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The Australian Experience of Air Power

Second Edition

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Canberra

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Foreword

1.1 AAP 1000–H—*The Australian Experience of Air Power* was originally issued in 2007 as a concise history of the Royal Australian Air Force (RAAF), from its earliest beginnings through to its current contribution in the 21st century. This second edition is essentially an updated version of the earlier work. Although our past is enduring, our understanding of our past experiences continue to evolve, just as the RAAF itself is constantly evolving.

1.2 The *Australian Experience of Air Power* identifies the major influences upon the development of Australian air power as well as how our current Air Force has developed over time. Our current and future Air Force is informed by our past experiences. *The Australian Experience of Air Power* does not describe historical events in detail—that information already exists in a myriad of forms. It is a carefully selected narrative of defining points for the RAAF, intended both to describe our evolution and to act as a reference point for further investigation into our journey from the past to the future.

1.3 *The Australian Experience of Air Power* is a companion volume to AAP 1000–D—*The Air Power Manual* (Sixth Edition) and provides an insight into the origins and development of Australia's air power doctrine.

Air Marshal Geoff Brown, AO
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Military aviation in Australia before World War I was heavily influenced by developments in Britain.

During the war, Australian airmen gained considerable tactical air power experience, but had no exposure to command beyond the operational level.

There was inadequate effort to distil doctrine from air warfare lessons learned in World War I.

World War I: Australia's Entry into Military Aviation

Origins of Australian Military Air Power

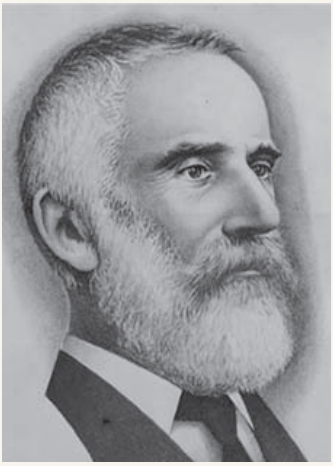
1.1 The origins of military air power in Australia predate the formation of the Royal Australian Air Force (RAAF) by more than a decade. In September 1909—only six years after the Wright brothers made the first powered flight in America, and five years before the start of World War I—the Commonwealth Government announced a public competition to find a suitable design for a locally-built aircraft for military use. This step was in response to lobbying by a new group called the Aerial League of Australia, which wanted the nation to embrace aviation as enthusiastically as it supported the creation of a seagoing navy. Unfortunately, the only flyable design produced in the competition, that built by John Duigan of Victoria, was not test-flown until the closing date for entries had passed. As a consequence, Defence authorities decided that it would be more prudent to purchase proven aircraft from overseas than continue with homegrown experimentation.

Aerial League of Australia

The naval arms race between Germany and Britain reached a crisis in March 1909. Germany's bid to contest British naval supremacy resulted in an increased impetus for the development of an Australian Navy. In April 1909, the Aerial League was formed in Sydney to ensure that adequate consideration was also given to the development of Australia's military air power. A Victorian Branch followed in September 1909, and a Queensland Branch in July 1910.

Prominent among the members of the NSW Branch was local inventor Lawrence Hargrave, whose investigations into box kites and curved surfaces had won him an international reputation. He chaired the League's inaugural meeting and became one of its five Vice-Presidents. A Militia artillery officer, Major (later Major General Sir) Charles Rosenthal, was appointed Honorary Treasurer.

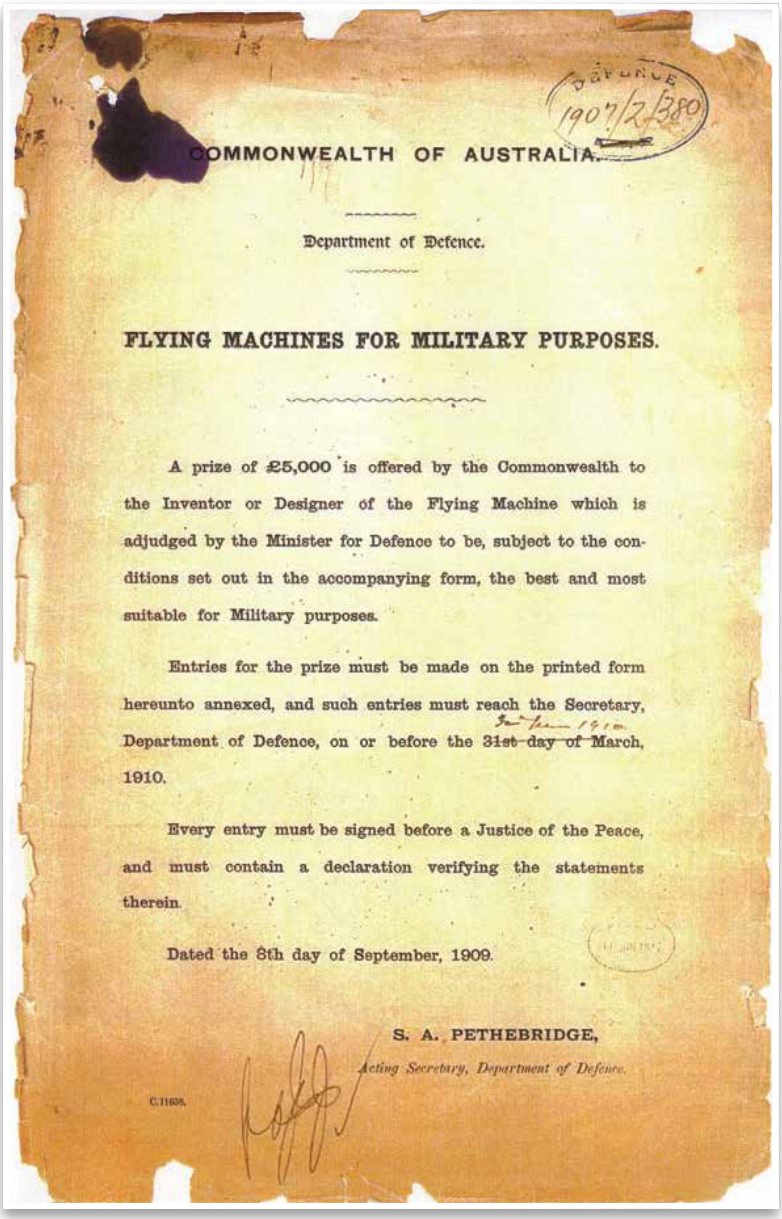
In June 1909, the League influenced the Government to offer a prize of £5000 for the development of an indigenous aircraft suitable for military operations.



Lawrence Hargrave

First Flying School

1.2 Although aircraft manufacturers imported several machines in an effort to attract Defence orders, there was no progress in Australian military aviation until the Minister for Defence, Senator George Pearce, attended the Imperial Conference in London in June 1911. Impressed with the aircraft types he saw during a visit to Brooklands aerodrome in



DEFENCE
1907/2/380

COMMONWEALTH OF AUSTRALIA.

Department of Defence.

FLYING MACHINES FOR MILITARY PURPOSES.

A prize of £5,000 is offered by the Commonwealth to the Inventor or Designer of the Flying Machine which is adjudged by the Minister for Defence to be, subject to the conditions set out in the accompanying form, the best and most suitable for Military purposes.

Entries for the prize must be made on the printed form hereunto annexed, and such entries must reach the Secretary, Department of Defence, on or before the ~~31st day of March~~ 31st March 1910, 1910.

Every entry must be signed before a Justice of the Peace, and must contain a declaration verifying the statements therein.

Dated the 8th day of September, 1909.

S. A. PETHEBRIDGE,
Acting Secretary, Department of Defence.

C.11659.

Announcement of competition for military aircraft, 1909.

Britain, Pearce instructed that a foundation be laid for military aviation in Australia. In December, advertisements were placed for the hiring of pilots and mechanics in the Defence Department and by September 1912 the Government had approved 'a Flying School and Corps'. Two pilots were appointed as officers in the Commonwealth Military Forces, followed by the enlistment of a small band of mechanics. As well, five training aircraft were ordered from Britain. With the arrival of these machines in January 1914, Australia had the beginnings of an air arm.

Early Roles

1.3 Initially, early thinking about the possible military employment of aircraft followed directions that had been emerging in Britain. There it was believed that the primary use of aircraft would be as a supporting adjunct to maritime and land operations, principally in a reconnaissance role. This was despite the Italians having successfully employed aircraft against Turkish forces in Libya during 1911 in bombing, aerial photography and pamphlet dropping roles. In June 1913, when Australia considered plans for its Flying School and Corps, the Army proposed appointing candidates from its Australian Intelligence Corps, which had been engaged in mapping and collecting information essential for supporting operations in the defence of Australia since December 1907. The proposed arrangements would presumably have gone ahead, except that by early 1914 the Army decided to disband the Intelligence Corps as a formed unit.

Organisation

1.4 In April 1912, Britain created a Royal Flying Corps (RFC), comprising separate naval and military wings, and a central flying school to serve the training needs of both. These events also influenced preparations for Australia's air arm. Originally it was envisaged that the flying school would be established at the site of the new national capital at Canberra, but in 1913 the location was changed to Point Cook, Victoria, a seaside area where it was expected that the Central Flying School (CFS) could be made available to the Naval as well as the Military Forces.

Australian Flying Corps

1.5 By July 1914, CFS had completed test-flying its aircraft and was ready to accept applications from potential trainees. The first course for what was already called the Australian Flying Corps (AFC) of the Commonwealth Military Forces began on 17 August—twelve days after World War I was declared. Australia was thus well placed to be an active participant in air operations, more or less from the outset of conflict. It was not alone in this either among the global network of British dominions and colonies, or in the Asia-Pacific region. South Africa, for example, had begun recruiting 'officer-aviators' for a flying section within its Army since May 1913. These pilots trained with the RFC and most served in France before returning home to form the South African Aviation Corps in May 1915. Thailand had matched Australia's start by forming an army aviation unit with eight aircraft in 1913, enabling it to send an expeditionary force, including 400 members of the Army Air Corps, to join Allied forces in Europe in mid-1917.

Point Cook

In 1913, Lieutenant Henry Petre selected 734 acres of coastal grazing land at Point Cook, south-west of Melbourne, to establish a flying school for the Australian Army's flying corps. During World War I, eight flying courses held there produced 120 pilots for the Australian Flying Corps. For many of these pilots Point Cook was also the assembly point for their postings overseas.

Point Cook expanded during the 1920s, with the RAAF's seaplane and fighter elements based there until the 1930s, along with cadet training. It was also the departure point for several historic flights: the first trans-Australia flight (1919), the first round-Australia flights by seaplane and landplane (1924), and the first military flight outside Australia (1926).

During World War II, Point Cook was a major centre for both air and ground training, with some 2700 pilots graduating, in addition to more than 7000 graduates in wireless telegraphy and cypher. Other areas of instruction included seaplane training, general reconnaissance and navigation, and air armament.

After the war, Point Cook continued its flying training role, hosting courses for all three Services until 1992. It has also been the site of the RAAF College (later renamed the RAAF Academy), RAAF Staff College, Officer Training School, RAAF Institute of Aviation Medicine, RAAF School of Languages and Air Force Training Group Headquarters.

Point Cook is currently home to the RAAF Museum, established in 1949, which to this day continues to preserve the heritage of the Air Force. Today, Point Cook is acknowledged as the home of the RAAF and the birthplace of Australian military aviation.

Point Cook, 1914.

Australians of the AFC during an aircraft inspection, 1918. These airmen were a product of a mature training system that stretched from Australia to the United Kingdom.

World War I Aviation Experience

1.6 During World War I, Australian airmen accumulated a wealth of experience in diverse geographic environments and operational roles. This experience was not gained in service with the AFC alone, as more than 400 Australian pilots enlisted directly into the RFC and Royal Naval Air Service (RNAS). Australian airmen served in New Guinea, Sinai-Palestine, on the Western Front, in Greece, northern Italy and in the air defence of Britain against raiding Zeppelins and Gotha bombers. The Royal Australian Navy (RAN) also employed air power when four RAN cruisers were fitted to operate either seaplanes or platform-launched aircraft during 1917. It is notable that from the very beginning, Australian air power had been employed in an expeditionary manner within the framework of an Australian contribution to a maritime strategy. In only one instance had air power been used to protect Australian territory directly, when the AFC patrolled Australia's east coast in 1918.

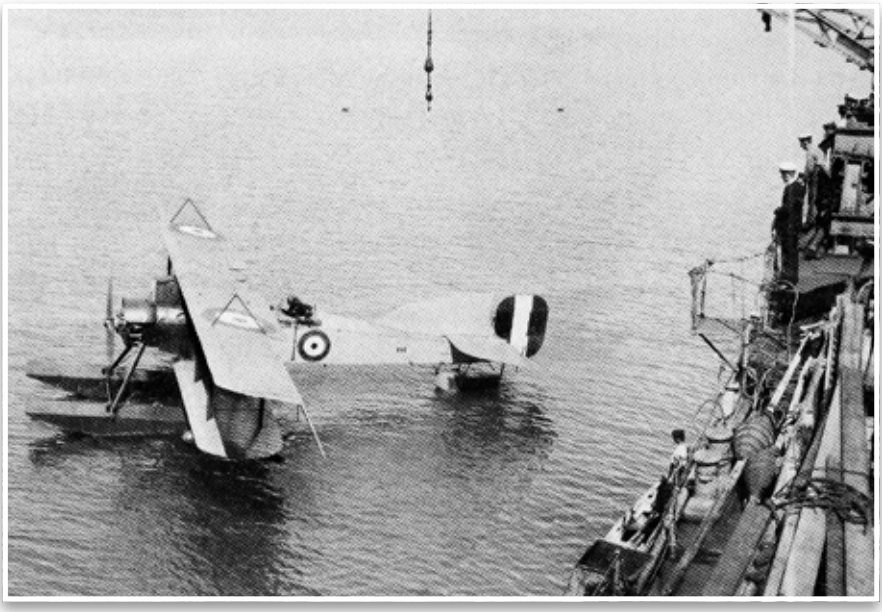
A Sopwith Pup is launched from HMAS *Melbourne* in the North Sea, 1918.

First Expedition—New Guinea, 1914

1.7 Although Australia's air arm was rudimentary, it was nevertheless able to contribute aviation elements to several wartime operations. As early as November 1914, two aircraft and six airmen were sent with an Australian garrison force dispatched to deal with an armed German base supposedly hidden on the Sepik River in New Guinea. Because prepared landing grounds were not available in the area of operations, the aircraft sent to New Guinea had to be seaplanes. Although there were no machines of this type available at Point Cook, the Defence Department was able to utilise a Maurice Farman Hydro-Aeroplane, received as a gift from a public-spirited businessman. That aircraft and a BE.2a were dispatched to New Guinea, with plans to fit the BE.2a with a set of floats during the voyage north. The reported German base turned out to be untrue, so the air detachment returned to Melbourne in January 1915 without ever seeing action or even uncrating their machines.

Air Power at Gallipoli, 1915

1.8 On the morning of 25 April 1915, Australian Army units landed at the beaches of Gallipoli. The Australian component of this operation was part of a major British Imperial expeditionary force, which included an air component provided by the RNAS. Although very few of our soldiers understood the air campaign that was going on around them, by the time of the withdrawal in December 1915, RNAS operations in the theatre had demonstrated that it was no longer practicable for armies or navies to conduct operations without air power. This lesson was absorbed by the Australian Gallipoli veterans who later joined the AFC.



A seaplane from HMS *Ark Royal* prepares for a reconnaissance mission over the Dardanelles. Air power influenced the Gallipoli campaign in 1915.

Australian Flying Corps Half Flight—Mesopotamia, 1915

1.9 In February 1915, Australia was asked to contribute personnel to an RFC unit being raised in India to take part in operations planned against Turkish forces in Mesopotamia (modern Iraq). What began as a campaign to secure British oil interests at the mouth of the Shatt-al-Arab turned into a drive to expel the Turks from Baghdad. The campaign was initially a disaster, its first phase ending with the humiliating surrender at Kut of a large part of the invading British force in April 1916. By then, the 62-member AFC Half Flight had suffered a pilot fatality on operations, and lost 11 men, including two pilots, as prisoners.

Middle East and Europe, 1916

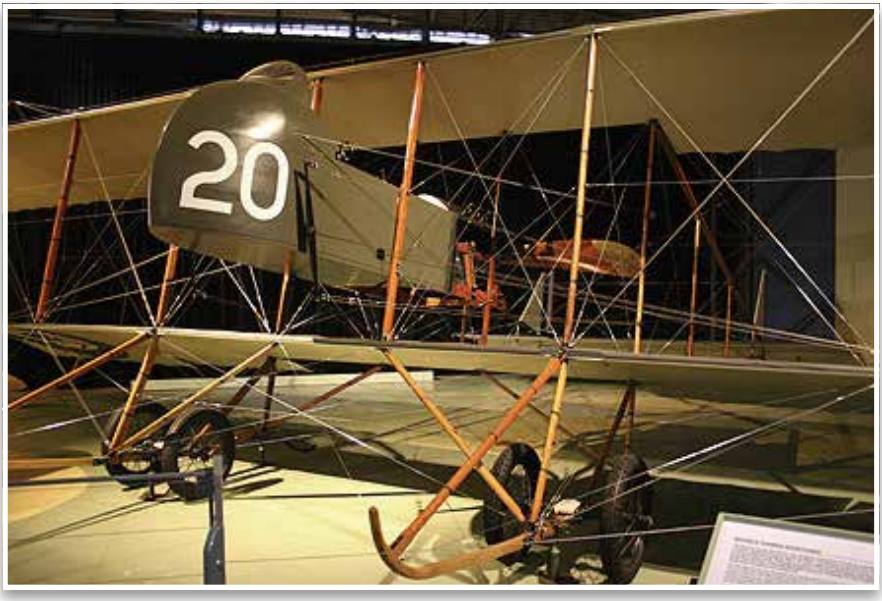
1.10 At the end of 1915, the Army Council in London suggested that Dominion Governments should raise complete air squadrons for service with the RFC, which had assumed a purely Army identity—after the Royal Navy formed a separate air service, the RNAS, during 1914. The Australian Government, considering that doing so would be useful for developing its air arm after the war, agreed to the proposal. By October 1916 four operational units had been raised, one in Egypt and three at Point Cook. The first of these, No 1 Squadron, served out the war in the Middle East, while the other three entered the fighting on the Western Front in late 1917. No 1 Squadron operated as a combined fighter/bomber/reconnaissance unit, while the squadrons in France (Nos 2, 3 and 4) specialised in either the fighter/scout or reconnaissance role, in line with RFC practice. A training wing of four squadrons, based in England, supported the front-line units.

No 2 Squadron, AFC, flew the D.H.5 'Scout' on the Western Front.

Operations in Australia, 1918

1.11 News broke in March 1918 that a German warship named *Wolf* had laid a minefield while passing through Australian waters in 1917. In July 1917, a coastal freighter had sunk after striking a mine off Gabo Island, near the Victoria-New South Wales border, and there were even claims that the *Wolf* had operated its own aircraft over Sydney. Defence authorities were flooded with alleged sightings of enemy aircraft and ships in the south-eastern sea lanes. To quell growing public hysteria, two air detachments were sent from Point Cook in April 1918 to conduct maritime reconnaissance from Yarram in Gippsland, Victoria, and from Bega, New South Wales. Initially, the two aircraft used, an F.E.2b and a Maurice Farman Shorthorn, were each armed with a single Lewis machine gun. Subsequently, 20-pound Hales bombs were supplied to the

Gippsland detachment. Patrols were conducted for less than three weeks before being called off on 8 May 1918. These were the first warlike air operations conducted within Australia.



A restored Maurice Farman Shorthorn in the RAAF Museum, Point Cook.

Improved Air-Land Integration and the Battle of Hamel, 1918

1.12 With the demands of war forcing the pace of development, the ability of air power to influence events in the battlespace matured rapidly so that by 1918, the employment of aircraft as an integral component of the land battle was well established. This maturity was ably demonstrated at the Battle of Hamel on 4 July 1918. Integrated into the planning and execution

of the battle from the start, air power was used in the roles in which it had already established a level of ability. First, it was used to establish and then maintain control of the air in and around the battlespace. This was followed by extensive surveillance and reconnaissance flights, providing intelligence that established targets for air strike to shape the battlespace prior to the start of the ground offensive. While the aforementioned air operations were routine activities by 1918, there were two innovative applications of air power in the Battle of Hamel.

Parachute resupply of ammunition at the Battle of Hamel.

1.13 First, the town of Hamel was bombed in a pre-planned effort to distract German attention from the sound of British tanks pre-positioning themselves. Second, a British R.E.8 squadron delivered nearly 12 000 rounds of ammunition to forward troops using an airdrop apparatus hastily developed at No 3 Squadron, AFC, by Captain L.J. Wackett. The aim of the assault, to advance the line two kilometres eastwards at the Hamel front, was achieved. Some 1600 Germans were taken prisoner, over 400 more made casualties, and hundreds of enemy weapons put out of action. Air actions such as artillery patrols, message dropping and photography contributed to the battle, considered one of Australia's most successful on the Western Front. As official historian F.M. Cutlack wrote, 'Hamel first showed many soldiers a vision of the days to come, when battles might be directed chiefly from the skies.'[1]

Battle of Armageddon, 1918

1.14 Allied air power demonstrated its supremacy during the Battle of Armageddon. Also known as the Battle of Megiddo, the operation was launched by Sir Edmund Allenby's Egyptian Expeditionary Force on 19 September 1918. Having concealed from the Turks that his main assault would be delivered beside the coast rather than in the Jordan Valley, Allenby's divisions easily pierced the enemy defences for the massed cavalry to pass through. The mounted troops then rode quickly north before swinging inland to put themselves astride the lines of communications of the Turkish Seventh and Eighth Armies. Already enjoying air superiority, Allenby used the two wings of the Royal Air Force (RAF) Brigade available to him to deprive the enemy of reliable

1 F.M. Cutlack, *The Official History of Australia in the War of 1914–1918, Volume VIII, The Australian Flying Corps in the Western and Eastern Theatres of War, 1914–1918*, Angus and Robertson, Sydney, 1984, p. 274.

reconnaissance information by keeping Turkish aircraft out of the skies. In the days before the offensive began, British and Australian pilots also bombed the crucial railway junction at Deraa and thereby cut all rail traffic into Palestine from the north. Following the breaching of their defences, the Turks began falling back eastwards in confusion, towards the River Jordan through the town of Nablus. Early on the morning of 21 September a two-aircraft patrol from No 1 Squadron, AFC, spotted enemy columns on the old Roman road through the precipitous Wadi Fara. The rest of the Australian squadron and the 40th (Army) Wing were summoned to the area, and joined by aircraft from the 5th (Corps) Wing, a total of seven squadrons and over 100 aircraft. In constant attacks lasting five hours until midday, the airmen comprehensively destroyed the Turkish Seventh Army as a fighting force. Casualties among the estimated 7000 troops in the enemy column were not established, but were undoubtedly heavy. Also lost amid the carnage were 87 artillery weapons and nearly 1000 vehicles. The effectiveness of air power against surface forces had been graphically demonstrated.

Wrecked transport of Turkish Seventh Army after the bombing of the Wadi Fara, Battle of Armageddon, 1918.

A Handley Page aircraft operated by No 1 Squadron, AFC, makes a rendezvous with Lawrence of Arabia.
(artist Stuart Reid, Australian War Memorial ART14279)

Unique National Identity

1.15 Even though the AFC was not very large, it represented a unique national element within the much larger British air services. Australian squadrons were initially numbered by British authorities as RFC units, and their AFC identities were officially recognised only from January 1918. Australia's position was unique in this regard, because no other British dominion achieved the status of having fielded an independent air element during World War I. Other British dominions—India, Canada, South Africa and New Zealand—all contributed their pilots directly to the

Australian Air Aces

A pilot who shot down at least five enemy aircraft qualified as an 'ace'. A total of 57 Australians became aces during World War I, although 40 per cent of these were not members of the Australian Services and flew with either the Royal Flying Corps or the Royal Naval Air Service. The leading Australian aces were among this latter group.

The highest scoring Australian aces of World War I were Captain Robert Little from Victoria (47 victories) and Major Rod Dallas of Queensland (39 victories). Both of them served in Britain's RNAS, before transferring to the Royal Air Force.

The leading ace of the Australian Flying Corps was Captain Arthur Henry (Harry) Cobby, a former bank clerk from Melbourne, who shot down 29 enemy aircraft and 13 balloons while serving with No 4 Squadron in France. He achieved this in just seven months, between February and September 1918. Cobby joined the RAAF in 1921 but left in 1935 to work in civil aviation. Rejoining at the start of World War II, he rose to the rank of Air Commodore and commanded North-Eastern Area (1942), No 10 Operational Group (1944) and 1st Tactical Air Force (1944–45).

Captain A. H. (Harry) Cobby, DSO, DFC.

RFC and RNAS. South Africa's Aviation Corps had gone out of existence soon after the South-West Africa campaign was concluded in July 1915. Canada formed the Canadian Air Force and Royal Canadian Naval Air

Service late in 1918, but both were disbanded within months. The vast bulk of the 21 000 airmen Canada contributed to the war effort served in the British air services, which were combined to form the RAF on 1 April 1918.

Training Bases in Australia

1.16 The size of the AFC's commitment overseas was significant, with over 3000 personnel passing through its ranks during the course of the war. Training such a large number of personnel required substantial resources. In addition to the eight pilot training courses conducted at CFS, six courses averaging 13 trainees on each course graduated from a second flying school, the New South Wales Government's State Aviation School, which opened in 1916 at Richmond, outside Sydney. The graduates of this school went mainly to the British air services rather than the AFC. In August 1918, a School of Military Aeronautics for training in air theory and ground subjects was established at Fort Franklin, Portsea, Victoria.

AFC cadets with a Sopwith Pup, No 5 Squadron, United Kingdom.

McNamara's Victoria Cross

The sole Victoria Cross (VC) awarded to an Australian airman in World War I went to an AFC officer, Lieutenant Frank H. McNamara. On 20 March 1917, McNamara, a 23-year-old pilot with No 1 Squadron, AFC, took part in a four-aircraft raid against a stretch of Turkish railway in Palestine. Injured by the premature explosion of one of his own bombs, McNamara was about to head for base when he spotted a colleague who had made a forced landing in enemy territory. He also observed a body of Turkish cavalry galloping to capture the stranded airman.

Despite his wounds, he landed near his colleague's aircraft to attempt a rescue. After the first attempt to take off with both men in McNamara's machine failed, the pair switched machines under enemy fire. They then made a getaway, even though their adversaries were within 100 metres and still firing. For this exploit McNamara received the Victoria Cross on 8 June 1917, making him the only Australian airman of World War I so decorated. He later served in the RAAF (1921–46) and retired with the honorary rank of Air Vice-Marshal.

Air Vice-Marshal
Frank McNamara, VC, 1945.

Limited Knowledge

1.17 In spite of the extensive and varied Australian experience of air operations in World War I there existed significant deficiencies and gaps in the breadth of accumulated air power knowledge at its conclusion.

While there was comprehensive understanding of the tactical use of air power on the modern battlefield, the strategic impact of air power in the conduct of a large-scale war was neither clearly understood, nor studied. This was mainly because only a handful of Australian airmen had been involved in the organisation and operation of an independent air force. So far as is known, no more than five Australians were involved in the RAF's June 1918 independent air operations in northern France where, under Major General Sir Hugh Trenchard, the RAF attacked German industry and population centres in reprisal for raids on the British homeland. Consequently, there was very limited knowledge within the AFC of what was to become a primary role of air forces, strategic bombing. Australian experience had been chiefly focused on the tactical and operational applications of air power, with little exposure to the strategic potential of a new dimension of warfare that had made dramatic advances in the short space of four years. The relevance of this shortcoming would only become apparent when the time came to focus on Australia's requirements for air power in peacetime. As observed by Winston Churchill, Britain's wartime Secretary of State for War, the problem was that aviation tended to attract 'adventurous souls, physically adept, mentally alert and pragmatically rather than philosophically inclined'. Such was certainly true of most of the men of the AFC in 1918.

Doctrinal Drawback

1.18 One of the few officers who escaped this generalisation was a young AFC officer, Lieutenant Colonel (later Air Marshal) Richard Williams, who in December 1918 provided the commander of the Australian Imperial Force (AIF) in Egypt with an assessment of the future of air power. Williams was asked by Lieutenant General Sir Harry Chauvel, commander of the Desert Mounted Corps, to record the experiences of the AFC so that lessons would not be lost. In his report he gave his views

on the types of aircraft and other equipment best suited to Australian needs and conditions should the Government choose to use the AFC squadrons to form the core of a peacetime air force. As it happened, this did not occur and the AFC was disbanded on its return. Williams' report did not address the doctrinal implications of employing an air force in the defence of Australia. In this avoidance of doctrinal issues he was not alone.

Father of the RAAF

Even though a number of Australians rose to tactical command positions, no Australian advanced beyond leading an operational wing of several squadrons. Of the four who reached this level, only one was an Australian Flying Corps officer, Richard Williams, who in June 1918 commanded 40th (Army) Wing of the Royal Air Force (RAF) brigade in Palestine.

Williams was one of the Service's two senior officers when the RAAF was formed in March 1921 and became the first Chief of the Air Staff (CAS) when that post was created in October 1922. He remained CAS for a record 16 years, departing on exchange with the RAF in early 1939. During his tenure as CAS he had risen from the rank of Wing Commander to Air Vice-Marshal.

In 1940, Williams returned to a senior administrative post in Australia with the temporary rank of Air Marshal but did not lead the RAAF again. In 1946, he left the Air Force and became Director General of Civil Aviation until he retired in 1955. Air Marshal Sir Richard Williams was knighted in 1954.

Captain Richard Williams, circa 1916.

2

Executive Summary

Establishment of the RAAF had been driven by factors other than an appreciation of the contribution air power could make to defending Australia.

For most of the 1920s and 30s, the Air Force's existence was justified by training and national development rather than contribution to national security.

Serious attempts to develop an Australian air power doctrine emerged in only the last years before World War II.

