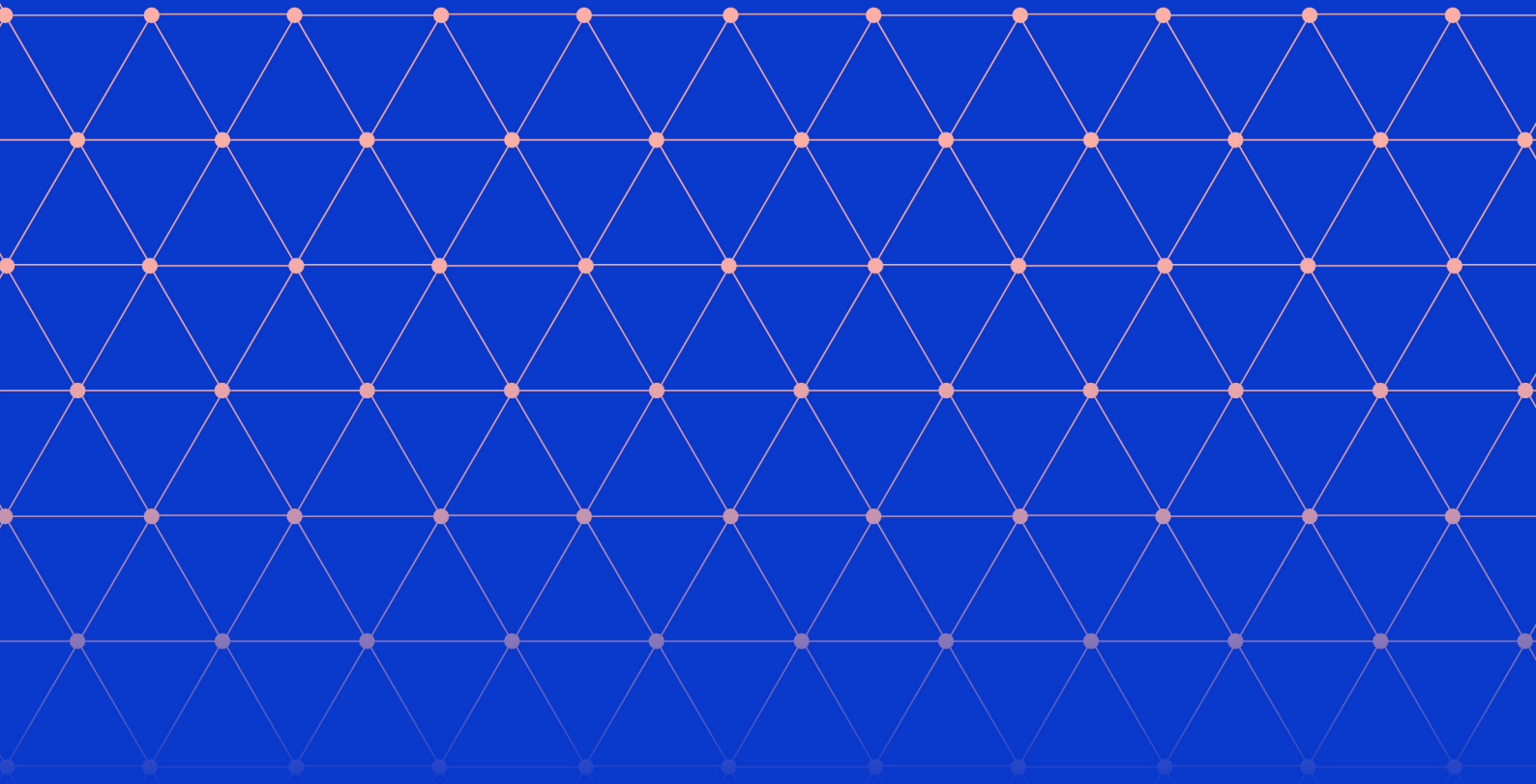


Connecting the Nation

A short thematic
history of Australian
civil aviation



**Paul Ashton
Tracy Ireland
Jaya Keaney
Alison Wain
Mitchell Whitelaw**

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National Library of Australia

