)](#)¹²⁹

The *Wing Loong II* is a medium-altitude, long-endurance UAV. It has a range of 4,000km, can fly at altitudes of 16,000ft with a maximum speed of 150kts and has an endurance of 20hrs. It has a payload of 200kgs and takes off and lands conventionally on a flat surface. The UAV is intended primarily for surveillance and aerial reconnaissance mission requirements for the People's Liberation Army-Air Force. It also has six under-wing hard-points, giving it the ability

to be fitted with air-to-surface missiles or laser-guided bombs.¹³⁰

Wing Loong II's electro-optical payload pod, fitted under the forward section of the fuselage, is integrated with visual light and infrared cameras and sensors to collect surveillance and targeting data in both day and low-light/night conditions. The UAV is also equipped with synthetic-aperture radar, laser designator, forward-looking infrared (FLIR) camera, as well as electronic countermeasures. This system is in use with the UAE, Saudi Arabia, Kazakhstan, Pakistan, Algeria, Egypt, Indonesia, Nigeria and Uzbekistan.¹³¹



[Image 33: Wing Loong II on the flight-line \(Courtesy Airforce Technology\)](#)¹³²

Russian Federation: Special Technology Centre – Orlan-10

[Image 34: Orlan-10 about to be launched](#)



[Image 34: Orlan-10 about to be launched \(Courtesy Airforce Technology\)](#)¹³³

The *Orlan-10* is a medium-range multi-purpose UAV, with production commenced in 2010. It has a range of 600km, can fly at altitudes of 16,000ft with a maximum speed of 80kts and has an endurance of 16hrs. It has a payload of 6kgs and is launched using a collapsible catapult, and retrieved by a parachute landing system.

Orlan-10 is intended for a variety of missions including aerial reconnaissance, observation, monitoring, search and rescue, combat training, jamming, radio signals detection, and target tracking in hard-to-reach terrain.¹³⁴



[Image 35: Orlan-10 being retrieved via the parachute landing system \(courtesy Military Factory\)](#)¹³⁵

Surveillance and Target Acquisition

The smaller of the UAVs discussed have the ability to operate within 150km – 600km range, and for the larger ones around 5,000 kilometres, while being able to remain on task for over 8 hours. These systems are now designed, with interchangeable optics and sensors depending on the mission, or as upgrades occur, allowing it remain relevant throughout the platform's lifecycle. They bring better situational awareness to the battlespace commanders not only through

video footage, but information across the electromagnetic spectrum, and improve the observer's ability to identify, track and engage targets, and then assess the effectiveness of the engagement. Some UAVs have become true multi-role platforms with the ability to carry missiles and bombs, adding to the effects that joint fires can deliver.

Digital Terminal Control Systems

The observer's enduring role is to identify and coordinate delivery of effects onto a target in a timely manner, while keeping friendly forces safe. This involves sending information about the location of the observer, and location and details about the target. Once the target has been engaged, further information may be required to adjust the engagement to optimise the effect on the target. Before digitisation, adjustment was done via voice, and required transmission and read-back to ensure accuracy. In a joint fires situation involving two or more fire units in a co-ordinated action to produce the desired effects, multiple fire units or even units from different services may be involved. This increases the time and complexity of disseminating the required information via voice.

Digitisation has allowed the use of direct data transfer, which has resulted in greatly increased access of situational awareness, and an ability to exchange large volumes of information more quickly than via voice.

The Digital Terminal Control System (DTCS) is a system used by the observer to create targeting data so a fire unit can engage, and then make adjustments. It is a lightweight soldier-carried system including a tablet PC, laser rangefinder, laser target designator, GPS receiver and real-time video downlink receiver. It allows observers to precisely fix the location of identified targets, then feed the data through to the fire unit for targeting and designate the target via laser for incoming weapons systems.¹³⁶

LAND 17-2 Digital Terminal Control System, Next Generation.

This project will increase the networked sensor density of the preparedness system and access to ADF and coalition joint fires from the air, maritime and land. It will provide a technological refresh cycle¹³⁷ from the support system to ensure interoperability is maintained as new more capable RAA and Joint Systems are introduced into service. It will provide both an agile and responsive training and doctrine¹³⁸ assurance

function to the people system through user feedback and dedicated knowledge management.¹³⁹

LAND 8111 Artillery and Digital Terminal Control System (DTCS) Replacement.

This project builds on the lessons learnt and experiences of DTCS NextGen. DTCS Replacement will provide enhanced targeting and fire control capability across the battle space. The need to provide technical refresh on software and hardware of the DTCS suite will see a reduced refresh cycle in order to maintain the leading-edge technological advances within this capability. LAND 8111 will provide direct linkages to the advanced field artillery tactical data system, which when paired with the DTCS, further digitally enhances the coordination, planning and execution of joint fires across the joint force.¹⁴⁰

Australia's selected DTCS will greatly enhance the ADF's joint fires capability by allowing communication to mortars, artillery, strike aircraft, helicopters and ships.¹⁴¹



[Image 36: Soldier using DTCS \(courtesy Collins Aerospace\)¹⁴²](#)

Conclusion

Over 150 years of defending Australia, the focus of how Australian Artillery's combat power has evolved from primarily supporting infantry, to supporting the entirety of the Australian Defence Force. As the RAA commemorates 150 years of artillery service to Australia, and looks back on where it has come from and how the focus of artillery has changed, this opportunity offers equally a great opportunity to look forward and see where the RAA is heading. The introduction of new technologies has accelerated, increasing the speed and tempo that modern battles have been fought. In response to this, and aided by these new technologies and sensor developments, the footprint of artillery systems has become more geographically dispersed. Collectively, this has greatly increased the complexity and difficulty of solving the gunnery problem.

[Image 37: Observer using long-range thermal imager \(courtesy Defence Image Gallery\)¹⁴³](#)



Australian Artillery's past has often prioritised and focused on the weapon and platform,

particularly during extended peacetimes. In contrast, the RAA's future demands a committed focus on command and control, as well as targeting. Weapon and platform remain ever important, but as the foundations of solving the gunnery problem, it is the RAA's command and control, and its targeting that will ensure the *future ready* RAA's operational and strategic relevance in Australia's geo-strategic environment.

Strategic updates and guidance from the Australian Government have acknowledged the modernisation and improved precision of the weapon systems that peer, and counterpart countries will acquire over the period to 2035. The *Artillery Modernisation Plan* (AMP) has been put in place to substantially upgrade the RAA's current weapons systems, platforms, and support force elements, to attain parity with, or generate overmatch of potential enemy threats, and to provide ongoing upgrades to those systems to remain potent and relevant.

Each capability area identified in the AMP contributes substantively to the *Force Structure Plan*,¹⁴⁴ and supports the strategic defence objectives identified in the *Defence Strategic Update*.¹⁴⁵

Self-propelled artillery will allow increased protection and range with the ability to maintain a mechanised battle tempo, while improvements to ammunition will allow in-service and future artillery systems to deliver firepower with improved accuracy. The long-range fires program will provide Australia an increased ability to shape the battlespace by defeating threats to our forces at ranges out to 300 km. The DTCS will enhance the speed of engagement as well as access to a larger number of weapon platforms which can engage targets. New UAS

assets will provide better sensors to improve targeting. These UAS platforms will also allow better situational awareness for commanders, and enhance our intelligence, surveillance, and reconnaissance capabilities. This will support a range of missions from counter-terrorism, to augmenting our surveillance capability for search and rescue, humanitarian assistance and disaster relief missions.

This paper's horizontal scan of Australia's peer artillery forces has given an opportunity to consider characteristics of contemporary in-service platforms that Australia could seek to emulate or may acquire as potential future capabilities. The capabilities that the RAA will bring to the ADF are unique in their ability to rapidly change the strategic effect that the ADF can have at long range. The long-range fires platform has the quickest, cheapest, and easiest path for introduction into service of any next generation platform able to range out to 500 km.

Transitioning from off-the-shelf purchases of Allied long-range fires platform for initial capability, through to a developing sovereign manufacturing capability would provide Australia a robust logistics capability, even under conditions of constrained supply environments. The careful acquisition of such new platforms could not only allow interoperability with our traditional allies but maintain Australia's technological edge and capability superiority over potential adversaries. Above all, the introduction of the new systems and platforms in the AMP will significantly enhance the combat power the RAA can deliver for the Australian Defence Force, and position it to carry on its ubiquitous and enduring presence for another 150 years.

¹ Department of Defence, '2016 Defence White Paper,' *Commonwealth of Australia*, P. 18. Available at:

<https://www.defence.gov.au/about/publications/2016-defence-white-paper>.

² Department of Defence '2016 Defence White Paper,' *Commonwealth of Australia*, P. 18. Available at

<https://www.defence.gov.au/about/publications/2016-defence-white-paper>.

³ Department of Defence '2020 Force Structure Plan,' *Commonwealth of Australia*, available at: <https://www.defence.gov.au/about/publications/2020-force-structure-plan>

⁴ Department of Defence, 'Investing in a capability edge,

<https://www.defence.gov.au/sites/default/files/2021-09/CapabilityFactsheet.pdf>, accessed 21 Jan 22.

⁵ Floyd, N. LTCOL, 'A reflection on Australian Artillery – 1871 to 2021,' *The COVE*, 13 August 2021.

⁶ 'LWP 3-4-1, Employment of Artillery,' *Australian Army*, 2009, Section 1-1, para 1.1.

⁷ Australian Defence Glossary, accessed on 04 December 2021, available at:

<http://adg.dpe.protected.mil.au/>

⁸ 'LWP-CA (STA) 2-3-2 Surveillance and Target Acquisition,' *Australian Army*, 27 August 2019, Section 1-1, para 1.2.

⁹ 'LWP-CA (STA) 2-3-2 Surveillance and Target Acquisition,' *Australian Army*, 27 August 2019, Section 3-1.

¹⁰ A UAS comprises a remotely piloted aircraft, the launch and recovery system, the command, control and communications system, the ground controller and the information it disseminates. Australian Defence Glossary, accessed on 04 December 2021, available at: <http://adg.dpe.protected.mil.au/>

¹¹ 'Employment of Artillery in War', Principles of Employment, Chapter VII, Section 145, *Field Artillery Training Pamphlet 1914*, His Majesty's Stationery Office London 1914, para 1.

¹² 'Royal Regiment of Australian Artillery,' accessed on 25 November 2021, available at:

<https://www.army.gov.au/our-people/organisation-structure/army-corps/royal-regiment-australian-artillery>.

¹³ Joint Fires: The use of weapon systems to create lethal or non-lethal effects on a target in a coordinated action, to produce these desired effects in support of a common objective. Australian Defence Glossary, accessed on 04 December 2021, available at: <http://adg.dpe.protected.mil.au/>

¹⁴ Joint Fire and Effects: The co-ordination and administration of all forms of offensive support. Australian Defence Glossary, accessed on 04 December 2021, available at:

<http://adg.dpe.protected.mil.au/>

¹⁵ Floyd, N. LTCOL, 'A reflection on Australian Artillery – 1871 to 2021,' *The COVE*, 13 August 2021, pp 7-8.

¹⁶ Department of Defence, 'Artillery Modernisation Plan (Draft),' *Australian Army*, undated, accessed 04 December 2021.

¹⁷ Department of Defence, 'Artillery Modernisation Plan (Draft),' *Australian Army*, undated, accessed 04 December 2021.

¹⁸ Department of Defence, 'Artillery Modernisation Plan (Draft),' *Australian Army*, undated, accessed 04 December 2021.

¹⁹ 'LWD 3-4-1, Employment of Artillery,' *Australian Army*, 2009, Section 1-2, para 1.6.

²⁰ Suppression: An actual or suspected adversary weapons system's performance is temporarily or transiently degraded below the level needed to fulfil its mission objectives at a specific time for a specified duration. See *Australian Defence Glossary* [citation details – accessed xx xxx 22 etc.]

²¹ Neutralisation: To degrade or negate an adversary's capabilities to such an extent that it is rendered ineffective. See *Australian Defence Glossary* [citation details – accessed xx xxx 22 etc.].

²² Destruction: Sufficient damage of an adversary state or non-state adversary that it is unable to return to conflict. See *Australian Defence Glossary* [citation details – accessed xx xxx 22 etc.].

²³ Harassment: Disruption of the enemy by impeding movement, impeding supply and forcing redeployment due to being fired upon by artillery assets. See 'LWD 3-4-1, Employment of Artillery,' *Australian Army*, 2009, Section 1-4, para 1.18.

²⁴ Illumination: The provision of uninterrupted lighting on a target or specified area.

²⁵ Interdiction: Actions to divert, disrupt, delay or destroy the adversary before they can affect friendly forces. See *Australian Defence Glossary* [citation details – accessed xx xxx 22 etc.].

²⁶ Counter-Battery Fire: Projectiles fired on a target for the purpose of destroying or neutralising the enemy's artillery units. See *Australian Defence Glossary* [citation details – accessed xx xxx 22 etc.].

²⁷ Co-ordination of fires: Co-ordination of all the different units and elements that can fire a projectile onto a target. See 'Section 1-4. Tasks,' *LWD 3-4-1, Employment of Artillery*, 2009. P. 1-4.

²⁸ Employment Categories: Each different job role or trade has a job number associated with it. This outlines the skills and tasks that a soldier needs to be assessed as proficient in. These skills will be specific to the part that soldier plays in a particular unit in a particular corps.

²⁹ People System: The interrelated elements that make up the human resources function of the Australian Defence Force.

³⁰ Previously released open source artefacts provided by Joint Fires – Army, Combat Support Program, July 2021

³¹ Joint Capability Effect of Land Control: The breadth of effects the ADF delivers in order for the employment of land forces to control vital land areas. Australian Defence Glossary, accessed on 04 December 2021, available at:

<http://adg.dpe.protected.mil.au/>

³² Previously released open source artefacts provided by Joint Fires – Army, Combat Support Program, July 2021

³³ *Hanwa Huntsman 255mm SPH*, accessed 16 June 2022, https://yaffa-cdn.s3.amazonaws.com/yaffadsp/images/dmImage/StandardImage/diagonal_1-as92.png.

³⁴ Pittaway, Nigel, [Huntsman – Australia's lethal arachnid](#), *Australian Defence Magazine*, accessed 14 Feb 2022.

³⁵ Bergman, K. '2020 Force Structure Plan a Major Boost to Army's Combat Power,' *Asia Pacific Defence Reporter*, September 2020 available at: https://asiapacificdefencereporter.com/wp-content/uploads/2020/09/APDR_Sept_2020_Interactive.pdf.

³⁶ AS9 Huntsman, 155mm self-propelled howitzer,' *Military Today*, accessed on 13 January 2022, available at: [AS9 huntsman Self-Propelled Howitzer | Military-Today.com](#)

³⁷ AS9 Huntsman, 155mm self-propelled howitzer,' *Military Today*, accessed on 13 January 2022, available at: [AS9 huntsman Self-Propelled Howitzer | Military-Today.com](#)

³⁸ K-9 Thunder Self-Propelled Howitzer, *Hanwha Defence Website*, accessed on 10 February 2022, available at: [K9 Thunder Self-propelled Howitzer | Artillery Systems | Our Business | Hanwha Defense \(hanwha-defense.co.kr\)](#)

³⁹ AS10 Ammunition Resupply Vehicle,' accessed on 13 January 2022, available at: http://www.military-today.com/artillery/as9_huntsman_13.jpg

⁴⁰ ‘Paladin M109A6 155mm Artillery System,’ accessed on 14 Oct 2021, available at: <https://www.army-technology.com/wp-content/uploads/sites/3/2000/10/Paladin-1.jpg>

⁴¹ ‘Paladin M109A6 155mm Artillery System,’ *Army Technology*, accessed on 14 Oct 2021, available at: <https://www.army-technology.com/projects/paladin/>.

⁴² ‘Paladin M109A6 155mm Artillery System live firing’, accessed on 14 Oct 2021, available at: <https://www.army-technology.com/wp-content/uploads/sites/3/2000/10/Paladin-2.jpg>

⁴³ ‘PLZ-05 155mm Self-propelled tracked howitzer, accessed 27 April 2022, available at: https://www.armyrecognition.com/images/stories/asia/china/artillery_vehicle/plz-05/PLZ-05_PLZ05_155mm_self-propelled_howitzer_tracked_armoured_vehicle_Chinese_Army_PLA_China_left_side_view_001.jpg

⁴⁴ ‘PLZ-05 155 mm Self-propelled howitzer,’ *Military Today*, accessed on 15 Oct 21, available at: [PLZ-05 155 mm Self-Propelled Howitzer | Military-Today.com](https://www.militarytoday.com/PLZ-05_155_mm_Self-Propelled_Howitzer)

⁴⁵ ‘PLZ-05 155 mm Self-propelled howitzer,’ accessed on 15 Oct 21, available at: http://www.military-today.com/artillery/plz05_13.jpg

⁴⁶ ‘PzH 2000 155mm Self-Propelled Howitzer,’ accessed on 01 February 2022, available at: https://www.army-technology.com/wp-content/uploads/sites/3/2017/09/PzH2000_11.jpg

⁴⁷ Department of Defence, 2020 *Defence Strategic Update*, 01 July 2020, p. 39.

⁴⁸ Axe, D. ‘Australia’s Huge New Weapons Buy Will Give It Long-Range Strike Ability For First Time Since F-111 Bombers,’ *Forbes*, 21 September 2021., available at: [Australia’s Huge New Weapons Buy Will Give It Long-Range Strike Ability For First Time Since F-111 Bombers \(forbes.com\)](https://www.forbes.com/sites/daveaxe/2021/09/21/australias-huge-new-weapons-buy-will-give-it-long-range-strike-ability-for-first-time-since-f-111-bombers/)

⁴⁹ Palazzo, A. ‘Planning not to Lose: The Australian Army’s New Philosophy of War,’ *Australian Army Occasional Paper No. 3*, 2021. P. 38.

⁵⁰ Previously released open source artefacts provided by Joint Fires – Army, Combat Support Program, July 2021

⁵¹ Spiral Munitions Upgrade: The spiral development model is a risk-driven process model generator. It is used to guide multi-stakeholder concurrent engineering of software intensive systems. It has two main distinguishing features. One is a *cyclic* approach for incrementally growing a system’s degree of definition and implementation while decreasing its degree of risk. The other is a set of *anchor point milestones* for ensuring stakeholder commitment to feasible and mutually satisfactory system solutions. Boehm, B. ‘Spiral Development: Experience, Principles and Refinements,’ *Spiral Development Workshop*, 09 February 2000, p. 3.

⁵² Previously released open source artefacts provided by Joint Fires – Army, Combat Support Program, July 2021

⁵³ Weapon Locating Radar: Radars that can detect and locate enemy artillery units by tracking the trajectory of incoming rounds. Australian Defence

Glossary, accessed on 04 December 2021, available at: <http://adg.dpe.protected.mil.au/>

⁵⁴ ‘Weapon Locating Radar,’ *Defence Research and Development Organisation*, accessed on 13 January 2021, available at: [Weapon Locating Radar \(WLR\) | Defence Research and Development Organisation - DRDO, Ministry of Defence, Government of India](https://www.drdod.gov.in/DRDO/Ministry_of_Defence_Government_of_India/Defence_Research_and_Development_Organisation-DRDO)

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⁵⁶ ‘M142 HIMARS,’ accessed on 12 November 2021, available at: <https://images02.military.com/sites/default/files/media/equipment/weapons/m142-himars/2014/02/m142-himars-008.jpg>

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⁵⁸ ‘9A52-4 Tornado Multiple Rocket Launch System,’ *Military Today*, accessed on 17 Nov 21, available at: [9A52-4 Tornado - Wikipedia](https://www.militarytoday.com/9a52-4_tornado).

⁵⁹ SMERCH: The 9K58 SMERCH 300mm Multiple Launch Rocket System (8x8 wheeled truck chassis), was designed by Russia and entered service in 1988. The SMERCH fires 300mm 9M55k rocket that has a range from 20 – 70km. ‘Smerch 9K58 MLRS Multiple Rocket System,’ *Army Technology*, 03 May 2000, accessed on 10 February 2022, available at: <https://www.army-technology.com/projects/smerch/>

⁶⁰ ‘9A52-4 Tornado Multiple Rocket Launch System,’ accessed on 17 June 22, available at: [https://upload.wikimedia.org/wikipedia/commons/4/45/Combat_vehicle_9A52-4_Smerch_MLRS_\(3\).jpg](https://upload.wikimedia.org/wikipedia/commons/4/45/Combat_vehicle_9A52-4_Smerch_MLRS_(3).jpg).

⁶¹ ‘9A52-4 Tornado Multiple Rocket Launch System,’ *Military Today*, accessed on 17 Nov 21, available at: [9A52-4 Tornado Multiple Launch Rocket System | Military-Today.com](https://www.militarytoday.com/9a52-4_tornado_multiple_launch_rocket_system).

⁶² ‘MARS II/MLRS-E – Medium Artillery Rocket System,’ accessed on 17 November 2021, available at: https://www.kmweg.com/fileadmin/user_upload/fce/gallery/Mars-KMW-004.jpg

⁶³ ‘MARS II/MLRS-E – Medium Artillery Rocket System,’ *KMW Website*, accessed on 17 November 2021, available at: [MARS II / MLRS-E - KMW \(kmweg.com\)](https://www.kmweg.com/marsii)

⁶⁴ KMW MARS II’, accessed on 17 November 2021, available at: <https://i0.wp.com/militaryleak.com/wp-content/uploads/2020/07/MARS-II.jpg?w=1000&ssl=1>

⁶⁵ Previously released open source artefacts provided by Joint Fires – Army, Combat Support Program, July 2021

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⁶⁸ DM-52-2l gun fires 155mm VLAP, 27 November 2019, available at: https://defense-update.com/wp-content/uploads/2019/11/Rheinmetall-RDM_1021-696x444.jpg

⁶⁹ Rheinmetall is a German company founded in 1889. In February 2021 its South African subsidiary, Rheinmetall Denel Munition, signed a ten-year strategic partnership with Northrop Grumman for precision-guided enhanced range artillery ammunition.

⁷⁰ Hoffman, O. ‘Rheinmetall and Northrop Grumman agree to strategic partnership for precision-guided enhanced range artillery ammunition,’ *Rheinmetall Company Website*, 19 April 2021, available at: [Rheinmetall Defence - Latest news Rheinmetall and Northrop Grumman agree to strategic partnership for precision-guided enhanced range artillery ammunition \(rheinmetall-defence.com\)](https://rheinmetall-defence.com/Rheinmetall-Defence-Latest-news-Rheinmetall-and-Northrop-Grumman-agree-to-strategic-partnership-for-precision-guided-enhanced-range-artillery-ammunition-(rheinmetall-defence.com))

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https://www.yugoimport.com/sites/default/files/2_12.jpg

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¹¹⁵ Preparedness System: Preparedness is conceptually broken down into components of ‘readiness’ and sustainability’. Australian Defence Glossary, accessed on 04 December 2021, available at: <http://adg.dpe.protected.mil.au/>

¹¹⁶ Multiple Spectra: Many different levels of electromagnetic wavelengths. Australian Defence Glossary, accessed on 04 December 2021, available at: <http://adg.dpe.protected.mil.au/>

¹¹⁷ Capability Assurance: The assurance that the platform will continue to have the power to achieve a desired operational effect in a nominated environment within a specified time, and to sustain that effect for a designated period. Australian Defence Glossary, accessed on 04 December 2021, available at: <http://adg.dpe.protected.mil.au/>

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The Australian LAND FORCES 2022 HIMARS – THE NEW ‘GOD OF WAR’

US MARINE CORPS, PART OF THE ROTATIONAL FORCE, FIRES A GUIDED ROCKET (HIMARS) DURING EXERCISES ON BRADSHAW FIELD TRAINING AREA IN THE NORTHERN TERRITORY IN 2020. PICTURE: DEPARTMENT OF DEFENCE

US MARINE CORPS, PART OF THE ROTATIONAL FORCE, FIRES A GUIDED ROCKET (HIMARS) DURING EXERCISES ON BRADSHAW FIELD TRAINING AREA IN THE NORTHERN TERRITORY IN 2020.