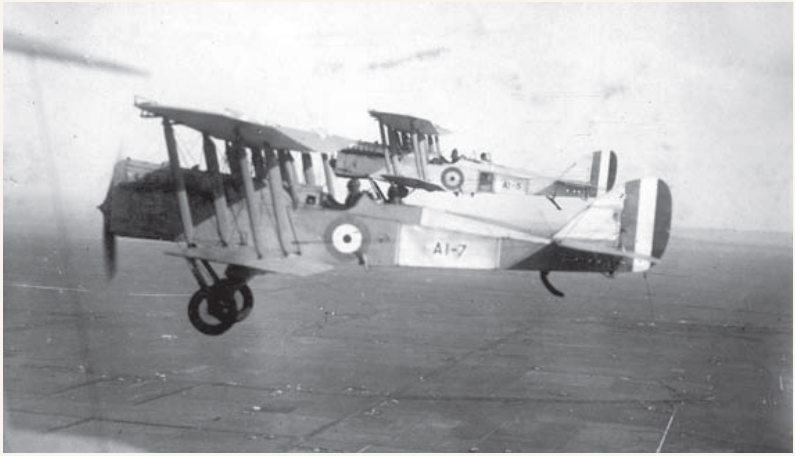
The Inter-War Years: Formation of an Independent Air Force

The Imperial Gift

2.1 At the end of World War I the Australian Government had decided against retaining the full operational capability of the wartime AFC. Nevertheless, the Government remained committed to preserving some form of aviation element within the defence forces. Late in 1918, the Department of Defence placed an order in England for 32 aircraft to replace the outdated machines at Point Cook. This order was not cancelled even though the Armistice was signed. The clear intention to maintain an Australian air arm on a peacetime basis received an additional boost in June 1919, when the British Government made an offer of 100 surplus aircraft from war stocks to each dominion that wished to establish a standing air force. On Australia's insistence, the offer was expanded to include enough ancillary equipment to keep a small air service operating at peacetime rate for several years. Australia accepted this offer, and from March 1921, regular shipments of aircraft and equipment began to arrive in Melbourne. By accepting this Imperial Gift, Australia obtained the means to continue military aviation activities. However, the Government did not have a cohesive plan to guide the development of military aviation as an integral part of Australia's defence strategy.

The Imperial Gift

The Imperial Gift, with an estimated value of £1 million (or approximately $35 million in today's value) took 12 months to deliver. Australia received tens of thousands of articles, including 128 aircraft, 191 aircraft engines, spare parts, 258 transport and support vehicles, workshop plant, field hangars, testing and support equipment, armaments, and clothing.



Imperial Gift D.H.9a bombers.

Navy and Army Rivalry Over Air

2.2 In Australia, development of a military aviation policy had become mired in rival attempts by the Navy and the Army to each win approval for their own independent air service. Debate had been submerged in a fierce struggle over funding, to a point where by late 1918 the Government accepted that a single air service serving the needs of both the Navy and

the Army represented the only viable way forward. Despite governmental acceptance, the creation of this new Service was to prove a long and arduous process. Issues such as the types of aircraft and numbers of units were bitterly contested between the Navy and the Army on the basis of their individual needs. Even though these Services accepted the creation of a single air service, they shared a consuming rivalry over the question of control of the new Service, agreeing only that it should remain subservient to both of them. This rivalry overshadowed any serious strategic appreciation or planning for the development of the new Service and its potential application to the defence of Australia.

Australian Air Corps

2.3 At the close of World War I the AFC squadrons were disbanded and their aircraft and equipment in Europe and Palestine returned to the RAF. This resulted in Australia's military aviation capability being reduced to the domestic forces, which were established largely as a training organisation centred on Point Cook, pending the arrival of the Imperial Gift. The Australian Air Corps (AAC) was formally brought into being within the Commonwealth Military Forces on 1 January 1920 as an interim body to provide for the maintenance of existing equipment until a permanent organisation was created. Apart from some training and public flying displays, the AAC also carried out surveys of aerial routes. It was September 1920 before an allocation of funds for building up an efficient air force and commercial air services was announced by Prime Minister W.M. Hughes, who declared himself 'a fanatic' in his personal belief in aviation. At the same time, the AAC conducted trials to establish the suitability of Avro 504L floatplanes for use by the Navy's cruisers. Following these trials, an order was placed during 1920 for six Fairey IIID seaplanes for the Navy.

Fairey IIID at Point Cook after transfer to the Air Force in 1921.

Formation of the Royal Australian Air Force, 31 March 1921

2.4 Despite the enthusiasm of the Prime Minister, the Government dithered over the final step of bringing the Air Force into being, apparently through a reluctance to actually spend money on Defence. Realising that this situation might continue indefinitely, Lieutenant Colonel Richard Williams, the principal military adviser on air matters, seized on the Government's stated desire to use military aircraft to trial the establishment of air mail services in some of Australia's more remote areas. Aware of Ministerial impatience, Williams advised that trials of an air mail service could not begin until the proposed air force had been formally established. With this argument, Williams was able to win approval to inaugurate the

Australian Air Force on 31 March 1921. The prefix 'Royal' was added to the new Service's name on 13 August 1921.

Sergeant Arthur 'Spud' Murphy (left) with Captain Henry Wrigley (right), 1919. Murphy became the RAAF's first airman (Airman No 1) when the Air Force was formed in 1921.

The Nucleus

2.5 The aircraft received in the Imperial Gift were sufficient to form six RAAF squadrons: four of landplanes and two of seaplanes. The original plan was to base three squadrons in New South Wales and three in Victoria, but this plan had to be modified almost immediately due to a change in the Government's financial policy, announced in July 1921. The number of squadrons was reduced to five. Even this leaner plan had to be abandoned in the wake of international treaties signed at the disarmament conference held in Washington, DC, later that year. In July 1922, the five squadrons created the previous year were merged into a single mixed squadron, No 1 Squadron, at Point Cook. For the next two years the strength of the RAAF remained at about 50 officers and 300 other ranks, far short of the 1500 originally planned. As Williams told a parliamentary committee at this time, 'Our present staff is really a nucleus, and quite inadequate alone to effectively serve in the case of a possible emergency'. In 1924, an Experimental Section, commanded by Squadron Leader Lawrence J. Wackett, was set up at Randwick, Sydney, to undertake technical research and aircraft design work. The unit was disbanded in 1930. In 1925–26 two new bases were established. The first was at Laverton, Victoria, to accommodate a depot unit and No 1 Squadron, which relocated from Point Cook. The second was the former New South Wales Government airfield at Richmond which was turned into a permanent base for a second operational unit, No 3 Squadron. When Nos 1 and 3 Squadron were formed on 1 July 1925, Citizen Air Force personnel made up nearly two-thirds of their establishment. These bases and squadrons formed the backbone of the RAAF's operational capability for more than a decade.

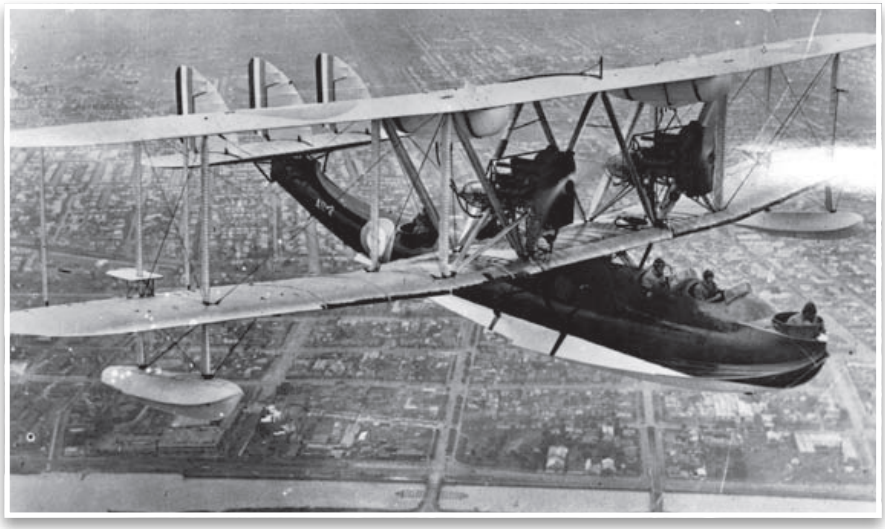
The Washington Naval Conference

The International Conference on Naval Limitation (The Washington Naval Conference) was held in Washington, DC, between November 1921 and February 1922, to limit the naval arms race and work out security agreements in the Pacific region. The conference resulted in the drafting and ratification of nine treaties between America, the European powers, China and Japan.

The conference had far-reaching outcomes for all three Australian Defence Services. In March 1922, it was announced that the Government would reduce Defence spending during 1922–23, with the RAAF allocation of £250 000 for that year being only half of what it received in its first year.

Developing Air Power Roles

2.6 The two operational squadrons of the RAAF had been formed as composite units. This allowed the roles of army cooperation and air defence to be performed in both New South Wales and Victoria. By the end of the 1920s, the store of Imperial Gift machines was exhausted or had to be retired due to deterioration while in storage. The multiple aircraft types operated by each squadron were then replaced by the Westland Wapiti, a general purpose aircraft. Following this changeover, No 1 Squadron began to specialise as a bomber unit, while No 3 Squadron formalised its primary role as army cooperation. Flights of seaplanes and fighters were used to keep alive other core skills considered vital to the RAAF's role, but only in cadre form. By default, the RAAF had become a training organisation with a limited combat capability. The Government expected that in the event of a defence emergency the Service would expand by calling upon its Citizen Air Force component and the resources of civil aviation.



RAAF Southampton reconnaissance flying boat.

Westland Wapiti.

Training and Civil Tasks

Throughout the 1920s and 30s the RAAF provided training in air cooperation during militia training camps for the Army and as embarked detachments on RAN warships during annual cruises of the region. A large part of the Service's time was also taken up with public relations tasks such as air displays and aerial races. Equally demanding was a range of non-military tasks such as responding to requests from civil agencies for aerial photography; mapping surveys, notably of Central and Northern Australia; supporting forestry development through air surveys, bushfire patrols and aerial dusting; daily meteorological flights; assisting with scientific study of pelagic fish movements in coastal waters and oil exploration around Australia and in New Guinea; helping to chart the Great Barrier Reef; search and rescue of lost sea and air parties; and even participating in the exploration of Antarctica.

Williams' 1925 Air Defence Scheme

2.7 In April 1925, Chief of the Air Staff (CAS), Wing Commander Williams had written a memorandum regarding the air defence of Australia in which he put forward the case for a nine-year program to increase the RAAF to 18 squadrons and a dozen flights and to provide an Air Force presence in every State. Although the document was written to establish the theoretical basis for the Air Force, Williams did not define how the markedly bigger Air Force would operate to assist in the defence of Australia, especially given the limitations in range and capability of available aircraft types. The response of the nation's political leaders was largely to ignore Williams' scheme, clearly displaying their limited understanding of, and indifference to, air power's potential. However, by failing to clearly articulate the doctrinal dimension in his argument and ignoring political aspects, Williams' contribution to the debate was less than he imagined.

Salmond Report

2.8 Unable to persuade his political masters on his own, Williams appealed to RAF authorities for expert advice, believing that Australian Governments were more likely to be influenced by an opinion coming from London. Accordingly, he engineered a visit in 1927 by a senior British officer to review the RAAF. Air Marshal Sir John Salmond's report confirmed, as Williams must have known it would, that the RAAF was totally unfit for war, and outlined a development program aimed at building up the Service to a credible level. As Salmond's recommendations were more modest than his own plan, Williams expected to see it adopted in full, but the Government was only interested in implementing some of the proposals. Williams' recourse to invoking British authority carried a significant risk of its own, by appearing to confirm a wider perception that the RAAF was simply an offshoot of the RAF, functioning as a local branch of the British Service.

RAF Offshoot

2.9 The impression of subservience to British influences was only too true in many regards. The RAF was the standard on which the Australian air service modelled itself, from its traditions and organisation to its equipment and training. For instance, the RAAF was obliged to adopt the RAF Ensign even though it had proposed its own design. From 1926, the RAAF had sent a proportion of its pilots from Point Cook flying courses to receive further training in Britain. To the detriment of the RAAF, many of these pilots subsequently transferred to the RAF. For more than a decade, there was little effort to consider defence issues from a uniquely Australian perspective. In most instances, advice received from London regarding the development of the RAAF was accepted without question. Even when fending off attempts to have the Air Force disbanded

An Independent Air Force

In February 1920, a board was formed in the Defence Department to examine air defence policy. It noted that Australia's isolation, combined with the limited range of existing aircraft, meant that 'independent action by air forces against enemy centres [was] impracticable'. For this reason, 'the action of aircraft in the defence of Australia will be confined to auxiliary work for the Navy and Army as far as can be foreseen at present'.

In 1926, the RAAF's right to exist as a separate Service was again challenged by the Navy and Army. Consequently, Group Captain Richard Williams realised that nothing had changed to make air power any more relevant to Australian security. Instead, he pointed to arguments regarding the economy of administering all air assets in one Service and the need to continue the development of aeronautical science and skills free from fetters imposed by the older Services inclined to view aviation as an adjunct to their main activities.

More importantly, Williams specifically sought to counter suggestions made in the Army War Book that the RAAF's army cooperation squadrons would, in time of war, be transferred to control of the Army. He argued that this approach ignored fundamental realities. It was likely that for periods of operations the whole of the Air Force might be required for 'naval duties' or it might be employed on strike operations 'when the Army was totally uninvolved, as in the period before an enemy expeditionary force actually landed'. In focusing on Australia's air-sea gap, he was actually foreshadowing a strategy that would be articulated 50 years later.

Williams went out of his way to reject any suggestion that the RAAF perceived itself as functioning in war independently from the other Services. He also stressed that just as one Service alone was insufficient for national defence, no Service was `purely auxiliary to another'. These statements are the earliest known expressions of doctrinal principles for the employment of air power in the defence of Australia.

RAAF Ensign

On 21 July 1921, Wing Commander Richard Williams submitted a proposal for a RAAF Ensign. His design was not adopted and a year later, the Air Board approved the British Royal Air Force (RAF) Ensign, a sky-blue ensign with the RAF roundel in the fly, as the Ensign of the RAAF.

In December 1948, to avoid confusion between the two air forces, King George VI approved a new RAAF ensign. This new flag had the roundel in the lower fly of a sky-blue Ensign with Commonwealth Star and tilted Southern Cross. This flag was adopted by the RAAF in 1949.

Although the RAAF adopted a distinctive roundel for its aircraft on 2 July 1956—a red kangaroo replacing the red circle of the original version—the old roundel remained on the ensign.

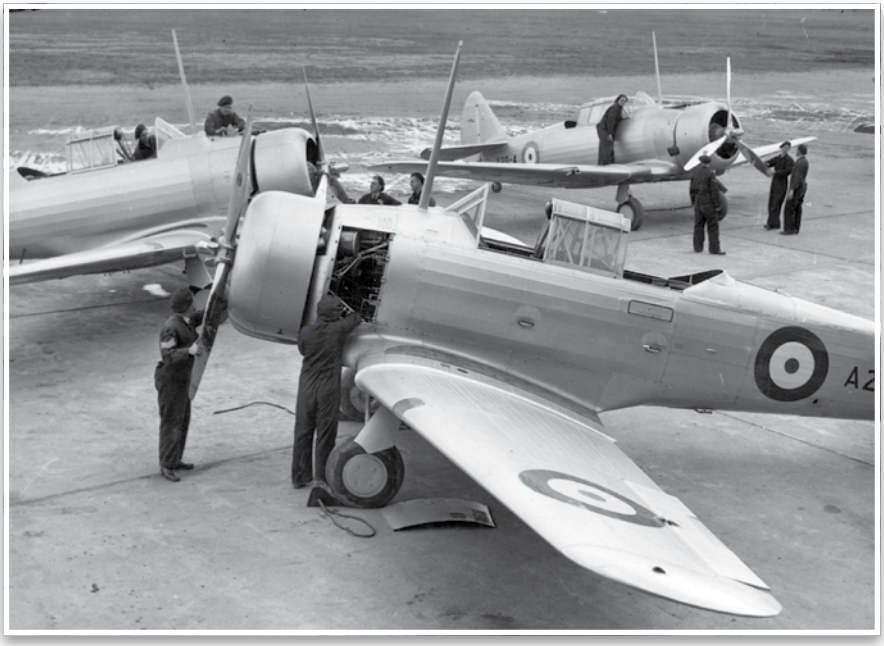
In 1981, the RAF roundel was replaced on the RAAF Ensign by a new roundel featuring a red leaping kangaroo on a white background within a dark blue ring. This current design was approved by the Queen in 1981 and proclaimed as a Flag of Australia under the *Flags Act* on 6 May 1982.

Design of the original RAAF Ensign that was not approved.

and divided up between Navy and Army, the RAAF simply invoked the arguments advanced by the RAF in answering similar moves against it in Britain. Unfortunately, these arguments were advanced without any of the intellectual underpinnings used by the formidable British CAS, Air Chief Marshal Sir Hugh Trenchard. In Australia there was no debate comparable to that which had been occurring in Britain, Europe and America after World War I regarding the best means of applying air power, whether there was an independent role for air forces and whether air power alone could be a war-winning factor. The foremost air power theorists abroad, men such as Italy's Giulio Douhet and 'Billy' Mitchell of the United States (US) Army, were essentially unknown identities to members of the RAAF. The closest thing Australia had to a home grown student of air power in the 1930s was Group Captain H.N. Wrigley, who kept detailed personal notebooks about the ideas to which he was exposed in the course of his career.

Rearmament

2.10 The RAAF's status as an independent Service began to change dramatically from the mid-1930s as the world emerged from the Depression and entered a period of rearmament in response to the growing menace posed by Fascism in Europe. From 1935, the RAAF underwent a period of rapid expansion. In four years it trebled its personnel to more than 3000 and added 10 squadrons to its order of battle. Additional permanent bases were established at Perth and Darwin, and a temporary base was created near Brisbane, pending construction of a new Queensland base at Amberley. New stations were also planned for Rathmines on Lake Macquarie, New South Wales, and at Canberra.



RAAF maintenance personnel inspecting three Australian made CAC Wirraway aircraft

First Attempts at Doctrine

2.11 Ideas about employing air power in the Australian context began to evolve as the RAAF expanded. In September 1935, Squadron Leader J.P.J. McCauley, of the CAS Branch, instructed staff at all RAAF bases to draw up local defence schemes and to prepare papers on specified subject areas related to their particular role. All officers below the rank of Flight Lieutenant in Service units were instructed to write a 10 000 word essay on how air power could be used in cooperation with fixed defences to protect Australia's vital areas from enemy raids. This process was, in effect, the first-ever attempt to formulate operational-level doctrine that was directly

Henry Wrigley, 1892–1987

A school teacher in Victoria before World War I, Henry Wrigley served with the Australian Flying Corps on the Western Front, in No 3 Squadron (which he briefly commanded in 1919), and was awarded the Distinguished Flying Cross (DFC). Between the World Wars he became the only RAAF officer to demonstrate a sustained interest in studying and analysing air power theory and practice.

In more than 20 volumes of diaries, notebooks and journals dating from the 1920s, he identified significant ideas and opinions, which he then summarised and recorded in essays and notes. His history of No 3 Squadron's operations, *The Battle Below* (1935), was described as a textbook on army cooperation flying when it appeared.

During World War II, he became an Air Vice-Marshal and headed the RAAF's Overseas Headquarters in London from 1942, until he retired in 1946. Although his writings on air power were never published in his lifetime, only appearing in edited form as *The Decisive Factor*[1] in 1990, these established him as Australia's first authoritative commentator on air power.

Air Vice-Marshal Henry N. Wrigley, CBE, DFC, AFC.

[1] Alan Stephens and Brendan O'Loghlin (eds), *The Decisive Factor: Air Power Doctrine by Air Vice-Marshal H.N. Wrigley*, RAAF Air Power Studies Centre, Canberra, 1990.

applicable to Australian circumstances. As a result of this initiative, an Air Staff Memorandum was issued on 15 April 1936, dealing with the tactical employment of air forces in the local defence of Australia.

John McCauley, 1899–1989

One of a cadre of professionally trained Navy or Army officers who transferred to the RAAF in the 1920s, John McCauley was among an even smaller group who demonstrated genuine intellectual strengths in the period between the World Wars. He attended the Royal Air Force (RAF) Staff College in 1932, then took the trouble to attain a commerce degree privately from Melbourne University in 1936.

In command of RAAF squadrons stationed in Malaya when Japan entered World War II, he directed the fallback towards Australia via Singapore and Java. During the last year of the war in Europe, he was employed (at British request) as Air Commodore Operations with the RAF 2nd Tactical Air Force in France and Germany.

When he became Chief of the Air Staff in 1954, Sir John was the first of a succession of ex-Duntroon officers who dominated the leadership of the post–World War II RAAF until the late 1960s.

Air Marshal Sir John McCauley, KBE, CB.

Preparation for War

2.12 The years before the start of World War II in 1939 saw serious efforts to improve the operational capabilities of the defence forces, which had atrophied during a prolonged period of neglect. However, critics who viewed Air Force during the inter-war years as little better than an exclusive flying club had a point. The RAAF was underprepared for active operations when war was declared. The most obvious deficiencies were in equipment, especially modern combat aircraft, and personnel numbers. There was also a less obvious but equally critical lack of doctrine for the effective employment of air assets. The magnitude of these shortcomings was about to be brought into sharp focus by the scale of the conflict in which Australia was obliged to join.

3

Executive Summary

Australia's initial contribution to the war in Europe was primarily as a training organisation within the Empire Air Training Scheme.

Australian airmen performed a comprehensive range of air power roles during expeditionary operations in the European theatre.

The dispersal of RAAF personnel throughout the Royal Air Force severely restricted the development of an Australian air power doctrinal foundation and limited the sense of a national identity and contribution.

World War II: The War Against Germany and Italy

Air Expeditionary Force

3.1 At the outbreak of war against Germany on 3 September 1939, Australia's lack of preparedness for war manifested in a national uncertainty regarding the form and size of its contribution to the Allied effort. However, based on the British Government's suggestion that an expeditionary force for service in Europe would be welcome, the RAAF Headquarters in Melbourne commenced planning for the creation of the air component. Little more than two weeks later a scheme had been developed for the dispatch of an air contingent of six squadrons, organised in two bomber wings and one fighter wing, a group headquarters and ancillary units. As Australia lacked any modern aircraft, it was expected that Britain would supply machines and other necessary equipment when the force arrived in Europe. While the RAAF was formalising these plans, the British Government reassessed the form of assistance that the dominions could provide. The ensuing proposal from the British provided an insight into their disparaging assessment of the operational capabilities of dominion air forces.

The British Proposal

3.2 The new proposal stemmed from a plan first mooted in 1936 by the British Air Ministry to obtain dominion concurrence to a scheme for drawing upon the Empire to create a vast pool of trained aircrew from which an expanding RAF could make good any losses in war. In October 1939, the Australian Government accepted this new proposal. Based on the experiences of World War I and the subsequent developments that had taken place in aviation, it was universally accepted that, in any future conflict, air warfare would be critical to the final outcome. This view was echoed by Australia's Minister for Defence, Brigadier Geoffrey Street, who declared that 'victory in the war will depend on mastery of the air'. The decisive factor in such a contest would be the ability to sustain air power in the face of heavy losses of aircraft and aircrew. Replacing aircraft was a difficult enough proposition, but ensuring a plentiful supply of trained manpower was even more complex. The British proposal now required a commitment of personnel far greater than the few hundred airmen originally envisaged in the Australian expeditionary air force contingent. The foundation of what was to become the Empire Air Training Scheme (EATS) was now in place.

Empire Air Training Scheme

3.3 The details of the EATS were negotiated at a conference held in the Canadian capital, Ottawa, and embodied in a formal agreement signed in December 1939. Under its provisions, airmen from Canada, Australia and New Zealand were to receive basic training at home before undertaking advanced courses in Canada or Rhodesia and operational conversion and service with the RAF. Australia's commitment was to provide basic training to 978 aircrew every four weeks, later increased to 1147. Over the three-year life of the agreement Australia was to train 28 000 aircrew.

The scheme was extended for a further two years in 1943, so that ultimately just over 38 400 young Australians completed basic training at home.

Although flight training numbers increased during the years before World War II, the RAAF training system had to expand exponentially to meet the demands of EATS.

Scale of Expansion

3.4 At the start of World War II, the RAAF had only 27 flying instructors and a total of 200 aircraft. To meet its EATS commitment, the Service underwent a seven-fold increase in aircraft strength, an eleven-fold increase in total manpower. It established more than 40 schools in air navigation, bombing and gunnery, flying, and technical training for ground staff. By the end of 1940, the first Australians in the EATS had gained their 'wings'. Three-quarters of those trained went overseas to fight German and Italian forces, distinguishing themselves in every major

campaign from Britain to Russia and the Middle East. The RAAF's role under the scheme has been described as 'an extraordinary achievement which laid the foundations for Australia's single most important contribution to victory in Europe and, therefore, in World War II'.

Limited National Identity

3.5 Article XV of the EATS agreement allowed for the dominions to operate squadrons of their own air forces, an arrangement reminiscent of the AFC units during World War I. Under this provision, once the proportion of aircrew in an individual squadron reached 75 per cent Australian, it would become an RAAF unit. The first Article XV squadrons were formed in England in 1941, and eventually 17 RAAF squadrons,

Tiger Moths at an Elementary Flying Training School.

Empire Air Training Scheme Schools (Locations in 1941)

Initial Training

1 Somers, VIC
2 Lindfield, NSW
3 Sandgate, QLD
4 Mount Brecken (Victor Harbour), SA
5 Pearce, WA
6 Bradfield Park, NSW (formed 1943)

Elementary Flying Training

1 Parafield, SA
2 Archerfield, QLD
3 Essendon, VIC
4 Mascot, NSW
5 Narromine, NSW
6 Tamworth, NSW
7 Western Junction, TAS
8 Narrandera, NSW
9 Cunderdin, WA
10 Temora, NSW
11 Benalla, VIC
12 Lowood, QLD

Air Navigation

1 Parkes, NSW
2 Nhill, VIC

Service Flying Training

1 Point Cook, VIC
2 Forrest Hill (Wagga Wagga), NSW
3 Amberley, QLD
4 Geraldton, WA
5 Uranquinty, NSW
6 Mallala, SA
7 Deniliquin, NSW
8 Bundaberg, QLD

Air Observer

1 Cootamundra, NSW
2 Mount Gambier, SA
3 Port Pirie, SA (formed Dec 43)

Bombing and Gunnery

1 Evans Head, NSW
2 Port Pirie, SA
3 West Sale, VIC (formed Jan 42)

Wireless Air Gunnery

1 Ballarat, VIC
2 Parkes, NSW
3 Maryborough, QLD

numbered 450 to 467 (without 465 being formed), were operational. The aim was to reassure Australia that its personnel fighting overseas would retain their national identity. In reality this became largely untenable, as it was Britain's Air Ministry that decided where personnel were to be posted, and sending RAAF personnel exclusively to RAAF squadrons was

not considered a high priority. The result was that the mix of nationalities within Article XV squadrons was such that identification with any one dominion was largely a fiction.

Formed RAAF Units

3.6 As a result of the EATS agreement, plans to send an Australian air contingent to Europe were initially put on hold, and finally abandoned. In the event, only three formed units were drawn from the RAAF for active service outside the Asia-Pacific region. They were No 10 Squadron, already in England taking delivery of new Sunderland flying boats when the war began; No 3 Squadron, an army cooperation unit sent to support the AIF in the Middle East in 1940; and No 1 Air Ambulance Unit, also sent to the Middle East at the end of 1941. However, these units did not ever operate together or form a distinctive national contingent. At the beginning of World War II, the RAAF was valued primarily as a training organisation.

No 10 Squadron was the first RAAF unit to go to war.

Women's Australian Auxiliary Air Force

Established in March 1941, the Women's Australian Auxiliary Air Force (WAAAF) was the first of the women's Services formed during the war and enabled women to enlist for the first time. It was championed by Air Chief Marshal Charles Burnett, who saw its value in releasing men to serve overseas as aircrew. While women were not permitted to serve outside Australia, by the war's end they had been admitted to more than 70 RAAF trades in the fields of aircraft ground servicing, administration, radar and signals, stores and maintenance, and kitchen and mess work.

The WAAAF became the largest of the women's Services in Australia, numbering 18 664 personnel at its peak, 12 per cent of the RAAF's strength. Not until 1943, however, was the Service legally constituted as part of the RAAF. Although disbanded in 1947, the WAAAF was a precursor to the Women's Royal Australian Air Force (WRAAF) formed in 1950. Ultimately, the WRAAF was absorbed into the mainstream RAAF in the early 1980s.

No 1 WAAAF Officers Training Course, 1941.

North Africa and the Mediterranean, 1940

3.7 In total, five RAAF flying units were deployed to North Africa and the Mediterranean in support of the Allies' operations in those theatres. Nos 3, 450 and 451 Squadron (the latter two were Article XV units) were employed in army support and air combat roles, No 1 Air Ambulance Unit in a casualty evacuation role, and No 454 Squadron (another Article XV

unit) was formed as a bomber unit, employed on surveillance and both land and maritime strike operations. Although initially flying outdated aircraft, the RAAF units successfully engaged the Italian forces during 1940, providing Allied ground forces the necessary freedom of action to ensure an Italian retreat. The entry of Rommel's Afrika Korps and the Luftwaffe into the theatre stopped this retreat in March 1941.

3.8 Once equipped with more modern aircraft, and fighting as part of the Desert Air Force, Nos 3, 450 and 451 Squadron then supported the British Eighth Army, often conducting bombing and strafing of enemy positions and engaging in air-to-air combat in the same mission. As part of the Allies' strategy of isolating the Afrika Korps in North Africa from their supply lines across the Mediterranean Ocean as much as possible, No 454 Squadron conducted wide-ranging surveillance and strike missions against the Axis supply vessels and U-boats. The dominance of Allied air power was a major factor in crushing the Axis armies in North Africa by mid-1943.

RAAF Kittyhawk in North Africa.

Australian Aces in the Battle of Britain

Of the 1495 Royal Air Force (RAF) Fighter Command pilots who defended Britain in the air between 10 July and the end of October 1940, some 30 were Australian. Fourteen of these were killed in action.

Four Australians became fighter aces, scoring five or more aerial victories. These were: Wing Commander Gordon Olive, Flight Lieutenants Pat Hughes and Stuart Walch, and Flying Officer Richard Glyde. Pat Hughes, with 15 victories, was the third highest scoring ace in the Battle of Britain, but was killed in a crash on 7 September 1940. Stuart Walch lost his life on 11 August 1940 over Lyme Bay while flying Hurricanes with No 238 Squadron, RAF, and Richard Glyde died in a crash on 13 August 1940 while flying with No 87 Squadron, RAF. Both Pat Hughes and Richard Glyde were awarded the Distinguished Flying Cross (DFC).

Wing Commander Olive was credited with six enemy aircraft destroyed and was also awarded the DFC. In 1941, he commanded No 456 Squadron, RAAF, the first Australian air unit trained for night fighting.

Australian Aces in the Battle of Britain

Left to Right: Wing Commander Gordon Olive; Flight Lieutenant Pat Hughes; Flight Lieutenant Stuart Walch; Flying Officer Richard Glyde.