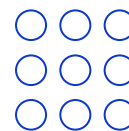
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Designed by UNTO Creative: Emilie Glasson, Joshua Greenstein, Caitlin Kerr, Joy Li and Danyen Nguyen

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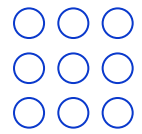


Foreword

Airservices Australia has a keen interest in and strong commitment to the history of Australian civil aviation and the vast and far-flung body of cultural and industrial heritage that this history has created. Pieces of what was once new fangled equipment, airport buildings, photographs, posters, uniforms, archives and oral histories, among other things, allow us to understand and appreciate the critical contributions civil aviation has made, and continues to make, to Australia's culture, society and economy.

This fascinating ebook brings together the findings of an initial scoping project commissioned by Airservices Australia and undertaken by a team – the authors of this work – at the University of Canberra, to develop a thematic approach to Australian civil aviation history and heritage. These themes are now chapters in this concise and readable book. More broadly, the Connecting the Nation project aims to improve public access to Australia's aviation heritage and history and work towards its conservation.

Members of the public are welcome to contribute souvenirs and artefacts to the project, as well as any stories or information on buildings, aircraft, people and communities that they feel are significant to Australian aviation history. Airservices Australia will continue to foster this important cultural work, especially in the lead up to the centenary of Australian civil aviation in 2021.



Introduction

Aviation has played an important part in shaping Australia's culture and history through the course of the twentieth century. Australia embraced aviation from its earliest days, eagerly responding to its potential to cover a challenging country, to bring far-flung communities closer and to provide services that could not be delivered any other way. Add the romance of pioneer heroes, the vital role of aviation in wartime and the capacity to deliver aid to people in need in Australia and beyond, and it is clear why aviation is at the heart of Australia's recent history.

Histories of aviation in Australia have tended to focus on the biographies of individual achievers, on the stories of pioneering airlines and technological innovations. There is much yet to understand about how aviation, culture and society have interacted to transform the way in which we understand Australia as a place and a nation and its sense of itself in the world. At the same time interest in the culture of aviation is growing worldwide, particularly in the fields of cultural studies, geography and mobility studies. This book emerges from a larger project examining the rich heritage of Australia's century of civil aviation entitled *Connecting the Nation*, a partnership between Airservices Australia and researchers at the University of Canberra. This two year study culminated in the launch of a digital portal, <http://connectingthenation.net.au/>, which provides a digital repository for aviation heritage, particularly oral histories, and a focus for community interest as we lead up to the centenary of civil aviation in Australia in 2020/21.

This burgeoning interest in 'aviation culture' and the need for a fresh, interdisciplinary perspective on Australian aviation is at the heart of this project. This book aims to set out the major themes that characterise Australia's aviation history for a broad audience and to provide a foundation for a broader discussion, and for further research, about how aviation transformed Australia.



Acknowledgements

The authors would like to thank Hakim Abdul Rahim of the University of Canberra, and Dr Claire Marrison and Sue Akeroyd of Airservices Australia for their contributions to seeing this project to fruition. We would also like to thank Peter Evans for his valuable comments on the manuscript and Sandra Byron at the National Library of Australia for her assistance with our requests for permission to reproduce many of the images in this publication. We would also like to acknowledge and thank the Centre for Creative and Cultural Research which is the academic home of this project.

An enormous debt of gratitude is owed to the team of Visual Communication students from the Faculty of Design, Architecture and Building at the University of Technology Sydney who designed this ebook as part of their final year project. Emilie Glasson, Joshua Greenstein, Caitlin Kerr, Joy Li and Danyen Nguyen – team UNTO Creative – thank you so much for your beautiful work.