US Marine Corps, part of the rotational force, fires a guided rocket (HIMARS) during exercises on Bradshaw Field Training Area in the Northern Territory in 2020. Picture: Department of Defence

By MALCOLM DAVIS, October 4, 2022

In 1944 Stalin referred to artillery as “the God of War” given its great range, and its massed effect to generate destruction and shock, particularly on exposed forces.

In 2022 HIMARS – the M142 High Mobility Artillery Rocket System – eclipses traditional towed or even self-propelled artillery in terms of precision and range, particularly if combined with the very long-range Army Tactical Missile System (ATACMs).

Australia is set to acquire up to 20 M142 HIMARS launchers, along with 30 M30A2 Guided Multiple Launch Rocket Systems (GLMRS) and a range of conventional explosive warheads, plus 10 ATACMs. In addition, HIMARS can launch the Precision Strike Missile (PrSM). These acquisitions are occurring under LAND 8113 Phase 1 to acquire new long-range rocket artillery, extending the reach of army firepower to support ground forces well beyond that offered by traditional tube artillery.

The range of these new systems are what makes them so capable. The M30A2 GLMRS will have a 150km range, while ATACMS will have a range up to 300km. Used with PrSM, the range increases to 500km.

Given the rapid mobility of the HIMARS vehicle to “shoot and scoot”, and the flexibility to load and unload different pods of rockets for different missions, HIMARS will dramatically increase the army’s battlefield fire support capability.

The HIMARS system is air deployable via C-130J and the C-17, giving army long-range organic fire support for expeditionary operations as well.

If combined with effective battlefield ISR platforms such as the soon to be acquired Boeing AH-64E Apache

Guardian, and uncrewed autonomous vehicles (UAVs), HIMARS can be a devastating system to strike at a detected enemy force or hit fixed targets with stunning accuracy at short notice, before quickly relocating to a new location.

The proof is in their recent operational employment by Ukrainian forces which have been supplied with HIMARS and the M30A2 GLMRS weapons, though not yet ATACMs. The Ukrainian Army have used HIMARS to devastate Russian forces in a manner that has enabled swift offensives by Ukrainian armoured and infantry to retake lost territory.

In particular, the combination of forward deployed Ukrainian infantry and special forces,

equipped with low-cost drones to detect and identify Russian forces and then relay information directly to HIMARS operating in the rear has proved a deadly combination, particularly against poorly prepared and defended Russian units. The combination of low-cost drones and HIMARS has extended the lethal reach of Ukraine's forces, well beyond the constraints imposed early in the war when their primary weapon was short-range man portable anti-tank guided weapons such as the Javelin.

For Australia's army, HIMARS will take indirect fire support to whole new levels of sophistication, particularly if combined with longer range ATACMs and eventually PrSM missiles. The latter is well within the range of a short-range ballistic missile which is a type of capability Australia has never operated before.

The application of rapid long-range precision strike against land targets could eventually be matched by developing a maritime-strike variant of PrSM to enable the army to directly contribute to an Australian anti-access and area denial (A2AD) capability as part of an expeditionary operations concept that would see army able to contribute to traditional sea denial missions normally undertaken by the navy.

It's important to ask "why just 20 HIMARS?" when the capability is clearly so useful, and the strategic environment is so challenging.

With the Defence Strategic Review underway, there's a good case for army to make for additional HIMARS and greater numbers of ATACMs and GLMRS weapons than the very small numbers to be acquired under LAND 8113 Phase 1.

The war in Ukraine has demonstrated the reality that munitions are consumed at a fearsome rate, and small piecemeal acquisitions of high-end capability are no longer the best approach to equipping for future high intensity warfare.

So, two suggestions to build on the clear case for additional HIMARS follow. Firstly, prioritise local production of ATACMs and GLMRS under the Guided Weapons and Explosive Ordnance (GWEO) enterprise. Secondly, look at innovative ways that HIMARS can deliver low-cost loitering munitions over a target.

MALCOLM DAVIS IS A SENIOR ANALYST IN DEFENCE STRATEGY AND CAPABILITY AT ASPI.

AUSTRALIA TO BUY LONG-RANGE HIMARS MISSILE SYSTEM FROM UNITED STATES

*ABC News Defence Correspondent
Andrew Greene Posted Thursday 5 January 2023*

Australia's Army will have an unprecedented long-range strike capability with the purchase of the US-made High Mobility Artillery Rocket (HIMARS) system, which Ukraine has praised for its devastating effectiveness against invading Russian forces. The Albanese government has finalised a deal to buy 20 of the truck-mounted rocket launchers by 2026, while signing another deal to acquire the Norwegian-made Naval Strike Missiles (NSM) for Australian warships next year. Kept secret for security reasons, but the government has confirmed to the ABC the overall figure is "between one and two billion dollars".

Defence Industry Minister Pat Conroy said during an October visit to the United States he held "productive discussions" with the Army and Lockheed Martin on how Australia could start producing the rockets used in HIMARS.

Mr Conroy said the deadly precision of HIMARS in Ukraine has confirmed why Australia should acquire the technology.

"We'll have an Army ground launched missile that can reach targets up to 300 kilometres away and we're part of developmental program in the United States called the precision strike missile that'll allow Army to hit targets in excess of 499 kilometres".

"This will give the Australian army a strike capability they've never had before," Mr Conroy told the ABC.

Congress was first notified of a possible sale of the Lockheed Martin-produced HIMARS to Australia seven months ago, while the NSM purchase was flagged by the Morrison government in April last year. "The Naval Strike Missile is a major step up in capability for our Navy's warships, while HIMARS launchers have been successfully deployed by the Ukrainian military over recent months and are a substantial new capability for the Army," Mr Conroy said.

Labor says the HIMARS and NSM purchases will together cost over \$1 billion, but Mr Conroy says precise details are being kept deliberately hidden.

"We won't be disclosing the total cost of the two announcements," he told the ABC.

"The two combined costs is between one and two billion dollars, the reason that we're not disclosing the specific amount is that gives information to potential adversaries which isn't useful beaming out there."

In its notice to Congress in May, the US Defence Security Cooperation Agency estimated the cost of 20 HIMARS and associated munitions and equipment at US\$385 million (\$561 million).

The Regimental Command Post: Exploiting Agility

“There are two options: adapt or die” – Andy Grove

*Captain Alexander Hawkins & Major Cooper Dale
Operations Support Battery, 16th Regiment RAA*

When looking to the future of Australia's Integrated Air and Missile Defence (IAMD) we see a flurry of projects delivering impressive capabilities across all battlespace domains. There is however a moment to remember that ‘the whole is greater than the sum of its parts’; in that these capabilities are best empowered when working on a shared understanding to achieve a common objective. 16 Regiment is soon to acquire the National Advanced Surface to Air Missile System (NASAMS) which will thrust the Regiment a leap forward in capability and lethality. As we do this though, we need to consider the best way to integrate this into the air defence system and to enable it to provide the best ‘bang for buck’ to the deployed Joint Force – we can begin to do this through the raising of an agile Regimental Command Post (RCP).

The Regiment is likely to find its future operations within one of the following constructs, supporting a Combined Joint Force Integrated Air Defence System (IADS); defence of a deployed JTF (in either specific force protection support in low-intensity operations or mobile defence of a force in conflict); or, supporting an anti-access/area denial (A2AD) task. These air and missile defence operations are complex and require a command element that can understand the threat systems, be able to design and integrate air defences, develop and empower good soldiering’s ‘teaming behaviours’ and can employ forces to maximise weapon capabilities. Limited air defence resources within an area of operations (AO), failed engagements, and the risk of fratricide mean that effective control is extremely important.

As the new Regimental Operations Officer and Adjutant for 2022, we have been tasked to re-

establish the 16 Regiment RCP in preparation for NASAMS. This task is not as simple as adopting a hierachal structure commonly seen in typical military units, but rather involves a paradigm shift from a top down C4 structure that sees the organisation as a machine, to a more agile organisation that can evolve to a rapidly changing environment, adapt to and readily adopt disruptive technology, and manage the ‘democratisation’ of data available to all command nodes. This short article will demonstrate how we are approaching this task with a maturation date of September 2022.

What is the RCP?

The RCP is the location from which all assigned ground based air defence units commanded, led and managed on operations. The RCP is a central point through which the Commanding Officer and staff can incorporate NASAMS Short Range Ground Based Air Defence (SRGBAD) into an IAMD system, built across the Coalition and Joint force in an AO. IAMD has recently become an Australian Government Sovereign Industrial Capability Priority; the development of an RCP for SRGBAD C4I, with engagement by and procurement from Australian manufacturers, will help to establish this priority.

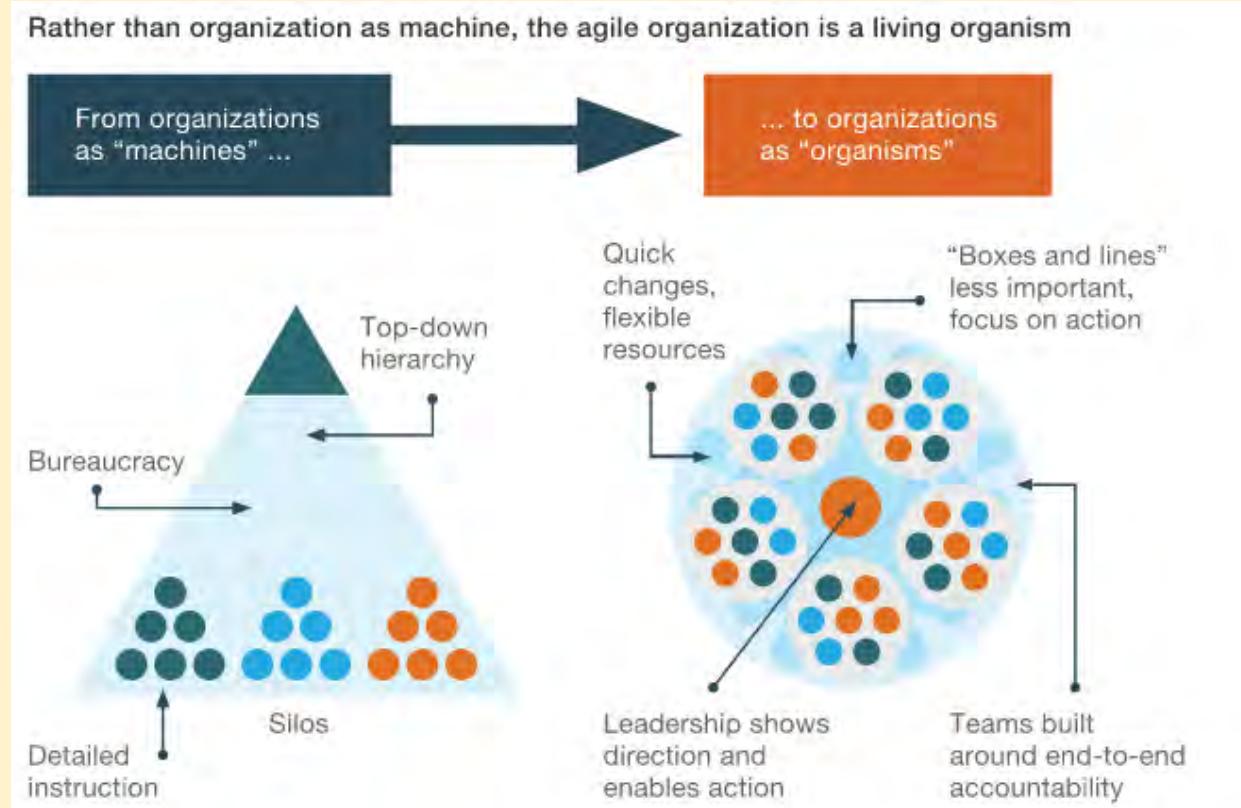
This Command Post can provide can provide C4I across a broad and varied range of tasks depending on the operation type, this includes correlation of a high quality local air picture and control its dissemination into a recognised air picture, as well as provide ground based air defence command and control for all Battery's or Troop's in the AO. The RCP can also contribute to JTF/JOC planning for air defences and support airspace management functions in maintenance of the tactical air command and control element.

Why does the RCP need to be agile?

The new digital communications and enhanced radar suite that 16 Regiment will receive sees that all command posts from RCP through to the Troop Fire Distribution Centre (FDC) will simultaneously be acting on the same mission system computing data and in receipt of common operating and air pictures. This *democratisation* of data creates a C4 problem that can only be solved by the RCP being *agile* in nature. The Army can be a very mechanical organisation, with silos of information and tasks that lead to a stovepipe of control, hierarchically, from top to bottom. The figure below highlights how 16 Regiment's RCP will demonstrate organism-type behaviours to conduct operations from 2022, compared to the current paradigm of mechanical organisations.

commanders intent to flow through to detachment level commanders, enabling control whilst simultaneous providing enough real time information for them to act with initiative if required.

The RCP will need to be agile in arrangement to suit the tasks and organisation of the JTF. Firstly, the Regiments missile, radar, EO/IR and CP/FDC are deployed dispersed, with a small ground footprint, often contributing to operational or strategic effects and are hence the target of adversary operational effectors. These detachments will need to be empowered to conduct their duties independently and to be able to make system or deployment changes in a potentially communications degraded environment. Secondly, the Regiment will often need to reach back to JOC, up to the JTF HQ, across to a CRC and out to other deployed air



In the figure above, we are attempting our own version of the *Machine to Organism* concept (Aghina et al, 2018), which will enable our future networked and empowered Regiment execute its duties in action. The agile arrangement, as seen on the right, places the RCP in the middle of the organisation whilst simultaneously allowing

defence assets at sea, on land, in the air or through space. Being flexible and agile here will enable the Regiment to leverage all these connections for C4ISR and be depended on to accurately apply responsive effects.

What does the RCP enable?

Upon standing up a RCP within 16 Regiment, it will be able to move some functions conducted elsewhere into one central point. The RCP will be able to conduct some of the functions previously held at the Divisional Air Land Integration Cell, including airspace situational awareness, air raid warning and, predominately SRGBAD planning. The RCP would be well placed to represent SRGBAD at JOC or JTF through a Joint Theatre Air and Missile Defence (JTAMD) working group, to develop air defence courses of action for future operations. It will also be able to execute functions like those conducted by our U.S. counterparts, such as the U.S. Army Air and Missile Defence Planning and Control System (AMDPCS). The AMDPCS exercises C4 functionality and engagement operations for an ADA Brigade, through the integration of Link 16, Air and Missile Defence Workstation, Forward Area Air Defence C2 system and voice communication nets.

The RCP will enable multiple Troop or Battery deployments within an AO, manage allocation of defenced assets or forces, maintain electromagnetic spectrum control, give hostile track allocation to fire units and produce all reporting requirements. The RCP will be able to pick up the staff functions for the deployed Battery or Troop to enable it to focus on air defence operations. It can do this by housing several functions: an S1 to manage personnel and administrative support; an S2 cell to process battlefield information, coordinate intelligence requirements and interpret threat activity to inform Regiment tactics; an S3 cell to be a focus point for task organisation, planning, future operations, and training; and an S4 cell to coordinate logistics support for resupply, maintenance and movements.

What will the RCP capability bring to 16 Regiment RAA?

Historically, 16 Regiment did not have a requirement for an RCP with RBS-70, this is due to the relative ease of which C4 is exercised for a Very Short Range Air Defence System

(VSHORAD). Under current Australian doctrine, a VSHORAD capability only needs to establish a recognised Missile Engagement Zone (MEZ) and then in accordance with an established Area Air Defence Plan it may have self-authority to conduct engagement within that MEZ. As the Regiment adopts NASAMS, there will be an increased C4 burden in the planning for operations and engagement control, especially as the ADF looks to develop Joint Integrated Fire Control – hence our pursuit of an agile organisation as opposed to a typical hierachal pursuit.

SRGBAD engagements will require control through a RAAF or coalition Control and Reporting Centre (CRC). The use of a CRC (such as 3CRU, 114MCRU or an AEW&C) enables the safe engagement of threats beyond line of sight. Through a CRC, an Air Battle Manager can detect a track, identify its nature, de-conflict friendly aircraft and then authorise engagement. Thereby ensuring safe engagement practices beyond the ability to visually discern a hostile target. To enable this, there will be a need for centralised planning of all air defence, Defensive Counter-Air and ship based air defences. This additional burden for planning is supported by the RCP, which leaves the Battery or Troop CP free to conduct tactical employment of the system. Beyond visual range engagements for SRGBAD will be reliant on excellent planning and coordination, just as indirect fires rely on the same through forward observers and JFECCs.

What could the RCP physically look like?

The RCP needs to be a place where information can be gathered, interpreted, and disseminated, however, it also needs to flexible in its construct to best enable its use across a variety of differing tasks and situations. It may be deployed standalone, beside a Mobile CRC or integrated into a JTF HQ. The Land 19 Ph.7b project will be providing an FDC from which the control link for all C4 of the deployed elements can be established, however it does little to focus on the command link to a higher HQ and support the

conduct of managing the Regiment. We are investigating the use of deployable shelters, as this provides the best solution for housing the communications and computing suites, work space, climate control and bearers which will provide the infrastructure to help us achieve our *agile* organisational structure goals.

Recent times have seen the Army take heed of advancements in CP technology, such as deployable expandable networked shipping containers, a roll-on, roll-off capability suitable for the HX77. Candidates for a CP shelter ought to be built on a standard flat rack container so that they may be transported easily by road, rail or sea. They should contain work stations with access to secret and protected networks, and the battle management system to enable operations staff to conduct planning and control. The CP should also contain a video conferencing facility, HF/UHF/Satellite voice and data communications suite, and of course, be air conditioned for electronics and personnel comfort. Lastly, the CP would be most versatile if it could be used as a sensitive compartmented information facility – to support the information security requirements associated with integrated air defence. Examples of such CP shelter are seen below.



Daronmont Operations Cabin

ECLIPS Flatrack Command Post



Conclusion

The raising of an RCP enables 16 Regiment to integrate into the Joint Force and conduct operations like never before. Air defenders will be able to quickly and accurately react to the method, tempo and volume of air attacks, and through effective AMD fires, render threat air attacks and surveillance ineffective. The realities of enemy air defence systems and aircraft mass, mean that friendly air assets may not be available in the opening hours or days of a near peer fight to provide close air support, air interdiction, and supply in support of the deployed JTF. However, an agile IAMD system will go a long way to building persistent air superiority or supremacy in the JFAO to enable these friendly air assets.

An agile C4 structure that fully employs an over the horizon air defence system, such as NASAMS, will ensure that deployed forces are adequately defended by a network agile team, rather than an information paralysed, mechanical C4 node. Our 2022 plan incorporates a scalable, modular and reconfigurable solution that supports AMD actions across the spectrum of operations.

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VSHORAD in Ukraine: What the Conflict can teach the Australian Army

Lieutenant Lucas Thorpe, 110th Battery, 16th Regiment, RAA

Introduction

For the first time in over 70 years, Divisions of troops are marching through Europe as Ukraine continues its resistance against Russia. The conflict in Ukraine has come to dominate the popular conscious, however for military professionals it has also become an important case study into the future of warfare and provides an insight into what the next major conflict will look like as modern technologies, techniques and procedures experience major, peer-to-peer conflict for the first time. For practitioners of air defence especially, the fighting in Ukraine has been immensely valuable, with new air defence systems and concepts being challenged by the full spectrum of threats that occupy the modern battlespace. As the Australian Army begins to introduce its new NASAMS air defence capability, the case study of Ukraine should be used to help frame Army's thinking about its role in air defence into the future. This article will review the experience of air defence in Ukraine's war with Russia and discuss the role of the Very Short Range Air Defence (VSHORAD) capability within the Australian Army's future force construct.

IAMD and the role of VSHORAD

For this article it is first important to briefly define VSHORAD, highlight its role within a layered air defence structure, and examine its unique operational benefits. VSHORAD is the family of weapon systems developed to engage low altitude threats at ranges within line of sight of the weapon. This includes gun systems, man-portable air defence (MANPAD) weapons like stinger, as well as the Australian Army's current air defence capability; the RBS-70. VSHORAD plays an important role within modern air defence thinking, as one of its key concepts is layered air defence; an integrated 'system of systems' that is

capable of meeting and defeating any air threat that enters the defended zone. The foundational concept underpinning this is the coordination of various weapon systems into one functioning whole, with each system capable of meeting particular threats to create a stronger and more robust defence. Within this construct, VSHORAD acts as the last line of defence, and is particularly suited to this function due to the unique characteristics of these systems. These weapons are highly flexible, and able to work in environments where larger air defence systems would struggle, such as urban areas or thick vegetation. Similarly, these systems are highly mobile; man-portable VSHORAD such as stinger or RBS-70 can be moved in any transport capable vehicle and can therefore provide air defence with commensurate mobility to a supported asset, or even transported dismounted when required. With their small ground presence, VSHORAD systems are better able to conceal themselves from enemy ISR and targeting. This in turn forces enemy aircraft to change their operations to protect themselves against the possible VSHORAD presence. VSHORAD's flexibility, mobility and ability to remain concealed have all played a large role in the success of air defence in the ongoing conflict in Ukraine, an analysis of which can provide important lessons for Army's thinking about the role of VSHORAD systems into the future. Finally, because of the shorter ranges and system size, VSHORAD systems are generally cheap, making them cost-effective against low-cost threats.

VSHORAD, Ukraine and the Future of Army Air Defence

Like many aspects of the war in Ukraine, an analysis of the conflict can teach valuable lessons about modern warfare, and air defence is no exception. A study of VSHORAD in Ukraine

illustrates that not only are the strengths of these systems still relevant on the battlefield, but the changing nature of air threats has amplified the need for VSHORAD capabilities in a modern military force. This is best argued through an analysis of VSHORAD's effect on three of the major air threats being faced in Ukraine: the use of drones, fast air operations, and the effect of missiles and precision guided munitions.

Possibly the most important observation to come from the air war in Ukraine is the prevalence and importance of drones within modern conflict. In Ukraine, drones have been used for everything from strikes at high value targets to reconnaissance and artillery spotting. It is this final point, the use of drones in artillery spotting that is most interesting for the discussion on VSHORAD. Russia's use of drones to locate and direct fires onto Ukrainian artillery formations has drastically shortened the time taken to achieve accurate fire on a position. According to one RUSI report, Russian formations usually take 30 minutes to call down accurate artillery fire without a drone, however this time delay drops to three to five minutes when a drone is able to support the fire mission.¹ With such a large increase in efficiency it is no surprise that drones have become one of the major airborne threats of the conflict. However, due to the small size of most drones, the increased risk of larger threats that can only be engaged by high-tier air defence systems, and the relative cost of a drone compared to most air defence ordinance, they are unlikely to be targeted by the larger systems in a layered air defence construct. This is a zone in which VSHORAD capabilities excel. Their mobility and flexibility ensure that they can support high value assets and be in the right location to engage drones, as well as being cheap and numerous enough to spend their ordinance targeting these threats. VSHORAD gives ground assets a measure of protection from air threats like drones; low cost, highly effective systems that are deemed unsuitable for engagement by higher-tier air defence weapons. Ukraine's experience has proven that land forces threatened persistently by UAVs suffer morale problems.

Where they have VSHORAD defences, regardless of effectiveness morale is maintained throughout high intensity conflict. As the Australian Army moves away from VSHORAD and acquires the NASAMS capability, the drone threat is a pertinent problem that needs to be properly analysed. Is the Army ready to use high end air defence capabilities to target drones? If not, what will step into this capability gap? Regardless of the answer to these questions, the observations on drones in Ukraine should act as the starting point for discussions and prompt a re-evaluation of the replacement of Australia's VSHORAD capability.