3.9 With operations in North Africa largely completed, select RAAF units were subsequently deployed in support of the Allied invasion of Sicily and then Italy. Moving constantly in order to stay in contact with the advancing ground forces, the RAAF fighter squadrons became highly mobile, flexible, expeditionary units. On 14 September, No 3 Squadron maximised its expeditionary capability to become the first Allied flying squadron to operate in Italy when it deployed at short notice to Grottaglie in support of the recent landings at Salerno.

Battle of Britain, 1940

3.10 In the summer of 1940, Australian pilots, many of whom had transferred to the RAF while on secondment from the prewar RAAF, were among 'the few' who fought the Battle of Britain, defending England against massive air attacks by the Luftwaffe and thwarting Germany's invasion plans. The efficient employment of a small defending force, concentrated where and when it was most needed, was crucial to the battle's success. This form of warfare was made possible by the development of radar and its integration into a complex network of communications and control centres.

Atlantic Operations

3.11 From 1940 to 1945, RAAF airmen flew arduous and usually monotonous long-range maritime patrols with the RAF Coastal Command, searching the Atlantic Ocean for the German U-boats and surface ships that posed a serious threat to Allied supply convoys. The U-boats were elusive targets in the vast expanse of ocean as the crew of the aircraft relied primarily on visual sightings. Often it was merely a periscope that signified a U-boat's presence. At night, search missions

were undertaken using huge spotlights mounted on the aircraft. These missions were opposed by Luftwaffe fighters, operating as far out to sea as their range permitted, and the stiff anti-aircraft resistance offered by the target vessels themselves.

Battle of the Atlantic

Throughout most of the war, the Royal Air Force Coastal Command fought to control Britain's sea lanes, principally west to America and north to Russia. The main threat to convoys of Allied supply ships on these routes was from enemy aircraft and U-boats, although surface raiders and warships also exacted a toll. Nos 10 and 461 Squadron, RAAF, equipped with Sunderland flying boats, and No 455 Squadron, RAAF, with Beaufighter attack aircraft, took part. RAAF pilots were credited with the destruction of 18 of the 190 U-boats sunk by Coastal Command during the war.

Aircraft endurance and range were major factors in the success of this campaign. Prior to September 1941, when long-range Liberators were introduced to service with Coastal Command, German raiders were able to hit shipping in the mid-Atlantic and off the Azores almost with impunity. The Liberators, ranging from bases in Ireland, the Hebrides and Iceland, were able to cover these areas, staying aloft for some 20 hours each mission. More than 300 Australians served in these aircraft.

Arming a Beaufighter with rockets.

Strikes Against Occupied Europe, 1941

3.12 By 1941, the Allies were on the offensive. RAAF squadrons joined the RAF's offensive sweeps across the English Channel to weaken the Luftwaffe and its air defence system, attacking airfields in France and hunting aircraft in the air. Although a proportion of the Luftwaffe had by then moved to the Eastern Front for the war against Russia, this was still a hazardous operation. Flying low over heavily defended airfields was dangerous work, and novice and veteran pilots alike lost their lives. At the same time, Allied air forces flying torpedo bombers and attack aircraft armed with rockets made daring low-level attacks against German shipping in the North Sea, severely restricting enemy resupply. Ultimately, the air supremacy gained by the Allied air forces allowed the pivotal D-Day landings on the French coast to be mounted in June 1944.

Air Support Over Normandy

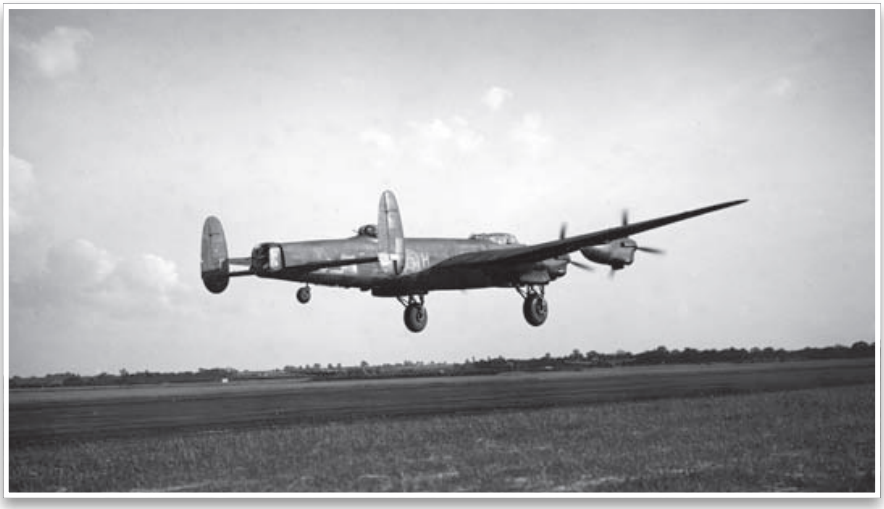
Air supremacy was a critical factor in the success of the Allied invasion of the Continent on D-Day, 6 June 1944. Thousands of British and American aircraft supported the operation, covering the beach landings and attacking targets in the ensuing weeks against dwindling Luftwaffe opposition.

Ground-based fighter controllers in forward positions assessed the rapidly changing tactical situation and radioed for air strikes. Aircrew were briefed by Army ground liaison officers before each mission, and Air Force forward controllers called in strikes as required—much as airborne forward air controllers would do over 20 years later in Vietnam.

The Spitfires of No 453 Squadron, RAAF, flew close air support over the beachheads and protected Allied shipping. Once advanced landing grounds had been established in Normandy, the squadron operated from these, flying defensive patrols during the advance from Normandy to Paris and Belgium.

Bomber Offensive, 1942

3.13 The greatest contribution made to the Allied war effort by Australian airmen was in RAF Bomber Command, and it was there that they suffered their highest losses. Pursuing Trenchard's doctrine of strategic bombing, the RAF had developed effective medium bombers in the lead-up to the war and continued their production during the war. Heavy bombers were developed from 1940 onwards. Prior to D-Day, bombing was the only means by which the western Allies could strike the German homeland. The Allied air forces concentrated their attacks on Berlin and cities in Germany's industrial Ruhr Valley, and by 1944 the bombing raids were having an effect in suppressing Germany's war effort. The attacking bombers faced multiple threats, not only from Germany's highly sophisticated night fighter and anti-aircraft defence systems, but



The Lancaster, mainstay of RAF Bomber Command.

from the dangers of flying at night. Midair collisions, technical problems, and crew fatigue all contributed to the very high loss rate suffered by Bomber Command. A total of 3486 Australian airmen lost their lives on these raids, where on one occasion 95 of 608 aircraft or 15 per cent were lost. Whether the results of the bombing campaign justified the appalling loss of life on both sides has been debated ever since. RAAF squadrons flew in all phases of the campaign, and it was an Australian, Air Vice-Marshal Don Bennett, who developed and led the Pathfinder Force that performed the vital task of marking targets for the attacking bombers.

Battle of the Ruhr, 1943

3.14 From March to July 1943, RAF Bomber Command launched an all-out campaign against German industries in the Ruhr Valley. Three RAAF squadrons, Nos 460 and 467 with Lancasters, and No 466 with Halifaxes, took part in these raids. Beginning on the night of 5 March, the offensive

Rawdon Middleton, VC

On the night of 28 November 1942, the northern Italian city of Turin was bombed by 228 aircraft of the Royal Air Force Bomber Command. The force included 47 four-engined Stirling bombers. Piloting one of these was former jackeroo Flight Sergeant Rawdon Middleton, who brought his aircraft down to 2000 feet for three runs to identify the target. An anti-aircraft shell exploded in the cockpit, seriously wounding Middleton, his copilot and wireless operator. Middleton was hit in the head and knocked unconscious. When he came to, Middleton was weak and had trouble seeing and speaking, but he attempted to fly his stricken aircraft back to Britain.

On reaching the English coast and realising that the aircraft could not be flown much further he ordered his crew to parachute out. Five did so and survived, but Middleton and two others were still aboard when the badly damaged bomber crashed into the sea. For this heroic action, Middleton posthumously became the first member of the RAAF to receive the Victoria Cross (VC).

Flight Sergeant R.H Middleton, VC.

virtually eliminated the industrial centres of Dortmund, Dusseldorf and Cologne, and severely damaged Essen and Duisburg. Increasing numbers of available aircraft and the effectiveness of the Pathfinder Force contributed to Bomber Command's successful campaign. A total of 27 night raids had been mounted during the Ruhr Valley campaign in which the RAAF squadrons lost 45 aircraft. The most famous operation carried

out during the campaign was the successful low-level precision attack conducted by No 617 Squadron, RAF on the night of 16–17 May against the Mohne and Eder dams, which supplied water and hydro-electric power across the Ruhr and helped control winter flood waters. Thirteen Australians took part in this celebrated 'Dambuster' raid.

Battle of Berlin, 1943

3.15 Air Chief Marshal Sir Arthur 'Bomber' Harris, Commander-in-Chief of RAF Bomber Command, planned air operations to cripple the German capital and force Germany to capitulate. On 18 November 1943, in cooperation with the daylight bombers of the US Eighth Air Force, Bomber Command launched a night-time area bombing campaign. The campaign was conducted in winter when the long nights gave more hours of darkness to cover the bombers on their long trip to Berlin. Four RAAF squadrons, Nos 460, 463, 466 and 467, flew 785 sorties during the 17 missions flown by Bomber Command. The bombers battled adverse winter weather and Berlin's formidable air defences that included anti-aircraft artillery and Luftwaffe night fighters, working in unison with radar and searchlights. The Australian squadrons lost 41 aircraft through enemy action. The high Bomber Command losses lowered the morale of the surviving crews. This, in combination with the increased number of new, inexperienced crews being inducted to cover the losses, led to deteriorating effectiveness of the campaign at an ever-increasing cost in aircrew and aircraft. Berlin did not fall and the campaign concluded indecisively on 24 March 1944.

A RAAF Lancaster bomb aimer at work during a raid over Germany, 1942.
(Artist Dennis Adams)

Australians in Bomber Command

Bomber Command missions paved the way for the resounding victory over the Nazis and their Fascist allies. Approximately 10 000 Australian personnel joined Bomber Command. Of these men, 3486 died as a result of their service. Just over 1 per cent of all the Australians in uniform during World War II served in Bomber Command, however, as a group they formed over 8 per cent of Australia's war dead. As a group, few Australians from any Service did more to help win World War II than the men who fought in Bomber Command.

Improving Bombing Accuracy

3.16 British doctrine at the beginning of the bomber offensive was overwhelmingly one of 'area attack', in which entire cities were devastated by high explosives and incendiaries. This policy was necessitated by the lack of target visibility and the difficulty in achieving consistent accuracy. In mid-1941, operational analysis revealed that a third of RAF bombers were returning from operations without having attacked their primary target. Of those that did attack their targets, only one-third placed their

The Pathfinders

In July 1942, Group Captain (later Air Vice-Marshal) Don Bennett, an ex-RAAF pilot trained at Point Cook, was directed by Air Marshal Sir Arthur Harris to form and lead what was to be known as the Pathfinder Force. This Force, with its ability to guide bomber formations to their targets through the use of radar and pyrotechnics, greatly improved the accuracy and therefore the effectiveness of the aerial bombing campaign. Bennett was appointed to this role on the basis of his superlative navigational and technical skills. Bennett also involved himself in developing the electronic navigational devices that were to prove crucial to the success of his force—the H2S radar and Oboe radio guidance.

Air Vice-Marshal D.C.T. Bennett, CB, CBE, DSO.

bombs within eight kilometres of their aiming point. The first problem, not locating the target, was largely the result of inaccurate navigation due to limitations of navigational aids and poor flying conditions. Second, bomb delivery accuracy was adversely affected by the limitations in bomb-aiming equipment, weather and the difficulties in flying a steady 'bombing run' while under enemy attack. Numerous innovations, technical and tactical, led to a gradual improvement in the accuracy of bombing. The technical innovations included inventions such as the Mk XIV/T1 Bombsight, H2S radar and Oboe radio guidance. One of the tactical innovations was the formation of the Pathfinder Force which guided bombers to their targets, leading to an increase in the percentage of bombs striking within five kilometres of the aiming point, from just over 20 per cent in early 1942 to 90 per cent by war's end.

Doctrinal Matters

3.17 The range of activities that Australian airmen performed during the epic struggle of the war in Europe reflects many of the roles in today's air power doctrine. These include the vital roles performed by ground crews keeping aircraft airworthy, intelligence and other support functions, and the logistics and training effort. Notably, the Australian experience of air power during the war in Europe and the Mediterranean was primarily expeditionary in nature. Australian personnel were widely dispersed within a huge Allied structure, and therefore did not have the opportunity to develop a mature and cohesive doctrinal grasp of air power. The development of a comprehensive operational and organisational ethos for the RAAF would not occur until a new threat emerged much closer to home.

4

Executive Summary

The RAAF, despite having expanded substantially in the inter-war and early war years, was operationally underprepared when the war broke out in the South-West Pacific Area.

Lack of experience at senior command levels undermined the effectiveness of RAAF operations.

Although under Allied command, the RAAF operated as an independent air force in the Pacific theatre, unlike its dispersed contribution to the war in Europe.

World War II: The War Against Japan

Japan Enters the War

4.1 In December 1941, Japan launched an offensive campaign in South-East Asia and the Pacific, sending an invasion force ashore in southern Thailand and at Kota Bharu, Malaya, at the same time as another fleet attacked the US naval base at Pearl Harbor, Hawaii. Australian forces were almost immediately drawn into the conflict because successive Australian Governments had adopted the British global strategy focused on naval power as the Empire's first line of defence, regionally centring this strategy on the British naval base at Singapore. Imperial concerns regarding Japanese intentions in the Pacific in the early years of World War II prompted British requests for Australian ground and air units to be committed to the defence of Singapore. Accordingly, from July 1940, three squadrons sent from Australia—Nos 1 and 8 (equipped with Hudsons) and No 21 (Buffalo fighters)—and one Article XV squadron raised in Britain under EATS (No 453 Squadron, equipped with Buffaloes) had been stationed at bases on the Malayan peninsula. RAAF personnel from these squadrons were engaged in this new theatre of war from the opening moments.

Lack of Allied Preparation

4.2 Although international contingency planning to meet a possible Japanese threat to South-East Asia had been conducted for more than three years, when the attack came the Allies were not well prepared, having had their focus mainly on events in Europe. Compounding the operational surprise was an underestimation of Japan's military capabilities. For example, the existence and performance of the very capable Zero fighter aircraft came as a tactical shock. In Australia, the British officer commanding the RAAF, Air Chief Marshal Sir Charles Burnett, continued to see the European war as his first priority. In his view, the primary role of the RAAF was to support the EATS in supplying airmen for the war in Europe. Air Marshal Sir Richard Williams later described this as disastrous for Australia.

Japanese Zero fighter.

The Zero Fighter

In December 1941, Japan's A6M Reisen (Zero fighter) came as an unpleasant surprise to the Allied forces in the Pacific. Although it had already been employed in China, United States authorities had refused to believe Japan could produce a fighter superior to their own. They were wrong, and the Zero quickly gained a reputation for invincibility.

Allocated the Allied codename Zeke, the Zero's success was founded in meeting stringent design challenges that gave it unparalleled manoeuvrability, heavy firepower and long range. However, in accommodating these attributes it was lightly constructed, lacked protective armour, which made it vulnerable to battle damage, and its maximum speed was less than the American equivalent. RAAF Kittyhawk and Spitfire pilots quickly learned to take advantage of these limitations by making fast diving attacks on Zero formations and avoiding involved aerial combat. By 1943 the pilots of a new range of powerful and heavily armed US fighters had honed these tactics, and for the rest of the war the Zero was outclassed.

Characteristics	A6M2 Zero	P-40E Kittyhawk
Engine Power	940 Horsepower	1150 Horsepower
Empty Power	1720 kg	2858 kg
Armament	Two 20mm cannons Two 7.7mm machine guns	Six 12.7mm machine guns
Max Speed at 1500 ft	533 km/h	582 km/h
Max Climb Rate	960 m/min	625 m/min
Range with Drop Tank	3100 km	1448 km

Air Attacks on Australia, 1942

4.3 The overwhelming success of the Japanese advances of early 1942 made Australia refocus its defence strategy. On 19 February 1942, two devastating Japanese air raids struck Darwin's harbour and shipping, its town centre and the civil aerodrome, and put the RAAF Base out of action. Further Japanese attacks on northern Australian towns and bases created widespread fear of an invasion. In response, the US 49th Fighter Group moved to Darwin to counter the threat a month after the first attack. By May 1942, the RAAF had received 100 US Kittyhawk fighters. In that same month, Australia's Minister for External Affairs also

Australia's anti-air radar-based early warning network.

Attacks on Northern Australia

The first two Japanese attacks on Darwin resulted in extensive damage, with nine ships sunk and at least 243 people killed. A squadron of United States (US) fighters in transit put up a courageous defence, but almost all were shot down.

A Commission of Inquiry found that ineffective early warning was a major factor in the lack of defence against these attacks. Even though the attacking formations had been reported by radio as they passed over Bathurst Island, they were assumed to be returning US Kittyhawk fighters.

Darwin had not been the only town heavily targeted. At Broome on Australia's north-west coast, more than 20 aircraft were destroyed in a raid on 3 March 1942. The last of 64 raids against Darwin and the airfields to its south was made on 12 November 1943. By this time, Allied operations had drastically reduced Japanese air strength and the assault on Australia's north ceased.

Numbers of Air Attacks on Australia 1942–43

Darwin and nearby airfields	64	Derby, WA	1
Katherine, NT	1	Exmouth Gulf airfield, WA	4
Millingimbi airfield, NT	3	Onslow area, WA	1
Drysdale, NT	1	Mossman area, QLD	1
Broome, WA	4	Townsville, QLD	3
Wyndham, WA	2	Horn Island airfield, QLD	9
Port Hedland, WA	2		

secured a promise from authorities in London to transfer three Spitfire squadrons from England, two RAAF and one RAF, for Darwin's defence. However, by the time they arrived in the Darwin area for the defence of north-west Australia, almost a year after the first raid, the attacks had markedly declined. Understanding the crucial role radar played in the

Battle of Britain, the RAAF established hundreds of radar stations around Australia and on the islands to its north. The first of these radar stations was under construction in Darwin at the time of the initial Japanese attacks. Ultimately, the combination of radar, the Coastwatchers and Volunteer Air Observer Corps created a vast early warning network.

American Command of the Pacific Campaign, 1942

4.4 The strategic priorities for the war were decided in Washington, DC, by the Combined Chiefs of Staff of Great Britain and the US, and passed on to each theatre commander. In March 1942, General Douglas MacArthur arrived in Australia as Supreme Commander South-West

The South-West Pacific Area Air Campaign

The air campaign in the South-West Pacific Area (SWPA) started on 8 December 1941 and continued until the Japanese Emperor surrendered on 10 September 1945.

The Allies' SWPA campaign may be separated into three distinct phases:

1. Allied Denial Operations – a Defensive Phase (December 1941 – July 1942)
2. Allied Contested Operations – an Attrition Phase (July 1942 – May 1943)
3. Allied Permissive Operations – an Offensive Phase (June 1943 – September 1945).

The SWPA campaign, 1941–45, was unique for its time. It was a campaign in which air power was frequently the key force in the application of military power, and where sea and land power were often used in support. Control of the air and sea were the necessary prerequisites for Allied offensive operations against the Japanese.

Pacific Area (SWPA), which included Australia and the region in which the RAAF would primarily operate in the war against Japan. Australia's military effort against Japan came under his control. Prime Minister John Curtin tended to give more weight to the views of MacArthur, who was his strategic adviser, than those of his Defence Secretary, Sir Frederick Shedden. MacArthur's air commander, Lieutenant General George Brett, controlled RAAF operations in the theatre and tried to integrate the Australian and US Air Forces into an Allied structure. MacArthur did not want US servicemen serving under Australian command and in July 1942 he replaced Brett with Major General George Kenney. Allied air forces in the theatre soon comprised an independent US Fifth Air Force and a separate RAAF Command headed by Air Vice-Marshal William Bostock.

RAAF Command Scandal, 1942

4.5 Air Vice-Marshal George Jones was appointed as CAS in May 1942. Following the establishment of RAAF Command, Jones was unwilling to allow Bostock anything other than operational control of RAAF units, and insisted on keeping administrative control himself. Bostock, supported by Kenney and MacArthur, reacted strongly, creating a feud which severely disrupted the smooth operation of the RAAF for the rest of the war.

Allied Successes, 1942

4.6 In 1942, the Allies achieved their first successes in the Pacific theatre. From March, the Kittyhawks of No 75 Squadron, RAAF, under the command of Squadron Leader John Jackson, defended Port Moresby from Japanese air attacks for a month and a half on their own. In May, a Japanese invasion force bound for Port Moresby was forced to turn back as a result of its defeat at the Battle of the Coral Sea, the first ever action

William Bostock, 1892–1968

During World War I, William Bostock served in the Australian Imperial Force as a signaller at Gallipoli and in the Sinai, before transferring in 1917 to the Royal Flying Corps, and later again to the RAF. He joined the newly formed RAAF in 1921. While on exchange with the RAF in 1936–38, he commanded No 1 Bomber Group in England. He was appointed Director of Operations and Intelligence on his return to Australia. In 1940, he became Deputy Chief of the Air Staff.

When war broke out in the Pacific he was promoted to the rank of Air Vice-Marshal and appointed Chief of Staff to Lieutenant General George Brett. In August 1942, he was appointed Air Officer Commanding RAAF Command. In March 1945, Bostock commanded air operations during the Allied invasion of Borneo.

After the war Bostock ran a grazing property in Victoria. In 1949, he won a seat in the House of Representatives for the Liberal Party, which he held until 1958.

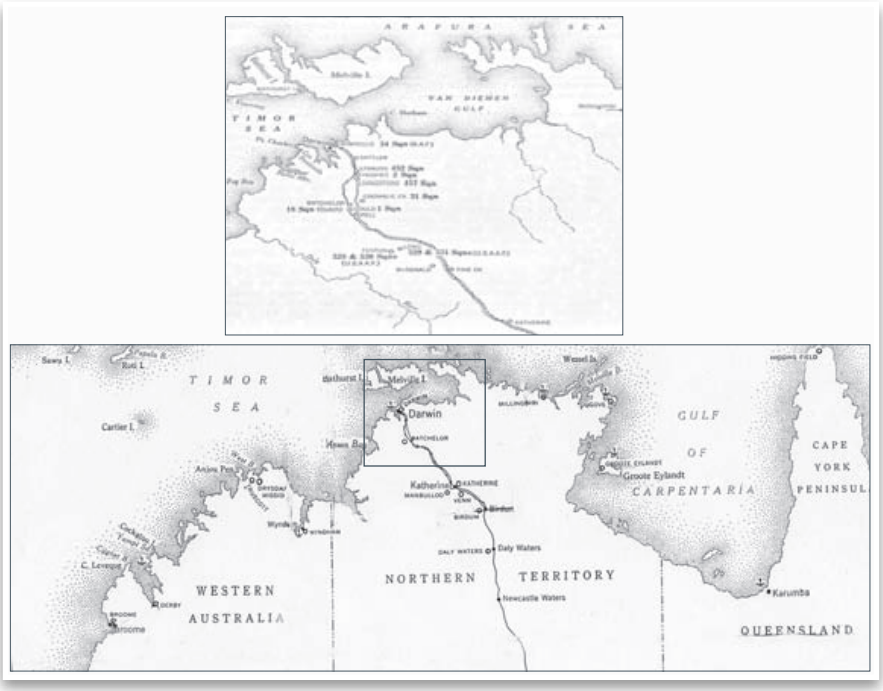
Air Vice-Marshal William Bostock, CB, DSO, OBE.

between aircraft carriers. This was followed by Allied victory in the Battle of Midway in June, which marked the beginning of the end of Japanese carrier-based air power. These two carrier battles denied the Japanese the operational flexibility to use their air power to provide effective support to their land campaign. Without adequate air cover, the Japanese supply lines were interdicted and their troops came under persistent attacks

from the air, while Allied reconnaissance aircraft monitored all of their movements. From July, RAAF and US air support were indispensable to the Allied success in the campaign along the Kokoda Trail, which linked New Guinea's north-east coast with Port Moresby. During this campaign Allied air forces protected the ground forces from Japanese air attacks and airdropped vital supplies to Allied troops and artillery crews. The Battle of Milne Bay, at the south-eastern tip of New Guinea in August and September, resulted in the first land defeat of the Japanese. RAAF air power was acclaimed as 'the decisive factor' in this victory. Kittyhawks from Nos 75 and 76 Squadron, together with Hudson bombers of No 32 Squadron, devastated Japanese landing barges in nonstop attacks. With the help of Coastwatchers, the fighters also effectively intercepted incoming Japanese aircraft.

Bombing Counteroffensive, 1943

4.7 Following their early defeats in the Pacific theatre, the US Army Air Forces (USAAF) and RAAF elements in Australia were reinforced with American heavy and medium bombers. Operating from newly constructed airfields in Australia's north, these aircraft flew massed raids against enemy airfields and communication positions, focusing on targets in New Guinea and New Britain. The offensive air war over land in the SWPA became primarily one of bombing tactical ground targets to meet emerging operational requirements. This offensive played a key role in containing the Japanese advance into the South-West Pacific region.



Australian air bases in the north, 1944–45.

Dive-Bombing

Dive-bombing was generally more accurate than bombing from level flight. RAAF dive-bombers were used with success in New Guinea, initially with adapted Wirraways and then with America's purpose-built Vengeance aircraft. This aircraft had been designed along the lines of the successful German Stuka, but failed to meet expectations and was withdrawn by the American high command as unsuitable in 1942. Five squadrons of these aircraft were obtained for the RAAF, which operated them until 1944. The RAAF was perplexed at the United States decision to withdraw the aircraft since they had been employing them effectively.

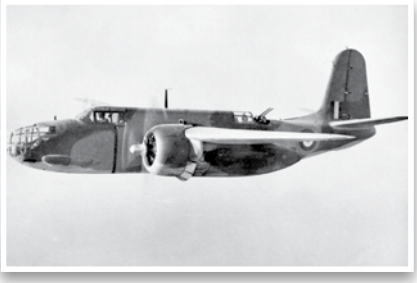
RAAF in Burma, 1943

4.8 The Japanese invaded Burma with the aims of cutting Chinese and British supply lines, securing resources such as oil and rice, establishing a buffer for recently occupied Siam (Thailand), and opening the way for a possible invasion of India. Japan's invasion of Burma took the Allies by surprise. Initially, Rangoon was defended by a single RAF fighter unit and a squadron of the American Volunteer Group, the famed Flying Tigers. This force was soon considerably expanded, although Burma was always seen as subordinate in importance to both the European and Pacific theatres of war. Beaufighters were used for long-range, low-level attacks on Japanese lines of communication, aerodromes and troop concentrations up to 800 kilometres from bases in India. Liberator heavy bombers conducted tactical bombing, sea patrols in the Bay of Bengal and special operations to drop agents and supplies into Burma and elsewhere in South-East Asia. The RAF squadrons taking part in the air effort in Burma included a large number of RAAF aircrew. In some units, half or more of the aircrew were Australian, some of whom served as squadron commanders. By November 1943, more than 500 Australian aircrew were serving with 58 RAF squadrons in India, flying aircraft ranging from fighters to heavy bombers and attacking targets in Burma and Siam.

Battle of the Bismarck Sea, 1943

4.9 Forewarned by signals intelligence that the Japanese were planning to reinforce their forces on the northern coast of New Guinea, from late February 1943 the Allies watched for signs that the move was about to commence. On 1 March 1943, a US bomber sighted an enemy convoy outward bound from Rabaul. The convoy consisted of eight troop transports escorted by eight destroyers and was protected by air cover from Rabaul and Lae. The following day, RAAF Bostons made a dawn

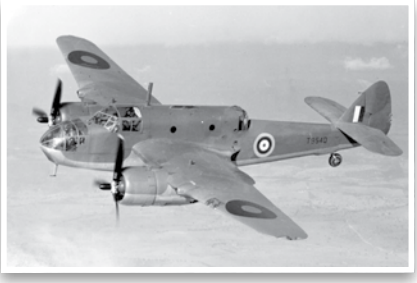
raid on Lae air bases, temporarily putting them out of use. This was a prelude to a varied series of attacks on the ships that were sustained over two days. On the first day, USAAF heavy bombers attacked the convoy from medium altitude while RAAF Catalinas shadowed it after dusk and Beauforts launched an unsuccessful night torpedo attack. On the second day, 3 March, RAAF Beaufighters attacked at mast height to silence the anti-aircraft guns, followed by USAAF Mitchells which bombed from medium height and made low-level 'skip bombing' attacks. In the days following these attacks, RAAF and USAAF aircraft patrolled the Huon Gulf in what was described by official historian Douglas Gillison as 'the terrible yet essential finale', destroying barges and rafts crowded with Japanese survivors. All eight Japanese transports and four of the destroyers had been sunk for the loss of only four US aircraft in combat. The Japanese



Douglas Boston.

North American Mitchell.

Consolidated Catalina.



Bristol Beaufort.

death toll was 2890, nearly half the troops on board. General MacArthur described the Battle of the Bismarck Sea as 'the decisive aerial engagement' of the war in the SWPA. This battle provides a classic example of the effective integration of a wide range of air power roles.

William (Bill) Newton, VC

Flight Lieutenant Bill Newton's great courage and devotion to duty had earned him a recommendation for the Victoria Cross (VC) even before his last flight. In March 1943, he was flying Boston bombers with No 22 Squadron, RAAF, in raids against the Lae-Salamaua area.

On 16 March, Newton's aircraft was struck by anti-aircraft fire, while dive-bombing and strafing targets in Salamaua. He flew his crippled aircraft nearly 300 kilometres back to base at Port Moresby. Two days later, flying with crewmen Flight Sergeant Lyon and Sergeant Eastwood, he returned to Salamaua, targeting a storage building. He succeeded in destroying it but Newton's Boston was again hit. Witnesses saw the blazing aircraft ditch in the sea, and two airmen were seen to swim to shore.

The fate of Newton and his crew remained unknown for over six months. Eastwood had not escaped the sinking aircraft. Newton and Lyon were captured and interrogated by the Japanese before, as later revealed by the captured diary of a Japanese soldier, Newton was beheaded and Lyon bayoneted to death. Newton is the only member of a RAAF unit to be awarded the VC.

Flight Lieutenant W.E. Newton, VC.

Formation of the First Tactical Air Force, RAAF

4.10 The First Tactical Air Force (TAF) was formed in October 1944 from No 10 Group, RAAF. Since 1942, many from the Prime Minister down had been concerned that the RAAF would be denied an equal share in offensive operations and the Australian Government hoped that its forces would be part of the invasion forces for the Philippines. However, when American forces landed at Leyte in October, MacArthur ensured that there was minimal Australian involvement. Air Vice-Marshal Bostock was reportedly instructed to use the RAAF primarily as an instrument to reduce AIF casualties in New Guinea, but he objected and won agreement for the First TAF to be used in Borneo and the Celebes area. While US forces occupied Okinawa, Australia concentrated on 'mopping up' operations and pre-invasion strikes in the Borneo region during the *Oboe* operations. Much of this work has been described as strategically irrelevant because the front line had moved much closer to Japan. Some in the RAAF became disgruntled with the apparent misuse of the force, particularly as lives were being lost in the process. No less than the Secretary of the Defence Department decried the 'relatively poor' RAAF effort in the SWPA, which he attributed to the system and the lack of senior Australian officers with operational experience.

Maritime Blockade

4.11 The RAAF carried out a wide range of offensive operations throughout the war. Catalina flying boats ranged over vast areas, bombing and mining enemy harbours from Sumatra to Hong Kong. During the last year of the war, the RAAF long-range Liberator heavy bombers, operating first from bases in north-western Australia and then from Morotai and Borneo, conducted wide-ranging maritime bombing attacks. This effective air blockade of Japanese water transport routes was one of

The 'Morotai Mutiny'

The 'Morotai Mutiny' by fighter pilots is the best-known incident of the RAAF voicing the frustration it felt at being assigned to what seemed to be strategically irrelevant operations. In 1944, while the Americans had taken the war north to the Philippines, the First Tactical Air Force (TAF), based on Morotai Island was employed in the 'bypassed' Borneo-Celebes region. Many in the force considered that the operations were unjustifiably wasteful of resources and manpower. In April 1945, discontent and frustration led a group of eight fighter leaders to resign their commissions.

On the recommendation of the Chief of the Air Staff, Air Vice-Marshal Jones, the Minister for Air, Arthur Drakeford, called for an inquiry into the issues affecting First TAF. A commission headed by John Barry, KC, found that the complaints were justified and the officers who had resigned were exonerated and reinstated. The Air Officer Commanding First TAF, Air Commodore Cobby, and two other senior staff were relieved of their appointments. These events demonstrated both the problems of working under MacArthur's command and the inherent weakness in the higher command of the RAAF.

The newly reconstructed airfield at Balikpapan is open for business, 1945.

the RAAF's most important contributions in the Pacific theatre. By 1945, this blockade, combined with submarine attacks, prevented the Japanese resupply of many of its units. Despite the Minister for Air urging that at least two squadrons of Liberators should participate in the bombing of Japan, this, perhaps predictably, did not happen.

Limited Resources for Pacific Theatre

4.12 The number of RAAF aircraft and aircrew participating in the early battles of the Pacific theatre was limited by the Allies' 'beat Germany first' policy, which dictated that the vast majority of the war effort went to Europe, the Middle East and North Africa. From the RAAF viewpoint, this meant that most of its airmen were not available to fight the Japanese in the Pacific theatre. The RAF's CAS, Sir Charles Portal, would not release Australian aircrew from the European war until they had completed a tour of operations. Military resources were only provided to the Pacific war en masse in the final year of the war, when the success of the D-Day invasion of France made victory in Europe likely.

Local Aircraft Supply

4.13 The RAAF's aircraft were acquired from Britain, America and a few Australian manufacturers. In 1936, the Commonwealth Aircraft Corporation (CAC) was established to build aircraft for the RAAF, as war with Germany appeared increasingly likely. This move proved crucial to Australia's air power expansion because Britain was unable to fulfil the RAAF's requirements and, prior to 1944, America provided very limited numbers of modern aircraft. With the exception of a small number of non-combat types of aircraft, Australia was new to military aircraft production. The CAC broke with tradition when it selected an American

design, the North American NA-32/33 trainer, rather than a British design, to manufacture for Australian use. The result, a single-engined, general purpose and training aircraft, the Wirraway, first flew in March 1939. Meanwhile, Air Chief Marshal Burnett gave priority to the production of medium bombers in preference to fighters, as he did not envisage any serious air threat to Australia. Accordingly, a separate facility was set up to produce the chosen design, the British Beaufort bomber, partly because Australian-produced aircraft were destined for the RAF as well as the RAAF. The Beaufort was intended for long-range reconnaissance and attacks on Japanese shipping, and was capable of carrying both torpedoes and bombs. Probably the country's biggest wartime aviation achievement, Beaufort production involved over 600 organisations in Victoria, New South Wales and South Australia, overseen by the Beaufort Division of the Department of Aircraft Production. Another indigenous design from CAC was the CA-4 bomber, which was unique in being purpose-built to combine torpedo and dive-bombing roles. Due to technical problems, and the adequacy of the Beaufort, the CA-4 did not enter production.

A training flight` of CAC Wirraways.

In 1942, to overcome a shortage of combat aircraft in the RAAF, CAC hastily produced a reasonably successful fighter adaptation of the Wirraway called the Boomerang. Australia produced over 3500 aircraft before the end of the war, a remarkable achievement for a nation new to such an undertaking.

The Bristol Beaufort

The Beaufort, equipping 10 operational squadrons, probably made a greater contribution to victory in the Pacific than any other RAAF aircraft. In the main, the RAAF used its Beauforts for reconnaissance and medium-level bombing of airfields and other land targets. The RAAF had planned torpedo bombing as a secondary role for the Beaufort, but in 1942, when they were most needed, the only available torpedoes were of United States design, which were largely incompatible for use in the Beauforts. By 1943, Australian industry was able to produce a suitable torpedo, which was employed with moderate success in a night attack on Japanese ships in Rabaul's Simpson Harbour in November 1943.

Australian Aircraft Production 1939–45

Type	Role	Built by	No ordered
Wirraway	trainer / general purpose	CAC	755*
Wackett	trainer	CAC	202
Boomerang	fighter, army cooperation	CAC	250
Woomera	strike, reconnaissance	CAC	2
Mustang	fighter	CAC	200*
Tiger Moth	trainer	DHA	1085
Mosquito	fighter-bomber, photo recon	DHA	338*
Beaufighter	strike fighter	DAP	364
Beaufort	medium / torpedo bomber	DAP	701

CAC = Commonwealth Aircraft Corporation, DAP = Department of Aircraft Production, DHA = de Havilland Australia. * Includes post-war deliveries

RAAF Contribution to Victory

4.14 The RAAF's role in the Allied victory in the SWPA cannot be underestimated. Although the RAAF operated under Allied command, it established an independent identity and reputation for operational effectiveness. At the time of Japan's surrender, the RAAF was the fourth largest air force in the world after the Soviet, US and British Air Forces, and the second largest in the Pacific region, with over 130 000 personnel and 6200 aircraft on strength. At the end of World War II the RAAF had an enviable record for operational efficiency and a justifiably proud record as an independent air force.

5

Executive Summary

The Cold War emphasis on containing the global spread of communism meant the RAAF became involved in multiple concurrent small-scale expeditionary commitments.

In all these commitments Australian air power played a small but significant role in the allied effort.

The planning focus for modernising RAAF air power capability was shaped by the likelihood of conflict with a regional power.

The RAAF was content to use the doctrine of other air forces rather than evolve a body of ideas encapsulating its own conditions and experience.

Into the Cold War

Demobilisation

5.1 In October 1945, the Australian Government commenced general demobilisation of the armed forces. Planning for this had commenced in March 1943 with the establishment of the Reconstruction Demobilisation Committee and included measures to realign the distortions in the economy brought on by the war effort. Within three years the demobilisation process had reduced the RAAF's size to around 8000 personnel and lowered the number of flying squadrons from 61 to 13, virtually the same as when the war had commenced. Australia's postwar strategic environment was significantly different and needed a new approach to defence strategy. In the wake of World War II, Australia emerged as a more significant player on the world stage. As the Minister for Defence explained to Parliament in June 1947, Australia now had an obligation to maintain forces that could be placed at the disposal of the new United Nations (UN) organisation to help preserve international peace, meet commitments to allies for regional security and provide for Australia's inherent right to defend its sovereignty. The expectation that Australia would take a commensurate share in regional and international security arrangements provided the central rationale for further RAAF deployments in the immediate postwar period.

Rebuilding and Re-equipping

5.2 As part of this new defence strategy, the Government approved the rebuilding of the RAAF to a strength of 13 000 personnel, with 16 flying squadrons operating a total of 144 aircraft. Under this plan, 12 squadrons would be manned by Permanent Air Force personnel while four interceptor fighter squadrons would be operated by the Citizen Air Force. The Permanent Air Force squadrons included a mix of heavy bombers, long-range fighters, transports and reconnaissance aircraft, and also performed search and rescue, target-towing and survey work. Technological advances by the end of the war had rendered many of the RAAF aircraft obsolete. It was therefore imperative to initiate a program of re-equipment almost immediately. In 1946, orders had already been placed for jet-powered Vampire fighters, and in 1950 Australia also ordered Canberra twin-jet bombers to complement the existing force of 1944-designed Lincolns.

RAAF De Havilland Vampire fighter.

Citizen Air Force

Prior to World War I, citizen forces were an integral component of Australia's military organisation, and this tradition was continued with the formation of the RAAF in 1921. The creation of a Citizen Air Force, along with an Air Force Reserve, was planned as a way of building and maintaining flying experience without the expense of a large full-time force. In fact, the Citizen Air Force came into formal existence only in June 1925, and when the first flying squadrons (Nos 1 and 3) were formed in July, they made up nearly two-thirds of their establishment. Within three years, the Citizen Air Force strength stood at about 300 (including about 50 officers)—roughly a quarter of the RAAF's total size.

These hybrid units were recognised as being a less-than-ideal arrangement, but the RAAF pushed ahead with developing them. It was only in 1936 that a full Citizen Air Force squadron was formed. With the coming of World War II, these squadrons were mobilised and participated until the end of the war as part of the regular Air Force.

After the war, politics, systemic bias and technological advancement saw the Citizen Air Force struggle for a role within the RAAF. Citizen Air Force part-time flying operations ceased in December 1959, but no defined alternative function was identified until the late 1980s. The Citizen Air Force was the precursor of today's Air Force Reserve, focused on providing a pool of qualified personnel to reinforce the RAAF as and when required.

No 23 Squadron Mustangs at Archerfield, QLD, during the early 1950s.

Occupation of Japan, 1946

5.3 Even before the new defence strategy was enunciated in Parliament, the RAAF had been requested by the British to contribute units to the British Commonwealth force for the Allied occupation of defeated Japan. In March 1946, No 81 Wing, comprised of three Mustang long-range fighter squadrons and maintenance and base support units, was despatched to Japan, and was joined later by a fighter control unit. No 5 Airfield Construction Squadron accompanied the No 81 Wing deployment. This contribution brought the Australian air component to a total of over 2000 personnel, the single largest element of the four national contingents which comprised the British Commonwealth Air Group, known as BCAIR. The RAAF contingent stayed in Japan for four years, remaining after the contingents from Britain, New Zealand and India had departed. By early 1949, BCAIR had been so heavily cut that the effective Australian strength was just one fighter unit, No 77 Squadron. Since there was no operational requirement for the presence of the RAAF in Japan, its participation in the occupation force was primarily aimed at achieving the political objective of establishing Australia's right to influence the drafting of a peace treaty with Japan.

Berlin Airlift, 1948

5.4 In June 1948, the Western powers in occupied Germany were forced to mount an airlift to sustain parts of the city of Berlin under their control after the Soviets imposed a blockade intended to force its former wartime allies out of these zones. This was the start of a period of 'Cold War' in which the US and its Western allies opposed the communist powers, the Soviet Union and China, through supporting proxy conflicts. The Cold War is considered to have continued until the break-up of the Soviet Union and the unification of Germany in 1990. The RAAF was

committed to providing transport aircrews to the Berlin Airlift and initially sent 41 aircrew to operate RAF Dakota transports. These aircrew joined 10 RAAF personnel who were already in England serving with RAF units. In March 1949, 16 of the squadron members were returned home, and six replacements were sent. A total of 57 Australians took part in this operation to sustain Berlin. The aim of the RAAF involvement was to demonstrate Australia's solidarity with the position adopted by Britain and America. At the height of the Airlift, nearly 700 aircraft of the RAF and the United States Air Force (USAF), supplemented by contracted civil aircraft, were delivering a daily average of 8000 tons of food and supplies such as fuel. Although the Soviets lifted the blockade after a year, the airlift was maintained until September 1949 in case it was reimposed. Soon after members of the Airlift detachment arrived home at the end of 1949, the RAAF was called on to undertake a new commitment closer to home.

Malaya, 1950

5.5 In April 1950, Britain asked for RAAF transport aircraft and heavy bombers to join a campaign that they had been waging since 1948 against a communist-led insurgency in Malaya. In response, the Australian Government sent eight Dakotas of No 38 Squadron to Singapore, starting on 18 June. These aircraft played an important role in counterinsurgency operations, including dropping supplies by parachute to Commonwealth forces operating in the jungle. In July, Australia also deployed No 1 Squadron, with Lincolns, to Singapore's Tengah airfield. The Lincoln four-engined bombers flew day and night sorties to bomb and strafe the hideouts of insurgents in the jungle. In July 1958, eight years after the campaign began, the Lincolns flew their last mission. Around 15 000 tonnes of bombs had been dropped and two Lincolns were lost due to mechanical failures. They were replaced by No 2 Squadron operating its Canberra jet bombers from Butterworth air base in Malaya. The Squadron carried out strikes against the few remaining communist-terrorist camps for a further six months.

Lincolns Over Malaya

As the enemy remained largely invisible by operating under cover of tropical jungle terrain, it was difficult to gauge the effectiveness of aerial bombing. British ground forces assessed it as less effective than strafing and rocket attacks. Headquarters 26 Brigade in Johore reported, 'There were seldom any pinpoint targets suitable for direct bombing attack and any form of pattern or blanket bombing, particularly in swampy areas, tended to be a waste of effort, producing few casualties'.

The most successful RAAF/RAF bombing raid took place in central Johore on 21 February 1956. This resulted in the deaths of at least 14 of 21 terrorists, including an important communist political leader, when their jungle camp was struck. Aside from this success, captured enemy insurgents testified that the attacks kept them on the move, and made their lives an ordeal by destroying their infrastructure, disrupting their activities and driving them out into ambushes.

Lincoln bombers flew in the Malayan Emergency.

Korean Conflict, 1950

5.6 Even as the Lincolns were deploying to Singapore to operate against the communist terrorists, the RAAF became involved in yet another conflict, this time in Korea. After the communist state of North Korea invaded its southern neighbour on 25 June 1950, Australia was asked to contribute forces to a US-led UN force sent to aid an embattled South Korea. Australia offered the unit already in this theatre, No 77 Squadron located in Japan, which was then preparing to return to Australia. The squadron uncrated its Mustangs and commenced war operations across the Korean Strait. This commitment lasted three years

Meteor Versus MiG

No 77 Squadron took the British Meteor jet fighter into action over Korea from July 1951. The Meteors were pitted against the Soviet MiG-15 jets flown by North Korean and Chinese pilots. The Meteors did not do as well as had been hoped, and were withdrawn from fighter sweeps into 'MiG Alley' in North Korea in December 1951.

The Meteor was outperformed by the MiG-15, which was a generation more advanced and could dictate the terms of battle. In particular, the MiG was far superior at the high altitudes at which their aerial engagements normally took place. Also, the RAAF pilots were not adequately trained in the tactics of jet-fighter combat, and in fact the few combat exercises they had done prior to operations did not involve firing the Meteor's guns.

Nevertheless, Meteors over Korea shot down five MiGs for the loss of four Meteors. Some of the MiGs were shot down in combat at lower altitudes where the Meteor was less disadvantaged. While not as good a ratio as that achieved by the Americans in their Sabre jets, it does indicate the skill and bravery of the RAAF pilots.

and No 77 Squadron was the only combat unit that the RAAF maintained in theatre for the whole period. The RAAF also committed a number of Dakotas which were diverted from the effort in Malaya. Early in 1951, No 77 Squadron converted to Meteor jet fighters purchased from Britain and was soon engaged in clashes with MiG-15s flown by communist Chinese and Russian pilots. The unit was withdrawn from the air defence role after it was established that the Meteor was inferior to the MiG-15 in air-to-air combat. However, the squadron continued ground attack operations, mainly in the interdiction role, until the end of the conflict. These aerial engagements of No 77 Squadron are the only air-to-air jet combat operations conducted by a RAAF unit so far.

Meteors over a Korean village.

Australian Naval Air Power in Korea

The RAAF was not the only Australian air power element committed to the Korean conflict. In September 1951, the Royal Australian Navy (RAN) dispatched its new aircraft carrier HMAS *Sydney*, escorted by HMAS Ships *Tobruk* and *Anzac*, to the theatre for four months to replace the Royal Navy carrier, HMS *Glory*. The operations of the *Sydney*'s Fireflies and Sea Furies represented the only operational deployment of RAN carrier-based aviation capability. Between 5 October 1951 and 25 January 1952 *Sydney* conducted seven patrols, during which 54 days were devoted to flying operations.

Garrisoning Malta, 1951

5.7 In 1951, the Australian Government accepted a request to contribute to British forces garrisoning the eastern flank of the North Atlantic Treaty Organization (NATO). Accordingly, No 78 Fighter Wing was deployed to Malta from August 1952 to December 1954. The wing comprised personnel from Nos 75 and 76 Squadron who operated Vampire jets leased from Britain, and maintenance and base squadrons. The RAAF was now engaged in three concurrent overseas assignments. The aim of the commitment in Malta, as in the others, was to demonstrate solidarity with the Western Alliance in the face of increasing tension with the communist bloc dominated by the Soviet Union. By deploying the RAAF squadrons to Malta, Australia was positioning itself alongside its traditional ally Britain, and the US with whom it had joined in a new agreement, the Australia, New Zealand, United States Security (ANZUS) Treaty, in 1951. Events appeared to be leading towards a new global war, with the possibility of it degenerating into nuclear war.

The Vampire Citadel, Malta.
(Artist Drew Harrison)

National Service

5.8 In 1951, in response to global events following World War II, Australia reintroduced national service to begin the partial military training of its young men. Australia had used national service or conscription to fill the ranks of its armed forces on four previous occasions. However, compulsory military service involved the RAAF only in the period between 1951 and 1957. This called for 5000 18-year-old men to be trained annually for Air Force service. After 176 (later 154) days service, trainees were transferred to the RAAF Reserve until five years after their call-up date. The RAAF did not achieve its target figure

Atomic Testing

For a time during the 1950s the RAAF explored the idea of becoming a nuclear force. The British atomic tests in Australia seemed to offer an opportunity to develop firsthand knowledge regarding nuclear weapons, possibly facilitating a path for their future acquisition.

Five test programs, which included a total of 12 major explosions, were conducted between October 1952 and October 1957. These were Operations *Hurricane* and *Mosaic* at Monte Bello Island, WA, *Totem* at Emu Field, SA, and *Buffalo* and *Antler* at Maralinga, SA.

Several RAAF Lincoln aircraft and their crews, without suitable protection or decontamination procedures, were exposed to the atomic cloud during these tests. It was during Operation *Totem* that Australian officials realised the dangers posed by radiation. Subsequently, the RAAF was only utilised to supplement the British logistic requirements.

By 1960, defence strategic thinking was moving against Australia exercising the nuclear weapon option. In June 1961, Australia's Chiefs of Staff Committee formally agreed that there was no immediate need for an independent nuclear capability, effectively putting an end to the RAAF nuclear option.

The first detonation of a nuclear device near Monte Bello Island, WA, as part of Operation *Hurricane*, 3 October 1952.

and the number of Air Force conscripts during the life of the scheme was between 15 000 and 18 000 men. The brevity of the technical training within this short training period precluded the RAAF gaining benefits commensurate with its investment. Further, the benefits of the scheme

were probably greater for the individuals than for the RAAF, which gained only a few permanent members from the scheme. Many of these conscripts were trained to private pilot licence standard at RAAF expense at selected aero clubs.

Reorganisation of the RAAF

5.9 Between 1953 and 1954, the RAAF's CAS, Air Marshal Sir Donald Hardman, RAF, reorganised Air Force along functional rather than geographical lines. The five area commands set up in 1939 to cope with mass mobilisation were integrated into three functional commands: Home, Training and Maintenance. These were further rationalised in 1959, when Training and Maintenance Commands were absorbed into a single Support Command and Home Command became Operational Command.

Far East Strategic Reserve

5.10 Fears of a global nuclear war slowly receded as the world community recognised that international tensions were more likely to take the form of regional conflicts sponsored by the superpowers than involve direct confrontation between them. Accordingly, Australia shifted its focus to the Asia-Pacific region. In 1954, it signed the Manila Pact which brought the South-East Asia Treaty Organization (SEATO) into being. The next year, Australia joined Britain and New Zealand to create a British Commonwealth Far East Strategic Reserve in the Malayan Peninsula to oppose further communist expansion in the region. The RAAF began preparations to station a bomber squadron and a fighter wing of two squadrons at Butterworth, Malaya. The Butterworth air base was enlarged, and from mid-1958 it became the base for Canberra bombers of

Butterworth Air Base

In 1955, Britain offered Australia the use of the Butterworth air base. No 2 Airfield Construction Squadron, accompanied by No 478 Maintenance Squadron, was deployed to refurbish facilities and prepare the base for jet operations.

On 15 January 1958, Base Squadron Butterworth was formed at Amberley, before standing up in Malaya on 1 May. The RAAF formally took control of the base on 30 June, with a headquarters, No 78 Wing (Sabre fighters) and No 114 Mobile Control and Reporting Unit. No 2 Squadron (Canberra bombers) deployed to Butterworth shortly afterwards (1 July 1958).

In the 1960s, aircraft and maintenance personnel from Butterworth were sent to support No 79 Squadron, during its deployment to Ubon, Thailand. The base became especially crucial between 1963 and 1966, during the period of 'Confrontation' with Indonesia over the creation of Malaysia. Butterworth also provided medical and transport support facilities during the Vietnam War.

Ownership of Butterworth was transferred to the Malaysian Government in 1970, with the RAAF given joint control over the base. The base reached peak strength during the 1970s, with facilities that included a school, radio station (RAAF Radio Butterworth) and a hospital (No 4 RAAF Hospital).

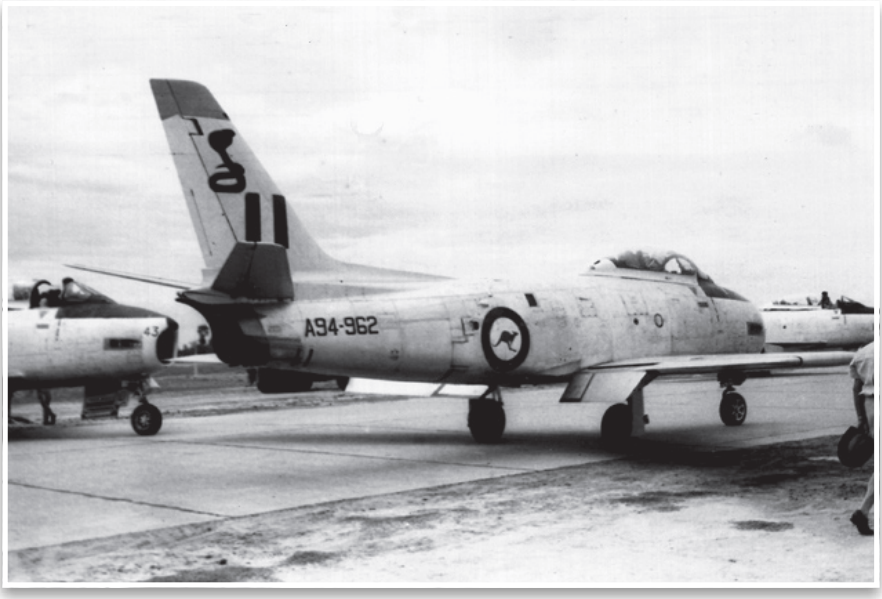
On 31 March 1979, the base was handed over to the Royal Malaysian Air Force. In 1983, Nos 75 and 478 Squadron were withdrawn from Malaysia. Other RAAF units progressively withdrew from the base between 1983 and 1988. No 324 Combat Support Squadron and a detachment of No 92 Wing remain at Butterworth today.

Butterworth air base.

No 2 Squadron. By 1959, two fighter squadrons equipped with Sabre jets were also based there.

Deployment to Thailand, 1962

5.11 In June 1962, fears of a possible invasion of Thailand from across its north-eastern border with Laos led to a rushed commitment of air elements drawn from the US, Australia, Britain and New Zealand. Australia sent No 79 Squadron, equipped with Sabres, from Butterworth and maintained the unit at Ubon for the next six years. Although the feared invasion of Thai territory never materialised, a related insurgency in neighbouring Indochina was sufficient to keep the squadron in Ubon as a safeguard against an escalation of the conflict.



Sabres were stationed at Ubon, Thailand, in 1962–68.

Confrontation with Indonesia, 1964

5.12 The RAAF took part in operations in the Malayan Emergency until 1960. These activities were, however, not the primary rationale for Australia having front-line combat units stationed in the area. The policy underpinning these deployments was directed more towards the kind of conflict which appeared likely to erupt in 1964, when the Indonesian Government aggressively opposed the formation of the Federation of Malaysia. The prospect of such a conflict prompted the fighter squadrons at Butterworth being ordered to a state of operational readiness. A detachment of four Iroquois helicopters from No 5 Squadron was also despatched to Malaya, ostensibly to strengthen Australian ground forces protecting Malaysia's border with Thailand from communist incursions. Although there were some tense moments which prompted fighter deployments to Darwin and Labuan in British Borneo, there were no actual aerial clashes before a new regime in Indonesia called a formal halt to Confrontation in 1966.

Modernisation Effort

5.13 Concern that Australia might become engaged in a conflict with its regional neighbour, Indonesia, drove a program to modernise the inventory of the RAAF. Beginning in 1958, this program was to result in practically every major aircraft type in the RAAF being replaced, as well as the acquisition of surface-to-air missiles. As CAS from 1957 to 1961, Air Marshal Frederick Scherger guided the RAAF through this period of major expansion. Probably the most significant acquisition within this program was that of the American-manufactured F-111 strike/reconnaissance aircraft ordered in 1964. By the time the F-111 was delivered in 1973, the RAAF had been transformed into one of the most modern and capable small air forces in the world.

Major RAAF Acquisitions: 1958–1973

Type acquired	Role	No ordered	Type replaced
Bloodhound Surface-to-Air Missile	Air Defence	20	–
UH-1B/D Iroquois	Utility helicopter	32	–
C-130E Hercules	Transport	12	–
DHC-4 Caribou	Transport	29	Dakota C-47B
Mirage IIIO	Fighter	100	Sabre
Mirage IIID	Trainer	16	–
F-111C	Strike	24	Canberra B.20/B.21
P-3B Orion	Maritime	11	Neptune P2V-5
Macchi MB-326H	Trainer	87	Vampire
HS748	VIP transport and navigation training	10	–
BAC-111	VIP transport	2	Convair CV-440
Falcon (Mystere 20)	VIP transport	3	Convair CV-440

The F-111C Purchase

5.14 In 1963, a mission led by RAAF CAS, Air Marshal Sir Valston Hancock, evaluated potential replacements for the Canberra bomber. The Australian Government chose the US General Dynamics TFX/F-111 over Britain's TSR-2, France's Mirage IV and the US Vigilante and F-4 Phantom. Twenty-four aircraft were ordered at an estimated total price of US$124 million, at a time when the entire budget for the RAAF stood at $135 million, or almost one-third of the entire amount being spent

Frederick Scherger, 1904–1984

Joining Air Force on secondment from the Army in January 1925 as a trainee pilot, Frederick Scherger became the RAAF's Chief Flying Instructor in May 1937 with the rank of Squadron Leader. In January 1942, Group Captain Scherger was appointed Air Officer Commanding North-Western Area, headquartered in Darwin, arriving in time to witness the Japanese bombings firsthand. At the end of World War II, he was one of the RAAF's most experienced and successful senior operational commanders.

Air Marshal Scherger was Chief of the Air Staff from 1957 to 1961 and appointed Knight Commander of the British Empire in June 1958. Guiding the RAAF through an intensive period of modernisation, he was a strong advocate of the construction of strategic airfields across northern Australia. He was appointed Chairman of the Chiefs of Staff Committee in May 1961. During his tenure as Chairman, Scherger was a strong advocate of a joint Australian Defence Force. He was promoted to the rank of Air Chief Marshal in March 1965, the first RAAF officer to hold that rank. A RAAF bare base near Weipa, in northern Queensland, is named in his honour.

Air Chief Marshal Sir Frederick Scherger, KBE, CB, DSO, AFC.

on Defence at that time. Today that cost would be $6–7 billion. The acquisition decision proved to be controversial due to mounting delays and subsequent escalation of the aircraft's cost, which had doubled by 1967. Nevertheless, when the F-111s were delivered in 1973, the RAAF

gained an aircraft with an unprecedented supersonic strike capability. Ordering an aircraft 'off the drawing board' ensured that it would not be quickly outdated, an important consideration as Australia could not afford regular replacement of expensive strike aircraft, but it also carried the risk of technical failure and extended delays in its development and delivery. Such delays arose, particularly during the development of the aircraft's innovative variable geometry 'swing-wing' structure, especially since some of the wing carry-through boxes failed in flight. Also, the F-111C variant, unique to the RAAF, had a lengthy development period, as it combined features of the F-111A and FB-111A variants. As a result, although the first RAAF aircraft flew in 1968, it was not delivered for another five years. To cater for this delay, 24 F-4E Phantoms were leased from the US for nearly three years and flown by No 82 Wing at RAAF Amberley until the F-111Cs arrived. However, the decision to acquire the F-111 proved to be well founded, with the F-111 serving Australia as a major strategic deterrent from 1973 until its retirement from Air Force

The RAAF F-111s arrive at Amberley in 1973.

service on 3 December 2010. Throughout its life the F-111 was modified extensively to both prolong its service and increase its combat capability in line with evolving defence strategy.

Lack of Local Doctrine

5.15 During this significant period of modernisation, little effort was expended in developing a distinctive RAAF doctrine for the application of air power in the Australian context. The reality was that the RAAF was content to operate based on doctrine borrowed from the RAF and USAF. Both of these doctrines were written within a context far different from Australia's, and encompassed nuclear options. The RAAF, therefore, was operating from a doctrinal base that was not harmonised with the strategic realities of the region.

6

Executive Summary

The versatility of the Air Force enabled it to make a valuable contribution in Vietnam with the existing organisation and the force-in-being.