Moving from one of the newest threats to one of the oldest, VSHORAD in Ukraine has had a significant effect on the operations of fast air threats. Here it is valuable to pause and briefly investigate fast air operations, and in particular their method of conducting missions like close air support (CAS) and suppression or destruction of enemy air defence (SEAD/DEAD). In these missions, where the aircraft is directly striking a precise target on the ground, the aircraft aim to be as low as possible. This is done for several reasons: not only is the targeting for strikes easier at lower altitudes, but the lower aircraft fly the better they can protect themselves against targeting from high-tier air defence systems. However, this method of operation presents opportunities for VSHORAD, as these aircraft become more vulnerable to lower-tier capabilities. This concept has been used to great effect by Ukrainian air defence over the course of the current conflict, where Ukrainian VSHORAD, and especially MANPAD systems, have been responsible for a 'majority of the 19 confirmed Russian fast jet losses'². The density of the Ukrainian VSHORAD presence has forced the Russian air force to alter their traditional method of operations; they have been forced to fly at sunrise or sunset, and at higher altitudes.³ This has not only made Russian aircraft more vulnerable to higher-tier air defence, but has affected their accuracy with munitions and limited their ability to support ground forces.⁴ The deterrence and shaping effects that

VSHORAD can exert over low altitude airspace is one of its most important contributions to a layered air defence structure, and these systems are uniquely suited to provide it. When NASAMS replace the Australian Army's current VSHORAD system, an important capability gap will exist that could potentially be exploited by an adversary to enable their freedom of operations in airspace with no effective air defence coverage. Although the extent of this gap remains to be seen, to not have an integrated VSHORAD capability within the Army's future force structure is a vulnerability that should be discussed.

Finally, the use of missiles in the current war in Ukraine illustrates a different strength of VHSORAD systems in modern operations. Unlike the two air threats analysed above, VSHORAD systems are simply unable to engage the vast majority of missiles, whether they be cruise, ballistic or hypersonic, and the defence of these must be left to higher-tier air defence such as Patriot or THAAD. However this does not mean that VSHORAD has no part to play in this space, and here it is valuable to turn once again to the layered air defence concept. Along with the other strengths illustrated in this article, integrated air defence also enables a degree of burden sharing across its components. This means that in a layered structure, VSHORAD systems engage threats such as helicopters, low flying aircraft and drones, which enables higher-tier systems to deal with the more complex threats such as missiles. In Ukraine, this ability to spread the responsibility for defence across different systems has proven to be effective; VSHORAD systems have concentrated on engaging threats like helicopters and drones, which has allowed other, larger systems to engage incoming missiles successfully.⁵ As the Australian Army moves to a system with increased coverage of a broad range of threats, important challenges arise around the possibility of these systems becoming overwhelmed. Without VSHORAD systems to engage the slower targets, there exists the potential for NASAMS to become unable to engage every threat, with friendly losses as the

result. Additionally, the lack of a wide spread of systems raises questions about how air threats will be prioritised and engaged with the limited resources at the Army's disposal, tensions which could be mitigated through the maintenance of an Army VSHORAD capability.

Conclusion: The Future of Army Air Defence

As the war in Ukraine continues to rage, military professionals and analysts alike are looking into the conflict in an attempt to draw out its pertinent lessons. Of these lessons, those concerning air defence are some of the most important, and as the Australian Army continues the reinvigoration of its air defence capability it is vital that a deep and frank analysis of the Ukraine experience is conducted. This article is an attempt to add to that discussion, and use the combat in Ukraine to illustrate the enduring need for a VSHORAD capability within the Australian Army. The war in Ukraine has shown that VSHORAD systems remain capable in the modern operating environment; they provide a cheap and versatile capability to defend against low-cost, high-effect systems such as drones, they are able to shape enemy air operations to make them both less effective and more vulnerable, and they are able to share the burden of air defence and enable higher tier systems to focus on complex threats such as missiles. So, where does this leave the future of Australian air defence? While it is true that Australia's new NASAMS are an enormous leap in capability in terms of effectiveness, losing our current VSHORAD capability has the potential to create friction points that limit the employment of the new system, and require much discussion and experimentation to solve. If the Army really wants to expand its current air defence capabilities, then it should take the lessons from Ukraine, and retain its VSHORAD.

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³ Watling and Reynolds, *Ukraine at War*, 18-19.

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Watling, Jack and Nick Reynolds, 4 July 2022, *Ukraine at War: Paving the Road from Survival to Victory*, Royal United Services Institute for Defence and Security Studies.

a few of the dozens of targets that the Ukrainian army had been pulverizing for weeks with Western-supplied weapons ahead of its bid to liberate territory in southern and eastern Ukraine.

In May and June, Ukraine's future on the battlefield seemed bleak. "Western-supplied weapons are a real game changer, they are allowing us to get back in the fight," one senior Ukrainian defence official told Popular Mechanics at the time. They admitted that without these weapons, the Ukrainian army had little chance of seizing back its lands.

Now, the Ukrainians have taken back territory at an unprecedented rate. In the east, they have liberated the key cities of Izyum, Kupyansk, and Lyman, taking back more territory in a matter of weeks than the Russians had captured since their retreat from Kyiv in March. Just last week, Ukraine achieved its biggest accomplishment yet—the liberation of all of southern Ukraine west of the Dnipro River.

Just months ago, a Ukrainian operation like this would have been unthinkable. When I visited the frontlines in Donbas in late May, the Ukrainian army was suffering its worst casualties of the war as Russia made steady territorial gains. At a barracks on the frontline trenches in Izyum, northern Ukraine, we watched a seemingly endless stream of shells and explosions smash into the fields around us.

The soldiers told me they lacked armoured vehicles, ammunition, and the heavy artillery needed to beat the Russians back—the mood was glum, and defeat seemed inevitable. The Russians' advantage in artillery was simply too much for Ukrainian troops to bear. At the climax of the battle for the Luhansk region, Russia was using up to 20,000 shells per day, and killing up to 100 Ukrainian troops per day. When the battle for Severodonetsk, the region's biggest Ukrainian-held city, was raging, Ukraine effectively ran out of its old Soviet stockpiles of ammunition, which was a major factor in its decision to withdraw from the region.

Since then, an unprecedented supply of weapons from the United States and other NATO countries has poured over the borders into Ukraine. The French and Germans have sent mobile Caesar and PZH2000 Howitzers, and the British have provided Starstreak anti-missile launchers.

Because the Ukrainian military was mainly trained on Soviet-era systems, former Warsaw Pact countries such as Poland and Slovakia have transferred much of their stock of T72 tanks to Ukraine, and are producing the antiquated 152-millimeter artillery ammunition that Ukraine's old guns rely on.

HOW HIMARS ROCKET LAUNCHERS HELPED UKRAINE 'GET BACK IN THE FIGHT' AGAINST RUSSIA

POPULAR MECHANICS by Thomas Mutch
Published November 23, 2022

KHERSON CITY, UKRAINE—It seemed like every inch of the town square was draped in blue and yellow flags. An old woman wept as she spoke to a family member on the phone for the first time in weeks. A group of young people sang the Ukrainian national anthem at the top of their lungs on a raised plinth. To cap it all off, the man of the moment, President Volodymyr Zelensky, confidently strode through the middle of the city, which about six weeks ago, Russia had presumed to annex. He made a point to thank the United States for its delivery of HIMARS, which he said made a "huge difference" in the Ukrainian Army's efforts to liberate its territory, while speaking at a recent press conference attended by Popular Mechanics.

Before the recent counter offensives in Kharkiv and Kherson began, night-time explosions could be heard anywhere in Russian-occupied Ukraine. Ammunition depots, command posts, bridges, and railways are just

AIR DEFENCE IN THE FALKLANDS WAR

*Captain Nicholas Harrison
Operations Support Battery, 16th Regiment RAA*

"Stick it up your Junta", The Sun, 20 April 1982

The Falklands war was fought between United Kingdom and Argentina over the sovereignty of the Falkland Islands and offer contemporary examples of multi-domain operations and Anti-Access/Area-Denial (A2/AD) warfare. Despite being fought 40 years ago, the lessons learned are applicable to the Australian Defence Force and specifically Army's air defence specialists as they prepare to operate in a contested, multi-domain environment. This paper will explore the Falklands war from an air defence perspective drawing on official after-action reviews and personal accounts. First, the paper will discuss the prelude to operations and how both the United Kingdom and Argentina force projected capability for offensive action. Secondly, the paper will explore the air defence design for multi-domain operations, and how topography influenced the commander's decision-making processes. Thirdly, the paper will debate the lodgement at San Carlos and the subsequent ground clearance focusing on the employment of air defence. The paper will then conclude by analysing the lessons learned from the campaign as told by the Ground Based Air Defence (GBAD) commanders, extending those lessons through to the modern Australian Army with the intent to promote discussion on the complexity of conducting A2/AD¹ tasks as part of a multi-domain operation.

Prelude to Operations

The Falkland Islands archipelago is located in the South Atlantic Ocean, approximately 500km off the coast of Argentina and 12,000km from England. Due to windswept Antarctic conditions, the archipelago consists of rugged mountain ranges, peat covered valleys, relatively sheltered harbours, with little to no vegetation. On 2nd April 1982, Argentine forces led by LTGEN

Leopoldo Galtieri, launched the invasion of the Falklands with the purpose of reclaiming sovereignty in a hope to reunite Argentina behind the government in patriotic fervour. In response to Argentine aggression, the United Kingdom Prime Minister, Margaret Thatcher, declared a war zone of 200 miles around the Falklands. The United Kingdom Government quickly assembled a Naval Task Force built around two aircraft carriers, HMS *Hermes* and *Invincible*, an air component consisting of carrier based BAE Sea Harrier aircraft, and a reinforced 3rd Commando Brigade, supported by very short range air defence systems (VSHORAD) from the Royal Artillery². The British operation was given the code name Operation Corporate.

The United Kingdom intent was to commit the Naval Task Force as soon as possible, as the transit time was approximately 30 days. Naval ships were re-purposed and civilian ships were requisitioned to support operations. Ships were loaded with supplies so fast that in some cases no inventories were taken, and tactical loading sequence was not followed in order to prevent delays. This decision was made with the intent to cross-load into combat load configuration enroute at Ascension Island; however, it was later discovered that there were no deep water docks at Ascension Islands to facilitate this occurring. The first elements of the Naval Task Force sailed for the Falklands on the 5th April 1982, three days after the Argentine invasion.

The Argentine invasion quickly occupied the townships of Stanley and Goose Green giving them harbours and airfields critical to the defence of the Falklands. In response the United Kingdom launched extremely long range strikes conducted by the Royal Air Force³, surprising the Argentinians, demonstrating United Kingdom resolve and capability, while also rendering the

Falkland Islands airfields unusable and pushing the majority of Argentine Air Force (FAA) back to mainland Argentina. The distance of force projection shaped operations, where logistics critical for United Kingdom land operations would have to stay afloat until an amphibious lodgement had occurred. In the prelude to the amphibious landings, the Royal Navy fleet was concerned about the significant air and missile threat posed from the FAA and their Exocet missile capability⁴. As a result, Port San Carlos was chosen as the beach head for amphibious operations and the initial lodgement of ground forces due to the protection it afforded the Royal Navy.

Air Defence Design

The Exocet missile threat forced the Royal Navy aircraft carriers to remain further from the Falklands coast, with the Harriers providing defensive counter air (DCA) operations through combat air patrols (CAP). Initially, the air component did not have a clear mission statement, and the unspecified and unclear mission made it difficult to measure success. With the lack of a clear mission and limited time on station of the Harrier, their employment was centred on detecting, intercepting, and destroying aircraft prior to commencing their attack missions. The FAA, as a result of operating from Argentina had a drastically reduced time on station, and therefore rather than challenging for air superiority, focussed on countering amphibious landings. The FAA had developed tactics to counter the Naval Task Force. FAA pilots had been practising air strikes against their own ships, which included destroyers of the same class as the Royal Navy. This meant that FAA pilots knew the radar horizon, detection distances, and reaction times of the ships radar. FAA pilots also employed a technique known as 'pecking the lobes', where FAA pilots would use the aircraft radar warning receiver to probe the side lobes of the ships radar, meaning aircraft could avoid detection for longer by avoiding the main lobe of the emitting radar. This posed significant challenges to Naval Task Force, where the air defence design in support of the

amphibious landings had to be robust enough to counter the FAA threat.

The air defence design for the amphibious lodgement consisted of a joint force, organised into three tiers; outer, middle and inner tier, each designed to support each other through cueing. The outer tier consisted of Harrier CAP, cued by naval horizon radar, supplemented by observation posts near the coast of Argentina. The middle tier was a layered naval surface based defence, consisting medium and short range missiles, naval anti-aircraft guns supplemented by ship borne Blowpipe systems. The inner tier consisted of GBAD provided by Rapier and Blowpipe surface to air missile system, supplemented by All Arms Air Defence (AAAD) in the form of general purpose machine guns and tracer rounds. The air defence design relied on organic radar and passage of information via voice, as there was no airborne early warning systems in theatre.

Lodgement

The amphibious lodgement at San Carlos occurred from 21 to 25 May. The intent was to establish a secure beachhead through firstly deploying ground manoeuvre forces to secure the area, followed by deploying ground based air defences ashore. The restrictive nature of the San Carlos harbour forced the amphibious force to remain relatively fixed in place during the landing. The FAA had early success through conducting A2/AD operations, seizing the initiative to utilise the surrounding terrain as cover to conduct fast speed, low altitude strike packages. The FAA concentrated their attack on naval forces supporting the amphibious landing. Conversely, the Naval Task Force air defence design was not working effectively against the FAA sorties. The outer defensive belt faced serious problems in locating aircraft with sufficient speed in order to disseminate warning information to firing units. As a result, the Harriers often engaged enemy aircraft after they had released their munitions, and the middle and inner tiers had reduced warning on incoming attacks. The middle tiers' high altitude naval

missiles were not effective against the FAA low level, low altitude attack profiles (Tocchet 1988). This placed greater reliance on the inner tier of defence to support air, sea and land operations. However, the inner tier had issues in getting their equipment ashore⁵, establishing defensive positions and serviceability of the Rapier equipment. The VSHORAD capability and AAAD achieved limited success, however, it alone was not a large enough to cover the entire landing force. Establishing the beach head took much longer than expected, with Royal Navy vessels being withdrawn with only those unloading allowed in the area. This meant that Royal Navy was going to be increasingly exposed in San Carlos harbour, and for longer duration in order to conduct the lodgement. Following the difficulties of the first day, the air defence design started to improve, with all tiers working effectively to counter the continued FAA attacks, albeit at significant cost to both United Kingdom and Argentine forces.

Once the beachhead was secure, the land forces moved quickly to secure the major objectives, namely the townships of Stanley and Goose Green. GBAD VSHORAD systems were deployed to support critical assets and ground manoeuvre clearance operations, however, employment was hampered due to extremely limited lift capability⁶. The GBAD units were largely responsible for keeping the FAA away from direct engagement with ground forces. The FAA reported that as soon as the Rapier and Blowpipe units were fully deployed it became too dangerous to attack the ground manoeuvre force (Royal Artillery 1983). On 14th Jun 1982, after intense fighting and numerous encounter battles, the Argentine forces surrendered. Operation Corporate lasted for approximately 10 weeks, and restored sovereignty of the Falklands back to the United Kingdom; however, it came at considerable cost to lives and capability. The operation highlighted the complexities of conducting A2/AD tasks, as well as the importance of redundancy in the air defence design, employment, and logistic support during all phase of a multi-domain operation.

Lesson Learnt

The complexities of operating in an adverse air situation, where air superiority was hardly ever achieved, and where the enemy had a considerable amount of freedom to operate, were quickly learnt but at considerable cost to the Naval Task Force (Royal Artillery 1983). Victory was not certain, and it was hard fought and learnt through mistakes made prior to embarkation, during the transit south, and through intense fighting on Falkland Islands. Through critically analysing the air defence design and its employment during the Falklands war we can identify lessons applicable to the modern Australian army that can be applied to contemporary operations.

Lesson One - Staff Tables and Load Lists

This is a general requirement across all levels of defence, having standardised staff tables and load lists to cater for different missions, and transport requirements. Whether operating with absolute minimum scales, to the other, when operating with full scales, identifying the equipment requirements and logistic burden is essential. This is particularly important for the Australian Army, as all likely deployments would require our capability to force project over vast distances. In the Falklands context, there was difficult prior to leaving England in determining what equipment and vehicles should be taken, and conversely, what should be left behind (Royal Artillery 1983). The condensed timeframe for departure, the uncertainty of deck space and shipping, and the lack of a tactical loading sequence all resulted in mission essential equipment not been taken or incorrectly loaded onto vessels. This resulted in partial mission failure of air defence on the first day of the amphibious landings into San Carlos. Furthermore, it severely limited the employment of GBAD capabilities such as the Rapier, due to not been able to manoeuvre throughout the battlespace due to lack of vehicles.

Lesson Two - Passive Air Defence Measures

Rarely does a battlespace have ideal conditions for defensive operations, with good cover, concealment, and fields of fire. However, this does not negate the need to conduct passive air defence measures to reduce the visual signature of a defensive position. Passive air defence provides greater redundancy to the commander, as they gain greater layering of defence. This is important in the employment of GBAD as the systems are finite and are not easily recoverable. Therefore, any measures taken to increase survivability are necessary. The Falklands campaign highlighted that even though enemy aircraft could approach the Islands from any direction, and the terrain offered little scope for concealment from aircraft attack, passive air defence measures reduced detection. The use of air sentries, dispersion, camouflage nets and fighting pits assisted in concealing the air defence positions during the amphibious lodgement at San Carlos.

Lesson Three - All Arms Air Defence

The use of All Arms Air Defence (AAAD) might seem insignificant to modern strike aircraft; however, it is still relevant as it forces aircraft to fly higher, lower or in different directions. This shaping combat function makes aircraft more vulnerable to missile attack or unable to deliver their weapon loads at the desired target. Even though AAAD is an all Corps skill, many units either do not practice this skill or are unaware of it. Practicing this skill is important to all Australian Army units as it provides basic defence against airborne threats, particularly to units that do have organic air defence systems. In the Falkland context, AAAD had to be taught or re-taught during the voyage south, causing minor control issues during the initial stages of the amphibious lodgement⁷. However, AAAD forced the FAA strike aircraft to alter their flight paths, reducing the effectiveness of weapon systems. Furthermore, the soldiers who manned the guns were seen to be fighting back, and this raised the

morale of all those under attack. This effect on morale must not be underestimated (Royal Artillery 1983).

Lesson Four - Early Warning

The performance of air defence is critically dependant on the earliest possible identification of threats. To ensure any air engagements are persecuted effectively, the ability to detect, identify, track and engage air tracks is essential. To ensure this occurs, timely dissemination of warning states needs to occur between the layers of defence. This is important to the Australia Army as the passage of information needs to reach the fire unit with sufficient time to process, react and engage. The faster the transmission of warning status, the higher probability of engagement and success rate for GBAD systems. In the Falklands context, there was no airborne early warning assets, and the ability to detect, identify and track air tracks was via organic systems⁸. This severely reduced the coverage and warning times available to the air defence design. The reliance on organic systems did not initially work. The outer defensive belt had problems in locating aircraft with sufficient speed in order to disseminate warning information to the middle and inner tier fire units. To augment the slow warning status, GBAD fire units employed air sentries, reinforcing the requirement for passive defence measures to provide redundancy to the commander.

Lesson Five - Employment

Regardless of the task undertaken or the type of weapons utilised, the employment of air defence must remain flexible and adaptable to achieve the mission intent. Flexibility in planning and mission command will ensure that the effects of terrain and other detrimental factors to the defence are minimised, and the defence is planned and implemented effectively and efficiently. Flexibility in employment is important to Australian Army as it enable mission command. It gives commanders the ability to react to changes within the battle, to enable transition between methods of employment. Furthermore, it enables commanders the freedom

of action to achieve their mission, for example, defensive tasks may still be achieved through aggressive employment such as through air ambushes. In the Falklands context, GBAD systems were not employed in ideal terrain to ensure weapon engagement occurred before the line of weapon release from FAA strike aircraft. This was evident during the amphibious lodgement at San Carlos. FAA strike aircraft could approach the lodgement area from all avenues of approach, and the GBAD fire units had to continually adapt to the changing situation to ensure the right effect was achieved at the right time, accurately.

Lesson Six - Liaison

Air defence planning and implementation is conducted at a formation level, and higher. This ensures that the strategic intent is met and achieved. However, without liaison and integration with the ground manoeuvre element, friction may arise due to lack of information and understanding intent. The friction usually arises through the use of terrain, the requirement for life support and force protection measures. Furthermore, friction may also arise in the air defence coverage. This is important as GBAD units and manoeuvre elements may occupy the same operating area, however, the manoeuvre element may not be the priority for air defence coverage. In the Falklands context, when GBAD fire units were deployed it was often with little prior knowledge of the ground force scheme of manoeuvre. This led to confusion as to what neighbouring units were doing as well as friction over site selection and use of terrain and the limited flexibility afforded to commanders.

Lesson Seven - Training with supported Arms

To achieve high reliability in air defence employment, there needs to be significant investment into providing training that is robust and realistic. This not only develops our personnel from being qualified to being competent, but also trains our personnel in the psychological factors of warfare such as stress and task fixation. The training should include

detection, tracking, application of weapon control orders and engagement skills. Also, similarly to liaison with the manoeuvre element, combined training is essential. This enables all units within the area of operation an appropriate depth of knowledge on employment, as well as limitations in capabilities. In the Falklands context, friction arose between GBAD units and manoeuvre elements as they did not account for the time and effort in which systems had to be manoeuvre around the battle space. It came as a surprise to manoeuvre elements that GBAD systems were, heavy, cumbersome, and difficult to carry on several occasions (Royal Artillery 1983). Furthermore, unrealistic orders were given to GBAD fire units to engage any aircraft seen, even if the engagement of targets was outside of weapon capability. This reduced capability and wasted limited missile magazine depth⁹

Conclusion

The Falklands war is a contemporary example of multi-domain operations and A2/AD warfare. The campaign was fought 40 years ago, however, the lessons learnt are still relevant to the Australian Army. The Falklands war highlighted the complexities in force projecting capability over vast distances, lodgement, and sustainment of operations all whilst terrain and airspace is contested. It is through critically examining past air defence conflicts, such as the Falklands war, we can attempt to avoid historical problems and incorporate solutions to our current training and employment of air defence systems. Whether in periods of competition or conflict, the Australian Defence Force's broader air defence capability must be enhanced among existing, and future, platforms so that all platforms can effectively contribute to the total air defence system through defence-in-depth.

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¹ Anti-Access/Area Denial is a defensive strategy used to prevent an adversary from occupying or traversing an area of land, sea or air.

² Rapier and Blowpipe units from the Royal Artillery.
³ Operation Black Buck 1 to Black Buck 7

⁴ The Exocet Missile is a sea skimming missile with a range of 70km and max speed off up to Mach 1. The missile can be launched from multiple platforms; however, the concern was from the air launch capability of the Argentine strike aircraft. The HMS Sheffield was struck and sunk on 4 May 1982 by an Exocet Missile. The missile was launched by FAA Super Etendard strike aircraft.

⁵ This was a result of not following tactical loading sequence procedures prior to departure from England, and not been able to cross load stores into combat load configuration at Ascension Island.

⁶ There was limited air lift capability available due to the sinking of the Atlantic Conveyer. The Atlantic

Haggart, J, 1984, The Falkland Islands Conflict Air Defense of the Fleet, Marine Corps Command and Staff College, 1984, Available at <https://www.globalsecurity.org/military/library/report/1984/HJA.htm>

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Conveyer was the primary logistics node afloat and was struck by two Exocet missiles and sunk on 25 May 1982. As a result of the sinking, all missiles and associated equipment had to be man packed across Falklands.

⁷ Due to lack of AAAD training and planning, initially there were little to no control measures in place. During the opening engagements troops were endangered more by enthusiastic machine gunners than from FAA air strikes.