Operating as a small component of a much larger force, the RAAF was successful in meeting its assigned tasks mainly because of the high levels of innovation and professionalism of its personnel.

The RAAF once again had a very limited role in the higher echelons of command.

Vietnam War

6.1 The Vietnam conflict was, in many ways, the high point and main focus of the Cold War and lasted throughout the decade of the 1960s. The RAAF involvement in Vietnam lasted seven and a half years, between 1964 and 1971, longer than World War II. Vietnam was a defining experience for Air Force, even though only a relatively small portion of the Force was on active service at any one time. Beginning with a transport flight of six Caribou aircraft in August 1964, the Australian air presence grew progressively. When the First Australian Task Force (1ATF) arrived in 1966, it was accompanied by No 9 Squadron equipped with Iroquois helicopters, and a Base Support Flight—renamed No 1 Operational Support Unit in 1968—which set up at Vung Tau. The Caribou flight already there was renamed No 35 Squadron at the same time. In 1967, the Canberra bombers of No 2 Squadron were transferred from Butterworth to an American air base at Phan Rang. Other small groups of specialists followed, from fighter pilots and photo interpreters attached to serve with USAF squadrons to airfield defence guards. At the height of Australia's participation, in mid-1971, the RAAF presence totalled some 750 personnel and 34 aircraft. During the period of Australia's involvement, over 4000 members of the Air Force served in Vietnam.

Caribou Operations, 1964

6.2 Although the Caribou unit never had more than seven aircraft on strength, it established a reputation as a hardworking and high-performing outfit. Integrated into the USAF's airlift system covering South-East Asia, it undertook short-haul supply tasks throughout the country carrying freight and passengers over a set of regular runs. While the unit as a whole remained based at Vung Tau, two aircraft were detached for a week at a time to northern airfields. Occasionally, an aircraft flew flare-dropping tasks to provide battlefield illumination in support of allied troops in action. Following the arrival of 1ATF, the squadron was periodically used to provide tactical airlift for Australian ground operations. Through their effectiveness in completing these tasks, the unit established a record, and a reputation, out of all proportion to its small size. Although the unit

Three Caribou aircraft, forming RAAF Transport Flight Vietnam, marked the start of our presence in Vietnam, August 1964.

devised special tactics to minimise the risk from enemy ground fire during take-off and landing, it suffered aircraft losses due to accidents while getting into some of the short and usually crudely-made outpost airstrips. The squadron's area at Vung Tau airfield was subjected to enemy mortar fire and rockets with several RAAF aircraft damaged on one occasion. More than once, aircraft sustained damage from enemy mortar fire while operating into airfields near the Cambodian border, but only one Caribou was lost due to enemy action.

No 9 Squadron Operations, 1966

6.3 No 9 Squadron, as the unit designated to work most directly in support of Australian forces, quickly found its role and employment a cause of hot contention. It arrived in June 1966 with eight UH-1B Iroquois helicopters. This small number of helicopters was not sufficient for the squadron to undertake the mass airborne assaults used by the Americans, which Australian Army commanders were keen to emulate. The Army's initial dissatisfaction with the perceived manner in which the RAAF allocated its limited airlift capacity eventually gave way to a more harmonious and workable relationship, especially following the Battle of Long Tan. The Squadron was able to undertake a greater range of roles after the aircraft numbers were doubled in 1968 with larger UH-1H models. In addition to normal troop transport and resupply, activities included casualty evacuation and air rescue, aerial spraying, olfactory (people-sniffer) reconnaissance, and the insertion and extraction of Special Air Service (SAS) patrols. During 1968, a number of helicopters were also modified in theatre to operate as gunships able to provide direct airborne firepower. In the course of more than 223 000 operational sorties flown before returning to Australia in December 1971, the squadron had seven aircraft destroyed or written off and 37 damaged, 23 by ground fire, and forged an impressive record of providing effective support to Australian ground forces.

RAAF Iroquois.

Canberra Bombers, 1967

6.4 Late in 1966, the Australian Government decided to increase its forces in Vietnam. It added a battalion to 1ATF and sent No 2 Squadron, equipped with Canberra jet bombers. Although these ageing aircraft were too slow for use against well-defended targets over North Vietnam, they were expected to be suitable for employment in the less challenging environment of the southern republic. Arriving at Phan Rang in April 1967, No 2 Squadron joined the US 35th Tactical Fighter Wing, which also included a squadron of B-57s, the American dive-bomber version of the Canberra. At first, the level-bombing Australian aircraft were employed on night-time high-altitude, radar-controlled missions, but within two months the squadron was also undertaking daylight visual bombing

The RAAF at Long Tan

On 18 August 1966, D Company of the Australian Army's 6 RAR (108 men) became locked in combat in a rubber plantation with an enemy force later estimated to number several thousand. After two hours of beating off repeated attacks which threatened to overwhelm them, the Australians were close to exhausting their ammunition and radioed a request for urgent resupply. Two helicopters of No 9 Squadron were immediately despatched with boxed ammunition wrapped in blankets. In torrential rain and with dusk approaching, the aircraft flew at treetop height. Arriving at the scene of the fighting at 1800 hours, the Iroquois hovered over the company position at a height of 10 metres and dropped their load through the trees. This delivery came at a critical juncture, as the troops below had only about 100 rounds remaining and seemed certain to be overrun.

After the arrival of additional forces, Australians gained control of the battlefield and No 9 Squadron was requested to undertake night-time evacuations of the wounded. Without landing lights, all seven available helicopters of the unit flew into an ad hoc landing area marked out only by the internal lighting of several armoured personnel carriers. The task was completed by 0100 hours the next morning.

A medical evacuation by No 9 Squadron in 1967.

under direction of forward air controllers (FACs). For a period during 1969, visual missions were also carried out at night, with the assistance of flare-dropping aircraft. Unit crews honed their skills on operations until they achieved outstanding bombing accuracy, regularly accounting for a

John Coughlan, CGM

In 1968, Corporal John Coughlan was awarded the Conspicuous Gallantry Medal (CGM), the highest flying award other than the Victoria Cross then available to non-commissioned members of the RAAF, for his actions in Vietnam while he was a crewman with No 9 Squadron.

On 3 October 1967, the Iroquois in which Coughlan was flying went to the assistance of an American helicopter which had crashed into dense jungle in enemy-held territory eight kilometres from the Australian Task Force base at Nui Dat. Although the downed aircraft was burning fiercely, its ammunition and rockets exploding dangerously, Coughlan volunteered without hesitation to be winched down to rescue the badly injured crew. He successfully accomplished this, while frequently forced to take cover from shrapnel. Three months later Coughlan assisted with the rescue of the crew from another downed American helicopter, once again completing his duties coolly and calmly, although he was an exposed and obvious target for enemy fire.

Coughlan was the first and only Australian to receive the CGM since World War II. He retired from the RAAF in 1989 having reached the rank of Warrant Officer.

Corporal John Coughlan, CGM.

disproportionately high share of damage inflicted on the enemy. Although 11 Canberras sustained battle damage, it was not until November 1970 that an aircraft and its crew were lost on operations, from causes that were never determined. In March 1971, another Canberra was lost to an enemy surface-to-air missile near the Laotian border, but the crew was rescued.

A No 2 Squadron Canberra bomber parked in its revetment at Phan Rang Air Base.

RAAF Personnel with the USAF

6.5 In effect, Nos 2 and 35 Squadron served as parts of the USAF in Vietnam, as did a range of other RAAF personnel. From 1966, the RAAF had a small number of fighter pilots employed in American tactical air support squadrons as FACs. Usually there were only three or four in the country at any one time, although for a period in 1969–70 there were as many as eight. Only one of them was allocated for duty with the Australian

Task Force, at Vung Tau and Nui Dat, while the others served elsewhere. In their role of controlling air strikes to ensure effective engagement of targets and the safety of allied forces in the area, FACs were frequently exposed to hostile fire. As a result of their achievements in these hazardous circumstances they became a highly decorated group. Also serving with the USAF was another small group who flew F-4 Phantom aircraft and sometimes found themselves required to undertake missions over North Vietnam, Cambodia and Laos. From 1967, the RAAF also supplied photo interpreters to assist the intelligence staff of the US Seventh Air Force, along with radar controllers and ground defence personnel.

Strategic Airlift

6.6 Sustaining the Australian force in Vietnam required considerable support from outside bases. From 1964, RAAF Dakotas from Butterworth, Malaysia, and C-130 Hercules from Richmond, New South Wales, made regular supply and passenger flights. From June 1965, the RAAF instituted a regular courier service from Australia at Army request. These flights continued until Australian forces finally withdrew in 1972. In addition to flying in relief personnel, mail and freight (including spare parts, vehicles and light aircraft, weapons and ammunition, communications equipment and medical supplies), the Hercules also undertook aeromedical evacuation of Australian sick and injured. The first years of this operation coincided with Indonesia's policy of Confrontation over Malaysia. During this period, Indonesian air space was closed to direct flights from Darwin to Vietnam, Singapore or Butterworth. These courier aircraft flew a long circuitous route to and from Sydney via Cocos Islands and Perth until this restriction was removed in November 1966.

Montagnards watching a No 35 Squadron Caribou in Vietnam in 1967.

Command and Control Issues

6.7 With two of the three RAAF squadrons in Vietnam operating under American control, command of the Australian air element presented some unusual problems. As Nos 9 and 35 Squadron at Vung Tau comprised the largest concentration of RAAF personnel in-country, a contingent commander was appointed there in 1966. This officer doubled as Air Commander for the ATF. His main role was to coordinate the helicopter support required by the ground troops. The arrival of 1ATF also saw the creation of a superior national headquarters called Australian Force Vietnam (AFV) in Saigon, headed by an Army Major General. Recognising that the Air Force had the next largest presence in country, the Deputy

Fall of South Vietnam

In late March 1975, eight RAAF C-130 Hercules aircraft were tasked with providing humanitarian assistance to thousands of refugees displaced during the communist offensive which brought about the collapse of South Vietnam. During operations to move refugees and deliver Red Cross supplies from Saigon, the RAAF aircraft and personnel were frequently exposed to risk. One RAAF Hercules on the tarmac at Phan Rang was mobbed by refugees and government military personnel who panicked when four rockets landed about 400 metres away. This prompted a soldier to fire warning shots into the air, but as he was standing under the aircraft at the time, several rounds holed the aircraft's tail. Two fuel tankers were used to block the taxi-path of another Hercules aircraft, and were only removed when assurance was given that the aircraft would return.

The last two planned flights out of Saigon took place on 25 April 1975. The last of these flights involved the removal of the Australian Ambassador and the remaining 10 members of the embassy staff, 15 Vietnamese refugees and nine Australian journalists. Due to the amount of baggage taken aboard, four RAAF Airfield Defence Guards who had been engaged in clearing out the abandoned embassy offices were left behind. Fortunately another C-130 had been kept circling the coast to assist in case of emergency and was able to collect the stranded men and remaining luggage.

Air Force personnel assist with evacuation of Vietnamese orphans, April 1975.

Commander AFV was a RAAF Air Commodore who also carried the title of Commander of RAAF Forces, Vietnam (COMRAAFV). The officer commanding the Vung Tau contingent was additionally titled Deputy COMRAAFV. Such arrangements only worked because AFV was not really a joint headquarters at all, but an administrative entity without an operational function to perform.

Airfield defence guard Corporal Noel Power, MM on patrol at Phan Rang Air Base, South Vietnam, 1970.

7

Executive Summary

After Vietnam, Australian policy shifted from forward defence to a strategy of defence of Australia and military self-reliance.

The RAAF was unable to articulate clearly its role in contributing to the new defence policy because of inadequate doctrinal development.

Guided by a sound concept, doctrinal and capability development process, the RAAF has clearly established the mechanisms by which it supports Australian security interests.

The RAAF's professional military education and training system has resulted in air power education becoming central in developing the workforce.

The Era of 'Defence of Australia'

Changes in Defence Strategy

7.1 Lessons from the Australian involvement in the Vietnam War brought about major policy changes in Australia's defence strategy. The policy of countering perceived threats as far away from Australia's national borders as possible, the concept of forward defence, was replaced by one more directly focused on the defence of Australia. In addition, the 1972 White Paper set the tone for a new policy by referring to 'increasing self-reliant military strength'. The next year, the Government decided to withdraw the ground component of its contribution to the Five Power Defence Arrangements which provided for the protection of Malaysia and Singapore. In keeping with the changed policy focus, a bare (empty) air base, RAAF Learmonth, was opened at Exmouth Gulf in Western Australia in December 1972.

Restructuring the Defence Department

7.2 Complementing the changed focus of defence policy was a restructuring of Australia's Defence organisation. On 30 November 1973 the single Service departments (Navy, Army and Air Force) were united within the Department of Defence, and changes were made at the single Service level to promote a 'joint' force. Under the Defence Force

Reorganisation Act which received assent in 1975, command of the Defence Force passed to a Chief of the Defence Force Staff who replaced the Chairman of the Chiefs of Staff Committee as the nation's senior military officer. On 30 January 1976 the Air Board was abolished. The CAS became responsible to the Minister for Defence, through the Chief of the Defence Force Staff, for command and control of the RAAF and the fighting efficiency and training of the Service.

RAAF Learmonth

The Learmonth airfield, located at Exmouth Gulf, Western Australia, was established in 1943. The base was originally used as a supply depot for submarines and as a staging post for long-range bombers on the west coast. Kittyhawks, Spitfires and Mitchell bombers also operated from the airfield. During World War II the base was codenamed 'Potshot'.

Over the period January 1971 to September 1974, No 5 Airfield Construction Squadron was tasked with upgrading the airfield and extending the runway from 2134 metres to 3050 metres. In September 1982 other works were completed, including an extension of the general purpose apron and an upgrade of flight line facilities.

Learmonth is intended as a forward base for strike/reconnaissance, air defence, and maritime forces but maintained under the 'bare base' concept, with only a small caretaker staff during peacetime. The base is named in honour of Wing Commander Charles Learmonth who identified a problem with the elevator trim system of the Beaufort aircraft. Unfortunately this very problem took his life in a flying accident off Rottnest Island, Western Australia in January 1944.

C-47 Dakota at RAAF Learmonth,1996.

The Mirage was the RAAF's fighter aircraft at the time of the 1972 White Paper.

Defence Self-Reliance

7.3 The release of the 1976 White Paper reflected the formal end of the forward defence era, and firmly entrenched the importance of self-reliance to future Australian strategic policy. Importantly, the White Paper influenced specific equipment purchases and programs, such as patrol boats and a maritime strike capability for the F-111, which formed the basis of Australia's defence posture in the 1980s. It also raised a number of important and challenging strategic issues the RAAF would have to tackle in the more immediate term. The RAAF had never before developed a concept of air operations for the defence of Australia, although in 1925 then Wing Commander Richard Williams had produced a 68-page document titled 'Memorandum Regarding the Air Defence of Australia'. The limited capabilities of the RAAF in 1976 made the development of

a concept for air operations in the post–forward defence era difficult. The only feasible means of defending Australia was a strategy of denial. This strategy was based on the idea that the RAAF would prevent any adversary from gaining a foothold on Australian territory. This would eventually become the endorsed RAAF position on the defence of Australia and set the basis for equipment and force structure decisions for the next two decades.

Prior to its decommissioning in 1982, HMAS *Melbourne (II)* projected fixed-wing maritime air power at considerable distances from the Australian mainland. The RAN worked closely with the RAAF to maintain control of the air and sea over vast stretches of ocean.

Strategy of Denial

7.4 The anti-lodgement strategy for operations in northern Australia formed the foundation of the defence review compiled in 1986, now known as the *Dibb Report*. The review argued that Australian forces should seek to stop an attack in the 'air-sea gap' to the north of Australia. As such, it recommended that Australia build up a layered defence that relied on wide area surveillance, mobile land forces and bare air bases in the north of the country, from which the RAAF could launch counter air and other missions. The review formed the basis for the landmark 1987 White Paper, aptly titled *The Defence of Australia*. The 1986 review and the White Paper put air power at the centre of Australian strategic policy. However, they also posed some challenges for the RAAF due to their predominantly defensive focus. The issue of most concern was that the defensive nature of the strategy recommended by both documents

The RAAF in Support of Australia's Maritime Strategy

Between 1949 and 1982 the Royal Australian Navy (RAN) operated fixed–wing aircraft from aircraft carriers in defence of Australia's maritime trade and sea communications. At the same time, RAAF aircraft conducted intelligence, surveillance and reconnaisance missions, as well as strike and control of the air exercises, over the Indian and Pacific Oceans in defence of Australia's maritime approaches. Together this involved air-sea cooperation by RAAF and RAN units with each Service's fixed-wing aircraft complementing one another under separate command.

The Government decision to limit the Australian armed forces power projection capabilities, which included downsizing expeditionary capacity, the gradual drawdown from RAAF Base Butterworth, as well as the decomissioning of HMAS *Melbourne (II)*, effectively meant a shift from a 'control of the air and sea strategy' to an 'air and sea denial strategy'.

included only a limited role for RAAF strike assets in all but the highest intensity conflicts. Although the RAAF had come to the conclusion a decade earlier that national defence policy could not be based on a capacity to deter other nations, the versatility of air power provided the ability to dissuade enemy action through the threat of escalation. It was a simple concept, but one that illustrated the psychological impact inherent in the threat of offensive air power.

Helicopter Transfer to the Army

7.5 Differences of opinion over the command and control of air power have been a feature of aviation in Australia since the RAAF's formation in 1921. The RAAF started to operate helicopters in significant numbers in 1962, primarily for search and rescue applications. The Army, undergoing its own evolution, viewed air mobility as a key tool in any future ground campaign and saw advantages in controlling the helicopters. The two Services shared a somewhat edgy relationship in regard to the control of helicopters at the start of the Vietnam War. Although this was gradually smoothed out at the tactical level, friction between Air Force and Army over command and control arrangements continued causing difficulties and confusion for local commanders. Post-Vietnam this tension continued, with damaging allegations and dangerous mythology becoming entrenched. In the years after the Vietnam War the RAAF had built up an enviable reputation in rotary wing operations, but had consistently failed to explain its role in what was increasingly a joint environment. Although a study into the transfer of battlefield helicopters to the Army found such a move could not be justified on the grounds of cost, in 1986 a political decision was made that control of these assets would transfer from Air Force to Army over the next five years. The decision went against the advice of an impartial committee, and was taken in the absence of any overriding requirement for Army to have an organic trooplift capability.

The only possible justification could have been the impending delivery of the Blackhawk utility and trooplift helicopter.

7.6 The lack of an intellectual and doctrinal base in the RAAF meant that, irrespective of the achievements of the previous decade, the Service was left without an adequate rejoinder to this decision. This decision put the role of the Air Force in providing air power for the defence of Australia in the spotlight. In the face of the challenges and opportunities posed by the 1987 White Paper, the RAAF failed to redefine clearly its position and role within the new defence strategy. The RAN, which had operated its own helicopters since 1952 and had remained concerned over the loss of Navy fixed-wing aircraft in 1982, saw the 1987 White Paper as an opportunity to expand the number of helicopters within its own Fleet Air Arm. In times of economic pressure, when the Defence budget was constantly under threat, the RAAF was likely to again be the victim of inter-Service rivalry if it did not put forward a stronger case in the future.

Sikorsky Blackhawk with RAAF markings.

Functionality and Doctrine

7.7 In order to better align its contribution to national defence strategy, the RAAF reorganised its assets along functional lines. In 1987, four Force Element Groups (FEGs) were established: Tactical Transport Group, Air Lift Group, Maritime Patrol Group, Strike Reconnaissance Group and Tactical Fighter Group. This structure brought similar assets together under separate FEG Commanders, allowing a more strategic approach to sustaining operations. A more pointed response from Air Force, under the specific direction of the CAS, Air Marshal R.G. Funnell, came in the form of two significant developments. First, two RAAF officers were charged with writing a volume on air power doctrine, the first to be produced in Australia. In 1990, *The Air Power Manual* (AAP 1000), as it would come to be known, became the RAAF's primary air power doctrine, replacing a British doctrinal manual it had first adopted in 1957. The new manual reflected technological advances and changes

Understanding Air power

'In part Air Forces are themselves to blame for any dearth of understanding. There are few scholars adding to the strategic debate; there is little written doctrine. It is the growing recognition of the central importance of air which fuels the discussions of ownership of assets. The only long-term remedy is for [the RAAF] to provide exemplary support in all its forms; to itself understand the importance of its contribution to success in all forms of operations. Of any of the Services, it is Air Force which requires the greatest body of corporate knowledge of all forms of operations on land, sea or in the air. In turn it must educate others in the effective use of air assets.'

Brigadier J.S. Baker, AM, March 1988
(Later General J.S. Baker, Chief of the Defence Force)

to the international order in recent years, and gave the RAAF a sound basis on which to base strategic decisions into the future. Second, the two primary authors founded the Air Power Studies Centre in 1989 to provide assistance in the writing of *The Air Power Manual* in the short term, and thereafter to be a permanent 'think-tank' for doctrinal development. The strategic goal of the Air Power Studies Centre, renamed the Air Power Development Centre in 2004, was to promote the value of air power, and define its role in Australian defence policy. For the first time, the RAAF had doctrinal guidance tailored to Australian requirements, and had a permanent intellectual support base to explain its value.

Return on Investment

7.8 Since the beginning of the 1990s the RAAF has established a sound intellectual and doctrinal foundation. This has raised the awareness of how air power is employed across all branches of the RAAF and also how it contributes to Australia's national security. As the emphasis of government strategic policy has shifted in subsequent White Papers since 1987, the RAAF has been able to rebalance its force structure and capability accordingly, while maintaining sound air power principles. Conceptual thinking on future doctrine and capability development, therefore, has enabled the RAAF to move steadily towards the force structure of 2030 as envisioned in Defence White Paper of 2009 and re-emphasised in the White Paper of 2013.

7.9 In 2012 the RAAF brought into service an enhanced strike aircraft—the F/A-18F Super Hornet. It also established its first airborne electronic and control capability with the E7A Wedgetail aircraft and developed intelligence, surveillance and reconnaissance (ISR) networks. These capabilities have enabled the RAAF to sustain theatre-wide control and reporting support to air and surface forces.

Ray Funnell, AC

Air Marshal Ray Funnell began his long association with Air Force as a member of the Air Training Corps, where he was awarded a flying training scholarship, before joining the RAAF College in January 1953. After graduating from the RAAF College in 1956, he flew Sabre fighters at Williamtown, Butterworth, Ubon and Labuan. Instructing on Vampires at No 1 Applied Flying Training School at Pearce, Funnell quickly made his mark as a competent pilot and flight leader. He also demonstrated a wide range of interests and capabilities, actively encouraging greater professionalism within the RAAF through his deep interest in strategic studies and history.

In 1971, Funnell became the first RAAF officer to attend the United States Air Force Air War College. He commanded No 6 Squadron from 1972 to 1975, during which time it was re-equipped with F-111Cs. Promoted to Air Vice-Marshal in November 1983, Funnell became Chief of Air Force Operations and Plans, and then Assistant Chief of the Defence Force (Policy). In June 1986, he was promoted to Air Marshal and appointed Vice Chief of the Defence Force before becoming Chief of the Air Staff in July 1987.

Funnell believed that all RAAF personnel should have a comprehensive understanding of their profession, and should continually question established practices and conventional wisdom, something which had not always been done in the past. Against that background, the publication in 1990 of the RAAF's first indigenous strategic doctrine, *The Air Power Manual*, followed by the introduction of a Service-wide air power education system, were momentous achievements. He retired from service in 1992.

Air Marshal Ray Funnell, AC.

7.10 The Air Force Training and Education Review (Project AFTER) conducted in 2008 found that a deep understanding of air power and doctrine was essential to future RAAF development. These findings resulted in air power training and education being prescribed as a core element within the promotion courses for all ranks up to and including Wing Commander. Additional training was to be directed to specific musterings and categories in line with job requirements. The investment in personnel, education and training organisations, in order to articulate and resolve the RAAF's doctrinal shortfalls, has had a profound and enduring influence on professional mastery within the RAAF.

8

Executive Summary

Australia's involvement in domestic and global security operations reinforced the need for the RAAF to be a versatile force capable of a wide range of expeditionary and home-base operations.

The RAAF provides a vital and flexible addition to Australia's crisis response capabilities.

The RAAF's expeditionary capabilities enable Australia to be an effective partner in coalition operations.

Domestic and Global Security Operations

8.1 In anticipation of a possible terrorist incident disrupting the Olympic Games in Sydney, the *Defence Act 1903* was amended in 2000 to provide for the utilisation of the Defence Force to protect the Commonwealth, States and Territories against domestic terrorism. In the aftermath of the terrorist attacks on New York and Washington, DC, on the morning of 11 September 2001, the US and Australian Governments invoked the ANZUS Treaty for the first time in its 50-year history. For Australia, the terrorist attacks heralded a new era in international policy and military operations. The Government, having no choice but to preserve its citizens safety and contribute to maintaining global security order, had to respond. As a consequence, there has been an increase in the number of operations the Australian Defence Force (ADF) has undertaken domestically and across the globe. The flexibility, the determination of its personnel and its capabilities were all critical to enable Air Force to meet its aims over this period.

Control of Domestic Air Space

8.2 The first experience for the RAAF in responding to a terrorist threat within Australia was in the aftermath of a bombing on 13 February 1978, when a bomb exploded outside the Sydney Hilton Hotel. Delegates of a Commonwealth Heads of Government Regional Meeting were in

residence at the hotel, and the Australian Government decided to use the ADF to assist in relocating the meeting's delegates to a more secure location near Bowral, NSW. The RAAF responded to the request with four Iroquois helicopters from No 5 Squadron providing overhead protection to the convoy carrying the delegates to the new venue.

8.3 In March 2002, the RAAF was called upon to assist in the security arrangements for the Commonwealth Heads of Government Meeting (CHOGM) held at Coolum, Queensland. One of the main features of the security effort, Operation *Guardian II*, was a detachment of F/A-18 Hornet aircraft which were tasked with securing the air space over the venue. This operation set a baseline on which later operations have been conducted during subsequent high level visits and international forums held in Australia. When US President George W. Bush visited Australia in October 2003, the RAAF secured the air space over Canberra for the duration of the visit as part of Operation *Miata*. During the Commonwealth Games held in Melbourne in March 2006, the Air Force again provided a detachment of F/A-18 Hornet aircraft as part of Operation *Acolyte* to provide air space security over the city. As in most operations, however, the Hornets were only the more visible element of Air Force's commitment, which also included ground-based air surveillance capability from No 41 Wing and Boeing B707 air-to-air refuelling aircraft from No 33 Squadron.

F/A-18A Hornets over Melbourne during Operation *Acolyte*, 2006.

8.4 In more recent domestic deployments, Air Force capabilities including F/A-18 Hornets, surveillance and control assets, and an extensive ground component have contributed directly to site security for various events. During Operation *Deluge* the RAAF contributed to the security effort for the APEC meeting in Sydney 2–9 September 2007, and during Operation *Amulet* the RAAF contributed to the security for CHOGM held in Perth 28–30 October 2011. The latter operation made extensive use of the RAAF's explosive detection dogs. The value of the Air Force contribution was particularly highlighted during Operation *Deluge*, when an unknown aircraft was detected entering the restricted area. Two F/A-18 aircraft successfully intercepted what turned out to be a Cessna 337 aircraft flown by an amateur pilot, and escorted it to Bankstown Airport. Both of these operations demonstrated the flexibility of RAAF combat potential to meet complex demands that arise from civil requirements.

Contributing to Domestic Security

8.5 The RAAF has contributed to a number of domestic security operations over recent decades beyond control of the air operations. This has involved air force security personnel, bomb disposal professionals, and military working dogs in support of ADF and whole-of-government security operations. For instance, during the Olympic Games, held in Sydney in 2000, the RAAF was heavily involved in providing support under Operation *Gold*, principally assisting with security and conducting public flying displays. This commitment was reminiscent of the assistance given to the 1956 Melbourne Olympics, when a RAAF Canberra bomber was used to ferry the Olympic flame from Darwin to Cairns.

Tools of the trade used for security searches during the Sydney 2000 Olympic Games.

Global Campaign Against Terror

8.6 In 2001 the US President George W. Bush initiated the Global War on Terror against a global network of terrorists, who committed acts such as the 9/11 terror attacks, as well as those who harbour them. In response to these events, Australian Prime Minister John Howard invoked the ANZUS Treaty demonstrating Australia's steadfast commitment to work with the United States on shared security objectives. Within weeks, the US and its coalition partners, including Australia, were engaged in the war in Afghanistan. Australia also contributed to the US-led Coalition that invaded Iraq in 2003. After overthrowing the Taliban regime in Afghanistan and Saddam Hussein's regime in Iraq, the Coalition effort transitioned into reconstruction and stabilisation operations. Although both wars were situated in the Middle East, under US Central Command, the fighting in Afghanistan and Iraq continued independently on two fronts.

8.7 The initial commitment of the ADF to operations in Afghanistan and later in Iraq were actions intended to secure Australian security through coalition (partnership) building and, more directly, in action against international terrorism. RAAF expeditionary capability coupled with sound technical mastery has resulted in Air Force making significant contributions to Coalition operations in the Middle East Area of Operations (MEAO).

8.8 Due to the ubiquitous nature of air power and the proximity of the Operations *Falconer*/*Catalyst* (Iraq) and Operation *Slipper* (Afghanistan) theatres, the RAAF has been able to minimise its deployed footprint in the MEAO. The Intelligence, Surveillance and Reconnaissance Task Unit (ISR TU), consisting of two AP-3C Orion surveillance aircraft, and the Air Mobility Task Unit (AM TU), which still maintains C-130 aircraft in theatre, have been able to supply the ISR and airlift needs to both operations. This economic use of task force units combined with the Coalition's decision

to establish one Combined Air Operations Centre (CAOC), to control air operations over both theatres, has resulted in RAAF personnel and platforms contributing to Coalition objectives in two non-contiguous theatres.

8.9 An important outcome for the RAAF from its involvement in recent operations in the MEAO has been the high-level of command experience afforded to RAAF officers in joint and Coalition headquarters positions. During the invasion of Iraq in 2003, Group Captain Geoff Brown, future Chief of Air Force, was appointed the air task group commander of the RAAF's strike and airlift aircraft operating in theatre. Also, the future Vice Chief of the Defence Force, Air Marshal Mark Binskin, served as the first dedicated non-USAF Director of the US Central Air Force CAOC, where he was responsible for the conduct of Coalition air operations in support of Operation *Iraqi Freedom* and Operation *Enduring Freedom* (ADF Operations *Catalyst* and *Slipper* respectively). Since 2003, RAAF officers have continued to fill high-level positions within the Coalition forces operating in the MEAO, including several as the Director CAOC and CAOC Air Operations Battle Director. The experience gained through these high level command positions has enhanced the professional mastery of the senior leadership group for the development of RAAF capability, doctrine and personnel.

Afghanistan

8.10 The RAAF's commitment to coalition operations in Afghanistan began in November 2001 when it deployed elements of No 77 Squadron to Diego Garcia as part of Operation *Slipper*. Operating four F/A-18 aircraft, the detachment was principally tasked with flying combat air patrols over the island, which is a key forward base for the US in the Indian Ocean. The RAAF deployment concluded in May 2002 when it was determined that there no longer existed an air threat to Diego Garcia.

RAAF F/A-18A Hornet receiving fuel from a United States Air Force KC-10 air-to-air refuelling aircraft.

8.11 In March 2002 the Air Force increased its commitment to Operation *Slipper* when it deployed a detachment of two RAAF B707 air-to-air refuelling aircraft from No 84 Wing to Kyrgystan. The detachment was based at Ganci Air Base, named in memory of New York firefighter Peter J. Ganci, at Manas International Airport, a short distance north of Bishkek, the capital city of Kyrgystan. The RAAF contingent shared this airport with about 1850 other military personnel from seven nations: Denmark, France, the Netherlands, Norway, South Korea, Spain and the US. From this base the RAAF detachment flew air-to-air refuelling missions in support of coalition aircraft operating in Afghanistan. By the end of July 2002, the two RAAF aircraft had refuelled approximately 530 fighter and attack aircraft from the US Navy and Marine Corps, and the French Air Force. The detachment achieved an overall mission success rate of over 99 per cent, and by the end of the deployment in September 2002, they had transferred over six million pounds of fuel in more than 800 refuellings.

Bishkek Detachment, Kyrgystan

RAAF Air-to-air Refuelling Capability

The relatively recent operational experience that No 84 Wing had gained conducting air-to-air refuelling operations in Kuwait was a significant contributing factor to the success of RAAF operations in Kyrgystan. In February 1998, a contingent of two B707s and 170 RAAF personnel deployed to Kuwait to take part in Operation *Southern Watch*. The detachment was tasked on a daily basis with refuelling Royal Air Force and United States fighters over the north of Saudi Arabia supporting punitive actions against Iraq after its defiance of United Nations Resolution 687. This was the first occasion in which the RAAF had conducted air-to-air refuelling in any operational theatre. Despite the fact that the RAAF detachment was no longer in Kuwait when Operation *Desert Thunder* was conducted, the experience gained by the crews proved invaluable in the operations that were to follow.

Overland ISR

8.12 When the scope and tempo of ADF operations in Afghanistan were significantly increased during 2005, Air Force responded with the additional commitment to Operation *Slipper* of the 92 Wing detachment of AP-3C Orions based out of Al Minhad, United Arab Emirates. While traditionally a maritime surveillance platform, the AP-3C aircraft were also employed in the overland ISR role. The deployment of these aircraft to the Middle East began in January 2003, as part of Operation *Falconer*, but proved so successful in both the maritime and overland missions, that the deployment was extended to include Operations *Catalyst* and *Slipper*. With advanced sensors, long loiter times and the ability to relay real-time data to air and ground-based commanders, the AP-3C provided critical capability until the deployment was concluded on 21 November 2012.

Heron Unmanned Aerial System

8.13 While the ISR capabilities of the AP-3C Orion aircraft were well appreciated, the scope to employ unmanned aerial systems (UASs) in an ISR role within the Afghanistan theatre offered advantages over large fixed-wing aircraft operating from bases outside of the immediate battlespace. In response, the RAAF decided to establish a tactical level UAS detachment based at Kandahar Air Base. After selecting the Heron UAS—a one-tonne aircraft capable of medium-altitude, long-endurance flights—as the most suitable platform, the RAAF Heron detachment conducted the Air Force's first UAS ISR mission on 9 August 2009. Operating three platforms, and with an establishment of 28 personnel, by October 2012 the detachment had flown over 12 000 hours and provided Australian and coalition forces high-resolution, near real-time intelligence.

Leading Aircraftman Robert Cain, a geospatial imagery analyst, examining imagery from the Heron UAS.

8.14 The ability to rapidly acquire and integrate a new capability has been an evolving ability of the ADF. In the case of the Heron UAS, the skills, doctrine, tactics and procedures necessary to integrate the Heron system into the task force was developed almost entirely in theatre.

Control and Reporting Centre

8.15 During June 2007, personnel from No 114 Mobile Control and Reporting Unit (114MCRU), No 41 Wing and airfield engineers from No 1 Airfield Operations Support Squadron began work on establishing a Control and Reporting Centre (CRC) at Camp Palomino, Kandahar Air Base. On 5 August, 114MCRU assumed control of airspace over the congested areas of Afghanistan from the outgoing US 73rd Expeditionary Air Control Squadron. It marked the first operational deployment of

the unit since it was sent to Malaysia in 1958, and the first time the new TPS-77 radar was used in earnest.

8.16 Tasked with management of Afghanistan's operational airspace, the CRC represented a critical node in the command and control architecture and battlespace management system in the Afghanistan theatre. With large numbers of aircraft operating in the battlespace in conjunction with widespread ground activities, the intensity and tempo of operations was found to be far in excess of what the Australian controllers had previously experienced. Consequently, the training for controllers and immediate support staff was broadened to address the demands of controlling aircraft within such a complex airspace. By July 2009, the CRC's mission was completed when it handed responsibility over to the USAF's 451st Expeditionary Wing, after more than 196 000 coalition aircraft movements were handled by staff who had maintained the CRC function 24 hours a day, seven days a week for two years.

The Multinational Base: Tarin Kowt

8.17 The RAAF commitment to operations in Afghanistan has been extensive and has included embedded Air Force elements in joint and Coalition formations. This commitment of individual RAAF members and small teams has included Air Load Teams with Joint Movement and Force Logistics units in Kabul, Kandahar and Tarin Kowt, medical personnel, intelligence and imagery specialists deployed, as well as administrative and security staff. In one of the largest deployments of RAAF security staff, in October 2012, 65 airfield defence guards (ADGs) and support personnel deployed to the multinational base at Tarin Kowt to take over responsibility for base security. As has come to typify the RAAF approach to small to medium level deployments, the personnel for the Tarin Kowt security force were drawn from multiple units, Nos 1 and 2 Airfield Defence Squadron as well as the Security Police from No 395 Expeditionary Support Wing.

Iraq

8.18 In mid-January 2003 a detachment of two AP-3C Orions was deployed as part of Operation *Bastille*, the lead-up phase to the Australian contribution to the war in Iraq. Three C-130 Hercules aircraft departed for the Middle East in early February. By mid-March 2003, the C-130s had carried roughly 400 000 kilograms of cargo and 500 passengers, and had trained extensively with SAS troops who were to operate in western Iraq. Shortly after the Hercules flew out from Australia, a detachment of 14 F/A-18 Hornets from No 75 Squadron deployed to a base in the Middle East. The decision to deploy the Hornets was criticised by some commentators, who believed the level of aircraft system technologically did not permit their inclusion in the first wave of an attack. In reality, the Hornets sent to the Gulf had recently been upgraded to Hornet Upgrade Project (HUG) 2.1 standard, which made them as capable as the F/A-18C aircraft operated by the US Marine Corps and the US Navy. Although the RAAF Hornets did not take part in attack operations during the opening

A RAAF F/A-18A Hornet returning from a mission in the Middle East Area of Operations

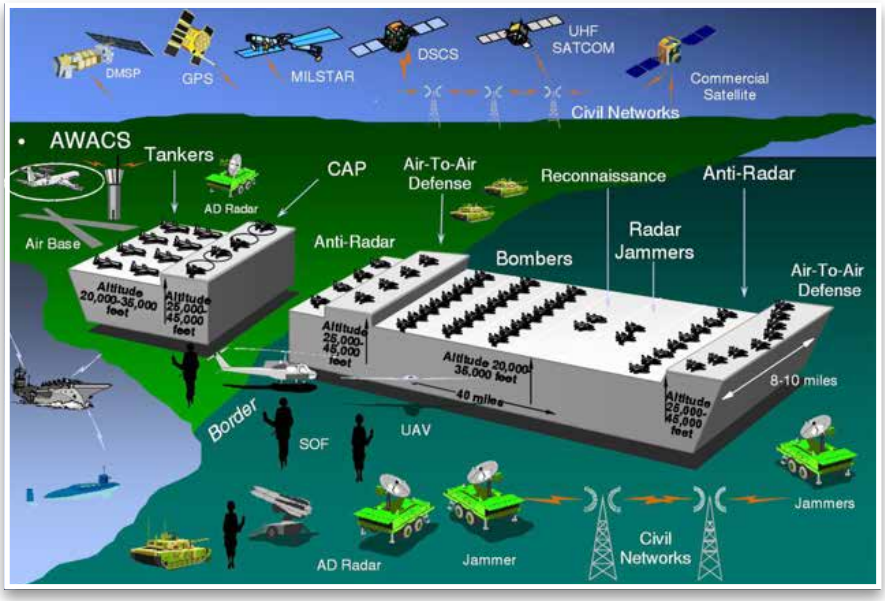
stages of the conflict, they were actively engaged in defensive counter air missions. The Australian contribution to the US-led war in Iraq was Operation *Falconer*, which commenced on 18 March 2003.

Offensive Operations

8.19 Although the RAAF Hornets were tasked to provide air cover for high-value Coalition assets at the beginning of the conflict, on most missions they were also equipped with GBU-12 precision-guided bombs to attack ground targets. If a time sensitive target was identified, an aircraft was immediately tasked to attack it. The attack would be carried out only after the Australian Air Component Commander in theatre had confirmed that the target was admissible under the Australian rules of engagement. RAAF Hornets were tasked to carry out such attacks on a number of occasions. This practice illustrated the value of multi-role aircraft in modern conflicts, and demonstrated the inherent flexibility of air power. As operations in Iraq continued, the Hornets were tasked with attacking ground targets as a primary role.

Ground Attack

8.20 On 23 March 2003 the RAAF participated in the first of four pre-planned strikes against a Republican Guard facility near Al Kut. Thereafter, the RAAF Hornets concentrated on close air support and air interdiction against tactical Iraqi ground forces. In particular, they provided close air support to US Army V Corps, US and UK troops operating as part of the 1st (US) Marine Expeditionary Force, attacking tanks, artillery and static missile launchers. On 11 April they provided air cover for Australian SAS and 4 RAR troops in their mission to capture Al Asad Air Base in the west of Iraq. On 27 April No 75 Squadron ceased active operations in Iraq, and on 2 May undertook its last training flight before returning to Australia. Over the course of the deployment the RAAF Hornet crews flew 670 sorties and 2300 flying hours, which included 350 combat sorties and 1800 flying hours.



USAF representation of the Air Battlespace during the Iraq War 2003.
(Courtesy USAF 2003)

Supporting Iraqi Reconstruction

8.21 On 16 July 2003 the ADF commenced Operation *Catalyst*, the Australian contribution to the stabilisation and reconstruction of Iraq following the overthrow of Saddam Hussein. Two AP-3C Orions, under Operation *Slipper*, and two C-130 Hercules would now take part in *Catalyst* and continue their deployment in the MEAO. In addition, a detachment of RAAF air traffic controllers was tasked with reopening Baghdad International Airport (BIAP) for normal traffic and training their Iraqi counterparts. By the end of June, the Orions had completed 112 sorties and exceeded 1000 flying hours, achieving a 99 per cent launch rate and 96 per cent mission success rate. The two Hercules had accumulated equally impressive figures, carrying 2500 passengers and almost 2 million kilograms of cargo. Although these aircraft represented

RAAF Experience of the Integrated Air Battlespace

The RAAF had not conducted offensive operations since Vietnam, so in 2003, when Australian F/A-18s of No 75 Squadron flew missions under Operation *Iraqi Freedom*, they had to rapidly integrate into an air battlespace which included large numbers of coalition aircraft, participating in highly complex and coordinated attacks.

On the night of 21-22 March the full weight of Coalition air power struck Iraqi command and control infrastructure in and around Baghdad. American and British aircraft struck strategic targets deep inside Iraq in what was quickly labelled a 'shock and awe' campaign. Strike aircraft were supported by a wide variety of platforms performing specialised tasks including combat air patrol, close air support, suppression of enemy air defences (which included anti-radar and radar jamming), ISR, and air-to-air refuelling, as well as airborne warning and control, and joint surveillance and target attack radar aircraft. Within the joint campaign, each air mission was enabled by a wide assortment of space, land and maritime capabilities: all environmental elements conducted their individual specialised missions to achieve common joint strategic objectives. The 2003 experience of air warfare helped to inform the integrated systems approach to the application of air power which has transformed the RAAF over the last 10 years.

only 3 per cent of the Coalition Hercules fleet, they had carried 16 per cent of the cargo lifted by all Hercules in theatre. In August 2004, the RAAF achieved another significant milestone when it handed over the BIAP tower to Iraqi controllers.

8.22 As part of reconstruction efforts, the ADF provided personnel from the Australian Army Training Team Iraq (AATTI) as instructors and mentors to recruits in the new Iraqi Army. Included in the second rotation of the AATTI in September 2004 were RAAF ADGs from the Airfield Defence Wing at Amberley. The ADGs assisted in the training of

recruits in security and combat operations. A second detachment of 15 RAAF personnel was included in the eighth AATTI deployment in June 2007 in a broader role that included training in logistics support as well as combat operations.

Support to Security Operations in Iraq

8.23 As RAAF elements deployed into Iraq began to withdraw, the requirement to maintain security around the Australian Embassy in Baghdad ensured that a 110-strong security detachment (SECDET) from the ADF was maintained at the Embassy complex. Up until March 2008, the SECDET was manned solely by Australian Army personnel. However, 12 ADGs from No 2 Airfield Defence Squadron were included in the 13th SECDET rotations. Using the same skills and training developed for securing airfields from attack, the ADGs performed tasks ranging from sniper duties to armed escorts. Integrated into a predominantly Army formation, the ADGs worked seamlessly with the Army members. At the conclusion of their rotation after six months, the RAAF ADGs were replaced with another section from No 2 Airfield Defence Squadron. The ADG deployments were not the only RAAF personnel to be included in the SECDET however, with RAAF personnel from No 395 Expeditionary Support Squadron providing cooks during 2005 and a senior logistics officer in the first half of 2010.

8.24 Small RAAF elements providing a niche capability to larger ADF formations such as the SECDETs in Baghdad typified much of the RAAF deployments in Iraq and the wider MEAO. While the ISR TU (AP-3C) and AM TU (C-130) deployments represented major RAAF elements, specialists in air movements, logistics, medical and intelligence were embedded in Force Logistics Assets, ADF and Coalition medical facilities, as well as in all levels of headquarters formations from the 2003 invasion until withdrawal in 2009.

Bali Bombings, 2002 and 2005

8.25 On 12 October 2002 the tragic results of terrorism were underscored for Australia when bombs were detonated in a tourist nightclub district on the Indonesian island of Bali. The blasts killed 202 people, including 88 Australian citizens. A further 209 were injured, many of whom were also Australians. Under Operation *Bali Assist*, the RAAF sent four C-130 Hercules aircraft to Bali over the next two days carrying medical teams and their equipment to stabilise the victims and transport them to Australia for further treatment. An AP-3C Orion, that had ferried Australian Federal Police and Department of Foreign Affairs and Trade officials to Bali to assist in the investigation, was also used to transport some of the injured on its return flight to Darwin. A total of 66 people were evacuated from Bali in the aftermath of the attacks. On 1 October 2005 the RAAF was again tasked with providing assistance to

Australians injured in the Bali bombings were evacuated by the RAAF to Darwin. This enabled medical specialists to save many lives.

the victims of terrorist attack, after another series of bomb blasts in Bali. A total of 20 people were killed in these blasts, including four Australians. As had been the case in 2002, the RAAF carried out aeromedical evacuation missions, highlighting the ability of Air Force to support a wide range of civil activities.

Airfield Defence Guards patrol the perimeter of the control tower at Baghdad International Airport, 2003.

Security Operations 2001–2012

8.26 The RAAF's ability to employ air power effectively at the operational and tactical levels within the context of a modern irregular war has increased significantly as a result of Air Force's involvement in conflicts in Afghanistan and Iraq. Responding to terrorism domestically and in the region has also influenced the RAAF's employment of air power.

By 2009 the terminology had also evolved. The 'War against Terror' was replaced by more specific security terms as the RAAF found itself conducting domestic and global security operations. Although the bulk of Australia's military commitments to the conflicts in Iraq and Afghanistan is diminishing, the RAAF contribution to domestic and global security operations is enduring.

8.27 The RAAF deployments to the MEAO were mostly limited to detachments and individuals under ADF joint command arrangements. As with the RAAF personnel deployed through EATS some 60 years earlier, the very nature of these RAAF deployments have tended to mask the full extent of Air Force's contribution.

9

Executive Summary

Since 1973, an increased commitment by the Government to support the international community has resulted in the RAAF conducting a wide range of peacekeeping operations.

The RAAF demonstrated the importance of its versatility and responsiveness, as well as the coercive benefit of air power, in a range of UN operations and regional peace missions.

Air power plays a key role in ADF operations supporting government policy to promote security and stability within the region and, increasingly, across the globe.

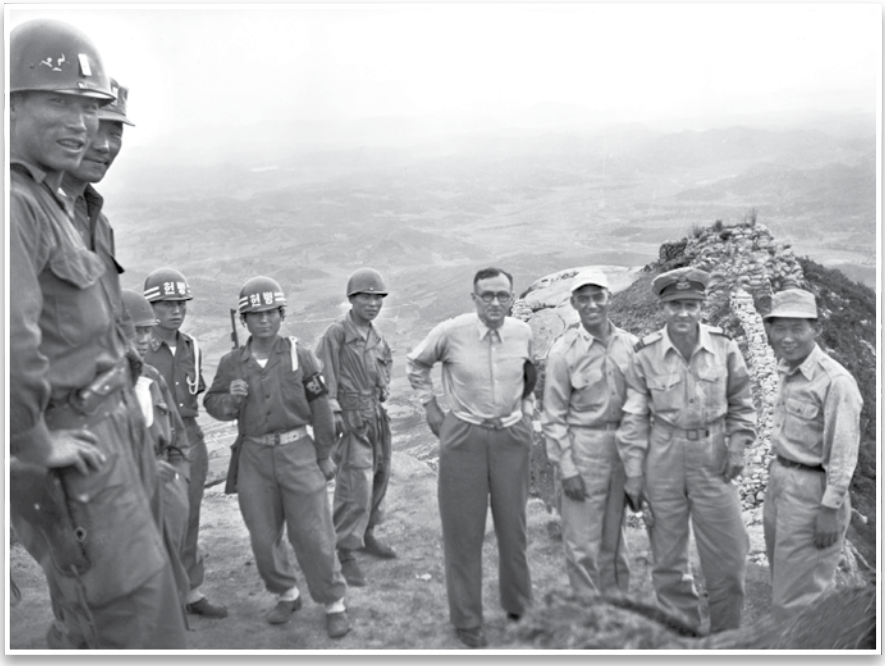
Peace Operations

Commitment to Peace Operations

9.1 If the end of the forward defence era heralded a turning point in Australia's strategic posture, it also marked the beginning of an increased commitment by the Government to support the international community. As a result, the RAAF continued its extensive involvement beyond Australian shores, principally through two separate channels. First, Air Force has been regularly involved in a succession of humanitarian assistance missions, both in the immediate region and further abroad. Second, it has supported UN peacekeeping operations, initially in observation of conventional truces, and from the early 1990s in support of nations devastated by intrastate conflict. On each occasion, these contributions demonstrated the professionalism of Air Force personnel, and underscored the sound judgement and exceptional level of technical expertise accrued by the RAAF since the 1940s. Above all else, the RAAF contribution to humanitarian assistance and peacekeeping demonstrated its versatility, and highlighted the breadth of capabilities, from the use of force to medical and logistic assistance, that Air Force personnel could provide.

Indonesia, 1947

9.2 At the end of World War II, the Dutch attempted to reimpose colonial rule on the Netherlands East Indies after the area had been freed from Japanese occupation. Within days of the Japanese surrender in 1945, Indonesian nationalists had declared a republic, which the Dutch refused to recognise. Two years later the Dutch and the Republicans still controlled separate enclaves. In July 1947 the Dutch launched what they described as a 'police action' but which in reality was an invasion of Republican territory. The UN Security Council intervened to call a ceasefire, and in August established a Consular Commission chaired by Australia's diplomatic representative in Timor, recently-retired RAAF



Squadron Leader Rankin (second from right) with Republic of Korea Army and United Nations personnel in Korea, June 1950.

Group Captain Charles Eaton, to monitor the separation of the two sides. Eaton, with other Commission members, became concerned that the Dutch were steadily improving their position under cover of the ceasefire. He requested the provision of military observers to help report on the situation. Australia was quick to respond, appointing four serving officers, including one RAAF officer, Squadron Leader L.T. Spence. These men arrived at Surabaya, East Java, on board a RAAF aircraft on 13 September, becoming the world's first peacekeepers in the field. British observers arrived a few days later, and the last of the various groups, did not follow for another two weeks. Dutch administrators were hostile to the presence of the UN observers, and regularly clashed with Eaton. When they failed to get their way they complained of his 'impropriety', but these allegations were rejected in Canberra. With the assistance of the observers, Eaton was able to present a true picture of local events to the world, thereby making a significant contribution to Indonesia's eventual independence in 1949.

Korea, 1950

9.3 With tensions increasing on the border between North and South Korea, a decision was made to insert observers into the region. The first observers to arrive in Korea were two Australians who had both served during World War II: Major Stuart Peach, who had been a prisoner of war of the Japanese; and Squadron Leader Ronald Rankin. Between 9 and 23 June 1950, Peach and Rankin visited Republic of Korea troops along the 38th parallel, inspecting their dispositions, activities, defences, weapons and command posts. They interviewed commanders and intelligence officers in order to gain as complete a picture as possible of activities on both sides of the line. They reported back to the UN that the South Korean forces along the border were 'organised entirely for defence', and that there were unusual levels of military activity in the North. Rankin and Peach returned to Seoul to submit these impressions only hours before the

North Korean Army launched an all-out invasion of the South. The North Koreans proclaimed to the world that their invasion had been a response to an attack from South Korea. The Peach-Rankin report was paramount in demonstrating that this was not the case.

Kashmir, 1975

9.4 Between March 1975 and January 1979 the RAAF maintained a permanent detachment of one Caribou transport in Kashmir as part of the Australian contribution to the United Nations Military Observer Group in India and Pakistan. The detachment flew in treacherous conditions in an area with 33 peaks over 25 000 feet in height. They were often required to land on dusty airstrips at high altitude. This added a new dimension to the experience gained in Vietnam, where the crews had already developed their skills in operating from semi-prepared strips in dangerous conditions.

Sinai, 1976 and 1982–86

9.5 At the same time, another RAAF detachment was operating in a completely different environment, facing a different set of challenges. In July 1976 a contingent of four Iroquois utility helicopters from No 5 Squadron joined the United Nations Emergency Force (UNEF), set up to observe the ceasefire between Egypt and Israel, and the subsequent Israeli withdrawal from Egyptian territory under the 1978 Camp David Accords. The detachment from No 5 Squadron was officially named the 'Australian Air Contingent UNEF Ismailia'. By the time it returned to Australia in October 1979 the detachment had flown over 3400 hours, carrying around 14 675 passengers. Between 1982 and 1986 a combined detachment, consisting of eight RAAF and two Royal New Zealand Air Force (RNZAF) Iroquois helicopters, operated as part of the Multinational

Force and Observers monitoring group in the Sinai. The contingent had a permanent establishment of 109 personnel, 99 of whom were from the RAAF. Similar to the Australian Air Contingent UNEF Ismailia, its role was to monitor the 1978 truce between Egypt and Israel. The detachment performed with distinction, despite operating in uncomfortable and hazardous desert conditions made more dangerous by the volatile political situation. Although the RAAF had yet again demonstrated an expertise in helicopter operations, these crews returned to Australia to find that the ADF was preparing to transfer over rotary wing operations to Army.

Supporting Peacekeeping, 1992 and 1995

9.6 The tempo of peacekeeping operations involving the ADF increased at the start of the 1990s, with Air Force making a small but important contribution in a number of cases. In 1992 the RAAF sent a Force Communications Unit, comprising roughly 18 personnel, in support of the Australian-commanded United Nations Transitional Authority in Cambodia. Three years later, in 1995, the RAAF contributed to an Australian Medical Support Force deployed to Kigali in response to the Rwandan genocide. A total of 51 RAAF personnel, drawn from Permanent and Reserve components, served with the MSF. Although this was a modest presence compared to the total ADF commitment of around 600 personnel, their contribution proved invaluable.

Somalia, 1992

9.7 At the end of 1992 the RAAF participated in Operation *Solace*, the stabilisation of Somalia. Initially, the Air Force provided eight personnel for the Movement Control Unit, and in December a Falcon 900 aircraft carried the Australian National Liaison Team into Mogadishu.

On 10 January 1993, four C-130 Hercules arrived in Somalia carrying an ADF advance party. Subsequently, these aircraft flew eight sorties each in support of the 17-week long operation. As Operation *Solace* neared its conclusion, three RAAF Hercules based at Mombasa, accompanied by two RNZAF Hercules, flew a series of 'shuttle' missions between Baidoa and Mogadishu carrying personnel and cargo. Two RAAF B707 aircraft from No 33 Squadron repatriated a total of 843 troops to Townsville via Diego Garcia and Perth. The RAAF units involved in the operation received high praise from ADF commanders.

The first of a 30-strong Movement Control Unit supplied from the Australian Defence Force (including eight RAAF members) arrived in Mogadishu on 28 October 1992 to begin support for the peacekeeping force known as United Nations Operation in Somalia (UNOSOM).

Bougainville, 1997

9.8 The RAAF also became involved in regional peace initiatives undertaken outside the covering framework of the UN. In 1997–98 it contributed medical personnel to Bougainville, comprising roughly half of a 23-strong Combined Health Element. Air Force personnel had been involved in peace talks there during 1994. Other personnel from the RAAF also contributed to the Peace Monitoring Group, which at the time was charged with monitoring the Lincoln Ceasefire Agreement on the island.

Independence of East Timor, 1999

9.9 In 1999 the ADF became involved in East Timor in what was to become the most significant deployment of Australian forces since the conflict in Vietnam. The RAAF's initial contribution was as part of Operation *Concord*, an assistance mission conducted between June and September 1999 in the run-up to the vote for national independence. During this period Air Force transported police, military liaison officers and UN volunteers from RAAF Base Darwin to East Timor. On 6 September the ADF invoked a contingency plan to evacuate UN and foreign nationals from East Timor in the event of a deterioration of law and order. The ensuing operation was named Operation *Spitfire*. Over the next week, the RAAF and RNZAF evacuated a total of 2478 people from East Timor. Thereafter, two sorties to drop food, blankets and humanitarian aid were carried out. RAAF operations in East Timor had come full circle, as several RAAF transport squadrons had flown relief missions to the then Portuguese Timor shortly prior to its annexation by Indonesia in November 1975.

INTERFET Operations, 1999

9.10 In response to the militia-orchestrated internal unrest in East Timor that followed the overwhelming endorsement for independence, the United Nations authorised the establishment of the International Force East Timor (INTERFET) led by the ADF. The ADF contribution to INTERFET was named Operation *Warden*. The first substantial Australian elements landed in East Timor on the morning of 20 September 1999. Five C-130 Hercules from No 86 Wing, RAAF, and two from No 40 Squadron, RNZAF, touched down at Comoro airfield in Dili carrying SAS troops, soldiers from 2 RAR based at Townsville, and 3rd Brigade Headquarters staff. They also carried the lead element of No 2 Airfield Defence Squadron and personnel from No 381 Expeditionary Combat Support Squadron (ECSS). Four ECSSs took part in these operations, establishing an airhead at Comoro and managing over 17 000 flights, 200 000 passengers and 3.2 million kilograms of cargo. This superlative performance was made possible only through the tireless effort of RAAF personnel at Darwin, Tindal and Townsville, who operated around-the-clock manning air movements, facilitating force preparation and providing a vast range of operational support. The RAAF Hercules were joined within a week by transport aircraft from other air forces, to form the basis of the INTERFET Combined Air Wing (ICAW). In the five months that ICAW was in operation, it flew 1902 sorties and transported 26 600 passengers to and from East Timor. The RAAF also had four DHC-4 Caribous based at Baucau airfield to assist INTERFET operations. A detachment from Baucau was subsequently deployed to Comoro for four months to fly missions to remote inland areas. Due to its unique handling characteristics, the Caribou once again proved invaluable in the tactical airlift role. From August 1999, F-111 aircraft from No 82 Wing had been deployed to Tindal and prepared for reconnaissance sorties over East Timor. From 20 September, their readiness had been expanded to include preparation for strike missions in support of surface forces in East Timor.

Timor's Civil War, 1975

When civil war broke out in Portuguese Timor in August 1975, a DHC-4 Caribou of No 38 Squadron flew to the island of Atauro, 40 kilometres north of Dili, to deliver communications equipment. Subsequently, the Caribou flew refugees from Baucau to Darwin, until the Australian Government halted this practice. On 4 September, the aircraft was delivering Red Cross supplies to Baucau where the Timorese Democratic Union (UDT) forces were located. On being advised of the Australian Government's decision to cease the evacuation flights, the UDT soldiers, under increased Fretilin military pressure and virtually no leadership, panicked.

With loaded weapons and hand grenades the soldiers forced the Australian crew to load the aircraft with refugees—54 people were crammed into an aircraft designed to carry 28, forcing the pilot to access the cockpit via the front emergency hatch. The overloaded aircraft wallowed towards Darwin at just 90 knots and an altitude of 1500 feet, eventually landing with only ten minutes of fuel remaining. The passengers surrendered to the authorities, and Caribou A4-140 now has the dubious honour of being the only RAAF aircraft ever 'hijacked' by armed soldiers.

A white No 35 Squadron Caribou over Darwin after a mercy mission for the Red Cross in Portuguese Timor, 1975.

The Indonesian Government initially rejected the Australian request that the RF-111 be used over East Timor. However, between November 1999 and March 2000 a detachment of RF-111s from No 82 Wing, consisting of personnel drawn from four separate units, flew reconnaissance missions over East Timor with the full knowledge of the Indonesian authorities.

DHC-4 Caribou in East Timor.