⁸ The primary dissemination of warning states between the tiers' was via voice communications. This created issues to GBAD units deployed with ground manoeuvre elements, where air defence messages were not always given the highest priority.

⁹ Magazine depth for all air defence systems used during the Falklands campaign was severely reduced due to the sinking of the Atlantic Conveyer

Gunners Fund Badge Draw

Since 2018 the prizes for the annual draw have been sponsored by TEG - Australasia's leading Ticketing and Live Entertainment company. This is thanks to the generosity of the CEO, Mr Geoff

Jones (a former RAA officer), who has kindly agreed to sponsor the Badge Draw prizes annually with event tickets.

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Winners each receive a pair of tickets to a major event at a suitable Australian venue. The 2023 RAA Fund Badge Draw will be conducted on 1 Aug IAW RAASOs. Three random subscriber keychain numbers will be generated and awarded a prize.



The Australian ADAFCO – A Steal for Twice the Price

*Captain James Alexander Sandwell
Operations Support Battery, 16th Regiment RAA*

“The ADAFCO Element deploys to the appropriate controlling authority at the RADC or SADC higher echelon unit and is responsible for integrating Army AMD engagement operations into the Joint Integrated Air Defense System (JIADS) in order to destroy, nullify, or reduce the effectiveness of all hostile air and missile threats against friendly forces and to reduce the potential for fratricide.” – FM 3-01.7 *Air Defense Artillery Brigade Operations*

Integrated Air and Missile Defence has been a concept in Australian military thinking for decades, however, due to the limitations on systems and a previously unclear air and missile threat to Australian forces or national interests, past basic integration between the RAN and RAAF, the concept has not been truly tested nor truly integrated. With the implementation of Norwegian/National Advanced Surface-to-Air Missile System (NASAMs) the first beyond visual range (BVR) ground-based air defence (GBAD) system since the bloodhound missile left RAAF Service in 1968¹, the ability to have a true inner tier, mixed with the beginning of Air 6502 – Medium Range Air Defence as a plan for the middle tier has led to the rapid development of concepts for the employment and de-confliction of these systems in the joint air and missile defence kill chain.² One of the most developed of these concepts is that of the Air Defence Artillery Fire Control Officer (or ADAFCO) which is being pushed by 16 Regiment, RAA in consultation with RAAF and the US's Indo-Pacific Command (INDOPACOM).

What is an ADAFCO?

The term “Air Defence Artillery Fire Control Officers” is a US military term used to describe officers and warrant officers (in the US context)

who manage and de-conflict fires from GBAD units along with their assistant Air Defence Artillery Fire Control Assistant (ADAFCAs). In the US context, this involves all missile systems that operate beyond visual range most notably PATRIOT and Terminal High-Altitude Air Defence (THAAD) systems. ADAFCOs apply the method by which the fire control authority enables tracks are identified and allocated and the correct action taken against them in a timely and safe manner. ADAFCOs are currently unique to the US air defence environment, however similar, but not exact positions can be found in other militaries where beyond-visual-range capabilities exist. A NASAMs example can be seen in the Royal Norwegian Air Force (RNoAF) which uses Air Battle Managers (ABMs) as 'Surface-to-Air Missile Allocators' within their control and reporting centres (CRCs) as essentially an additional weapons director.³ This concept, while functional, is limiting, as they are only enabled to work with a single type of air defence system. To use the analogy of field guns, an ADAFCO is similar to a Forward Observer and Command Post; they coordinate the safe and effective use of beyond-visual-range air and missile defence systems.

Why ADAFCOs?

ADAFCOs (and their assistant ADAFCAs) came about following fratricide issues in 2003 in which US Patriot units shot down both a US Navy F/A-18C Hornet and a RAF Tornado GR.4 in two separate incidents over the space of a few months. In both cases, the lack of friendly tracking and system misclassification resulted in isolated, non-networked patriot units engaging friendly tracks. Notably, the RAF Tornado shoot-down came because of non-functioning IFF (interrogator friend or foe) and the automatic classification of

the target as an anti-radiation missile.⁴ This was despite the aircraft being tracked by other units (being under the control of coalition ground control) and flying in concert with another Tornado. Other incidents, including the self-defence firing of an anti-radiation missile at a PATRIOT RADAR, led to the complete restriction of US PATRIOT units, removing even their ability to fire in self-defence.⁵ Recognising to need to implement further controls with a

How are ADAFCOs used?

In the US context, ADAFCOs are found at the Air Defence Artillery Brigade and the Army Air and Missile Defence Command (division equivalent) level, integrating with either the relevant Sector/Regional Air Defence Commander (SADC/RADC) or in the Joint Air Operations Centre at the higher (or upper tier) level (as seen in figure 1).

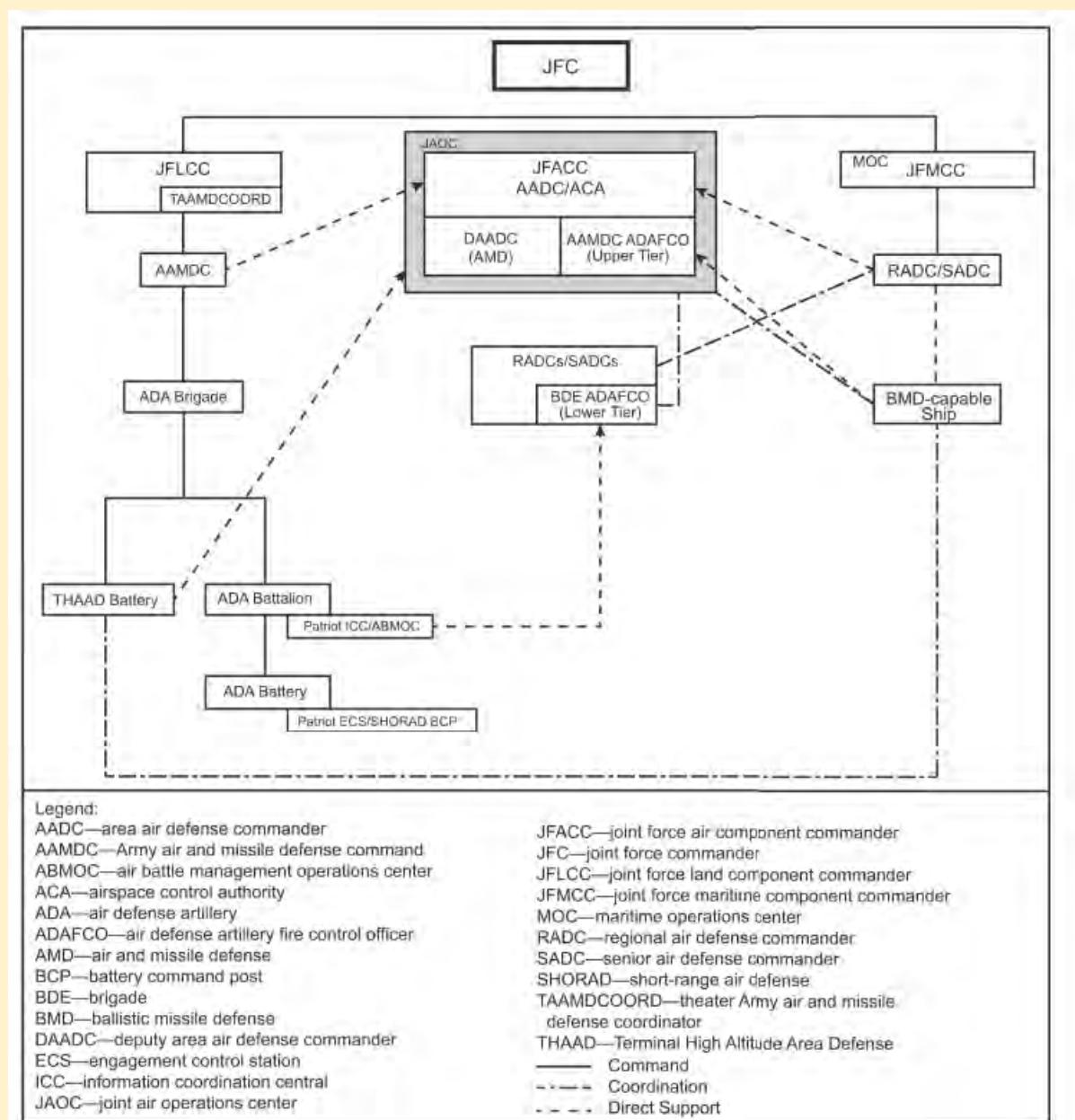


Figure 1: US Army ADA Mission Command Relationships

proper understanding of the systems and procedures of the GBAD forces, ADAFCOs were created.

This integration should be platform agnostic, theoretically, it could be a CRC, an Airborne Early Warning and Control Aircraft (AEW&C) or an AEGIS Destroyer/Cruiser, wherever the

relevant air defence commander is for the relevant battlespace. This concept of physical location is dependent on a few key factors. Firstly is the ability of the ADAFCO to communicate with their assigned fire units. This includes data (including tactical data links and chat) and voice communications. Secondly, the ability to receive a recognised air picture (RAP). The system in which the RAP is received is not important, as long as the ADAFCO/ADAFCA can operate and manipulate the human-machine interface. Finally, co-location or clear communications with the SADC/RADC or AADC which is the entire purpose of the ADAFCO.

ADAFCOs are not responsible for allocating individual missiles nor shot doctrine for individual units or sub-units. Rather ADAFCOs ensure that relevant targets, with the relevant ROE, are passed down to subordinate call signs promptly and that these targets are de-conflicted between other potential effectors (such as Ballistic Missile Defence Capable Ships) and friendly air units to ensure the most effective system is used most effectively and safely.⁶

Finally, ADAFCOs function as the Subject Matter Expert for GBAD at the level in which they are employed, requiring an understanding of the systems being employed within the battlespace.

The Road to Australian ADAFCOs

Under Project Land 19 Phase 7B, the ADF is purchasing NASAMs, which, is a Short Range Air Defence System as currently provisioned (with the potential addition of the ARARAAM ER pushing the system to the edge of medium range)⁷. While this system is outmatched in range and altitude when compared to the PATRIOT system, it is a notable step up compared to Army's current VSHORAD system, the RBS-70. This shift from visual to BVR engagements has necessitated a change in the thought process of the GBAD operators as the ability to conduct a final visual check has been removed. This was acknowledged by Army as part of the development during the project resulting in two additional positions for air defence artillery

officers in the Australian Army.⁸ The first was to No. 3 Control and Reporting Unit RAAF (3 CRU), after completion of the RAAF Air Battle Manager Basic course. This course and subsequent posting has enabled Army to understand the RAAF air defence mindset and the application of BVR identification and classification, in addition to building a habitual relationship with 3 CRU and No. 41 Wing, RAAF who manage Australia's air battle management and surveillance units. The second position involved the changing of a US exchange position from the School of Artillery to 16 Regiment, RAA with the reciprocal Australian position in the US moving from the Air Defence Artillery School to the 94th AAMDC. This shift has enabled the Australian exchange officer to complete the American ADAFCO course and work closely in a key coalition air defence headquarters while also enabling the US exchange officer in Australia the ability to develop and assist the unit in the building of a new BVR system and procedures. Following the first cycles of personnel in these positions, the need to develop Australian ADAFCOs became apparent.

Whilst the Air Battle Manager Basic course is an excellent course to attend for a limited amount of Air Defence Officers, it is not a requirement to be able to complete the role of an ADAFCO. As a result, 16 Regiment has been trialling a series of pilot courses with the intent of being able to replicate the effect of the US Army ADAFCO course, with the intent of moving the course to the Australian School of Artillery once it reaches a state that the US Army is happy to endorse. The end state of this is that Australian ADAFCOs will be trained to a standard of a US ADAFCO and we be able to function in both Australian and coalition environments with both Australian and coalition equipment.

The Australia ADAFCO in Practice

Throughout 2022, under the lead of the 111 Battery, 16 Regiment has been participating in a series of Australian, US and coalition exercises, trialling the concept of an Australian ADAFCO

in both Australian and US command structures. This began with the initial ADAFCO pilot course held at 16 Regiment and subsequent limited employment of 3 Australian members under the direct supervision of US Army ADAFCOs on Ex Balakitan 2022 in the Philippines. Following lessons learnt from these exercises working with the US 32nd ADA BDE and USAF controllers, members from 111 Battery participated in Exercise Diamond Storm from 3 CRU, Exercise Virtual Pitch Black, again from 3 CRU but with ADAFCO support from the 94th AAMDC and Exercise Pitch Black with 2 Squadron, RAAF again will assistance from members from the 94th AAMDC. The intent is to complete this process with Exercise Coalition Virtual Flag held in the US following theoretical and practical assessment by the 94th AAMDC in Hawaii. This process is intended to be followed by a memorandum of understanding between the US Army (via either the US Fires Centre of Excellence or INDO-PACOM) enabling Australian ADAFCOs to control US assets in a coalition environment. In the future, it is likely that 16 Regiment will hold ADAFCOs within Operational Support Battery.

ADAFCO vs SAM Allocator vs Air Battle Manager

As a result of multiple years of coalition air operations in the middle east, and previous coalition large force air exercises, RAAF ABMs have previously worked with US Army ADAFCOs at both the lower and upper-tier levels. This previous experience has enabled Australian ADAFCOs to easily embed into Australian CRCs with a base understanding of the function and role. While 16 Regiment now has a small cadre of ABM and Airspace Surveillance Operator trained personnel, as previously mentioned, this training is beneficial but not crucial for an ADAFCO. ADAFCOs by nature, do not need to build their own ROE rather the agencies they are with build it and ADAFCOs provides an option for dealing with the potential threats via surface-to-air engagements. While ABMs can function in a way similar to a SAM

Allocator, the advantage and unique capability that Australian ADAFCOs will bring to the table is the ability to control multiple air defence units, of different types, from different countries, likely over multiple battle management areas. Additionally, as the capability develops, it may be possible to add further nations' air defence systems such as the UK's new Sky Saber system. These advantageous effects go well beyond the traditional scope of SAM Allocators and required time on the employed systems and a serious understanding of the employment of ground-based air defence system weapon control at echelon. As mentioned, ADAFCOs/ADAFCAs are important for the coordination and planning at the RADC and SADC level. Below that level, at the Regimental, Battery and Troop level sit the Tactical Director (TDO/TDA) and the Fire Controller (FCO/FCA). These personnel have a simpler, more process driven role in missile engagement sequences. For 16 Regiment, FCO/FCA will likely be senior LT/CAPT and SGTs. The experience gained throughout their career will help prepare select CAPT/SGT/WO2 for their duties as ADAFCO/ADAFCAs.

Conclusion

ADAFCOs are a crucial functioning block to the development of a proper and truly joint integrated air and missile defence system. As both Land 19 Phase 7B and Air 6502 continue their development the need to safely integrate ground-based air defence into the coalition and joint air operations environment will only grow, especially as it becomes more habitual for US Army PATRIOT units to conduct training in Australia and the near region. This skill set is a crucial, force-multiplying capability that when fully matured, will enable a truly integrated air and missile defence, rather than simply a collection of disparate air defence systems.

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The Counter Unmanned Aerial Systems – The ever growing requirement

16th Regiment RAA, 111th Battery - CAPT Luke Wiles, LT Matthew Ballingall, LT Liam Walker

Introduction

The evolution of the modern battlespace has led to a more complex variety of systems and effects with kinetic and non-kinetic outcomes that are accessible and affordable for combatants and observers. The unmanned aerial systems (UAS) can provide a variety of outputs and are not cost effective to target with a majority of conventional kinetic in service air defence systems employed around the globe.

The development of UAS within the modern battlespace can be seen throughout previous conflicts and in conflicts currently taking place. This paper will look to discuss, through case studies, the development and function of UAS in addition to the requirement and further development of counter unmanned aerial systems (C-UAS) with a bias towards conventional conflict.

Background - UAS Capacity and Capability

In the last two decades the evolution, use, efficacy and accessibility of UAS technology has become increasingly more prevalent in the modern battlespace and society. The threat profile is now so expansive that a known threat register cannot be considered complete. The purchase of UAS to enable threat actors cannot be tracked, as even the most basic of commercial off the shelf (COTS) UAS can be purchased from a variety of sources and have an extremely cost effective contribution to the battlespace. UAS payloads vary, are in some cases interchangeable and often layered. These can include subsystems capable of; ISR through imagery across multiple mediums; high-fidelity video; audio; battlefield commentary, tracking and damage assessments; target acquisition and tracking; electronic-warfare capabilities; signature measurement (RF,

CBRN etc); kinetic strike capabilities; as well as the delivery of payloads ranging from a life sustaining package through to the delivery of mission critical equipment.

Recent advances has seen the development of UAS technologies paired with artificial intelligence computing to develop autonomous and semi-autonomous systems capable of the aforementioned effects. Further, the concept of swarming has created the capability to deliver an effect en masse or to decrease the ability of countermeasures to effectively mitigate against a multitude of targets. Differences in design, construction, capability and capacity, as well as the task and purpose of these modernised UAS presents a significant challenge when implementing effective C-UAS strategies for both conventional and non-conventional forces in the modern battlespace.

C-UAS Systems and Effects

As the threat of UAS platforms has evolved and their prevalence in the battle space has expanded it has required the development of C-UAS to become its own subsidiary group within Defensive Counter-Air as part of wider Integrated Air and Missile Defence. Current advancements in fixed and rotary wing aircraft have resulted in air defence systems modernising to provide a bespoke solution to one or two specific threat profiles within a layered and integrated defence; wherein each tier mitigates one or two different threat profiles. This has led to larger expenses being associated with those bespoke kinetic payloads with the unintended consequence that is no longer cost effective for those solutions to be utilised against the use of the UAS in the modern battlespace. As a result C-UAS systems have to differ in size, capacity and the effects they generate, providing multiple functionalities in order to mitigate

against the variety of threats UAS can produce in the most cost effective manner. Ideally these systems would integrate into the layered approach adopted during modernisation. The development of air defence systems, specifically detection and tracking sensors, now allows for connectivity and targeting data to be delivered across the air defence integrated network for both the conventional air defence systems and emerging C-UAS systems. The C-UAS effectors include but are not limited to; gun-systems, missiles systems, direct energy weapons and targeted high powered radio frequency systems. Each have tailored purposes with pros and cons comparative to their counterparts. Used proportionately together these systems can create a layered C-UAS defence, currently the optimal financial mitigation against the threat as it is presented to the conventional force today.

The linking of sensor and effector platforms is critical for effective prosecution utilising F2T2EA methodologies of UAS threats in an evolving battlespace. Companies globally boast a measure of C-UAS platforms including but not limited to; Rheinmetall, Raytheon, Kongsberg, DroneShield and Department13. These platforms consist of non-kinetic systems such as man-portable and static small directed energy systems, larger vehicle mounted or containerised targeted radio frequency jammers. Further examples of kinetic systems include; high-powered laser weapons, intercept missile systems and various gun capabilities with automated and non-automated targeting. Both the kinetic and non-kinetic systems can achieve a variety of hard and soft kill effects against threat UAS. All of these capabilities are still in their infancy and will continue to develop in parity with the growing demand to be able to counter-act the ever growing use of UAS in the battlespace – what is critical is that we as the users must understand and define our requirements for what effects we need to generate on the battlespace to protect the force.

Currently, 16 REGT RAA C-UAS capability hasn't received any development. Our subject matter experts in C-UAS operations and tactics are researching into what is appropriate for future

operations and what meets the UAS threat most effectively in the current and future global environments. The greatest limitation for the Regt is resourcing, without an ADF project to field the system, the Regt will be constrained.

Studying past and current conflicts in the Middle East and Ukraine, tactical user-friendly effectors can be distributed to non-specialised air defence elements or to trained members supporting non-government organisations (NGO). At the tactical level the engagement authority should be held at the lowest level which enables freedom of movement and development of the inner tier of the integrated air defence network. Complex and advanced systems must be utilised by well-trained air defence units dedicated to the operation of those countermeasures. These inherently have a higher engagement authority and approval.

UAS and C-UAS in the Middle East

With the increase in popularity of COTS small multi-rotor unmanned aerial systems (MRUAS) by companies such as DJI has seen a saturation of units in the international market. This widespread availability enabled insurgent forces, throughout the Middle East, access to cheap and intuitive reconnaissance and targeting capabilities. Coupled with the continued development of improvised explosive devices (IEDs) saw the inevitable implementation of modified COTS MRUAS within their tactics, techniques, and procedures to achieve cost effective effects within a relatively small timeframe. Due to the success of COTS UAS being utilised within the Middle East region, nations, along with non-state actors, around the globe began to recognise the risk to conventional forces and the cost effective nature of employing these assets. In turn the ever growing requirement to develop C-UAS within traditional integrated air defence networks was recognised.

In 2017 16th Regiment, Royal Australian Artillery (16 REGT RAA) deployed to Iraq on OPERATION OKRA in response to the growing UAS threat. 16 REGT RAA's deployment saw the first iteration of C-UAS employed by

Australian Forces in conjunction with coalition forces. Primary roles conducted by members 16 REGT RAA were the defence of airbases, forward operating bases (FOBs) and maritime vassals, only utilising static non-kinetic target radio frequency jamming systems. This was used in a layered approach with the US systems to provide non-kinetic and kinetic protection of FOB's. Both of these systems were employed in a static role and not in support of manoeuvre groups. The use of kinetic effectors was not employed at this time due to the chance of fratricide from falling low-calibre weapon systems with the intent to protect human life. With the success of COTS UAS against unprotected elements within the Middle East Region and their rise in prevalence in conflicts since has showcased evolving effectiveness of the UAS and the demand for portable C-UAS to be employed within conventional force elements at the tactical level. A good example for both the use of UAS and C-UAS can be seen in the current Russo-Ukrainian war.

UAS and C-UAS in Ukraine

The Russo-Ukrainian war has seen both forces utilising UAS to generate effects ranging from tactical actions to strategic operations. Ukraine has utilised a variety of UAS from Switchblade style loiter munitions through to TB2's a highly capable Turkish strategic unmanned aerial system.

The Russian forces have primarily used the Orlan 10 and 30 variants, as well as Zala-KYB loiter munitions and potentially the new Orion UAS based upon wreckage and debris found during BDA of an engaged Russian UAS. Ukraine's advancements in UAS capabilities has resulted in Russian offensive forces being under-prepared and incapable of effectively neutralising or deterring UAS threats. There has been no considerable response in either kinetic or non-kinetic systems utilised in protecting their ground manoeuvre forces.

With the continued successes of modified COTS UAS and continued ingenuity in methods of employment, the Ukrainian people have created a

non-military unit (Aerorozvidka) focussed around exploiting this capability in conjunction with traditional military forces. By utilising these systems with a variety of different payloads they have achieved lethal and disruptive effects against modern military hardware and trained personnel. The cost effectiveness of this capability has resulted in significant attrition to Russian personnel and equipment whilst simultaneously increasing the risk to Russian forces when operating on and immediately behind the zone of conflict. The psychological impacts of intuitive COTS MRUAS readily available to untrained enemy forces, at a minimal cost, manufactured rapidly and the enemy effectively employing it against you with lethal results cannot be overstated. Russian conventional forces, especially in rear echelons, are now having to plan against an entirely new threat, not previously faced before. With the disproportionate threat of a low cost MRUAS being able to provide kinetic effect to exponentially more valuable system such as armoured vehicles and sensors; the ability for COTS UAS to perform a simultaneous ISR and strike capability further increases the value of these low cost systems and their effect on the battlespace. This has been evident as Russian forces have been primarily using traditional air defence systems in order to attempt to mitigate a threat they were not designed for. Ukraine's rapid capitalisation of COTS UAS has forced Russian elements to attempt to rapidly augment their C-UAS capability with proportionate effectors outside of traditional air defence.

Multiple recorded instances of low calibre all arms air defence (AAAD) has been observed as ineffective at denying the Aerorozvidka situational awareness and targeting reconnaissance. This conflict has seen UAS being countered by a variety of ground based effectors. Although not as effective as first hoped the use of traditional kinetic and non-kinetic air defence systems has been critical to minimising casualties, on both sides, where possible.