The Value of Versatility

9.11 The commitment to East Timor illustrated the value of the varied capabilities and specialities maintained by Air Force. The RAAF contribution to the ADF mission included airlift, organic airfield defence, extensive support for air operations, maritime and land surveillance, and medical assistance. The deployment of RAAF airlift, reconnaissance and

strike aircraft, demonstrated the capacity of the Air Force to meet the broad range of critical requirements in combined operations. Even after the United Nations Transitional Administration in East Timor (UNTAET) was established in 2001, the ADF continued to be engaged in the country under Operation *Tanager*. During this operation, RAAF and other ADF medical staff supported the UN hospital established under UNTAET and conducted aeromedical evacuations across the difficult East Timor countryside.

Solomon Islands, 2003

9.12 In July 2003 the RAAF contributed an air component and an ECSS detachment to assist the Australia-led mission to re-establish law and order in the Solomon Islands. The ADF contribution to the Regional Assistance Mission to the Solomon Islands (RAMSI) was named Operation *Anode*. Both RAMSI and *Anode* relied heavily on regular Caribou supply flights, with a permanent No 38 Squadron detachment based at the Solomon Island's capital, Honiara, until July 2004. In April 2006, violent riots in Honiara saw a renewal of Operation *Anode*. Five C-130s and a B707 were committed by the RAAF to transport additional troops and police from Townsville to support RAMSI in restoring order and in evacuating foreign nationals displaced by the unrest. In this operation, the RAAF capability to provide responsive airlift proved crucial in the resolution of a rapidly deteriorating situation.

Sudan Mission, 2005

9.13 Operation *Azure* was the deployment of ADF personnel to the UN peacekeeping mission in Sudan, known as the United Nations Mission in Sudan (UNMIS). UNMIS supported the implementation of the Comprehensive Peace Agreement, signed in January 2005 by the Government of Sudan and the Sudan People's Liberation Movement/Army. Commander of the Australian Contingent, Squadron Leader Ruth Elsley, was Australia's first ever female contingent commander. Her team deployed to Sudan as UN Staff Officers and Military Observers, the first time Australian troops had entered Sudan since 1885.

RAAF personnel were part of the ADF team that helped transition UNMIS into UNMISS following South Sudan's recognition as an independent nation, 2011.

9.14 On 9 July 2011, South Sudan became an independent country after an overwhelming vote in a referendum held in January of that year supported succession from Sudan. Concurrent with the succession of South Sudan, UNMIS transitioned into the United Nations Mission in South Sudan (UNMISS). ADF personnel have maintained a presence in the new mission as part of Australia's support to the UN. Named Operation *Aslan*, the RAAF, along with other ADF personnel, continues to provide up to 25 headquarters personnel, aviation and logistics specialists, as well as military advisers.

Renewed Crisis in Timor, 2006

9.15 In May 2006 a renewed political and civil crisis emerged in the now independent Timor-Leste (East Timor). A multinational force of peacekeepers was deployed to assist the Government of Timor-Leste to resolve the crisis. RAAF C-130 Hercules flew in forces including ground troops, ADGs, an Air Force Evacuation Handling Centre, aeromedical evacuation teams, command and control, and air load personnel. On their return flights, these aircraft transported Australian and foreign nationals fleeing the gang violence taking place on the streets of the capital, Dili. AP-3C Orion and B707 aircraft were also involved in what became known as Operation *Astute*, reinforcing the essential role of air power in Australia's increasing contribution to regional security.

9.16 Since the 2006 crisis Australia's support to the Timor-Leste Government's stabilisation efforts, has continued. From a peak strength of nearly 1500 ADF personnel in 2006, the ADF commitment to Operation *Astute* reduced to 390 by November 2012. The Air Force has committed a wide range of personnel and capability to the operation, including C-130 Hercules aircraft, ADGs, logistics specialists and administration personnel. In June 2012, Air Force commitment in Timor-Leste included

a detachment of four working dogs and their handlers to provide security to ADF facilities and assets.

RAAF military working dog team patrolling at Dili airport.

Evacuation from Lebanon, 2006

9.17 On 13 July 2006, Israel launched air and ground attacks against Lebanon in retaliation for Hezbollah attacks on Israel. The ADF deployed forces to the Eastern Mediterranean to assist Australian nationals within the area escape the conflict. When the Israelis launched a large-scale incursion into Lebanon on 23 July, thousands of foreign visitors, including many Australian nationals, were forced to flee. On 27 July a RAAF C-130 Hercules, which had been supporting Australian ground forces in Iraq and Afghanistan, was diverted to assist in the evacuation, Operation *Ramp*. Along with a team of ground-based personnel who helped man an Evacuation Handling Centre at Larnaca Port, Cyprus, the Hercules transported Australian citizens from Cyprus to regional hubs in Turkey and elsewhere from where they could make their way home by commercial flights. The RAAF Hercules contributed to an evacuation operation that, in two weeks, carried nearly 5000 Australians and 1300 foreign nationals to safety.

10

Executive Summary

The RAAF has frequently demonstrated its ability to make an important contribution to humanitarian assistance and disaster relief efforts in response to natural disasters and other emergency situations.

RAAF air power also provides valuable assistance for a wide range of national activities.

The Government's emphasis on securing Australia's nearer region through a 'good neighbour' policy has led to the RAAF undertaking numerous missions to provide humanitarian relief and assistance as part of a whole-of-government response.

Humanitarian Assistance and Disaster Relief at Home and Abroad

10.1 Even before the RAAF was formed, the potential for military aviation to contribute to the wider needs of the Australian Government and the civil community was well recognised. In presenting his case for the formation of an air force in 1920, Richard Williams used the Government's desire to utilise Australia's military aviation resources for an air mail service as an additional argument for a separate, independent air force. Since the formation of the RAAF, the potential for air power to provide relief and assistance to the civil and regional communities has been realised. This potential has increased in line with the development of Air Force's expeditionary capability. Today, the RAAF contributes to wide-ranging domestic operations—it is capable of providing a rapid response to emergencies such as floods, cyclones and bushfires, as well as to other government tasks.

Flood Relief

10.2 The RAAF has a long history of providing vital assistance to the wider community during times of natural and man-made calamities both in Australia and abroad. In August 1950, No 36 Squadron assisted in flood relief operations in the Tamworth area. In 1973–74, Australia experienced some of the most damaging floods in its history, which inundated huge areas of the continent. The RAAF responded to a call

When the Bulloo River in Queensland flooded following Cyclone Audrey in March 1963, a RAAF Neptune conducted an overland mission to visually locate 11 men on the roof of the Greengate Hotel who were cut off by the floods. The Neptune dropped relief canisters by trailing parachute cord across the roof. The men were later rescued by a RAAF helicopter.

for assistance and used elements of eight operational squadrons to airlift people and supplies, evacuate the sick and injured, and deliver fodder to stranded livestock across New South Wales, Queensland, South Australia and the Northern Territory. A large number of flood relief missions and medical evacuations were flown in Queensland and New South Wales throughout the 1960s, 1970s and 1980s. In 1998, and again in 2006, personnel from RAAF Tindal provided the people of Katherine with relief from floodwaters, highlighting the versatility of the Air Force to adapt itself and assist remote communities to cope with natural disasters.

C-130H Hercules conducting a hay drop.

10.3 In 2007 the ability of the RAAF to assist remote and regional communities received a significant boost with the introduction into service of the Boeing C-17A Globemaster strategic airlift aircraft. When severe widespread flooding struck Pakistan, C-17A aircraft provided airlift support to a 180-person Australian Medical Task Force that included personnel from the RAAF's No 1 Expeditionary Health Squadron based at RAAF Base Amberley. In January the following year, the RAAF was called to assist in flood relief to communities in south-east Queensland and Victoria. The RAAF's C-17A, C-130 and King Air aircraft transported more than 450 tonnes of cargo, 200 relief personnel, over 123 tonnes of food aid, approximately 100 000 sandbags and two ADF amphibious vehicles directly into the regions most affected by floodwaters.

10.4 The RAAF continues to provide flood assistance to communities throughout Australia. In the first quarter of 2012, flood relief operations were conducted in northern and south-eastern Victoria, New South Wales and again in south-east Queensland. These operations involved

aeromedical evacuations from threatened hospitals, providing engineering, logistics and manpower support, as well as transporting food to isolated communities. When floods devastated parts of central Queensland in early 2013, this time in the vicinity of Bundaberg and Maryborough, C-130J Hercules and C-17A Globemaster aircraft provided much needed relief. Importantly, since 2006, all relief operations have been conducted as part of a joint response, with ADF members working collectively to generate the best effects during flood and other aid operations.

Cyclone Relief

10.5 Hard on the heels of the floods of 1973–74, Cyclone Tracy devastated Darwin on Christmas Day 1974. At 0900 hours on 25 December 1974, a C-130 Hercules aircraft from No 36 Squadron was placed on one-hour stand-by to assist in the relief operations, with another Hercules aircraft from No 37 Squadron being placed on three-hour stand-by immediately thereafter. A medical team from Canberra, flown to Mount Isa in a RAAF BAC-111, was then airlifted to Darwin by a C-130. By 0500 hours on 26 December, RAAF Richmond had 12 Hercules aircraft on stand-by, and No 486 Squadron was conducting around-the-clock maintenance to maximise the number of aircraft available for the operation. By the end of January 1975, Nos 36 and 37 Squadron had between them carried evacuees to all major capital cities. They transported 8037 passengers, 210 medical evacuees, over 600 000 kilograms of cargo, and over 900 000 kilograms of stores and equipment. In addition, a RAF C-130 aircraft had evacuated 162 passengers, and RAAF Caribou, HS748, BAC-111 and Mystere aircraft were also involved. P-3B Orion aircraft of No 11 Squadron carried out search and rescue missions over ocean areas, and Canberra photo-reconnaissance aircraft of No 2 Squadron undertook photographic surveys for cyclone damage assessment.

A patient evacuated by C-17 from Cairns Base Hospital to Brisbane, ahead of Cyclone Yasi. RAAF medical personnel assisting.

10.6 In contrast to the reactive response to Cyclone Tracy in 1974, as Cyclone Yasi was approaching Cairns in February 2011, the RAAF—as part of a joint response—moved to a proactive posture as soon as the potential destructive power of the cyclone was recognised. Over 1–2 February, aeromedical evacuation teams from RAAF Bases Amberley, Williamtown and Richmond, supported by two C-17A and two C-130 aircraft from Nos 36 and 37 Squadron, respectively, evacuated 173 patients from Cairns' area hospitals ahead of the cyclone's arrival later in the day. Within hours of Cyclone Yasi's passing, the RAAF returned to the Cairns area with mobile air load teams from No 1 Airfield Operations Support Squadron. They established an airhead as the first element of the airlift operation that delivered over 320 tonnes of food, communications equipment and an urban search and rescue team with their support equipment. As the airlift operation was in full swing, an AP-3C Orion aircraft conducted damage surveillance flights that

provided information critical to the civil and ADF emergency response plans. By 4 February, the RAAF was also establishing air traffic control services at the regional airfield of Innisfail, just south of Cairns, and later at Tully airfield. Utilising battlefield airspace controllers from No 44 Wing, supported by communications personnel and equipment from No 1 Combat Communications Squadron, the RAAF was able to direct airlift and relief flights directly into these two regional centres. Subsequent relief flights saw 35 of the hospital patients returned to Cairns after the resumption of normal medical services in the area.

Bushfire Support

10.7 With bushfires a regular hazard during Australia's long dry summers, it was natural that Air Force should be included as part of the response to such a threat. In February 1930, Air Force began trial surveillance patrols with a single Westland Wapiti aircraft from No 1 Squadron that were to develop into a commitment each fire season in the years prior to World War II. Initially, the trial began with aerial surveillance patrols over northern and southern areas surrounding Victoria's Dandenong Ranges. These patrols were highly successful, sufficient to lead the Commissioner of the Victorian Forestry Commission to not only praise the results achieved by Air Force, but to develop further plans and methods for inculcating aerial surveillance into future fire management activities. Interestingly, the Commissioner also noted the deterrent effect aerial surveillance had on 'those persons who have in the past endangered the safety of the forests owing to their fire activities'. Patrols resumed in November of that year and again proved highly successful, prompting further integration between the spotter aircraft and ground elements to be developed. By 1937, a system of ground markers in eastern Victoria was established in order to facilitate rapid identification and reporting of endangered areas. In January 1938, five Air Force patrols located and reported no less than 90 fires. Primarily conducted by

Nos 1 and 21 Squadron, Air Force's bushfire patrols in the 1930s established a tradition of support to the civil communities threatened by fire.

10.8 After World War II ended, Air Force was able once more to commit capability to wider support of the civil community and, due to the experience prewar, bushfire support was a clear priority. When Air Force ordered Australia's first military helicopter in October 1946, the Sikorsky S-51, its potential for fighting bushfires was well appreciated with the helicopter identified for use in bushfire control trials. The trials were successful and when an additional two S-51s were ordered, both were allocated for emergency aid use, including fire patrols and fire fighting.

10.9 The depth of Air Force's ability to respond to bushfire threats was well demonstrated in February 1983 when large areas of Victoria and South Australia were devastated by what was to become known collectively as the 'Ash Wednesday' bushfires. When the South Australian Government activated its disaster plan in response to widespread fires on 16 February, Air Force immediately contributed aircraft and personnel from RAAF Base Edinburgh. A Bushfire Disaster Centre was established at No 1 Recruit Training Unit to coordinate the ground activities of approximately 250 base personnel deployed into the Adelaide Hills to fight the fires, while a Dakota C-47B aircraft from the Aircraft Research and Development Unit was committed to transporting ADF and civil firefighters with their equipment to threatened areas around South Australia. In Victoria, a C-130 Hercules aircraft from No 36 Squadron was used to drop fire retardant in the Grampians mountain range. Named Operation *Quench*, the C-130 was required to manoeuvre at 100 feet above the ground at 130 knots to drop 3000 US gallons (approximately 11 350 litres) of retardant on each sortie. In all, 70 tonnes of retardant were dropped during the operation.

10.10 As aircraft sensor systems have become more sophisticated and versatile, Air Force has been able to use advanced onboard systems to aid in fire surveillance. During the tragic Victorian fires of February 2009, in

addition to the airlift flights that brought in aid from around Australia and the personnel that provided manpower and logistics support in the disaster area, Air Force was also able to use the AP-3C's sensors to provide data and imagery. The aircraft's sensors and endurance enabled the collection of imagery of damaged areas while sensors were used to scan for possible

Southern Ocean Rescues

In 1995, French woman Isabelle Autissier's yacht was dismasted 850 nautical miles south-west of Hobart while competing in the BOC Challenge Race. She was located by a RAAF P-3C Orion aircraft from No 92 Wing but due to the prevailing weather conditions it took three attempts to drop a rescue kit including life rafts within her reach. Other P-3Cs maintained contact with Autissier until her eventual rescue by a helicopter from HMAS *Adelaide*.

Perhaps the most memorable Southern Ocean rescue in which the RAAF has been involved was the January 1997 rescue of yachtsman Tony Bullimore about 1300 nautical miles south-west of Perth. When a distress signal was received from Bullimore, P–3C Orions from Edinburgh were tasked to mount search and rescue missions. They flew a series of long-range search missions in demanding conditions before his upturned yacht was located. The locating aircraft then dropped sonobuoys around the hull of the upturned vessel in the hopes of picking up any sound. They reported hearing a light tapping noise, but it was not until personnel from HMAS *Adelaide* arrived at the yacht and rapped on the hull that it was positively confirmed that Bullimore was alive.

Southern Ocean – rescued yachtsman Tony Bullimore.

survivors, check for spot fires, map fire fronts and provide information on the situation in areas inaccessible from the ground.

Other Forms of Assistance

10.11 Over a period of three months in 1989, the RAAF expended 6524 flying hours as part of Operation *Immune*, assisting commuters to reach their destinations during an Australia-wide strike by airline pilots. By the end of the operation, 172 289 passengers had been assisted. Other missions in the last decade have included the demanding search and rescue missions undertaken from 1995 to 1997 by P-3C Orion crews in the Southern Ocean, and a series of tasks related to the surveillance of the Australian coastline. Coastal surveillance has included the employment of a number of RAAF aircraft in combating unlawful incursions by foreign vessels into Australian territorial waters, as well as operations directed against illegal fishing boats within Australia's Exclusive Economic Zone.

Coastal Surveillance

10.12 Although coastal surveillance has historically been a Navy function, from as early as 1928 the RAAF had started to contribute to this role. However, in the early years the modest performance of the RAAF aircraft limited their effectiveness. During World War II Anson aircraft, which had limited capabilities, were used for coastal surveillance because no other type was available. The gradual introduction of more capable aircraft like the Hudson and Beaufort in the course of the war improved the RAAF capability to carry out this task. The trend to employ aircraft in this role continued after World War II, and in 1954 the Government formally assigned the RAAF the responsibility of surveillance and protection of all sea approaches within the range of land-based aircraft.

This policy shift saw the adaptation of the Lincoln for maritime patrol, the acquisition of Neptunes, and finally the induction of P-3B and P-3C Orion aircraft into the RAAF. Securing Australia's extensive borders is very resource intensive. It was therefore recognised that effective enforcement of Australian law in territorial waters requires utilisation of assets from several Government departments. Defence, though not responsible for enforcing national law, contributes significantly to the national capacity for border security operations. Over recent years, the RAAF commitment to maritime border protection has increased significantly. Between 2006 and 2011, for example, AP-3Cs from No 92 Wing logged approximately 9000 flying hours providing coastal surveillance of Australia's north-west and northern approaches as part of Operation *Resolute*.

Survey Mapping Support

10.13 Since the 1920s, the RAAF had been undertaking aerial photography in support of the Army's program to obtain complete topographical map coverage of the Australian continent. Aerial support for the work of ground survey parties continued until the Royal Australian Survey Corps completed its 1:250 000 map program in the mid-1960s and a follow-on 1:100 000 program in December 1982. From 1970, the RAAF was also called upon to assist the Army in cooperative mapping programs with regional countries, beginning with Indonesia in 1970. Operations that year were conducted in Kalimantan (Borneo) using a RAAF DHC-4 Caribou aircraft. From 1972 to 1976, Iroquois helicopters were used to map Sumatra. In 1974, camera-equipped Canberras from No 2 Squadron were used for the first time in these operations. From 1976, the focus shifted to Irian Jaya, where a much larger operation was carried out, requiring Iroquois, Caribous and Canberras. In 1977, a RAAF helicopter crashed while positioning a survey party, killing the pilot. Operations in later years moved to the island areas of Celebes, Ambon and Tanimbar.

From 1973, under Operation *Skai Piksa*, survey activities in Papua New Guinea were undertaken by No 2 Squadron Canberras equipped with Wild RC-10 cameras on loan from the Army. From 1978 until 1994 a series of survey operations was carried out across the south-west Pacific. The RAAF involvement in these operations was usually limited to only a Learjet 35 aircraft chartered for taking aerial photography.

A Mk.20 Canberra, modified to carry the 'Wild RC-10' camera, on the tarmac at RAAF Base Amberley.

Operations in Antarctica

10.14 Following on from the support given before World War II to Australia's program of exploration in the Antarctic, the RAAF again became involved in this area from the late 1940s. RAAF aircraft and crews sent with annual scientific expeditions assisted with survey, reconnaissance, photographic and communications tasks. For about five years the RAAF's Antarctic Flight of DHC-2 Beaver and Auster aircraft, later joined by a Dakota, remained based on the ice. This practice was

A RAAF DHC-2 Beaver, as part of Australian National Antarctic Research Expeditions (ANARE).

Antarctic Search – 2010

When a distress beacon fitted to a French AS350 Squirrel helicopter operating over Antarctica was activated on 29 October 2010, a RAAF AP-3C Orion aircraft was dispatched via Hobart to assist in the search and rescue effort. After nearly ten hours in the air, the Orion's crew located the wreckage of the crashed helicopter but was unable to determine if any of the helicopter's crew of four had survived the crash. Despite not seeing any signs of life, the Orion's crew dropped stores on the chance that there may have been survivors, before returning to Hobart. The total flying time for the mission was 20 hours. When a ground party reached the remains of the helicopter on 30 October, they were able to confirm that none of the crew survived the crash.

stopped when these aircraft were destroyed during storms in 1960. Resupply missions to Australia's scientific bases at McMurdo Sound and Macquarie Island continued to be undertaken by C-130 Hercules transport and P-3 Orion maritime patrol aircraft until the mid-1980s.

Regional Relief Operations

10.15 The RAAF has also upheld Australia's international reputation by contributing to a number of regional humanitarian assistance missions. For instance, during 1998, the RAAF played a major role in Operation *Sierra*, later renamed *Ples Drai*, which sought to bring relief to drought-affected areas in Papua New Guinea. The six-month relief effort was the largest operation of its kind until that point, and at its peak accounted for the delivery of 660 000 kilograms of food a month. One C-130 Hercules and one DHC-4 Caribou were also deployed specifically for relief assistance in Irian Jaya, areas of which had also been ravaged by drought over the previous year. When a tsunami struck the Aitape region in Papua New Guinea, also in 1998, the RAAF sent a medical team and transport aircraft to assist in the immediate aid effort. A similar contribution was also made in the aftermath of cyclones in Fiji and the Solomon Islands.

Relief Further Afield

10.16 In recent years, the RAAF has provided valuable humanitarian contribution in the face of large-scale calamity. In response to the 2004 Boxing Day tsunami, which devastated countries ringing the Indian Ocean, the RAAF began operations to assist people in Banda Aceh on 27 December 2004, and in less than a week had deployed seven C-130 Hercules to move stores and personnel to and around Indonesia. On 6 January 2005 a detachment of air traffic controllers from No 44 Wing also deployed to Indonesia as part of

Combined Joint Task Force 629. They formed the Air Operations Centre that controlled air movements in support of the humanitarian aid effort. The humanitarian relief effort involved a tragic helicopter accident, when a RAN Sea King helicopter crashed on Nias island with 11 ADF personnel on board on 2 April 2005. Three Air Force members were lost in this accident—Squadron Leader Paul McCarthy, Flight Lieutenant Lynne Rowbottom and Sergeant Wendy Jones. Leading Aircraftman Scott Nichols was one of two survivors.

10.17 On 8 October 2005 a massive earthquake struck northern Pakistan leaving more than three million people homeless. Several RAAF members were part of an ADF medical team flown to Dhanni in B707 and C-130J transport aircraft to provide vital health care to many of the 70 000 left injured by the disaster. When major flooding devastated parts of Pakistan again in July–August 2010, RAAF personnel led the Australian Medical Task Force (AMTF), which included over 180 Defence and civilian doctors, nurses, paramedics and support personnel. The AMTF provided health care for over 11 000 flood-affected people, and treated over 3000 cases of malaria while operating from 'Camp Cockatoo' at Kot Addu.

10.18 When Samoa was struck by an earthquake followed by a series of tsunamis on 29 September 2009, the RAAF immediately responded with a series of relief flights from Australia. The first aircraft to depart was a C-17A from No 36 Squadron loaded with RAAF medical teams, rescue equipment and emergency response supplies. Later that same day a C-130 from No 37 Squadron transported 34 civilian emergency specialists to the area, while two more C-130s diverted from tasking in New Zealand to transport New Zealand Defence Force Iroquois helicopters from that country to the disaster zone. As in most disaster relief missions supported by the ADF, the inherent flexibility and responsiveness of the RAAF meant that the Air Force was first on the scene providing immediate assistance to regional communities in dire need.

After Pakistan was devastated by floods in July 2010, 92 RAAF personnel joined a whole-of-nation response to the crisis as part of Operation *Pakistan Assist II*.

10.19 In the first quarter of 2011 the RAAF was called on to provide aid flights into earthquake damaged areas on two separate occasions in quick succession. The first operation was mounted in response to the series of earthquakes that caused widespread damage to Christchurch, New Zealand, on 22 February. In a reflection of what is now a whole-of-government response to international crises, the RAAF combined with other ADF, Federal and State entities in providing immediate assistance to Australia's closest partner. Within hours of the earthquake striking, a No 37 Squadron C-130 aircraft from RAAF Base Richmond was dispatched with 40 personnel and 10 tonnes of equipment from Emergency Services. A second C-130 with 34 personnel and 12 tonnes of equipment was dispatched the next day. Concurrent to this activity, a No 36 Squadron C-17A aircraft left RAAF Base Amberley loaded with 72 search and rescue specialists from Queensland, along with three dogs and 10 palettes of cargo. Later C-17A flights carried six ambulances and a field hospital. As the relief flights carrying further aid and support elements into Christchurch continued, RAAF aircraft also began the business of returning home those Australians caught out by the emergency while in Christchurch. In the first repatriation flight, a C130 returned 36 Australians to Sydney International Airport, followed by a C-17A returning a further 53 passengers to Brisbane. These flights were not without some risk. While on the ground in Christchurch, a No 37 Squadron C-130 was severely shaken during one of the aftershocks that followed the earthquake. While a thorough inspection found that the aircraft had suffered no damage, the incident highlighted that, even though the RAAF was not operating within a conflict zone, there are still inherent risks associated with delivering humanitarian aid in disaster zones.

10.20 The second series of earthquake relief operations was conducted in March 2011 after Japan suffered a double catastrophe, when a magnitude 9 earthquake occurred off the Pacific coast of Tohoku, quickly followed by a tsunami. With wide areas of Japan's northern prefectures inundated by the massive wave, and a number of nuclear power stations

damaged, Australia responded with a wide range of emergency personnel, rescue dogs and equipment. One unique load was specialised water cannon equipment needed to help cool the damaged Fukushima nuclear power station. The nature of this one-off load required the services of the RAAF's Air Movements Training Development Unit in order to rapidly develop a safe and practical means of air transport.

10.21 All of the equipment and personnel were transported directly into Japan by three C-17As. Once in country, these aircraft then transported members of the Japanese Self-Defense Forces with their equipment to locations within the disaster zones. The RAAF's capacity to respond to such varied emergency situations demonstrates its versatility to contribute in many different ways to the national goal of enhancing Australia's security through a 'good neighbour' policy.

RAAF C-17As delivering aid to Japan in the aftermath of an earthquake and tsunami, 14 March 2011.

11

Executive Summary

Air Force continues to refine its structure and capabilities to better adapt for operations.

The rebalanced Air Force will be able to induct significant new capabilities while continuing to maintain its current operational capacity.

The experiences and lessons drawn from its operations, focused by sound historical analysis, have enhanced Air Force's doctrinal base.

The Air Force Today

Australia's Evolving Strategic Policy

11.1 Since the end of World War II, Australia's strategic policy has undergone many revisions. Strategic priorities have emphasised Australian continental defence, our regional commitments and the defence of Australia's global interests. The early 1950s were characterised by a forward defence policy, with a clear provision for conducting expeditionary operations. In the wake of the Vietnam War it evolved towards a defence of Australia policy. The 1987 Defence White Paper placed air power and defence of the air-sea gap at the centre of Australia's strategic policy. This concept was essentially defensive in nature whereas the existing RAAF force structure was balanced towards an offensive capability. Further, despite a number of indications regarding the potential for instability in our region, the structure of the ADF was not geared to undertake any major stabilisation operations. The release of the 1987 Defence White Paper coincided with a military coup in Fiji. The Government's response to that crisis underlined the fact that the force structure of the ADF limited national options to intercede in potentially destabilising regional crises. Some commentators argued that the continental 'defence of Australia' policy pursued over successive decades had resulted in the degradation of force projection capabilities in Air Force and the ADF. Since the 1999 Timor crisis, RAAF elements have been deployed continuously on an expeditionary basis to Australia's regional neighbours, the Middle East, and globally.

New Northern Bases

11.2 The RAAF recognised that its role in defending Australia would require air operations from bases in the north of the continent, to allow Air Force to cover effectively the air-sea gap to the north and north-west of the country. In December 1972 Air Force opened its first bare base, at Learmonth in Western Australia. Additional bare bases were constructed near Derby in Western Australia (RAAF Curtin, opened in June 1988) and at Weipa, Queensland (RAAF Scherger, August 1998). An existing bare base near Katherine in the Northern Territory, RAAF Tindal, was converted into a permanent air base. A squadron of F/A-18 Hornets, No 75 Squadron, moved there in 1988 and the base was officially opened in March 1989. These changes clearly indicated the vital role that the RAAF would have in any operations to defend Australia.

Planning for Regional Deployments

11.3 In 1989 the Government endorsed *Australia's Strategic Planning in the 1990s*, which updated and clarified some of the central conclusions reached in the 1987 Defence White Paper. It also recognised that one of the principal functions of the ADF would be to make a military contribution to the security of Australia's neighbours in the South Pacific. This was a departure from the defence of Australia concept articulated in earlier government policy. *Defending Australia*, the 1994 Defence White Paper, highlighted the necessity to plan for further offshore deployments, but stopped short of recommending changes to force structure or equipment in anticipation of such an eventuality.

Commercial Support Program

11.4 Concurrent to these developments, other events were changing the way the ADF conducted its business. In 1991, the Government introduced the Commercial Support Program (CSP), which would test practically all non-combat tasks within the ADF to identify the ones that could be outsourced to commercial contractors without degrading the operational effectiveness of the Force. The aim of this program was to effect financial savings while ensuring that the majority of personnel in uniform were potential combatants. The imposition of such a program was unusual for an organisation that was unique in its mix of operational and supporting personnel which was in no way parallel to commercial activity. In many respects, CSP challenged the very ethos of the ADF. The Australian National Audit Office assessed the RAAF as having the soundest approach to personnel management. By virtue of the manner in which Air Force generates and sustains its operational capabilities, it was probably the Service most affected by CSP. By the end of 1995, 1376 uniformed and 122 Australian Public Service positions, across 17 separate activities, had been tested as part of CSP. The Defence Efficiency Review noted two years later that, despite a dramatic reduction in the number of military personnel and Defence civilians, a further 13 000 positions would also be tested. CSP highlighted the difference between support activities and the actual combat duties that are unique to the ADF. A workplace model, known as 'Members Required in Uniform' (MRU), was drawn up, prescribing the number of personnel required for future combat operations. The model was based on the determination that all Service personnel could be directed to perform their duties in designated areas of operations, whereas civilians could not. In mid-1995 the MRU figure for the RAAF was determined as 15 733 personnel, but within five years the total number of uniformed personnel in the Permanent Air Force fell below 13 500.

Contractors conduct pre-flight checks on an Australian-operated Heron UAS at Kandahar Airfield in Afghanistan, 2010.

Structuring for Force Projection

11.5 In 1996 the Government stated that the defence of Australia did not necessarily begin at the coastline. The basis for this thinking was officially reinforced the following year when *Australia's Strategic Policy* was released in late 1997. *Australia's Strategic Policy* noted that along with continental defence and support for 'resisting aggression around the world' through support of the UN, the ADF should be structured towards 'defending Australia's regional interests'. The Minister took care to point out that the policy did not represent a return to the policy of forward defence, but its potential impact for Australia's strategic posture was nevertheless clear. The requirement for force projection capabilities would thereafter shape the ADF to become more capable of expeditionary operations.