In line with this the second order effects of logistical and financial strain caused through the

cost disparity of traditional effectors required to treat this new threat and the modified COTS UAS is creating an effective unsustainable war of attrition when the relative costs between traditional air defence effectors and COTS UAS are compared. Again the financial and logistical burden the Russian military is incurring in attempting to mass produce and distribute portable C-UAS directed energy weapons and guided missile systems down to the tactical level of Russian forces, has further showcased the success of COTS UAS when used by an organised group such as Aerorozvidka against a large conventional force.

Just as it was recognised in the modernisation process of traditional air defence assets the tangible lessons observed from this conflict is the requirement for layered and integrated effects due to the vast array of COTS and military UAS. Any singular specialised C-UAS platform in isolation is not able to provide adequate protection.

C-UAS in the non-conventional Space

Terrorist and criminal organisations as well as maverick individuals have begun utilising COTS UAS. This was demonstrated through the Taliban and ISIL deploying remote payload delivery (commonly 40mm or similar grenade/mortar rounds) from modified COTS UAS. This is present both domestically as well as abroad. Australian policing units have established specialised C-UAS groups that defend key infrastructure, persons and events from the increasingly present unmanned aerial threat. These roles are domestic equivalents of roles that are required to be performed in stabilisation operations globally as part of NATO, the UN or other NGO missions, as to ensure significant events, gatherings, populations and areas are protected from the threat of COTS UAS.

Conclusion

The rapid evolution and development of UAS, followed by C-UAS, has become a necessity in planning for current and future operations against

non-state actors and near peer enemies by conventional forces. The case studies above outlined the cost disparity in the use of non-specialised air defence equipment in a C-UAS role against COTS UAS and other military designed small UAS. As has already been stated the C-UAS capability is still in its infancy and there is a long way to go with a lot that remains to be developed and trailed before Australia has the required in service dedicated C-UAS capabilities to effectively mitigate the threat posed. Although from what is currently occurring in the Russo-Ukrainian War it is evident that the development and specialisation of a C-UAS unit or organised group with Defence is required in order to deal with the emerging UAS threat that will inevitably be present for any current or future operations that Australia chooses to embark on.



Battle of Long Tan Recollections

CANNONBALL SUPPLEMENT

ARTY TAC AUGUST 1966: LONG TAN

*Ian G. Darlington, Battery Commander
Headquarters Battery, 1966
1st Field Regiment RAA*

AN ACCOUNT OF THE MORTAR ATTACK ON NUI DAT IN AUGUST 1966. FIRST PUBLISHED 1ST FIELD REGIMENT 1998 JOURNAL

By way of preliminaries, I should explain my appointment in 1 Field Regiment and duties. In January 1966, I was detached from 104 Field Battery (the independent and newly raised medium battery) to 1 Field Regiment to act as Battery Commander Headquarters Battery during an extended Regimental exercise at Tianjarra in southern NSW.

The role of BC HQ Battery previously was to establish and run the Artillery Tactical HQ (Arty TAC) on behalf of the Commanding Officer. This Arty TAC being located with the Task Force Tactical Operations Centre (TOC).

In March 1966 at the end of the exercise, the Australian Government announced the escalation of the Australian involvement in Vietnam from a Battalion Group to a Task Force Group of two battalions with supporting troops including an Artillery Field Regiment (1 Field Regiment) of three batteries and a detachment of the Division Locating Battery. The three batteries were to be 105 Field Battery and 161 Field Battery (RNZA),

both currently in the theatre at Binh Hoa, plus 103 Field Battery from Australia.

On 22 April, we had the vehicles of Headquarters Battery and 103 Field Battery and 1966 I commanded the Regimental Advance Party consisting of elements of Headquarters Battery and 102 Field Battery which departed on HMAS Sydney. In addition to the troops, we had the vehicles of Headquarters Battery and the vehicles of 103 Field Battery, and the six guns of the latter. The vehicles and equipment of the Detachment of the 131 Divisional Locating Battery were also on board together with the personnel commanded by the Task Force Artillery Intelligence Officer then Captain Jim Townley. The remainder of the Regiment and the Detachment of 131 Divisional Locating Battery joined the Advance Party at Vung Tau throughout May 1966.

The Regiment (Minus) deployed into Nui Dat with the Task Force in early June 1966 and were joined by 105 and 161 Field Battery, RNZA. Within weeks an American self-propelled 155mm battery, Battery A 2/35 US Artillery, came under operational command. The Battery affiliations were:

105 Field Battery- in Direct Support to 5 RAR
161 Field Battery - in Direct Support to 6 RAR
103 Field Battery and Battery A 2/35 in General Support 1 ATF.

The Arty TAC was established and collocated with the 1 ATF TOC.

In addition to my role in the TAC HQ, I was designated the Regimental Gunnery Instructor (IG), having recently completed two years as an IG at North Head. My two immediate tasks were to establish a Fire Support Coordination Centre (FSCC) consisting of Arty TAC, Artillery Intelligence, and the Air warning Control Centre (AWCC). This was a new concept for the RAA, whilst the TFAIO and Arty TAC had worked together there was no warning. The second task was to ensure all batteries had adopted the 'new' fire orders procedures and to calibrate the three field batteries, a necessary procedure due to the varying degrees of wear and tear in the guns (due to the greater number of rounds fired by 105 and 161 Batteries in the previous 10 months). I was fortunate to have Jim Townley with me in the FSCC; we were old friends and Jim was an extraordinary competent gunner officer. We had duty officers, the Regimental Intelligence Officer (IO), Lieutenant Michael Langley and later 2nd Lieutenant Chuck Heinrick from Battery 2/35.

Before moving to the events of 17/18 August 1966 it is necessary to detail some of the preparations that preceded these events which I believe had a profound effect on these events.

*... was greeted by him with
'they're not outgoing, sir' as
bombs exploded in the trees
nearby.*

The major counter mortar / battery equipment's were three ANKPQ mortar locating radars. These equipment's were untested in battle conditions and initially there were some spares problems. So as not to rely on these radars, Jim Townley and I decided to produce a counter battery (CB) fire plan specifically directed against 60 and 82 mm mortars. Initially we sought advice from those units on the perimeter, primarily the Infantry Battalions as to the distance from the wire that they estimated that they could prevent the deployment of mortars, the actual figure escapes me, but it would have been 1500 to 2000 metres. This gave an area in the shape of a 'tyre' or

'doughnut' within which the enemy could deploy mortars and possibly not be detected. Jim and I went through this area in detail and earmarked possible mortar base plate positions. The number was about 120 and these were given target numbers and grouped into threes, each group given a nickname.

Each field battery was allocated a target each within these nicknames and this became the CB fire plan - I believe nicknamed "Tin Trunk". Each field battery had about 40 CB targets which they were required to keep current for abnormal conditions.

In addition to these preparations, Jim had gone to the US intelligence centre at Ton Son Nhut in Saigon and had extracted details of every known incident in Phuoc Tuy Province including data back to the French occupation.

As another aside, in calibrating the batteries I had used the right angle road bend at Long Tan as a datum and had observed the fall of shot from a Sioux helicopter. This was in the first and second week of June 1966.

17/18 August 1966

Jim Townley was to return to Australia departing 17 August 1966 as he had been selected to attend a Gunnery Staff Course (Locating) at Royal School of Artillery Lark Hill, UK. On the evening of 16 August, I accompanied him on his farewell before we returned to our 11x11 tent located about 20 metres from Arty Tac. We were fortunate enough to have Jim's replacement, Captain Barry Campton in the Task Force at that time.

I was on duty at 0200 hours on 17 August. I was moving to the Tac HQ about 0140 hours when the mortar attack on the base commenced. I was relieving Chuck Heinrick and was greeted by him with 'they're not outgoing, sir' as bombs exploded in the trees nearby.

I was joined in the FSCC by Jim and Barry. The radio nets were chaos, reports of secondaries (bombs exploding) were coming from primarily 103 and 161 batteries. Requests for mortreps, particularly bearings to primaries (mortars firing) brought reports from every direction around the

perimeter. It was obvious that the radars couldn't cope. The problem was that the radar needs to track a bomb for 12 seconds to locate the source. Unfortunately, they were 'flicking' to other bombs (stronger signals) before the 12 seconds track had been achieved and the results were nonsense.

It was clear that the targets of the enemy fire were the Engineer perimeter, 103 and 161 Batteries and TF HQ.

There was an enormous sense of frustration at our inability to get people with compasses to give us bearings to primaries. I can recall at one time a figure standing at the entrance to the FSCC tent keeping people out and letting us get on with our work. That was the Task Force Commander, Brigadier OD Jackson and for that I will be eternally grateful.

It gradually became apparent that the fire was from the west in the general direction of Long Tan and the guns were ordered to 'lay' in that direction.

*... frustration at our inability
to get people with compasses
to give us bearings to
primaries.*

After about 14 minutes a reliable bearing came in from 6 RAR I think, which passed through one of our CB targets. I ordered 10 rounds fire for effect (FFE) from the three field batteries followed by about two repeats possibly with some adjustments. At the same time, I ordered the 155 Battery (US) to fire at a copse of trees at the road at Long Tan. As a result of these actions the indirect fire artillery battle took 15 to 17 minutes.

The wash up showed that a large number of rounds fell on the 103 and 161 Battery areas. Many rounds also fell on the Engineer perimeter, the troop commander being seriously wounded and losing a leg. The Task Force Headquarters and the Field Regiment QM compound located directly behind it also received rounds into their areas.

In respect of a CB target normally it would require at least two and preferably three intersecting bearings to justify engagement.

Because of the preparation work done to establish the CB fire plan, primarily by Jim Townley, we fired on the basis of one bearing, a decision justified by the results.

These events initiated Operation Smithfield which led to the D Company 6 Battalion, Royal Australian Regiment heroic action on 18 August 1966.

The actions of the Gunners verge on the heroic; the ability to engage the enemy with rapid, accurate CB fire whilst under indirect fire themselves was a testament to their training and courage.

What do I think was the purpose of this indirect fire attack on Nui Dat? On the basis of interviews with the enemy commanders it has been postulated, and seemingly accepted, that the purpose was to draw a force from the base to locate the enemy and to ambush that force!! I have great difficulty in accepting that proposition for the following reasons.

To achieve that reaction there was no need to fire the hundreds of rounds that were fired and invite counter battery fire. 20-30 rounds fired in less than a minute would have achieved that reaction without jeopardising their indirect fire weapons.

Why a two Regiment Division plus D445 Battalion to ambush an infantry company, even possibly in APCs. To suggest that the TF would have reacted with a force greater than a company is to give the enemy no credit for intelligence regarding our methods of operation. This enemy who was able to deploy this significant force and had sufficient intelligence to target the weakest part of the TF perimeter (Engineers and TF HQ and two of the major indirect fire power elements of the TF - 103 and 161 Batteries). All TF operations until that time had been infantry company and below operations.

I believe that this attack was preparatory fire for an attack on the base. Why?

*The actions of the Gunners
verge on the heroic; ...*

If they had succeeded with the indirect fire, the two gun batteries could have been out of the

battle. Remember each gun battery has hundreds of rounds of 105 mm ammunition in store. It verges on a miracle that none of these stores were hit.

The indirect fire was targeted on the weakest defended area of the perimeter manned by a handful of Sappers. Once through them an assaulting force was into the TF and behind the infantry battalions.

A night assault or one just before first light would have largely negated friendly air support.

If the aim was to 'lure' the infantry out and ambush them why not fire the indirect fire weapons at the battalions?

In summary I believe that the role of the guns in halting the indirect fire assault on the morning of 17 August 1966 was as crucial to the outcome of the overall battle as the supporting fire to D Coy 6 RAR on 18 August.

18 August 1966

The value of the guns in the D Company battle has at last been well documented particularly as told in the Training Command video "Long Tan - An Artillery Perspective".

A few personal observations:

As with the events of a.m. 17 August I came on duty five minutes prior to the first contact that is about 1545 hours on 18 August.

The official record of rounds fired could probably be increased by about 30 - 40%.

I have no recollection of a pause in gunfire to allow for an air attack. Perhaps later in the evening after the relief of D Coy some fire missions on possible withdrawal routes may have been paused but NOT during the battle.

It probably needs experienced Gunners to appreciate the professionalism, accuracy, and technical ability of the service of the guns during the appalling weather conditions that prevailed on the evening of 18 August.

I believe I speak for all gunners in saying that any recognition sought by gunners should not be seen in any way as detracting from the heroic and gallant efforts of D Coy 1 RAR. I personally believe that in other circumstances (and

particularly if this battle had occurred in later years) the honours and awards for the D Coy would have been greater, thereby truly reflecting the place that their feats occupy in Australian military history.

REFLECTIONS ON THE AFTERMATH OF LONG TAN

*Colonel (Retired) Alan Hutchinson
Forward Observer, 105th Field Battery
1965/1966*

Introduction

I was a member of 105 Field Battery RAA, which deployed to South Vietnam in September 1965. We were originally part of the 1st Battalion Royal Australian Regiment Battalion Group, based at Bien Hoa, which itself was part of the US 173rd Airborne Brigade (Separate). The Battalion Group included 161 Field Battery, Royal New Zealand Artillery. In the May / June period of 1966, 1 RAR returned to Australia after its 12 month tour of duty. 105 Battery, along with 161 Battery, moved down to Nui Dat, in Phuoc Tuy Province, near the coastal town of Vung Tau. Both batteries then became part of the newly arriving 1st Australian Task Force, the two main infantry units of which were 5 RAR and 6 RAR. Both batteries came under the command of 1st Field Regiment, RAA. The third field battery of 1st Field Regiment was 103 Field Battery. There was also a US 155mm Self-Propelled (SP) M109 battery under command of 1st Field Regiment (Battery A 2/35 Artillery Battalion) plus two 175 mm guns of US Artillery. Of course, we did not know it at the time, but all that artillery was to come in very handy later.

Long Tan

On 17 August 1966, after some nine months as an FO, I and the stalwarts of my FO party, Barry Cane, Doug Stapleton, and Alan "Rabbit" Laws were attached to D Coy, 5RAR. D Coy, along with the rest of 5 RAR, had been conducting a search and destroy operation north of the Task

Force area, near the Binh Ba rubber plantation. During the evening of 17/18 August, we heard several explosions to our south. They sounded like artillery or mortar fire. We quickly learned that our Task Force base had been mortared by either Viet Cong or North Vietnamese Army troops, and that the Task Force had suffered some casualties. On 18 August, we returned to our company base location in the 5 RAR lines, which was on the top of the small Nui Dat Hill. For my FO party and me, our return to base was a relief. We had completed (or so we thought) our last operation in Vietnam and were due to return to Australia within a couple of weeks, at the end of our 12 month tour of duty.

Since our move from Bien Hoa to Nui Dat, my FO party and I had been living with 5 RAR; initially with C Coy, but after a short period, with D Coy. On the afternoon of 18 August, I borrowed a Land Rover and visited my battery in their new location. I really wanted to find out where the rest of my effects had been stored, and to see if I had a tent to move into. We had not seen members of the battery for some weeks. I had not been there long, when, at about 1600 hours, I heard a nearby battery (it turned out to be 161 Battery) start firing. I did not take much notice until another fire order rang out to the guns of 105 Battery: *“Fire Mission Regiment”*. This had to be something special, for all eighteen guns of the Regiment, plus the six US 155 mm M109s, to engage the same target. I returned to D Coy’s position on Nui Dat Hill.

We had completed (or so we thought) our last operation in Vietnam, ...

There was an air of excitement apparent at the D Coy location. Word had quickly got around that D Coy 6 RAR, a few kilometres to our east, had engaged what was believed to be a reinforced platoon of Viet Cong. About 20 minutes or so, with the artillery firing almost continuously, the word came around that D Coy 6 RAR had hit a reinforced company. *That sounded serious*. The sky began to darken, and it was apparent that we were about to be struck by a heavy tropical storm. The signallers in D Coy HQ gathered as many

combat radios as they could into a central area and attached small loudspeakers to as many sets as possible, and set them to various frequencies, such as the 6 RAR net, the Armoured Personnel Carrier (APC) net, etc. That way, we gained some first-hand knowledge of what was happening in the firefight which was only a few kilometres away.

The heavens then opened, with lightning and thunder as accompaniment. I have rarely seen a storm like it. But all the while, our artillery kept pounding away. I quietly reflected on how the Gunners were keeping the ammunition supply up to the guns. They seemed to be firing virtually non-stop and I wondered how things were going on the gun positions, because all three 105 mm batteries were firing, as well as the US 155 mm M109s, plus I think, a couple of US 175 mm guns. The battle seemed to go on for some hours, and the news that we were getting was not encouraging. D Coy 6 RAR certainly seemed to be in serious trouble, but we really did not have a good appreciation of what had happened. Then, gradually, the artillery fire lessened, and things became much quieter.

About 2000 hours I was called up by my Battery Commander, Major Peter Tedder, and was told that my party and I would be accompanying D Coy 5 RAR at first light the next morning, to the site of D Coy 6 RAR’s battle, as a “ready reaction company”. I confess that I was not terribly enthusiastic at this news, as I thought that my FO party and I had completed our last operation.

D Coy 5 RAR and my party departed at first light the next morning by helicopter, for a very short flight. We then clambered into APCs for the rest of the journey to a point not far from the battle site. We arrived to hear part of the briefing to the rest of 6 RAR and the APC troop by the CO 6 RAR, LTCOL Colin Townsend. He said that he had about 18 members of D Coy missing but added that he estimated that they had killed at least 100 VC. This was the first “good” news we had heard about enemy casualties. Prior to this, we had heard nothing but bad news about the battle. Colonel Townsend then asked his Direct Support Artillery Commander, MAJ Harry

Horner, Battery Commander of 161 Field Battery RNZA, if he had anything to add. Harry, with a masterly understatement, and knowing that over 3,000 rounds of artillery had been fired in support of D Coy 6 RAR in the last 24 hours, merely said: *“Nothing to add, sir. But fire support is available”*.

As the left forward company, we then slowly moved forward on foot to the scene of the battle. Utter devastation confronted us. There were several bodies and weapons scattered around, and almost every tree in the vicinity appeared to have been hit by the artillery. There seemed to be branches and what appeared to be “powdered” rubber trees lying everywhere. How anyone could have survived such carnage was a mystery to me. Then one of our diggers saw one of the D Coy 6 RAR survivors whom he recognised, alone, and leaning up against a rubber tree. He appeared slightly wounded. I later learned that this soldier was Private “Custard” Mellor (although I have no idea where his nickname originated). Our digger shouted: *“G’day Custard. How the hell are you?”* To which “Custard” replied, sardonically: *“You bastards took your f***n’ time, didn’t you?”* (My apologies for the language, but it seemed appropriate at the time). As it was later learned that Private Mellor had been separated from the rest of his platoon early in the battle and had spent most of the night on his own, pounded by a severe tropical storm, with VC / NVA troops around him, and artillery rounds falling unpredictably (to him at least) seemingly everywhere, Custard’s response was entirely understandable.

We spent that day at the scene of the battle, noting that some of our “Saigon Warriors” (from HQ ADF in Saigon), had suddenly descended upon us via helicopters, resplendent in their starched jungle greens and polished brass, and posing for PR pictures beside captured VC / NVA weapons. It was not hard to see which way the departing enemy troops had gone. Despite them having no vehicles, they had cut a swathe through the undergrowth and rubber about the width of a Land Rover, with the bright orange Long Tan mud sticking to the remaining trees and bushes, as they dragged themselves and some bodies of

their comrades through the scrub and away from the scene of their defeat. We helped find bodies, and some enemy weapons that had been left behind.

The next day, we (slowly) attempted to follow up the retreating enemy, under fairly strict orders I understand, not to do anything too foolish, such as to walk into an ambush. We complied with our instructions, and although we followed the obvious escape route, we found no enemy. He was, by then, long gone.

Conclusion

A day or so later, we returned to our Company lines on Nui Dat hill. I reflected on what we had seen and done. Although we were unaware of the future significance of the scene we had witnessed, I realised that we had been privileged to have been to, and helped clear, the site of the most important battle in which Australian forces had been involved up to that time. Despite my prior (and unfounded, as it turned out) misgivings about participating in another operation before returning to Australia, I had actually been honoured to have been present at the site of one of the Australian Army’s most famous victories of the Vietnam war. **I shall never forget it.**

VOLUNTEERS NEEDED!

THE RAAHC IS STILL SEEKING VOLUNTEERS EITHER GUNNERS, OR MEMBERS OF THE PUBLIC, TO JOIN THE COMPANY. VOLUNTEERS ARE USED IN ALL ASPECTS OF OUR WORK.

You can help by contributing to artillery historical research no matter where you live, or if you live in Sydney, you can assist in the Cutler Research Centre and / or Australia’s Memorial Walk. You desire you can become an RAAHC director or just offer any skills you may have to contribute to specific areas. No knowledge of artillery is required.

Email: secretary@artilleryhistory.org

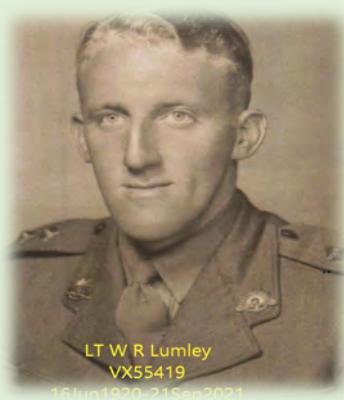
Citizen Gunner

**CANNONBALL
SUPPLEMENT**

William (Bill) Richards Lumley AM

As recalled by Lieutenant WR Lumley

Prologue



This is the story of Bill Lumley. Bill was a long-time client of mine in his retirement. It is a story of an unrequited desire to serve his

country. There were many who suffered indifferent circumstances and unexpected ups and downs in their life. On re- entry to civilian life, he achieved significant success as a pharmacist and was dedicated member of his community in a wide range of endeavours which was recognised by the award of a member of the Order of Australia (AM) in the 1991 Australia Day honours. He was an entertaining man who made the "ton". He gave me permission some time ago to publish his military story. This is Bill's story in his own words.

*Brigadier Doug Perry OAM, RFD (Retd)
Former Colonel Commandant Southern Region*

The Militia

After schooling at Wesley College and Melbourne Technical College and just before the Christmas break in 1937, I renewed my contact with Clive Gleadell. As a result, I went with him to the drill

hall, and joined his Royal Australian Artillery militia unit in the 4th Brigade, when I was 17 years old. In January 1938, the unit went into camp at Seymour, and although untrained, I was given all sorts of work. I did enjoy working with the horses, as I had on my farm holidays - all transport, including guns, was horse-drawn, so there were many horses. Other short camps were held periodically at Broadmeadows in weekends.

When I had first enlisted, I was allotted to the 10th Field Battery of the 4th Brigade, the same as Clive. By late 1938, the need for more troops to be available was shown, with the Nazi crisis in Europe developing. With the numbers of new recruits coming in, the Brigade was expanded, and now had three Batteries of 18-pounder guns - the 10th, 11th and 12th Batteries and one battery of 4.5-inch howitzers, the 104th. I trained on the 18-pounders and rose to the rank of sergeant and was then transferred to the howitzers - 104th Battery - the battery in which my father had served in World War 1. We increased the levels of training and the number of evening parades as well as the weekend camps at Broadmeadows. And all still based on the horse-drawn transport.

Soon after my move to the 104th, I was the victim of a practical joke - on a live shoot, my gun was to fire a ceremonial blank shot. When I was absent for a few minutes, somebody removed all the cordite charge, and when I called the order to fire, only the detonator fired. A pop, compared with the expected bang of a howitzer. Embarrassment!

On one occasion, the Battery was required to take its guns to Broadmeadows, instead of using the guns held there. We drove from the St. Kilda drill hall into and through the city - along the centre of Swanston Street, with all traffic held up for us. The well-groomed horses, the polished guns, and the troops in their colourful uniforms mounted on the horses or riding with the guns, drew a lot of

attention. And we enjoyed it, too. It must have been a picture.

Early in 1939, I went to a long-weekend camp, and found that field artillery was becoming mechanised. At this camp we were equipped with an odd assortment of cars and trucks, all leased, and we had many upsets - incompatible couplings, differences in the heights of vehicles and so on, all created problems.

At other times, manoeuvres were upset by the signals used. With the officers mounted on horseback, signals had been given by hand movements, and easily understood. These were impossible from car windows, so confusion reigned. Communication by radio was still a long way off.

None of these activities was of any help to my education. But I persevered. And then on 4th September 1939, war was declared against Germany. As a member of the militia, I was called to full time duty later in the month, for a four week camp. I went to a new camp site at Trawool, near Seymour, being set up as the Divisional Artillery Headquarters. I was promoted to Regimental Quartermaster Sergeant for this period, and the time passed quickly under the leadership of General "Red" Herring.

After that break, I went back to school. Not at all surprisingly, a few weeks later, I failed all the remaining first year, as well as all the new, second year, subjects. And I failed them quite well.

I went back into the old Seymour camp early in 1940 with my old unit, as a quartermaster sergeant. I asked for, and made, a move back to the guns as a sergeant. At this time, the structure of the batteries was being changed. Each battery had had six guns, and now was broken down to two separate troops, each of which had four guns, under the control of two officers. One, the Troop Commander, was to be an Observation Post Officer, the other the Gun Position Officer. Each gun, 18-pounder or howitzer was manned by a crew of six men, the senior being a sergeant. A

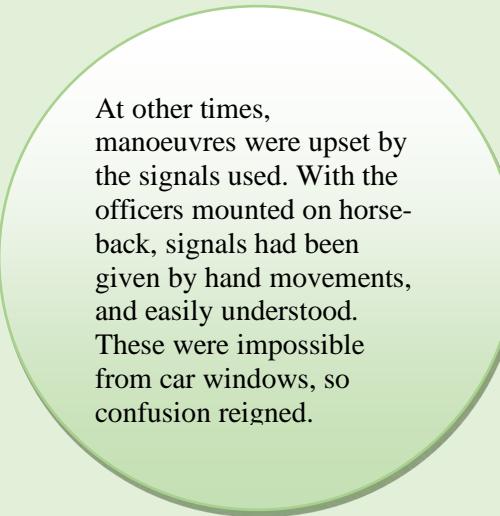
command post team worked directly with the Gun Position Officer.

Training became more intense, with a lot of emphasis on gun drills - putting guns into action positions, setting lines and so on. Training of officers as Gun Position Officers (GPOs) meant a lot of repetition for the gun crews. These activities included the unhooking of guns from their tractors and placing them in position to set their lines of fire. Primarily this was by direction from the GPO to set all his guns into the same line, using a reference point for all the gun-layers to use.

At the gun-drill training area of this Seymour camp, the GPOs had one very easy point of reference for gun-layers - a single tree on a nearby hill, called for want of a better name, "One Tree Hill". Many other reference points were available, even if they were not so obvious. After weeks of the use of that one reference point, the sergeants were tired of it, and I, with others, went up that hill one night, and chopped the tree down. Some consternation followed.

I recall one overnight bivouac at Benalla. I was in-charge of the last gun in a convoy to return along the Hume Highway to Seymour. One of the troops had got into bother the night before, and I was given the job of taking him back to camp under escort from the police station, with my gun-crew. The release took longer than it should, and I found that the convoy had left. Perhaps we did travel a little faster than usual to catch up, and perhaps the extra speed did cause a problem - the Hume Highway then was just another country road.

The driver rounded a tight bend, misjudged his distance, and swerved. This sudden movement was enough to break the coupling, so both the gun and the loaded ammunition trailer separated from us and overturned. I felt that, if the coupling had not broken, all of us would have had a problem. As it was, we all were glad to be out of it, especially our prisoner. The driver was fined ten pounds [\$20.00] by the Army for bad driving, a very big fine for those days. And the gun, a 4.5-inch howitzer, was so badly damaged that it had to be written off.



At other times, manoeuvres were upset by the signals used. With the officers mounted on horseback, signals had been given by hand movements, and easily understood. These were impossible from car windows, so confusion reigned.

About this time, my brother Bob had decided to join the AIF as a pharmacist. Thinking that our mother should not be left alone and my involvement with the militia unit seemed to be static, I would not consider changing to the AIF. He was not taken at the time but told to wait.

So, I looked about for a job, and found one in Spotswood, in an engineering machine shop. Untrained, the only work for me was to operate automatic machinery, and the agreement was made that if my militia unit was to be called for training, I would be allowed time away. The only products of the shop were parts of mortar bomb fuses, and to produce them, we worked three eight-hour shifts each day for six days a week, with the shifts rotated fortnightly. My pay, for a junior, was high - two pounds a week - [\$4.00]!

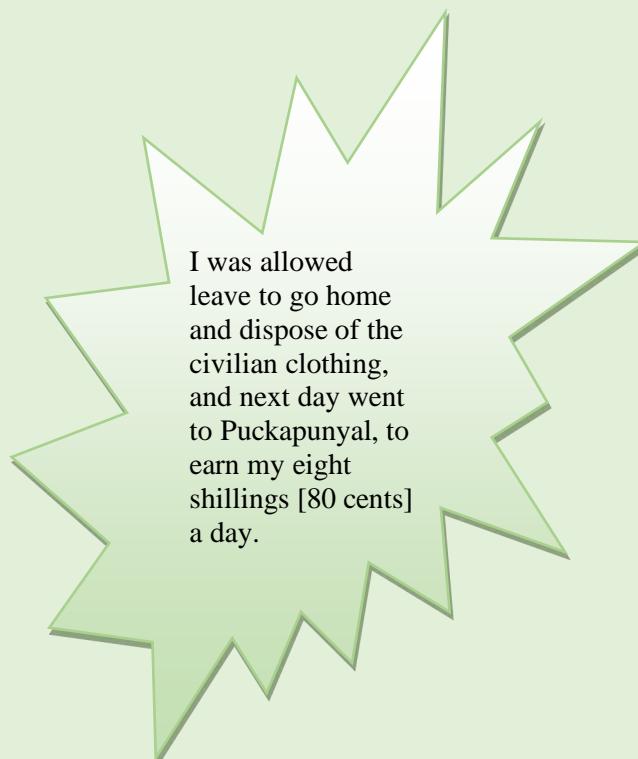
By October 1940, Bob had still not been called, and so I went into the recruiting office at Melbourne Town Hall and put my name down. I was told that AIF recruiting had been suspended for a time from that day, and that I would be called when it resumed. And so, back to Spotswood, and my two pounds a week.

Early in the new year, another camp was called for Seymour. We were to do a lot of live shooting, and all of it at the Puckapunyal range. One day, we had taken our guns over there, and set them into position, and done a lot of firing, giving the observation post officers an opportunity to put their training into practice.

After some hours, we were to withdraw for a meal break, and hand our guns over to men from another battery. I had handed over, and gone no more than thirty yards or so, when their firing orders came down. The first round from my gun hit an overhanging tree, about twenty yards away. A forty-pound high explosive shell is designed to

do a lot of damage, and this one did. One of the gun crew was killed, and three badly injured. And the 4.5-inch howitzer was written off. My second! As it was my gun, a decision was made that I should attend the Coroner's Court to give evidence. A finding of accidental death resulted.

After that training camp at Seymour, there was no word from the AIF, and no word of the immediate future of the 4th Brigade, so I made myself available to go to an advanced course at the Southern Command Artillery School at Seymour. I was selected and passed the course reasonably well. The only name I recall from that school was of a Captain Barrow.



AIF Service

At the end of April 1941, I was told that I was about to be called up for the AIF, and so ended my association with McKenzie and Holland, of Spotswood. I also ended my association with the 4th Brigade, and, I thought, with the Militia.

I finally enlisted on May 12th, 1941, and went to Royal Park Depot, and was given my uniform and the various accessories. I was allowed leave to go home and dispose of the civilian clothing, and next day went to Puckapunyal, to earn my eight shillings [80 cents] a day.

At enlistment, hoping for an early movement overseas, I had said nothing of my militia background, and when offered a choice of the arms of service, chose artillery. At Puckapunyal, at the artillery admission centre, I was offered anti-tank, anti-aircraft, or field artillery. I chose field, and was about to be allotted to a hut, when the officer in charge came in to look over the new recruits. It was Captain Barrow, and he recognised me immediately. And so, instead of going into the general area, I was sent to their special training unit, called by its members "Schrader's Academy".

At the Academy, whose officer in charge was Captain "Heinie" Schrader, we had to be able to

do, and do well, most of the work required in a field artillery unit. Anybody unable to function well, was sent back to the lines quickly. So, in addition to gunnery instruction, we had driving lessons on everything likely to be in use, except tracked vehicles. We had a lot of anxious moments when learning to ride motorcycles - 250c.c. B.S.A.S - at speed, on unmade roads, and over paddocks, but we did learn. And we drove all sorts of heavy vehicles as well. On completion of the Academy training, we were all promoted to the rank of sergeant, and then sent on to the Artillery Officer Training Unit at Holsworthy, NSW, for more training at a high level.

While at the Academy, I met up with Boyd Orchard again. He too, had left Melbourne Tech to enlist in the AIF, and chosen to join a dental unit. It happened that the unit he was allotted to, had its quarters next to our Academy quarters, and so we were able to meet easily. On one occasion, I had an accidental collision with a power pole (face first) outside his unit. He took me in and cleaned up most of the damage. Years later, when no records could be found, his statement convinced the Repatriation Department to accept responsibility for any future treatment.

Boyd later transferred to a Commando unit and saw service in New Guinea. He received a "Mentioned in Dispatches" commendation there. We did not meet again until sometime after the war, but then renewed our friendship. He was, by then, married to Roma Eldridge, and they had two daughters Elizabeth and Jenny.

At Holsworthy, the training programme was intensive, with the object of producing fully trained artillery officers, for both the Militia and AIF (The Militia was now to be known as the Citizen Military Forces, the CMF, but still was not to be considered for service outside Australia). Again, we had to be able to carry out any position in the unit, and had a lot of live firing, and working at night was frequent. Training in administrative duties was well covered. Any candidate considered unsatisfactory was immediately returned to his unit. On completion of the course,

to unwind, parties were held on the last evening before returning to our units. Next morning, when reveille was blown by a very noisy bugler, I awoke in bed, to find that my bed was in the middle of the parade ground. Most embarrassing!

And then, back to Puckapunyal. As sergeants, we were given teams of men to train - all of them had finished their basic training, and were to be made ready for embarkation, as reinforcements for artillery units already in action in the Middle East. They were soon allotted to their various units, given pre-embarkation leave, and then left us.

In November 1941, still awaiting allocation, I was called to the Commanding Officer, and congratulated - I was now a second lieutenant. After a short leave to have new uniforms fitted, I returned, and was then told that I was to be in-charge of the twenty-second reinforcement to the 2/2nd Field Regiment. This unit was said to be in action in Libya at that time. Embarkation dates were to be given later.

Then, December 8th - Japan bombed Pearl Harbour, and Australia was at war with Japan. The whole of the Army plans were in total disarray. The political decision was quickly taken, that there would be no more movement of troops from Australia to the Middle East, and that all troops then overseas should be returned to Australia as soon as possible.

At Puckapunyal, instead of the straight lines of neat, clean, and shining vehicles and guns, everything had to be camouflaged and dispersed, in case of enemy surveillance. There was no word for a long time as to the future of the AIF troops in camp there, or the CMF troops in camp at any of the many camps countrywide. Our life in camp did not change - training, with mostly evening relaxation - the canteen [licensed, of course] was popular, as were the YMCA and Salvation Army and other rest areas.

Concert parties and music groups, some very good, came occasionally to entertain us. And we were able to go into Seymour township for relaxation, to have a change of diet, and to have hot showers! The Shower House had a long bank of

At Puckapunyal, instead of the straight lines of neat, clean, and shining vehicles and guns, everything had to be camouflaged and dispersed, in case of enemy surveillance.

showers, and for three pence (2 cents), we could have up to ten minutes of wonderful hot water. The camp showers were usually cold and uninviting.

16th Field Regiment, CMF

In January 1940, four of us, all new lieutenants, were transferred to a new CMF unit, the 16th Field Regiment, being formed at Trawool, even though we were AIF troops. It had been led at first by some aged CMF officers, and some sergeants from other CMF units, who had volunteered to join the new unit and several of the troops were AIF men who had been re-allocated, as I had been. Many of the other troops were eighteen-year-olds called up for service, some, unwillingly.

As a new unit the Regiment was made up of three batteries, 45th, 46th, and 47th, each of two troops. I was allotted to A Troop, of 45th Battery, equipped with twenty five-pounder guns, instead of my old 18-pounders and howitzers. I had to learn to service and use these new, and greatly improved, guns.

So, back to training new recruits again. Eventually they were considered trained, and the unit became part of the 1st Armoured Division. Eventually, we were told that the 16th was to move north to train with the rest of the division.

We went to several temporary camp areas, and finally settled near Tamworth, for access to the wide open black soil plains. We junior officers attended none of the Divisional briefings and were told little of the activities. The 16th did its own deployment exercises, and we assumed that other arms of the Division were doing theirs, because we saw almost nothing of them. We saw some of the tanks on one occasion - after heavy rain, we returned to our base, but the tanks could not - their tracks could not cope with that soil, and they sank to their flat bottoms, and stayed there.

Eventually, the Division was regarded as a trained entity, and was to move to Western Australia. The 1st Armoured Division had been set up to be a force which would be of use in the Middle East or in Europe when the time came, but it seemed not to be a practicable force in defence. The Japanese forces now were not too far away, having taken

Malaya and Singapore, and were moving south. The north of Western Australia would have been their nearest invasion site, if they chose, and a lot of troops were moved into that zone. The Armoured Division, with nowhere else to go, was to be sent there.

The 16th moved from Tamworth to Gunnedah to entrain and was there for some weeks - some troops had home leave - and I was left in charge of the Battery. After loading the guns on to the train, we travelled the inland rail links, making for a very slow trip. The monotony was broken at times by some of the country women's groups meeting the train at their local stations and greeting us. They gave tea and cakes to all aboard, as well as very different themes of conversation during those short stops. They were most welcome.

It had been led at first by some aged CMF officers, and some sergeants from other CMF units, who had volunteered to join the new unit and a number of the troops were AIF men who had been re-allocated, as I had been. Many of the other troops were eighteen-year-olds called up for service, some, unwillingly.

I found out that we were to go through the southern part of the Riverina to Tocumwal, and phoned an ex-neighbour from Toorak, and later, Bunyip, Win Thomas, [now Win Vickers], at Moombooldool (pronounced Mumbledool). She was out, so I left a message on the party line, to say that I could see her at the station. I managed to ride on the engine and convinced the driver of a need for him to stop at that station. He did so, but Win was too late to make the meeting.

We did arrive late at night at Tocumwal, to change from the standard NSW gauge train to a Victorian wide gauge train, and all the heavy transfer work was done by a prisoner of war group. The ones I spoke to were Italian.

Then we had a slow trip to Melbourne, but when going even more slowly through North Melbourne station, several of our troops took the opportunity to go home to see Mum. All were returned to us under police escort within weeks. The trip to Adelaide was just as slow, and when we arrived, we were billeted in their Showgrounds. I drew a horse pavilion berth, and it was none too fresh.

From Adelaide, we went on to Port Pirie, to change back to standard gauge trains. On reaching there, the Battery had to be divided into two parts - the available locomotives were not powerful

enough for the load. I was left to take the later train - when they found an engine for it - with several troops. When our time came, a day later, one man reported sick, so I took him to a local hospital for treatment, which took time. When I returned, the train had gone. I was then driven to Port Augusta by jeep and met the train there. It was a welcome change of transport.

We had a very slow and dreary trip across the Nullarbor. Somebody tried, unsuccessfully, to teach me how to play chess, and another tried me out with bridge, with no success. We had welcome breaks with stops at the very isolated stations across the outback, meeting people there who needed company just as much as we did. The tired old engines in use were said to have been brought out of retirement from the NSW railways, and I believed it. On one occasion, on a long section, our engine could not get over a very small rise - the tracks had been laid over the small sandhills, with little need for levelling being seen. So, the train was reversed for about two miles, until the rear had gone up the previous rise to give extra impetus, waited to get more steam pressure, and then barely passed the obstacle with the extra power.

On another occasion, when I was again on the footplate, we saw an engine in the distance with no train. When I asked, I was told that it had been there, on the siding, for three or four months, because it was unserviceable. Why? Because it needed a new sight glass for checking the level of water in the boiler!

At one stop, in mid-Nullarbor, an east-bound troop train pulled up beside us. Everybody got to the windows and doors to swap stories, and at a door opposite me was another friend from Wesley, Bill Young. It was a very quick reunion. The last time I had seen him had been on the snow at Mount Buller in 1939.

Western Australia

This stage of the trip ended at Coolgardie, so that we could again change trains - from standard gauge to the narrower gauge in use in Western Australia. On leaving Coolgardie, we ran into trouble - their bridges were lower than others we

had passed under. The few inches difference in height made a lot of difference to some of our big trucks.

Some distance from Coolgardie, the ancient engine broke down. As it happened, we were close to a very small, isolated settlement. A lot of the troops, with nothing else to do, went into the local

hotel. There, they found that all the beer was hot, and some said, sour. With nothing much else in the town, they soon returned to the boredom of the train.

We again travelled an inland track, now north to Mingenew, in a region east of Geraldton, and there set up camp. It was

desolate iron ore country, with no local water - that had to be brought into us daily. After some weeks, we moved on to Mullewa, which was not much better, and later to Morawa, which was a liveable area. We saw no other units, but knew that they were in the region, somewhere. We carried out some battery and regimental exercises, but overall, we sat and waited for many months for something to happen.

To attempt to find water one of the men who claimed to be a water diviner, decided that it was there, and not too far down, so started digging. After a while the hole, some six feet square, needed shoring. He found some timber, and the hole deepened. And it remained dry, until rain fell quite some distance away, and it filled quickly. All of the local snakes, and some other odd wildlife, found and enjoyed it. Then, somebody came in, and wanted their timbers back. They were railway sleepers, and so had to be returned. And then the hole had to be filled in, as it was rather unsafe.

At one time, it was decided that a rest area should be arranged, to give all units a chance of a break in routine. Dongara, some miles south of Geraldton, was chosen as the site. A beach area was selected, with our unit to provide the labour to set it up. I was sent with a captain from headquarters, and a team of about a dozen troops. We could get any amount of scrub bush for screens, but there were no trees to give any timber for roofing of kitchens, and so on.

To attempt to find water one of the men who claimed to be a water diviner, decided that it was there, and not too far down, so started digging.

The captain went to the local council and was told that a flour mill was now vacant, had been out of business for years, and rates had been unpaid for even longer. So, we went in, and removed the jarrah floors of three levels, and erected a good campsite. Then the military police moved in, and they were not at all friendly. That was the end of that rest camp. And the captain and I were dressed down remarkably well, by General "Red Robbie" Robertson.

The only bright part of this episode was that one evening, we were all on the beach after our swim, and a boat came along, close in. The fisherman asked if we would like some lobsters. A very silly question, but we said 'yes' anyway - he charged two shillings [20 cents] each for large bags full of the local small lobsters, ready cooked. And they were delicious. We enjoyed them on the following two nights, too, before we returned to our unit.

Southern Western Australia

Apparently, the threat of invasion was easing, so the Regiment was moved again - this time to a more pleasant environment, Rockingham, about twenty miles south of Fremantle, and about half a mile from the sea. We were spread out over a lot of sandy country, with a lot of low scrub for cover. Rockingham then was a holiday locality, on Cockburn Sound, not even a village - a hotel and general store, but as I recall, nothing much else. A policeman lived locally, and that was Rockingham. It now seems to be almost an outer suburb of Perth.

We stayed there for some months, broken by a short stay in a camp beside the Swan River at Point Walter. It had a tall timber frame built out over the water, about thirty feet high. The idea was that we were to learn how to jump off a sinking ship, by hitting the water upright, [and being able to return to the surface] - just in case we were ever to be on a ship. One night, we had a joint landing exercise with the Navy near Point Walter, which turned out to be almost a complete waste of everybody's time. My boat ran aground in mid-stream, and the naval crew seemed helpless, and so my team took no worthwhile part in the exercise, at all.

Another two-week break was to be made to Collie, for a "jungle" exercise, which was so bad, it was

funny. Amongst other training exercises, we had to cross a river on ropes - one to walk on, one at head height to hold on to. Somebody had misjudged our heights, and some of the shorter troops lost their grip in mid-stream when others started on the ropes. We had marksmen firing closely over our heads at the same time, to make it realistic. I assume that the many rifles and other things that were lost, are still at the bottom of that river.

Word had come through about a Japanese convoy reported to be heading for Australia from the Singapore area.

We had been there only a few days when a call came for an immediate return to Rockingham. Word had come through about a Japanese convoy reported to be heading for Australia from the Singapore area.

We left Collie at high speed in open Service Corps trucks and arrived at Rockingham to find that the off-duty half of the skeleton team left to safeguard the guns, had gone to Perth for a break. Attempts were made to find them, but we left without them anyway. Another high speed drive to Moora, a hundred miles up from Perth, and we only lost one truck on the way from an accident, from the whole Regiment.

After settling into the new area, it became a "wait and see" process, and after a while, it was seen that the immediate threat no longer existed. No leave to any local town was allowed, and troops became restive and bored. A strike was called, but that fizzled out quickly. General Robertson was very upset and was very vocal about it all, too, just as he had been with me when the timber was taken at Dongara.

At this time, with a feeling of slackness being common, it was decided at a high level that a show of artillery capability should be staged. I was in-charge of A Troop guns on a manoeuvre with B Troop. We were still a way off the range when firing orders came down for B Troop, which was a long way ahead of us, so we made up time to be ready for our call, if there was to be one. As it happened, instead of calling us in later, we were to join almost immediately into the sequence then under way.

This was a drill often carried out, to bring eight guns on to a target instead of four. A very simple way of doing the conversions of the fire orders, was to have a trace drawn, and inverting it for the

angle measurements. I, as GPO, was still getting my four guns into their action positions and had little time to check others in the command post. Somehow, the inverted trace was inverted a second time. This doubled the correction of the line of fire from B Troop, and the first of the four rounds from my troop, instead of landing in the target area, finished rather close to the viewing area of the gathered dignitaries. The other three rounds were not too far away, either. I became officer in charge of transport soon afterwards - a matter of minutes later.

While at Moora, on one occasion the Battery moved over to the coast for manoeuvres, and while there, some fishing was done, the easy way - by throwing grenades into the sea. We bagged quite a few fish, but after the explosions, not one of them was edible.

We were to have live shooting as part of this exercise - as often happened, calls for fire could be changed or cancelled during a shoot. On one part of the exercise, my A Troop finished all their orders, but B Troop was called to move before theirs were all carried out. We were about to move, when the GPO of B Troop called on the radio for us to stay. Asked why, he said his guns were moving out, and the crew of one had realised after half a mile's travel through very rough scrub and over very rough tracks, that their gun was still loaded, with its twenty-five pounds of high explosive pointed at the gun-crew right behind it. We would have been next in line.

Much later, after the invasion scare had quietened, leave still was not allowed to local towns, but was available to Perth. So, I went to Perth with two of the other ex-Puckapunyal officers, Clyde Smith, and Steve Thomas, as well as two others, on a short leave break. First, we all wanted a good haircut. When we went into a barber, he would not touch us until we had been shampooed, to save ruining his clippers, he said. So, we all had shampoos, and then haircuts. Then, we all went next door, and had a sauna. It was my first sauna and helped me feel almost human again. We saw some of the sights of Perth, and then somehow found a recruiting office for the RAAF. We all went in, and all signed up for aircrew training, if we were allowed out of the Army.

Many years later, I came across a book in a local library - the title summed up the whole of my Western Australia service - "Australia's Forgotten Army".