Combat Support Group

11.6 In 1998 Combat Support Group (CSG) was formed to provide support services for RAAF air operations as part of joint ADF operations. CSG would operate the RAAF's permanent air bases, and provide deployable components to support operations from the bare bases and other forward bases from which the RAAF might operate. The support provided by what was known as an Expeditionary Combat Support Squadron (ECSS) included ground defence, logistic and administrative support, and various airfield and air terminal services. In September 1999 CSG provided invaluable support to Operation *Warden*, the ADF deployment and operations in East Timor. This included the provision of round-the-clock support at the mounting bases in Australia and in East Timor itself. This operation clearly demonstrated the importance of an ECSS in the expeditionary operations that were becoming a focus for the ADF. Following their contribution to Operation *Warden*, in November 1999 an increase in strength of 400 personnel was approved for CSG. This decision reflected a commitment on the part of the RAAF to the concept of expeditionary and joint operations.

Expeditionary Capabilities

11.7 The return to expeditionary force projection capabilities, as the central theme of national security, was partly founded on the lessons the ADF had learned in various peacekeeping operations undertaken throughout the decade. The deployment to East Timor in 1999 had reinforced this shift in focus, and had stimulated intellectual debate about the basis of Australian strategic policy and future roles for the ADF. In 2000 the Government released a new White Paper, *Defence 2000: Our Future Defence Force*. This White Paper noted the increased likelihood that the ADF would be required to participate in a wide range of operations

to contribute to the security of the region, and to support Australia's wider interests by participating in coalition operations beyond our immediate region. It also made clear reference to Australia's increasingly global interests, and provided a clear statement that the ADF concept of operations was now far removed from one focused only on defending Australia from attack. However, *Defence 2000: Our Future Defence Force* maintained that the ADF capabilities for defending Australia would be adequate to fulfil the expanded range of roles that was now envisaged, although some enhancements might be required to meet unique demands.

Reorganising the RAAF

11.8 The doctrinal change that the commitment to an expeditionary approach entailed also highlighted the need for reorganising the Air Force structure to enhance its functional approach to joint warfighting. In 2002 the FEGs were reorganised to better align the Air Force's platforms with the roles being performed, rather than simply reflecting a commonality of platforms. In February 2002 Tactical Fighter Group and Strike Reconnaissance Group were amalgamated to form the Air Combat Group (ACG), and in March 2004 Maritime Patrol Group was combined with Surveillance and Control Group to form Surveillance and Response Group (SRG). Ultimately this reorganisation would better align the functions of the Air Force with the ADF's endorsed warfighting functions.

Policy Comes Full Circle

11.9 In 2003 *Australia's National Security: A Defence Update 2003* was released. This update confirmed the principles of the 2000 White Paper, but also acknowledged that there was less likelihood of the ADF having to operate in the defence of Australia, and an increased likelihood of it

being called upon for operations in Australia's immediate neighbourhood. It also stated that the changed global strategic environment was likely to create situations where Australian national interests could be affected by events requiring ADF involvement in coalition operations further afield. Two years later, *Australia's National Security: A Defence Update 2005* more clearly enunciated Australia's commitment to defeating the threat of terrorism, countering the proliferation of weapons of mass destruction, and supporting regional states in difficulty as the highest security priority. In just over 20 years Australia's national security policy had come once again to focus on operations beyond Australia's shores. For the RAAF, this confirmed the requirement to structure and organise as an agile and versatile force, prepared to conduct and sustain a range of expeditionary operations—from those in our region to those coalition operations much further afield.

Shaping the Force Towards Expeditionary Operations

Australia's unique geo-strategy requires the ADF to be expeditionary. Airlift will be vital to the conduct and sustainment of these operations. Australia has a long history of supporting expeditionary operations including the inter- and intra-theatre airlift provided in World War II, Korea and Vietnam. The deployment of the ADF-led multinational forces into East Timor needed large-scale expeditionary airlift effort from the RAAF. This has been closely followed by the demanding airlift requirement to support operations in Afghanistan and the Middle East.

These recent operations have demonstrated that the existing organic RAAF assets have been insufficient for the long-term sustainability of deployed forces. This situation was addressed through the acquisition of six C-17A Globemaster III and five A330 Multi Role Tanker Transport (MRTT) aircraft. These provide a quantum increase in the responsiveness, effectiveness and capacity of the RAAF's air mobility capability.

Joint Command and Control

11.10 The evolution of Australia's defence policy, military strategy and changed focus for the RAAF was paralleled by changes to the ADF's highest-level command arrangements. In 1976 the position of Chief of the Defence Force Staff, renamed Chief of the Defence Force (CDF) in 1986, was established as the commander of the ADF. Simultaneously, the new command arrangements that were introduced dramatically changed the responsibilities of the single Service Chiefs. Although the Chief of each Service remained responsible for the conduct of single Service training activities, from the 1980s responsibility for the planning and conduct of maritime, land and air operations had been vested in three separate environmental commanders. For the Air Force, the Air Commander Australia (ACAUST) became responsible for the conduct of air operations. ACAUST answered directly to the CDF for operations, not the Chief of Air Force. From 1993, a permanent joint force commander was appointed to lead the planning and conduct of ADF operations at the operational level. In operations, the Service's environmental commanders would become component commanders responsible to Commander Australian Theatre. In 2004 the position of Chief of Joint Operations (CJOPS) was established to exercise operational command of the ADF. The command and control arrangements for Headquarters Joint Operations Command (HQJOC) separated the responsibilities for raising, training and sustaining forces from the responsibilities for operations. The operational elements of the environmental commands would combine with HQJOC, with the Service Chiefs retaining responsibility for ensuring that their Service continued to generate and prepare forces for assignment to CJOPS.

Angus Houston, AC, AFC

Allan Grant (Angus) Houston joined the RAAF as a cadet pilot in 1970. He is a qualified flying instructor and completed several instructional tours on Macchi, BAC Strikemaster and Iroquois aircraft in the late 1970s. In 1980, he was awarded the Air Force Cross (AFC) for piloting an Iroquois helicopter during a daring open sea rescue in gale force winds.

He commanded No 9 Squadron, RAAF from 1987 to 1989 and on transfer of the helicopters to the Army, he commanded the 5th Aviation Regiment from 1989 to 1990. He commanded No 86 Wing during 1994–1995. He was Commander of the Integrated Air Defence System in Malaysia during 1999–2000. During the 1991 Gulf crisis he served on the Joint Operations Staff at Headquarters ADF. He was the Director Air Force Policy in 1992–1993, the Chief of Staff at Headquarters Australian Theatre from 1997 to 1999, and Head Strategic Command in 2000–2001.

Promoted to Air Marshal, Angus Houston was appointed Chief of Air Force in 2001 and four years later, on 4 July 2005, he was promoted to Air Chief Marshal and appointed Chief of the Defence Force (CDF), only the third RAAF officer to be appointed to the most senior position in the ADF. In an unusual step, in March 2008, the Government reappointed Air Chief Marshal Houston for an additional term as CDF. Air Chief Marshal Houston retired from the ADF on 3 July 2011. His major contributions to the ADF while CDF were the development of a new integrated operational command model for the ADF under Headquarters Joint Operations Command and his outstanding leadership of the ADF during the most intensive period of the Australian deployment to the MEAO.

Air Chief Marshal Houston was appointed as a Companion of the Order of Australia (AC) in January 2008 for his 'eminent service to the Australian Defence Force as Chief of the Defence Force'.

Air Chief Marshal A.G. Houston, AC, AFC.

Changing of the Guard—an Air Chief Marshal and three Air Marshals gather on 1 July 2011. Senior leadership within Air Force is characterised by organisational maturity, stability and professionalism.

Rebalancing the Air Force

11.11 The reduction in uniformed personnel during the period of the CSP and the MRU determinations was achieved at considerable cost to Air Force. Despite this challenge, the RAAF continued to conduct and sustain a high tempo of demanding operations, from humanitarian assistance through to high end operations. To ensure that it maintains its capability into the future, Air Force instituted a program to rebalance the force to make sure that it distributed personnel and assets where they were most needed, whilst maintaining a critical mass of trained and motivated professionals. The rebalance of Air Force was also necessary to ensure the

smooth introduction into service of new capabilities, such as the Airborne Early Warning and Control (AEW&C) aircraft, C-17A airlifter and Multi-Role Tanker Transport (MRTT). This rebalance achieved an organisational structure that meets the operational needs of a versatile Air Force.

The first RAAF C-17A Globemaster.

The Force to 2030

11.12 The 2009 Defence White Paper, *Defending Australia in the Asia Pacific Century: Force 2030*, reflected many of the earlier policies, noting that the main role for the ADF was to engage in conventional combat against other armed forces, with the flexibility to deal with intrastate conflict and non-state actors. This policy maintained the status quo in that the ADF was to be prepared to defend Australia, while also able to

conduct wider operations in support of the Government's strategic aims. Accordingly, the 2009 White Paper set out the force structure envisioned for the year 2030, with an important caution noting the impact of the global economic crisis would require the Government to be fiscally responsible in funding the force for 2030. For the RAAF, the White Paper reaffirmed its development path that included the introduction of new capabilities across most FEGs.

11.13 The 2013 Defence White Paper, while broadening Australia's regional focus to encompass the Indo-Pacific region, directed Air Force to maintain its capability development path to 2030, while maintaining the same posture and preparedness established in the wake of the 2009 White Paper. The 2013 Defence White Paper has highlighted the importance of air power's role in Australia's regional engagement and role in joint operations. The acquisition of ten C-27J Spartan Battlefield Airlift aircraft and an additional 12 new build EA-18G Growler electronic warfare (EW) aircraft represents a significant increase in Air Force capability.

New Capabilities

11.14 The RAAF's ability to be responsive and adaptable to meet the demands of emerging national security policies, a changed strategic environment, and the technological evolution of air power has positioned it well to meet future challenges. Deployments and operations overseas have provided Air Force with a range of insights into the conduct of complex, high-intensity coalition operations, and valuable experience in the conduct of joint operations. The lessons drawn from these deployments and operations have guided the RAAF in making informed decisions on equipment acquisition, and facilitated the induction of new capabilities that expand its operational envelope. Operations in

Airborne Early Warning and Control

Australian Project Air 5077 Wedgetail, named after the Australian native eagle, was initiated to provide the ADF with an advanced state-of-the-art Airborne Early Warning and Control (AEW&C) capability. Design contracts were signed in 1997, and two years later a proposed adaptation of Boeing's next generation 737-700 was chosen, making Australia the launch customer. The six aircraft for the RAAF were rolled out of Boeing's Seattle, Washington, factory beginning in October 2002.

Central to the AEW&C aircraft's design is a 360-degree electronically steerable Multi-Role Electronically Scanned Array radar, the scanner mounted in a 'top hat' configuration on the rear fuselage. The aircraft has a patrol endurance of nine hours, which can be extended by air-to-air refuelling. These aircraft are operated by No 2 Squadron based at RAAF Williamtown, New South Wales.

The AEW&C aircraft acquired for the RAAF provide enhanced situational awareness to operators within a wide area of operations. This capability will enhance the RAAF's role as an integral part of the ADF's network.

AEW&C, a new capability for the RAAF.

the Middle East, East Timor and other locations within our region have highlighted the need for Australia to have its own global airlift capability. The assistance mission to the Solomon Islands in 2003 provided the ADF with experience in operating within a national, whole-of-government effects-based approach to achieving strategic goals. This operation also saw the first operational ADF deployment of a UAS. The lessons drawn from these operations consolidated the foundation knowledge developed by Air Force over a number of years. Defence had been considering the acquisition of a UAS for surveillance and reconnaissance over the land and maritime environments. The deployment of the Heron UAS in the MEAO was undertaken during 2009 as a rapid acquisition project. The use of space systems to support terrestrial operations is a vital means of enhancing the operational capabilities of the ADF, and its importance is reflected in the RAAF's most recent air power doctrine.

A Heron UAS depicted over Afghanistan.
(Artist Ben Patynowski)

Undergoing Significant Change

11.15 The *Defence Capability Plan* (DCP) released in 2012 set the foundation for the acquisition of a range of RAAF platforms and systems out to 2030. The Air Force is focused on realising the potential of the planned DCP while continuing to evolve as a force that will use these capabilities in innovative ways to create specific, desired effects. The RAAF's principal air power doctrine, AAP 1000-D—*The Air Power Manual* (Sixth Edition), places the force in a strategic context shaped by the uncertain and complex security environment that is expected to prevail in the future. To align strategic planning better with the future direction for the ADF, the RAAF, as the principal provider of most key capabilities of Australian air power, has developed its doctrine within a joint functional framework.

11.16 In line with the DCP, the *Future Joint Operating Concept* (released 2007 and since updated) and AAP 1000-F—*The Future Air and Space Operating Concept* (released in 2007), Air Force has been undertaking a major capability upgrade program similar to that experienced in the 1960s. Platforms and support capability within all the FEGs have been, or are in the process of, replacement or major upgrade. Driven by recent operational experience, technology gains and the global security environment, the RAAF has been able to articulate its capability requirements through a sound doctrinal basis developed from the early 1990s.

11.17 Beginning in February 2004, the SRG received a major boost to its air and battlespace management capabilities with the introduction of the TPS-77 radar and associated surveillance and reporting systems. A similar capability jump was achieved within the FEG in November 2012, when the AEW&C Wedgetail Boeing 737-700 aircraft achieved Initial Operational Capability status marking a milestone in Project 5077, first announced in December 2000.

11.18 The pressing need for a strategic airlift capability within the Air Lift Group has been addressed with the progressive acquisition of six C-17A Globemaster III aircraft starting in December 2006 and ending with the arrival in Australia of the sixth aircraft in November 2012. This significant improvement to the RAAF's airlift capability represented by the arrival of the sixth C-17 was an important milestone to be achieved as the C-130H fleet was retired from RAAF service in the same month. The ability of the RAAF to project not only airlift, but strike, surveillance and fighter capability was also enhanced with the purchase of five Airbus Military A330 MRTT KC-30A aircraft used in the air mobility role.

11.19 Just as the RAAF moved to fill a global airlift shortfall in acquiring the C-17A and KC-30A aircraft, in May 2012 it was announced that the RAAF would purchase 10 Alenia C-27J Spartan Battlefield Airlift aircraft under Project Air 8000 Phase II. Intended to fill the gap in the intra-theatre

JSF prototype in flight.

airlift capability left by the retirement of the Caribou aircraft in November 2009, the C-27J is expected to be introduced into RAAF service in 2015.

11.20 In order to maintain a strike capability within ACG during the period between the retirement of the F-111 and the arrival into service of the F-35 Joint Strike Fighter (JSF), the RAAF acquired 24 F/A-18F Super Hornet aircraft, the first of which arrived in Australia on 26 March 2010, achieving final operational capability in December 2012. As part of the release of the 2013 Defence White Paper, the Australian Government announced that the F/A-18 fleet would be expanded further with the acquisition of 12 E/A-18G Growler EW aircraft, thereby positioning Air Force to provide EW for ADF air, land and maritime forces in future operations.

A Mature Organisation

11.21 Irrespective of the future security environment and the nature of Australia's defence policy, Air Force's history and extant doctrine will impact and shape the way that it plans and conducts operations. The lessons learned from Air Force's rich history provide a foundation from which it can draw to ensure we perform at the highest levels of professional and ethical standards in the future. Air Force has matured as a force with an articulated philosophical doctrine that aligns with the ADF's capstone doctrine and defines its ability to operate jointly with the other Services and as an efficient member of a coalition.

Appendices

1. Heads of the RAAF

Chief of the Air Staff

1922–25	WGCDR R. Williams, DSO, OBE
1925–29	GPCAPT R. Williams, CBE, DSO
1929–35	AIRCDRE R. Williams, CBE, DSO
1935–39	AVM R. Williams, CB, CBE, DSO
1939–40	AVM S.J. Goble, CBE, DSO, DSC (acting) *
1940	AIRCDRE W.H. Anderson, CBE, DFC (acting)
1940–42	ACM Sir Charles Burnett, KCB, CBE, DSO (RAF)
1942–48	AVM G. Jones, CB, CBE, DFC
1948–52	AIRMSHL G. Jones, CB, CBE, DFC
1952–54	AIRMSHL Sir Donald Hardman, KCB, OBE, DFC (RAF)
1954–57	AIRMSHL Sir John McCauley, KBE, CB
1957–61	AIRMSHL Sir Frederick Scherger, KBE, CB, DSO, AFC
1961–65	AIRMSHL Sir Valston Hancock, KBE, CB, DFC
1965–69	AIRMSHL Sir Alister Murdoch, KBE, CB
1970–72	AIRMSHL Sir Colin Hannah, KBE, CB
1972–75	AIRMSHL C.F. Read, CB, CBE, DFC, AFC
1975–79	AIRMSHL Sir James Rowland, KBE, DFC, AFC
1979–82	AIRMSHL Sir Neville McNamara, KBE, AO, AFC
1982–85	AIRMSHL S.D. Evans, AC, DSO, AFC
1985–87	AIRMSHL J.W. Newham, AC
1987–92	AIRMSHL R.G. Funnell, AC
1992–94	AIRMSHL I.B. Gration, AO, AFC
1994–97	AIRMSHL L.B. Fisher, AO

Chief of Air Force

1997–98	AIRMSHL L.B. Fisher, AO
1998–2001	AIRMSHL E.J. McCormack, AO
2001–05	AIRMSHL A.G. Houston, AO, AFC
2005–08	AIRMSHL G.D. Shepherd, AO
2008–11	AIRMSHL M.D. Binskin, AO
2011–	AIRMSHL G.C. Brown, AO

* Also acted as CAS in Williams' absence overseas 1922–25, 1932–34.

2. RAAF Four-Star Officers

Chairman, Chiefs of Staff Committee

1961–66 ACM Sir Frederick Scherger, KBE, CB, DSO, AFC *

Chief of the Defence Force Staff

1982–84 ACM Sir Neville McNamara, KBE, AO, AFC

Chief of the Defence Force

2005–11 ACM A.G. Houston, AC, AFC

* Promoted to Air Chief Marshal 1965

3. Imperial Gallantry Awards to RAAF Personnel

Victoria Cross

1942 PLTOFF R.H. Middleton

1943 FLTLT W.E. Newton

Two other Australians with a RAAF connection were also awarded the Victoria Cross:

1917 LT F.H. McNamara (while serving with AFC, later served in RAAF 1921–46)

1941 A/WGCDR H.I. Edwards, DFC (enlisted in RAAF in 1935, transferred to RAF in 1936)

George Cross

1938 AC1 W.S. McAloney (McAloney was first awarded the Albert Medal, when the award of this medal ceased in 1971, McAloney accepted the offer to exchange the Albert Medal for a George Cross)

Distinguished Conduct Medal

1944 WOFF W.G. Reed

1946 LAC J. Wong Sue

Conspicuous Gallantry Medal

1943 SGT A.E. Blackwell

1943 FSGT N.F. Williams, DFM*

1943 FSGT F.E. Mathers

1943 SGT G.A. Downton

1943 FSGT D. Rees

1944 FSGT G.C.C. Smith

1944 FSGT C.R. Green

1944 WOFF A.W. Hurse

1945 FSGT G.B. Ferguson

1945 WOFF K.J. Dennis

1967	CPL J.D. Coughlan

George Medal

1941	SGT G.H. Ellis
1942	SGT M.A. Sullivan
1942	SGT L.M. Van Praag
1942	FLGOFF N.W. Webster
1942	SGT R.W. Baxter
1942	SGT R.G. Wheatley
1943	PLTOFF A.G.G. Richmond
1944	AC1 S.L. Warren
1944	FSGT T.H. Dennis
1944	LAC A.C. McAlister
1945	WGCDR J.N. Davenport, DSO, DFC *
1945	FLGOFF T.G. Wood
1945	CPL V.J. Dean
1945	LAC M.J. Gill
1945	CPL J. Kean
1945	LAC L.G. Walters
1944	AIRCDRE A.H. Cobby, CBE, DSO, DFC **
1946	LAC S. M. Rawlinson
1946	SGT L.W. Williams
1946	FLGOFF B.D. Bancroft, DFC
1966	SGT G.D. Buttriss

* Denotes bar to award

4. Australian Gallantry Awards to RAAF Personnel

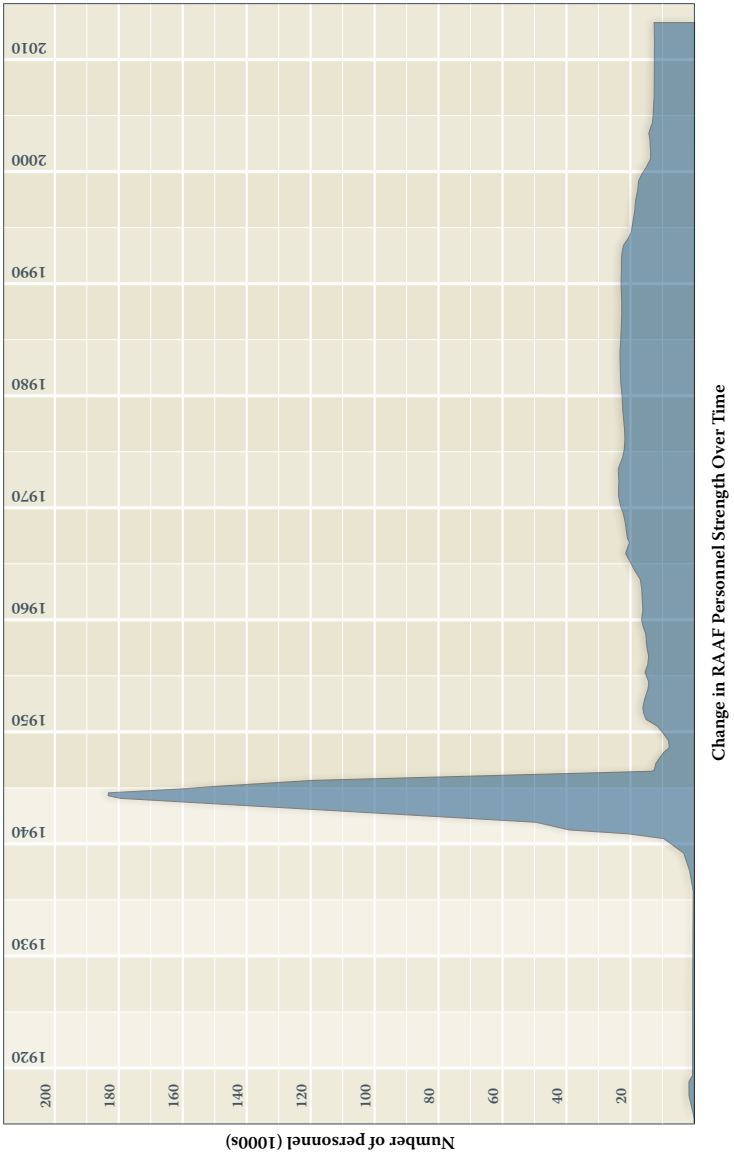
Star of Courage

1982 FLTLT M. Eldridge

Bravery Medal

1979 SGT K.E. Sloane
1982 LAC P.M. Green
1985 FLTLT M.F. Joel
1986 WOFF R.G. Morrison
1987 AC S.P. Ferrara
1988 AC C.S. Crook
1988 CPL G.N. Sage
1997 WOFF M.I. Spriggs
2009 LAC K.G. Quinlan

5. Maturation of Air Power in Australia



6. Further Reading

The Australian Experience of Air Power has been prepared using a wide variety of air power and RAAF history sources. The following recommended reading list is aimed to help the reader fill the gaps which always arise when concise histories, such as this, are prepared. *The Chief of Air Force Reading List* is also a good starting point for further reading material. The current reading list along with other historical reading material is available for free download from the Air Power Development Centre website: http://airpower.airforce.gov.au.

Authoritative Works

The Australian Centenary History of Defence – Volume II – The Royal Australian Air Force, by Alan Stephens

The Official History of Australia in the War of 1914–1918 – Volume VIII – The Australian Flying Corps in the Western and Eastern Theatres of War, 1914–1918, by Frederick Cutlack

The Decisive Factor: Air Power Doctrine by Air Vice-Marshal H.N. Wrigley, by Alan Stephens and Brendan O'Loghlin (eds)

The Third Brother: The Royal Australian Air Force 1921–39, by Chris Coulthard-Clark

Australia in the War of 1939–1945 – Series 3 (Air) – Volume I – Royal Australian Air Force, 1939–1942, by Douglas Gillison

Australia in the War of 1939–1945 – Series 3 (Air) – Volume II – Air War against Japan, 1943–1945, by George Odgers

Australia in the War of 1939–1945 – Series 3 (Air) – Volume III – Air War against Germany and Italy, 1939–1943, by John Herington

Australia in the War of 1939–1945 – Series 3 (Air) – Volume IV – Air Power Over Europe, 1944–1945, by John Herrington

Going Solo: The Royal Australian Air Force 1946–1971, by Alan Stephens

The RAAF in Vietnam: Australian Air Involvement in the Vietnam War 1962–1975, by Chris Coulthard-Clark

Power Plus Attitude: Ideas, Strategy and Doctrine in the Royal Australian Air Force, 1921–1991, by Alan Stephens

General Works

Jack Davenport—Beaufighter Leader, by Kristen Alexander

No Moon Tonight, by Don Charlwood

Operation Pelican: The Royal Australian Air Force in the Berlin Airlift, 1948-1949, by Chris Clark

Darwin Spitfires: The Real Battle for Australia, by Anthony Cooper

36 Days: The Untold Story Behind the Gallipoli Landings by Hugh Dolan

Down to Earth: the Autobiography of Air Marshal David Evans, AC, DSO, AFC, by S. D. Evans

Fortress Rabaul: The Battle for the Southwest Pacific, January 1942 - April 1943, by Bruce Gamble

The Battle of the Bismarck Sea – March 1943, by Gregory Gilbert,

The Flying Grocer, by Rupert Guinness

The Private Air Marshal: A Biography of Air Marshal Sir George Jones, KBE, CB, DFC, by Peter Helson

War Over the Trenches: Air Power and the Western Front Campaigns 1916-1918, by E. R. Hooton

The Forgotten Few—77 RAAF Squadron in Korea, By Doug Hurst

Whispering Death: Australian Airmen in the Pacific War, by Mark Johnston

Lost Without Trace, by Leon Kane-Maguire

General Kenney Reports—A Personal History of the Pacific War, by George C. Kenney

From Controversy to Cutting Edge: A History of the F-111 in Australian Service, by Mark Lax

Fire in the Sky: The Australian Flying Corps in the First World War, by Michael Molkentin

We Who Are About To Die—The Story of John Lerew—A Hero of Rabaul, 1942, by Lex McAulay

Mr Double Seven, by George Odgers

A History of Air Warfare, by John Andreas Olsen (ed.)

Wings of Destiny—Wing Commander Charles Learmonth, DFC and Bar and the Air War in New Guinea, by Charles Page

Whirlwind: The Air War Against Japan, 1942-1945, by Barrett Tillman.

Pathfinder Newsletters

Two-page histories are also available online, through the Air Power Development Centre website:
http://airpower.airforce.gov.au/Publications/List/41/Pathfinder.aspx

List of Abbreviations

AAC	Australian Air Corps
AATTI	Australian Army Training Team Iraq
AC	Companion of the Order of Australia
ACAUST	Air Commander Australia
ACG	Air Combat Group
ADF	Australian Defence Force
ADG	Airfield Defence Guard
AEW&C	Airborne Early Warning and Control
AFC	Air Force Cross
AFC	Australian Flying Corps
AFTER	Air Force Training and Education Review
AFV	Australian Force Vietnam
AIF	Australian Imperial Force
AMTF	Australian Medical Task Force
AMTU	Air Mobility Task Unit
ANZAC	Australia and New Zealand Army Corps
ANZUS	Australia, New Zealand & the United States [Security Treaty]
APEC	Asia Pacific Economic Cooperation
ATF	Australian Task Force
BCAIR	British Commonwealth Air Group
BIAP	Baghdad International Airport
CAC	Commonwealth Aircraft Corporation
CAS	Chief of the Air Staff
CAF	Chief of Air Force
CB	Companion of the Order of the Bath
CBE	Companion of the Order of the British Empire
CDF	Chief of the Defence Force
CFS	Central Flying School
CGM	Conspicuous Gallantry Medal
CHOGM	Commonwealth Heads of Government Meeting
CJOPS	Chief of Joint Operations

COAC	Combined Air Operations Centre
COMRAAFV	Commander of RAAF Forces, Vietnam
CRC	Control and Reporting Centre
CSG	Combat Support Group
CSP	Commercial Support Program
DCP	Defence Capability Plan
DFC	Distinguished Flying Cross
DSO	Distinguished Service Order
EATS	Empire Air Training Scheme
ECSS	Expeditionary Combat Support Squadron
EW	Electronic Warfare
FAC	Forward Air Controller
FEG	Force Element Group
HQJOC	Headquarters Joint Operations Command
ICAW	INTERFET Combined Air Wing
INTERFET	International Force East Timor
ISR	Intelligence, Surveillance and Reconnaissance
ISRTU	ISR Task Unit
JSF	Joint Strike Fighter
KBE	Knight Commander of the Order of the British Empire
MCRU	Mobile Control and Reporting Unit
MEAO	Middle East Area of Operations
MM	military medal
MPG	Maritime Patrol Group
MRTT	Multi-Role Tanker Transport
MRU	Members Required in Uniform
MSF	Medical Support Force
NATO	North Atlantic Treaty Organization
OBE	Order of the British Empire
RAAF	Royal Australian Air Force
RAF	Royal Air Force

RAMSI	Regional Assistance Mission to Solomon Islands
RAN	Royal Australian Navy
RFC	Royal Flying Corps
RN	Royal Navy
RNAS	Royal Naval Air Service
RNZAF	Royal New Zealand Air Force
SAS	Special Air Service
SCG	Surveillance and Control Group
SEATO	South-East Asia Treaty Organization
SECDET	Security Detachment
SRG	Strike Reconnaissance Group
SRG	Surveillance and Response Group
SWPA	South-West Pacific Area
TAF	Tactical Air Force
TFG	Tactical Fighter Group
UAS	Unmanned Aerial System
UDT	Timorese Democratic Union
UN	United Nations
UNEF	United Nations Emergency Force
UNMIS	United Nations Mission in Sudan
UNMISS	United Nations Mission in South Sudan
UNTAET	United Nations Transitional Administration in East Timor
US	United States
USAAF	United States Army Air Force
USAF	United States Air Force
VC	Victoria Cross
WAAAF	Women's Australian Auxiliary Air Force
WRAAF	Women's Royal Australian Air Force

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