I had the feeling that General Robertson could hardly wait to sign my release, but all of us were released quite quickly, not just me!

As it happened, within three months, the Armoured Division was broken down into smaller Brigade groups, some units were disbanded, and others given different duties. Not long afterwards,

the 16th Regiment was sent to the Atherton Tablelands, Queensland, and then disbanded.

Many years later, I came across a book in a local library - the title summed up the whole of my Western Australia service - "Australia's Forgotten Army". It detailed the movements of all Army units in Western Australia for the war years, including the disbanding of so many of them. The 16th was mentioned in its many sites.

AIF to RAAF

After my release, I went to Melbourne, as a lieutenant, for discharge from the AIF. This occurred on 14th June 1944, and then on the 15th of June 1944, I enlisted in the RAAF as an Aircraftman Class II.

I was sent to No. 1 Initial Training School at Somers, with some other ex-Army men, including Clyde Smith and Steve Thomas, and a large number of 18-year-olds, some called up, while others had volunteered for aircrew training ahead of their calls. Obviously known to somebody, my Army background made me a 'flight orderly', supposedly to keep about twenty other AC II's in line. My badge of rank was to be two stripes, upside down, on work dress, but not on my uniform.

I made a few close friends amongst the men around me, and one was a Peter Jeffreys. He had opted to take the course for navigators, whereas I had chosen the course for pilots. After nearly six months of training, which I enjoyed, we were to be given our onward postings in early December 1944. One morning, called to a parade expecting to be told just that, we were informed that the Empire Air Training Scheme, under which we were being trained, had ceased as from midnight of the night before. Under the circumstances, no postings would be made.

We were then told that the whole School site, of several acres, had to be returned to its original state to make it fit to be handed back to its owners, and so we worked solidly at that for many days. The white posts around the oval had to be removed, and the holes filled. Then, they were to be reinstated, and repainted. Apparently, the owners wanted it that way. Air-raid slit trenches had to be filled in. Life was very dreary, with no talk of any future postings. One day, we had a little variety, being called out to fight a local grass fire. And so on, and on. There appeared to be no worthwhile future opening for us.

There was only one bright spot on our immediate horizon - having passed our preliminary training course, we were promoted. From lowly Aircraftmen Class II, the lowest of the low, we all became LACs - Leading Aircraftmen! Instead of a bare sleeve on the uniforms, we had a small metal propeller on the upper arms, to show our superior rank.

Then, a call for volunteers for transfer to another un-named station was made. Forty of the very many willing volunteers were taken, and later we found that they were going to Mildura RAAF base - to go fruit-picking! A later call for more volunteers took another forty very willing volunteers. We found they were sent to be cleaners and storemen at the Tottenham Stores Depot. A further call was made, and nobody volunteered - they then took the first thirty in the line, and I was about the second last in that line. We were told that we were to go to Tocumwal as ground crew at No. 1 Operational Training Unit there.

Whistle blown (they did in those days) the engine left. The rest of the train did not move, because someone had uncoupled the front carriage. Very soon, and closely guarded by service police, the engine again went off. This time, the last carriage had been uncoupled. The third start was lucky, and we left. With the limited black-out lighting, it was not good travelling, and then, at Bendigo, the engine ran out of steam, or something, and passengers were packed into buses for the rest of

their journeys. I arrived at the base at nearly 2 am. Shortly after arrival I took 7 days leave to marry Barbara and then off to Tocumwal.

Tocumwal

Having arrived in the middle of the night and given basic bedding for the rest of the night, I had to be officially taken on strength when the office of the orderly room started work later that morning. Then, I was seen as unwanted because my papers had not arrived from Somers. When I was eventually accepted, I was allotted to permanent guard duty, because I was told that I had "been in the Army".

We saw some of the sights of Perth, and then somehow found a recruiting office for the RAAF. We all went in, and all signed up for aircrew training,

The design of the Tocumwal base was aimed at confusing any possible enemy surveillance - the airstrip was laid as though it was an extension of the local main road, and all the accommodation was in the form of a town layout, with houses of varying size, shape, and colour lining both sides of the airstrip, as along a road in a town. All the houses

looked normal from outside, but were bare inside, and were basic accommodation for the airmen. The larger buildings were for various other uses - for training, lectures, stores, kitchens, administration offices, and so on.

I remained as a member of the guard section for nearly two months, and as the 'new boy', was given the night shift frequently. This did have its rewards - after a sleep, the day was mine just as long as I stayed on the base. One day, I was offered a trip on a navigation exercise to New Zealand. Before I could take it, the exercise was cancelled, and, as a consolation, I was taken on one flight - a series of 'circuits and bumps' - with a crew learning to fly this type of plane. Having had a salad lunch with a lot of beetroot, the motion of the plane continually circling the airstrip and landing and immediately taking off, did nothing positive for me. I lost my lunch and made a very colourful bomb bay for them. I was not offered another flight.

On one occasion, I was able to watch a disabled plane trying to land - it eventually crashed, with no major injuries to the crew. Later, it was said to have been sabotaged. On another, I watched two four-engine Liberators come into land - they seemed

huge to me when close. They were new, and at the end of their delivery flight. The following morning showed both of those planes unserviceable - sabotaged.

Nobody was ever caught for the sabotage, and those two Liberators were still there, some years after the war, in the very same positions, with many parts having been very roughly removed as 'souvenirs'.

The main purpose of the Unit had been to train crews for operational areas, and as the need for those crews lessened, the base activity was reduced. After my two months there, I was told that I would be posted away for 'other duties'.

Shepparton

Eventually I arrived, with some trepidation, at the Shepparton training base for ground crew recruits - I had no desire to go through basic training again, whether as a trainee or on the staff. I had had no early warning as to what my duties there would be.

I was joined with some twenty other airmen, and we were to use the base for accommodation only - we were sent there to become fruit-pickers. We were paid our now usual nine shillings and sixpence a day [95 cents] and worked six days a week, but the orchardists had to pay the full normal labour rates of pay for our work, to the RAAF. We would take a cut lunch with us, with paper wraps of tea and sugar, as well as a piece of fruit, each day. The fruit that we ate straight off the trees, mostly peaches and pears, was so much better.

When the fruit season finally closed, we were all dispersed again. I went on to the No. 1 Stores Depot in Port Melbourne. I worked as a storeman and cleaner mainly, until they learned that I had driven heavy vehicles in the Army, and then I had a little more variety, but there was little work overall. There was an unusual amount of pilfering there - it was said that even an engine for a light plane was "mislaid" - it was never found. Nor were two wings for the same type of light plane ever found. Or some other parts! One day, I was called to help unload a truck, delivering 144 electric irons, and when we had carried the case of 100 inside, and returned to the truck, the other case of 44 was missing, never to be found.

I was given permission to live outside the base in Port Melbourne, and so lived with Barbara in the Eltis home. The house was not very spacious, with

her parents, Heather and Bill, "Mum" and "Pa", and sister Joan there as well.

By now, July 1945, the war was ending and many of the ground staff were being discharged. My brother Bob, having bought a pharmacy in Chapel Street, Windsor, sometime earlier, asked for me to be discharged on manpower grounds, to go into his employment. And so, I left the Air Force on August 7th, just days before the war finished.

**VOLUNTEERS
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You can help by contributing to artillery historical research no matter where you live, or if you live in Sydney, you can assist in the Cutler Research Centre and / or Australia's Memorial Walk. You desire you can become an RAAHC director or just offer any skills you may have to contribute to specific areas. No knowledge of artillery is required.

Email: secretary@artilleryhistory.org



Daily Routine

The RAAHC at Work

CANNONBALL
SUPPLEMENT

THE WERRIBEE GUN UNVEILING: A BRIEF REPORT

Brigadier Doug Perry OAM, RFD (Retd) represented the then Head of Regiment, Brigadier Richard Vagg DSC, at the formal unveiling of the restored Werribee Gun on Sunday 5th December 2021.

The official unveiling of the restored Werribee Gun was a relatively modest affair, however well attended. The Battery Commander of the Werribee Half Battery, Captain Allan Stirling, delivered a comprehensive introductory address, during which he acknowledged my presence as Head of Regiment's representative, along with Colonel Pearce the Deputy Commander 4th Brigade, Colonel Jason Cooke as President of the RAA Assn (Victoria) which provided the seed funding for the restoration; Major James Eling Battery

Commander 2nd/10th Battery and a Director of the RAAHC.

On the civilian side he mentioned the RT HON Earl of Loudoun, representing the descendants of Lord William Armstrong; Mr Ben Cox representing the Chirnside family who initially funded the horses, uniform, and drill instructor of the Half Battery; Mr Gary Osbourne, representing the NSW restoration team; Councillor Peter Maynard the Mayor of Wyndham, and Councillor Heather Marcus who has the heritage portfolio.



The gun was then unveiled followed by a demonstration of drill and firing (primer only).

Colonel Jason Cooke then addressed the gathering with a description of the project from inception to completion.

A very professional publication written and published by Allan Stirling and Kevin Browning was also made available for sale.

The ceremony was followed by a semi-formal lunch in the best traditions of the Werribee RSL.



L-R: BRIG Doug Perry; COL Jason Cooke & MAJ James Eling

A very professional publication written and published by Allan Stirling and Kevin Browning was also made available for sale.

Overall, it was a very well organised affair, and I was pleasantly surprised by the number of people who attended, simply as spectators, and spoke of their association with RAA, both Reservist and Regular, during the preliminaries

A quick report on the unveiling at Werribee.

EDITOR: A COMPREHENSIVE STORY ON THE RESTORATION PROJECT WAS PUBLISHED IN CANNONBALL EDITION 98 WINTER 2021.

CAN YOU HELP

The Pagan Cup remains elusive. Originally the Cup was linked to AD units in 2 MD. When last competed for (due to the demise of AD in 2 MD) the rules were amended and linked to the Gordon Bennett Trophy. The last record of it being awarded was to 1 Battery, 23 Field Regiment in 1974-75.

Heath Trophy. This was for 'attendance' which today can be interpreted as recruiting / retention.

If any reader knows the whereabouts of these trophies be part of reinvigorating our heritage and advise HOR staff. Contact Major Gary Down or Major DT (Terry) Brennan

PORT JACKSON 4 POUNDER - 1790'S

John Cox, History Director RAAHC
April 2021

THE HISTORICALLY SIGNIFICANT 4 POUNDER CANNON RESTORED, AND ITS CARRIAGE BUILT BY SYDNEY HARBOUR FEDERATION TRUST VOLUNTEERS AT NORTH FORT, NORTH HEAD, SYDNEY 2020 TO 2021

PROJECT FUNDED BY THE ROYAL AUSTRALIAN ARTILLERY HISTORICAL COMPANY

Gunners of the Royal Regiment of Australian Artillery proudly reflect on their history and heritage, and links to early colonial days, through the Port Jackson 4 pounder cannon.

The displayed cannon is from the second group of guns landed at *Sydney Cove* in the 1790's.

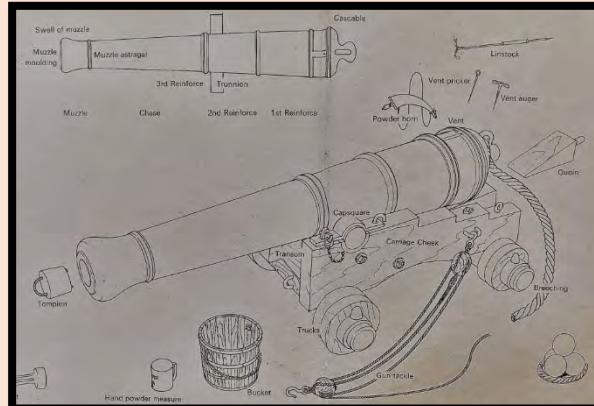


Image from Naval Gun by I Hogg & J Batchelor

After establishing a settlement at Sydney Cove in 1788, Governor Philip constructed forts to provide protection from seaborne attack. Progressively, Forts at *Dawe's Point* (south end

of Harbour Bridge) and *Bennelong Point* (Opera House) were established to guard against raids on this first settlement in the Colony.

This cannon was one of 10 on *HMS Supply-2*, (a replacement ship for the First Fleet vessel by the same name). She arrived in Port Jackson on 7 September 1795. Following a trip to the Cape of Good Hope in 1797 the *HMS Supply-2* was deemed unseaworthy and became a ‘guard ship’.

HMS Supply-2 ship’s log records that in 1798 the crew constructed a battery at *Bennelong Point* (near today’s *Sydney Opera House* position), and guns from the ship were emplaced there.

The 4 pounder was emplaced to be employed at close ranges using direct fire line of sight methods. Its maximum effective range would have been up to around 500 metres. A raiding vessel attempting to close on the 400 metre wide entrance to *Sydney Cove* would be well within range.

Cast iron cannonballs would not have been the first choice for firing on attacking ships by a 4 pounder.

A preferred ammunition type was grapeshot. Grapeshot which was a sail and rigging ‘clearer’ that damaged spars and ropes.



Without sail, ships were immobilised, uncontrollable and vulnerable.

Grapeshot consisted of a collection of smaller calibre round shots packed in tight geometric arrangements into a canvas bag

and separated from the gunpowder charge by a wood or metal wadding.



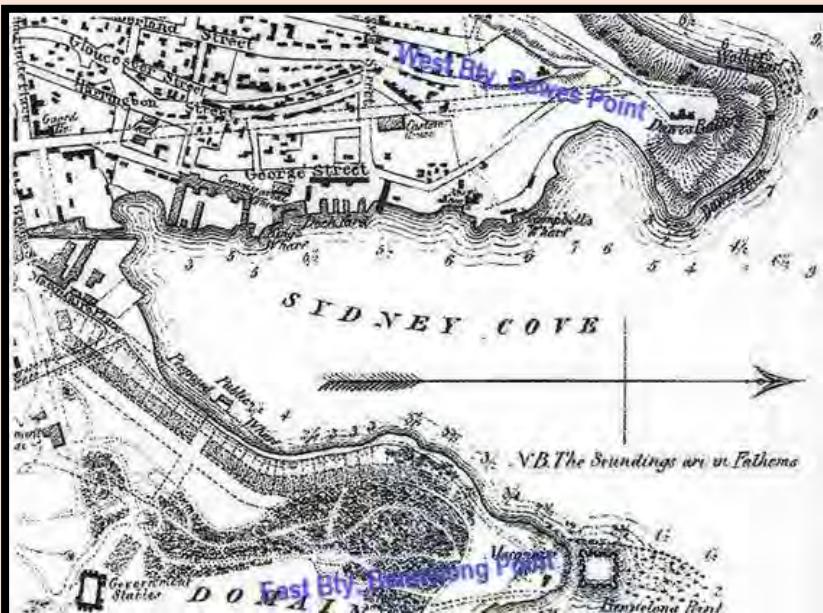
A 4 pounder grapeshot round carried 8 ‘shot balls’, each weighing 6 ozs (170g). The total weight was 3lbs 14 & a 1/2ozs (1.77kg).

An example of the grapeshot ammunition

configuration is shown on above left.

This 4 pounder was manufactured by George Matthews and Francis Homfray of *Calcutts* near *Broseley* in *Shropshire, England*. They cast muzzle loading guns for the Board of Ordnance between 1778 and 1785. Its manufacture followed ‘Armstrong-Frederick’ pattern design principles.

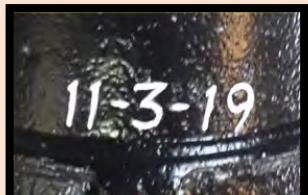
It is correctly known as a short



or 5 foot 6 inch 4 pounder; however, the overall length of the barrel is about 6 foot. The length measurement does not include the cascabel.



The cannon is embossed with the cypher of King George III (1760-1820)



The cannon's weight when manufactured is marked as 11 hundredweight 3 quarters 19 pounds (1335 pounds or 606 kg)



The maker's mark 'Z' is on the trunnion end. A possible serial number (19) is displayed. The number '4' might have indicated a position on the ship or at a fort.



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Email: secretary@artilleryhistory.org

Book Review

CLASH OF THE GODS OF WAR

Australian Artillery and the Firepower Lessons of the Great War

Edited by William Westerman & Nicholas Floyd

REVIEWS IN BRIEF

Michael O'Brien

Too few of the recent accounts of the Great War place gunnery in its correct perspective. This book redresses this imbalance and traces the increasing power and importance of artillery development well.

Every gunner officer and all those interested in the role of Australian artillery in this conflict should find this book of singular importance.

Rated 5 out of 5

RUSI – Vic Library

This book results from a lingering dissatisfaction with the history of Australian artillery, especially in the First World War (or perhaps a lack of understanding of it by recent generations of soldiers). It led to a seminar series (Firepower: Lessons from the Great War, available in full at: <https://cove.army.gov.au/article/firepower-lessons-the-great-war>) and to the consolidated papers in this volume. The authors are a satisfying mix of professional gunners and historians.

Rated 5 out of 5

Military Books of Australia

Overall, the collection, which includes numerous previously unpublished Great War images, aims to showcase the breadth and diversity of topics in relation to the deployment of artillery and how Australia's fledgling and inexperienced field and garrison artillery forces faced the challenge of a major conflict. Full Review:

<https://militarybooksaustralia.wordpress.com/2020/06/19/the-clash-of-the-gods-of-war-australian-artillery-in-the-great-war/>

Rated 5 out of 5

Peter Masters

There is a stellar cast of contributors to this book which is an edited collection of papers presented during the Firepower: Lessons from the Great War seminar series conducted by the Royal Australian Artillery Historical Company (RAAHC) [click the link for more information] – over the commemoration period 2014-2018.

Among the familiar names are Jean Beau, Roger Lee and Mark Lax, to name just a few.

Rated 5 out of 5

RUSI VIC

The excellent photographs that are included have many from the Artillery Historical Company's collection – a great resource.

Rated 5 out of 5

Gary Sheffield – University of Wolverhampton, UK

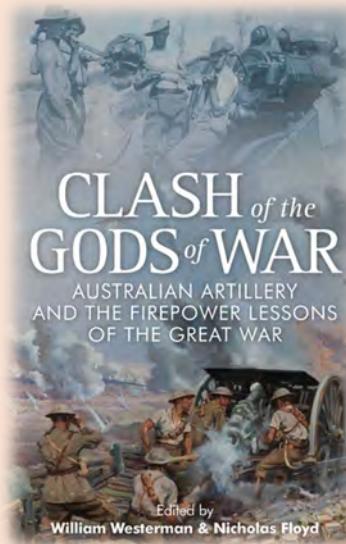
The editors, William Westerman and Nick Floyd, have done a tremendous job. This is an extremely important contribution, not just to Australian military history, but to the history of

the First World War. It will become a standard work and surprisingly, given the technical nature of the subject, it is very readable.

Rated 5 out of 5

Justin Chadwick

Important contribution to Australian military historiography.



at:

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LTCOL SA Jenkins
LTCOL SF Landherr
LTCOL BL Lloyd RFD, ED
LTCOL JL Macpherson (Retd)
LTCOL PJ Meakin
LTCOL PD Monks
LTCOL LF Searle
LTCOL PR Tyrell (Retd)
MAJ WGG Boyd
MAJ DT Brennan
MAJ F Bruce
MAJ P Cimbaljevic
MAJ CT Connolly
MAJ WG Cooper
MAJ IK Cossart
MAJ RD Cumming
MAJ GM Down
MAJ M Dutton
MAJ TJ Gibbings (Retd)
MAJ I Jeong
MAJ J Kaplun, OAM (Retd)
MAJ HR Lenard (Retd)
MAJ G Metcalf
MAJ AP Mumford
MAJ WJO Norton OAM
MAJ GM Potter
MAJ JL Ronayne
MAJ K Schoene
MAJ MJ Taylor
MAJ W Tapp
MAJ JD Thornton
MAJ D Turnbull
MAJ L Window
MAJ AL Ridgeway
MAJ AL Seymour
CAPT SA Montgomery
CAPT KJ Smith
LT MJ White
WO1 SR Caswell
WO1 G Hampton
WO1 M Humphrey
WO1 SJ Jolley
WO1 DJ Sinclair
WO2 T Grieve
WO2 AJ Hamilton
WO2 LL Lawrence
WO2 DG Ogden
WO2 J Pollitt (Retd)
SGT RJ Gould
SGT SC Robertson
SGT MA Rutherford
Mr N Fox
Mr BC Kyrwood
Mr B Leutton
Mr LA Manning
Mr M Vandyke

Associations

107 Fd Bty Association
Coast Artillery Association

Deceased Life Members

BRIG GT Salmon
Mr KM Cossart
MAJ AH Smith
MAJ PW Spence

GUNNERS FUND

Annual Subscribers

Receive a numbered
Regimental key ring &
eligible for 'Annual Badge
Draw' as of 1 August.

Correct as at 20th December 2022

WO1 M Miller
BDR WD Blanck
BDR SJ Selwood

GUNNERS FUND

Fortnightly Subscribers'

Receive a numbered
Regimental key ring &

eligible for ‘Annual Badge Draw’ as at 1 August.	CAPT TAH Gommers	WO2 AA Jensen
<i>Correct as at 20th December 2022</i>	CAPT BD Green	WO2 JR Millington
BRIG NJ Foxall	CAPT BJ May	WO2 GD O’Connell
BRIG DJ Hill	CAPT SN McBride	WO2 T Organ
COL DM Edwards	CAPT LS McDonald	WO2 RA Partridge
COL MKL Mankowski	CAPT SA McLean	WO2 SA Regal
COL JB McLean	CAPT TD Radford	SGT RW Archer
COL MRC Kennedy	CAPT PA Ruggeri	SGT NR Corradetti
LTCOL RJ Alsworth	CAPT JH Stanhope	SGT JT Elms
LTCOL MJ Cook	CAPT AJ Toms	SGT ECR George
LTCOL WG Cooper	CAPT SW Watts	SGT CJ Haire
LTCOL RJ Crawford	CAPT N Wells	SGT C Saetta
LTCOL NC Laughton	CAPT BJ White	SGT AJ Shilton
LTCOL AJ Payne	CAPT NJ Woodhams	BDR AM Bamford
LTCOL JJ West	LT JB Childs	BDR GM Clark
MAJ JLF Batayola	LT MJ Convey	BDR NJ Mackay
MAJ JP Casey	LT SE Brown (Furlong)	BDR CA Martinez
MAJ JM Costello	LT DJ James	BDR Y Nasralla
MAJ MJ Finnerty	LT JJ Lynch	BDR ES Noble
MAJ JG Floyd	LT AJ Martin	BDR TL Nuttall
MAJ S Frewin	LT AJ Other-Gee	BDR MT O’Connor
MAJ NP Mahr	LT DI Roksa	BDR MA Parsons
MAJ AR McDonell	LT WC Ryan	BDR LB Sonners
MAJ BJ Perkins	LT AK Stokes	BDR T Stewart
MAJ C Sandner	WO1 N Cole	BDR JM Tosh
MAJ MJ Sullivan	WO1 BM Colles	BDR SJ Wallace
MAJ A Wendt	WO1 MS Dewar	BDR JL Whitby
MAJ JP Wiles	WO1 BT Donaldson	LBDR JL Logan
MAJ MA Williams	WO1 DR Grundell	LBDR JS McIntosh
MAJ RI Best	WO1 AM Hortle	LBDR MJ Neilson
CAPT SM Bowles	WO1 MJ Kelly	LBDR CZ Rasmussen
CAPT NS Clark	WO1 TL Kennedy	GNR RP Brown
CAPT CC D’Aquino	WO1 DP Lindsay	GNR TW Campion
CAPT DP Gillam	WO1 D McGarry	GNR KW Murray
CAPT MJ Fensom	WO1 S Schuman	GNR L Hilton-Wood
	WO2 MS Dutton	GNR BA Kopania
	WO2 MP Fountain	GNR J Vardanega
	WO2 CP Grant	

REGIMENTAL FUND BENEFACTORIS

(The paid ‘Benefactors’ membership option has Closed. The new single payment option is paid ‘Life’ membership of the ‘Gunners’ Fund.)

Correct as at 31st October 2017

LTGEN D.M. Mueller
LTGEN B.A. Power
MAJGEN J.E. Barry

MAJGEN D.P. Coghlan
MAJGEN M.P. Crane
MAJGEN P.J. Dunn

MAJGEN G.P. Fogarty
MAJGEN T.R. Ford *
MAJGEN S.N. Gower

MAJGEN P.D. McLachlan	COL C.B.J. Hogan	LTCOL N.H.B. Floyd
MAJGEN J.P. Stevens *	COL C.H. Hunter	LTCOL R.J. Foster
MAJGEN P.B. Symon	COL A.G. Hutchinson	LTCOL N.J. Foxall
BRIG M.G. Boyle	COL D.J. Kelly	LTCOL A.W. Garrad
BRIG J.R. Cox	COL S.N. Kenny	LTCOL I.D.W. George
BRIG G.W. Finney *	COL W.T. Kendall	LTCOL V Gibbons
BRIG C. D. Furini	COL J.C. Kirkwood	LTCOL R.G. Gibson
BRIG W.L. Goodman	COL P. Landford	LTCOL G. Gilbert
BRIG N.D. Graham *	COL P.J. Lawrence	LTCOL K.R. Hall
BRIG J.G. Hughes	COL M.G. Lovell	LTCOL P.D. Harris
BRIG J.A.R. Jansen	COL L.A. Lynch	LTCOL M. Harvey (RNZA)
BRIG P.R. Kilpatrick	COL R.M. Manton	LTCOL B.N. Hawke
BRIG R.A. Lawler	COL N.H. Marshall	LTCOL P.L. Hodge
BRIG I.G.A. MacInnis	COL J.H. McDonagh (AALC)	LTCOL S.A. Hompas
BRIG T.J. McKenna	COL R.V. McEvoy	LTCOL B.G. Hurrell
BRIG K.B.J. Mellor	COL B.H. Mitchell	LTCOL J.R. Jauncey
BRIG K.J. O'Brien	COL R.B. Mitchell	LTCOL J.F. Kerr
BRIG M.F. Paramor	COL D. J. Murray	LTCOL D. Klomp
BRIG D. I. Perry	COL R.A. Parrott	LTCOL S.F. Landherr
BRIG M.L. Phelps	COL P.R. Patmore	LTCOL A. Langford
BRIG S. Roach	COL A.T. Piercy	LTCOL B.L. Lloyd
BRIG K.V. Rossi	COL A.A. Plant	LTCOL J.L. Macpherson
BRIG G.T. Salmon	COL J.C. Platt	LTCOL R. Maurice
BRIG W.M. Silverstone	COL G.G. Potter	LTCOL P.D. McKay
BRIG G.B. Standish	COL D. Quinn	LTCOL P.D. Monks
BRIG B.G. Stevens	COL S.T. Ryan	LTCOL J.E. Morkham
BRIG R.A. Sunderland	COL S.M. Saddington	LTCOL S.G.T. Mott
BRIG D.J.P. Tier	COL R.H. Stanhope	LTCOL D.M. Murphy *
BRIG P.J. Tys	COL B.J. Stark	LTCOL S.W. Nicolls
BRIG A.G. Warner	COL D.M. Tait	LTCOL T.C. O'Brien
BRIG V.H. Williams	COL R.A. Vagg	LTCOL G.F.B. Rickards
BRIG P.D. Winter	COL W.A. Whyte	LTCOL M. Shaday
COL S.P. Amor	COL B.A. Wood	LTCOL C. Taggart
COL P.F. Appleton	LTCOL S.D. Aldenton	LTCOL W.R.C. Vickers
COL B.M. Armstrong	LTCOL C.W. Andersen	LTCOL D.H.R. Wilton
COL B.J. Bailey	LTCOL B.J. Armour	LTCOL B.J. Winsor
COL J.F. Bertram	LTCOL J.D. Ashton	MAJ W.C. Barnard
COL J.P.C. Black	LTCOL R.M. Baguley	MAJ G.K. Bartels
COL R.V. Brown	LTCOL N.K. Bolton	MAJ G.F. Berson
COL A.R. Burke *	LTCOL J.E. Box *	MAJ P.E. Bertocchi
COL D.L. Byrne	LTCOL D.N. Brook	MAJ D.T. Brennan
COL S.R. Carey	LTCOL M.A. Cameron	MAJ J.P. Casey
COL S.E. Clingan	LTCOL J.H. Catchlove	MAJ P. Cimbaljevic
COL F.G. Colley	LTCOL I.D.S. Caverswall	MAJ C.T. Connolly
COL D.M. Edwards	LTCOL S.G. Condon	MAJ I.K. Cossart
COL J.A.L. Fairless	LTCOL R.J. Crawford *	MAJ J.M. Costello
COL R.N. Gair	LTCOL C.F. Dodds	MAJ S. Denner
COL S.T. Goltz	LTCOL L.D. Ensor	MAJ P.K. Dover
COL G.C. Hay	LTCOL E.P.M. Esmonde	MAJ M. Dutton
COL E.D. Hirst	LTCOL J. Findlay	MAJ M.J. Finnerty

MAJ C.A. Flear	CAPT M.A. Pasteur (AAAvn)	COL A.R. Burke, COL A.D. Watt, LTCOL J.E. Box, LTCOL D.M. Murphy, LTCOL G.K. Phillips, MAJ J.B. Evans, WO1 K.J. Browning, and M. Vandyke <i>have paid two life subscriptions.</i>
MAJ A.O. Fleming	CAPT P.J. Smith	
MAJ W.J. Francis	CAPT P. Wertheimer	
MAJ T.J. Gibbings	LT J.F. Henry	
MAJ W.H. Grimes	LT S.L. Shepherd	
MAJ J.M. Groves	WO1 D.G. Annett	
MAJ N. Hamer	WO1 D.W. Bowman	
MAJ P. Harris	WO1 K.J. Browning *	
MAJ M.R. Hartas	WO1 L.A. Cooper	
MAJ L.P. Hindmarsh	WO1 B.A. Franklin	
MAJ M.S. Hodda	WO1 E. Harkin	
MAJ D.A. Jenkins	WO1 G.A. Jebb	
MAJ G. Johns	WO1 M.I. Johnson	
MAJ D.E. Jones	WO1 M.A. Johnston	
MAJ J. Kaplun	WO1 T.L. Kennedy	
MAJ J.B. Kelly	WO1 D.R. Lehr	
MAJ J.A. King	WO1 P.A. Matthysen	
MAJ M.D. Laurence	WO1 B.J. Stafford	
MAJ H. Lenard	WO1 R.J. Thompson	
MAJ A.M. Ludlow	WO1 M. Vandyke*	
MAJ R.S. McDonagh	WO1 P.T. Washford	
MAJ A.R. McDonell	WO1 C.F.J. Watego	
MAJ G.D. Metcalf	WO1 G.J. Webster	
MAJ M.W. Middleton	WO2 D. Bannerman	
MAJ G.K. Milic	WO2 M. Broughton	
MAJ D.R. Morgan	WO2 P. Carthew	
MAJ S.R. Nebauer	WO2 M.R. Dawson	
MAJ D.T. O'Brien	WO2 R.T.B. Hay	
MAJ L.W.L. Partridge	WO2 J.J. Hennessy	
MAJ P.J. Prewett	WO2 D.G. Ogden	
MAJ V.J. Rae	WO2 A. Pavlovich	
MAJ S.G. Rohan-Jones	WO2 R.N. Skelton	
MAJ W.A. Ritchie	SSGT R.W. Morrell	
MAJ P.S. Richards	SSGT E.J. Paddon	
MAJ K.F. Schoene	SGT J. Nield	
MAJ L.J. Simmons	SGT G.V. Saint	
MAJ A.H. Smith *	SGT D.H. Wood	
MAJ M.C. Squire	Mr C.J. Jobson	
MAJ A.E.R. Straume	Note (See *):	
MAJ M. Taggart	COL M.C. Crawford, COL E.D. Hirst, MAJ A.J. Balsillie and MAJ A.H. Smith <i>have paid three life subscriptions.</i>	
MAJ W. Tapp	LTGEN B.A. Power, MAJGEN T.R. Ford, MAJGEN J.P. Stevens, MAJGEN J.D. Stevenson, MAJGEN J. Whitelaw, BRIG G.W. Finney, BRIG R.K. Fullford, BRIG N.D. Graham, BRIG J.R. Salmon,	
MAJ A.C. Turner		
MAJ M.L. Van Tilburg		
MAJ T.W. Vercoe		
MAJ M. St C. Walton		
MAJ C.V. Wardrop		
MAJ P.J. Watkins		
MAJ P.R. Widelewski		

Associations

RAA Association (Tas)
 RAA Association (Qld)
 RAA Association (North Qld)
 RAA Association (Vic)
 RAA Association (SA)
 RAA Association (NSW)
 RAA Association (NSW) - Newcastle Branch

105th Field Battery Association

107 (Field) Battery Association

Fort Lytton Historical Assoc

RAA Retired Officers of South East Queensland

Australian Air Defence Artillery Association

13th Battery Association

Deceased Benefactors

Sir Roden Cutler
 MAJGEN T.F. Cape
 MAJGEN G.D. Carter
 MAJGEN P. Falkland
 MAJGEN R.G. Fay
 MAJGEN G.J. Fitzgerald
 MAJGEN J.D. Stevenson (see note)
 MAJGEN J. Whitelaw* (see note)
 BRIG R.K. Fullford* (see note)
 BRIG A.G. Hanson
 BRIG R.Q. Macarthur-Stranham
 BRIG I.J. Meibusch
 BRIG J.R. Salmon* (see note)
 BRIG D.D. Weir

COL M.C. Crawford* (see note)

COL J.H. Humphrey

COL M.J. Kingsford

COL G.M. Salom

COL A.D. Watt *

LTCOL R.H.E. Harvey

LTCOL K.W. MacKenzie

LTCOL P.L. Overstead

LTCOL G.K. Phillips

LTCOL G.W. Tippets

MAJ A.J. Balsillie*

MAJ M. Dawson

MAJ J.B. Evans (see note)

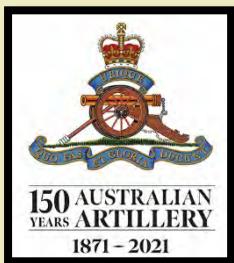
MAJ A.A. Thwaites

CAPT A.E. Sheridan

WO1 K.M. Cossart

RAA Gunners Fund Needs Your Support

Introduction



The RAA Gunners' Fund is designed to provide a source of funds that can be utilised for the benefit of all Gunners regardless of rank. One of the most important uses for these funds is to support requests from RAA units and organisations to assist in

the ongoing preservation and promotion of Regimental heritage. Other worthy goals that the Fund supports includes, but is not limited to:

- support RAA extra-Regimental activities,
- encourage RAA Officers and Soldiers who excel in their profession,
- support activities that benefit RAA personnel, not funded by public money,
- safeguard, maintain and purchase items of RAA Regimental property,
- preserve RAA heritage and history, and
- record RAA Operational service since deployments began in the 1990s.

The Regimental Committee cannot achieve these worthy goals without the support of individual members and organisations within the Gunner community. All ranks are encouraged to make a financial contribution to the Gunners' Fund; be it fortnightly or annual contributions or by becoming a life member. Whilst a '*Life Subscription*' absolves the subscriber from being asked for any further financial contribution they are welcome to make additional contributions to further support the Royal Regiment. The list of life subscribers is published in the Liaison Letter, and they receive a complimentary copy (subject to change).

Recent Projects

Over the years the Gunners' Fund has supported a wide range of requests for financial support, including some of which are ongoing such as the maintenance of the AIF and Mount Schanck Trophies. It is worth noting that the sums of money requested from the Fund are generally significant and therefore can only realistically have any chance of being supported if each and every one of us contribute to the Fund. Projects supported by the Fund include the allocation of:

- \$500 to 107 Battery for 50th Anniversary celebrations.
- \$500 each to 101 Battery and 103 Battery for 100th Anniversary celebrations.
- \$2,500 to 8th/12th Medium Regiment to assist to build a Regimental Memorial to coincide with the Regiment's 30th anniversary celebrations.
- \$500 to 131st Surveillance and Target Acquisition Battery to improve the Battery memorial and add a plaque to mark the 50th Anniversary of the unit and its name change from 131st Divisional Locating Battery.
- \$1,000 to 1st Field Regiment for 50th anniversary celebrations.
- \$1,000 to 4th Field Regiment for 40th anniversary celebrations.
- \$1,500 for shield to be held by winner of Mount Schanck trophy
- \$1,000 to 1st Field Regiment for 50th anniversary of 105th Field Battery, 50th anniversary of commitment to Malaya and 40th anniversary of commitment to South Vietnam.
- \$1,000 to complete the Major General T. Cape Bequest to the Regimental officer's mess.
- \$2,500 towards the Anti-Aircraft and Air Defence Memorial at 16th Air Land Regiment.
- \$700 for 53 Battery World War Two Battery Flag restoration and preservation.

- \$1,500 towards refreshments for the formal reception at the Victoria barracks Sergeants Mess on 5 November 2022.
- \$2,500 towards a JNCO and below social event (catering and refreshments) at Randwick Barracks through the parade week.

- **Ongoing JNCO and Gunner of the Year prizes.**
- **Ongoing to send the JNCO and Gunner of the Year on a professional development overseas trip with the Royal School of Artillery and local artillery units.**
- Presentation to those who have achieved of 40 years of service.
- On-going Royal Military College Graduation Artillery prize; and
- Annual Regimental Officer, Warrant Officer and Sergeant farewells.

Subscriptions – See the subscription form on the end of the section for details.

Regimental Publications Index

Liaison Letter

<i>Ser</i>	<i>Title</i>
1	Director Royal Artillery Technical Liaison Letter 1/48+
2	Director Royal Artillery Liaison Letter – 3 June 1954+
3	Director Royal Artillery Liaison Letter – 18 October 1954+
4	Director Royal Artillery Liaison Letter – 24 November 1954+
5	Director Royal Artillery Liaison Letter – February 1955+
6	Director Royal Artillery Liaison Letter – 31 May 1955+
7	Director Royal Artillery Liaison Letter – 30 September 1955+
8	Director Royal Artillery Liaison Letter – 20 January 1956+
9	Director Royal Artillery Liaison Letter – 18 June 1956+
10	Director Royal Artillery Liaison Letter – 26 November 1956+
12	Director Royal Australia Artillery Liaison Letter – 24 February 1957+
13	Director Royal Artillery Liaison Letter – 26 November 1957+
14	Director Royal Artillery Liaison Letter – 30 April 1958+
15	Director Royal Artillery Liaison Letter – 28 November 1958+
16	Director Royal Artillery Liaison Letter – 17 June 1959+
17	Director Royal Artillery Liaison Letter – January 1960+
18	Director Royal Artillery Liaison Letter – 29 July 1960+
19	Director Royal Artillery Liaison Letter – 17 February 1961+
20	Director Royal Artillery Liaison Letter – 6 November 1961+
21	Director Royal Artillery Liaison Letter – July 1962+
22	Director Royal Artillery Liaison Letter – October 1962+
23	Director Royal Artillery Liaison Letter – February 1971+
24	Director Royal Artillery Liaison Letter – September 1972+
25	Royal Australian Artillery Liaison Letter – February 1973+
26	Royal Australian Artillery Liaison Letter – September 1973+
27	Royal Australian Artillery Liaison Letter – March 1974+
28	Royal Australian Artillery Liaison Letter – September 1974+
29	Royal Australian Artillery Liaison Letter – March 1975+
30	Royal Australian Artillery Liaison Letter – September 1975+
31	Royal Australian Artillery Liaison Letter – March 1976+
32	Royal Australian Artillery Liaison Letter – September 1976+
33	Royal Australian Artillery Liaison Letter – March 1977+
34	Royal Australian Artillery Liaison Letter – September 1977+
35	Royal Australian Artillery Personnel Notes – October 1977+
36	Royal Australian Artillery Liaison Letter – May 1978+

<i>Ser</i>	<i>Title</i>
37	Royal Australian Artillery Personnel Notes – 1978+
38	Royal Australian Artillery Liaison Letter – March 1980@
39	Royal Australian Artillery Liaison Letter – December 1980@
40	Royal Australian Artillery Liaison Letter – May 1981@
41	Royal Australian Artillery Liaison Letter – November 1981@
42	Royal Australian Artillery Liaison Letter – 1982 (Issue One)@
43	Royal Australian Artillery Liaison Letter – 1983 (Issue One)@
44	Royal Australian Artillery Liaison Letter – 1983 (Issue Two)@
45	Royal Australian Artillery Liaison Letter – 1984 (Issue Four)@
46	Royal Australian Artillery Liaison Letter – 1986 (Issue One)+
47	Royal Australian Artillery Liaison Letter – 1986 (Issue Two) – 4 November 1986+
48	Royal Australian Artillery Liaison Letter – Issue One – 1987 – 18 June 1987+
49	Royal Australian Artillery Liaison Letter – Issue Two – 1987 – 11 November 1987+
50	Royal Australian Artillery Liaison Letter – Edition1 – 1988 – 23 June 1988+
51	Royal Australian Artillery Liaison Letter – Edition2 – 1988 – 14 November 1988+
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46	Royal Australian Artillery Liaison Letter – Edition1 – 1990+
47	Royal Australian Artillery Liaison Letter – Edition2 – 1990+
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51	Royal Australian Artillery – August 1993 – Liaison Letter+
52	Royal Australian Artillery Liaison Letter – 1996 – First Edition+
53	Royal Australian Artillery Liaison Letter – 1996 – Second Edition+
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55	1998–99 RAA Liaison Letter+
56	RAA Liaison Letter – 2000+
57	RAA Liaison Letter – 2001+
58	RAA Liaison Letter – 2002+
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60	RAA Liaison Letter 2003 – Spring Edition+
61	Royal Australian Artillery Liaison Letter 2004 – Autumn Edition+

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62	Royal Australian Artillery Liaison Letter 2004 – Spring Edition+
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81	Royal Australian Artillery Liaison Letter 2014 – Autumn Edition+
82	Royal Australian Artillery Liaison Letter 2014 – Spring Edition+
83	Royal Australian Artillery Liaison Letter 2015 – Autumn Edition+
84	Royal Australian Artillery Liaison Letter 2015 – Spring Edition+
85	Royal Australian Artillery Liaison Letter 2016 – Autumn Edition+
86	Royal Australian Artillery Liaison Letter 2017 – Autumn Edition+
87	Royal Australian Artillery Liaison Letter 2017 – Spring Edition+
88	Royal Australian Artillery Liaison Letter 2018 – Winter Edition+
89	Royal Australian Artillery Liaison Letter 2019 – Winter Edition+
90	Royal Australian Artillery Liaison Letter 2019 – Summer Edition+
91	Royal Australian Artillery Liaison Letter 2020 – Winter Edition +

<i>Ser</i>	<i>Title</i>
92	Royal Australian Artillery Liaison Letter 2021 – First Edition+
93	Royal Australian Artillery Liaison Letter 2021 - Edition Two - Special Anniversary Edition

Australian Gunner Magazine

	<i>Title</i>
1	Australian Gunner – Vol. 1 No. 1*
2	Australian Gunner – Vol. 1.No. 2*
3	Australian Gunner – Vol. 2 No.1 – September 1979*
4	Australian Gunner – March 1980*
5	Australian Gunner – December 1980*
6	Australian Gunner – May 81*
7	Australian Gunner – November 81*
8	Australian Gunner – The Official Journal of the Royal Regiment of Australian Artillery – March 1997*

Miscellaneous Regimental Publications

<i>Ser</i>	<i>Title</i>
1	DARTY Personnel Notes – December 1969#
2	Royal Australian Artillery Personnel Notes – 1978#

Notes:

*Copy held by SO to HOR

+ Copy held by HOR Staff at School of Artillery

@ Not available to HOR Staff at School of Artillery

Key RAA Associations & Organisations

‘Australian Artillery Association’

Website

www.australianartilleryassociation.com

Email

president@australianartilleryassociation.com

‘Royal Australian Artillery Historical Company’

Website

www.artilleryhistory.org

Email

raahcoffice@gmail.com



“DIRECT FIRE” M777 PAINTING

PRINTS AVAILABLE FOR SALE

In May 2017 the Australian Artillery Association very generously presented to the Royal Regiment a large oil painting of an M777 and detachment painted by Mr Phillip Pomroy. The original hangs in the Bingham Instructional Block outside the Donkin Theatre at the School of Artillery.

The Regimental Committee elected to produce a run of 200 prints of the painting, with 50 numbered and signed by the artist. Prints are now available for purchase by individuals, sub units, units, clubs etc. The aim being to raise funds for the Gunners Fund to support such great initiatives as the annual JNCO and GNR of the Year awards.

NOTE: THE ONLY DIFFERENCE BETWEEN THE IMAGE ABOVE AND THE HARD-COPY PRINTS IS THAT THE PRINTS HAVE A 4 CM WHITE BORDER FOR FRAMING PURPOSES. THE OVERALL DIMENSIONS OF THE PRINT ARE 68 CM X 41 CM.

HOW TO PURCHASE “SIGNED” & “UNSIGNED” PRINTS

Limited Edition Print - 50 copies signed & numbered by the Artist @ **\$100 per print.**

Unsigned Prints are available @ **\$35 per print**

Postage & Handling: \$10

Contact

Major Gary Down, SO2 HOR;
Email: gary.down@defence.gov.au

TO ORDER: EMAIL MAJOR DOWN & ADVISE THE NUMBER OF PRINT(S) YOU WOULD LIKE TO ORDER (SIGNED / UNSIGNED) AND THE POSTAL ADDRESS FOR THE ORDER TO BE DESPATCHED. MOST IMPORTANTLY IMMEDIATELY TRANSFER THE REQUIRED AMOUNT INTO THE GUNNERS FUND TO ENSURE TIMELY DESPATCH.

Bank details are:

*Account Name: RAA Regt Fund
BSB: 642-170 & Account Number: 100026037*

NOTE: INCLUDE M777 AND YOUR NAME AS A “REFERENCE”



See Page 184 for more Information and next for a Membership Form



RAA Gunners' Fund Subscription Rates

Revised Subscription Form 2018

Categories

Rank	ARA Member	ARA Member	Reserve Member	All
	Fortnightly Rate	Annual Rate	Annual Rate	
MAJ & above / WO1	\$2.00	\$52.00	\$26.00	Life Membership
CAPT, WO2 / SGT	\$1.50	\$39.00	\$19.00	All Ranks \$260.00
LT, GNR / LBDR / BDR	\$1.00	\$26.00	\$13.00	

Payment Methods (Please tick)

Enclosed is my / our subscription to the RAA Gunners' Fund

Paying by **Cheque**: Please return this form with a cheque made payable to "RAA Regimental Fund" and addressed to MAJ GM Down, SO2 HOR, SOARTY, Bridges Barracks, Puckapunyal VIC 3662

Paying via **Direct Debit**: The account details of the RAA Regimental Fund are:

Financial Institution: Australian Military Bank
Account Name: RAA Regt Fund
BSB: 642 170
Account Number: 100026037
Reference: Your Name & Initials

Note: A copy of this completed subscription form is to be forwarded to MAJ GM Down (SO2 HOR) to enable the issue of an RAA key ring. Email: gary.down@defence.gov.au

PMKeys No: _____ **Regimental No (if applicable)** _____

Rank / Initials: _____ **Unit:** _____

Surname: _____ **Post Nominals:** _____

Address: _____

_____ **Post Code:** _____

Email Address: _____

Telephone: _____ **Mobile:** _____

Commence Subscription Details

Amount: \$ _____ **Effective Date:** _____

Signature: _____ **Date:** _____

All subscribers will receive a 'numbered' RAA key ring on joining the Gunners Fund and if their subscription is current they be eligible for the annual 'Badge Draw' held as at 1st August each year.



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