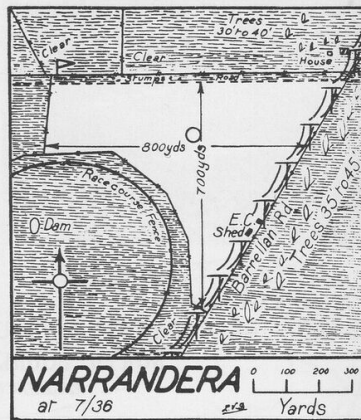
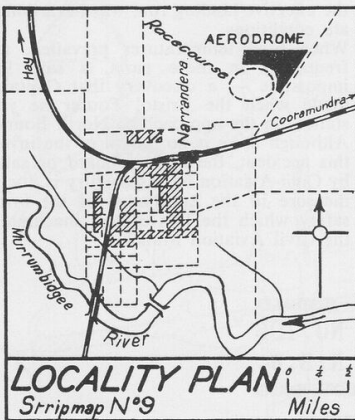
- Communication systems in Australian civil aviation range in scope and complexity from small operations to large international airports and cover a variety of modes.

Aviation communication, for example – that is, communicating with aircraft – can involve wireless radio, flags, flares, aircraft marking schemes and signals among other things. Radio was first used in aviation in 1917 and in 1930 the International Commission for Aerial Navigation mandated the carrying of a wireless on any aircraft with ten or more people aboard.¹ Radio began to be used in civil aviation after World War I. Ultra high frequency began to be used in navigation in the early 1940s.



The world's first control tower was opened in 1921 at Croydon Airport in London.² Australia's first control towers were built by the Department of Civil Aviation between 1938 and 1940 at Archerfield, Mascot and Parafield using British designs which were also being emulated in Commonwealth and other countries. Communications in control towers were to grow to cover several functions including ground control, aerodrome control, also known as local or 'Tower' control (which deals with operational runways), approach or terminal control and the issue of flight data.

CIVIL AVIATION BOARD DEPARTMENT OF DEFENCE AUSTRALIA
 NOTICE TO AIRMEN NO. 77/1936
 (CANCELS NO. 21/1922) NARRANDERA, N.S.W.



CLASS OF GROUND: Aerodrome suitable for all types of landplanes.
 PROPRIETORS: Commonwealth of Australia (Civil Aviation Board, Melbourne).
 POSITION: One mile N.E. of Narrandera.
 Lat.: 34° 44' S.; Long.: 146° 34' E.
 MAGNETIC VARIATION: 7° E. approx.
 LANDMARK: Racecourse immediately to South-West.
 MARKINGS: White circle and wind indicator.
 SURFACE: Good, with slight fall from West to East.
 DIMENSIONS: North-South 700 yards; East-West 800 yards.
 HEIGHT ABOVE SEA LEVEL: 575 ft. approx.
 APPROACHES: Timber and telephone line on East boundary; otherwise generally clear.
 SURROUNDING COUNTRY: Rough to East; elsewhere generally clear.
 PETROL AND OIL: Garages, Narrandera.
 WATER SUPPLY: At racecourse.
 WORKSHOPS: At Narrandera.
 HANGAR ACCOMMODATION: Nil.
 TELEPHONE: Mr. Buffrey, on South boundary on racecourse (Tel. 195).
 TELEGRAPH: Narrandera Post Office, about 1½ miles.
 NEAREST TOWN: Narrandera.
 NEAREST RAILWAY STATION: Narrandera, one mile.
 CHARGES: Nil at present.
 REMARKS: Grazing cattle often occupy area.
 Relative Strip Map No.9.

S. H. Crawford
 Secretary,
 Civil Aviation Board.

1.1 Issued by the Civil Aviation Board, the 'Remarks' at the bottom of this 'Notice to Airmen' warns: 'Grazing cattle often occupy area'. (National Archives of Australia)



1.2 Civil aviation was to benefit domestic and international communications. This image shows the first aerial mail delivery to Brisbane on a de Havilland DH 61 Giant Moth plane, 23 April 1929. (National Library of Australia)

Public spaces in larger terminals have evolved from modern to postmodern places filled with a myriad of communication modes and devices: flight directory boards, intercoms, mobile technologies, signage, visual communication and industrial and interior design. Private working places have undergone similar transformations.

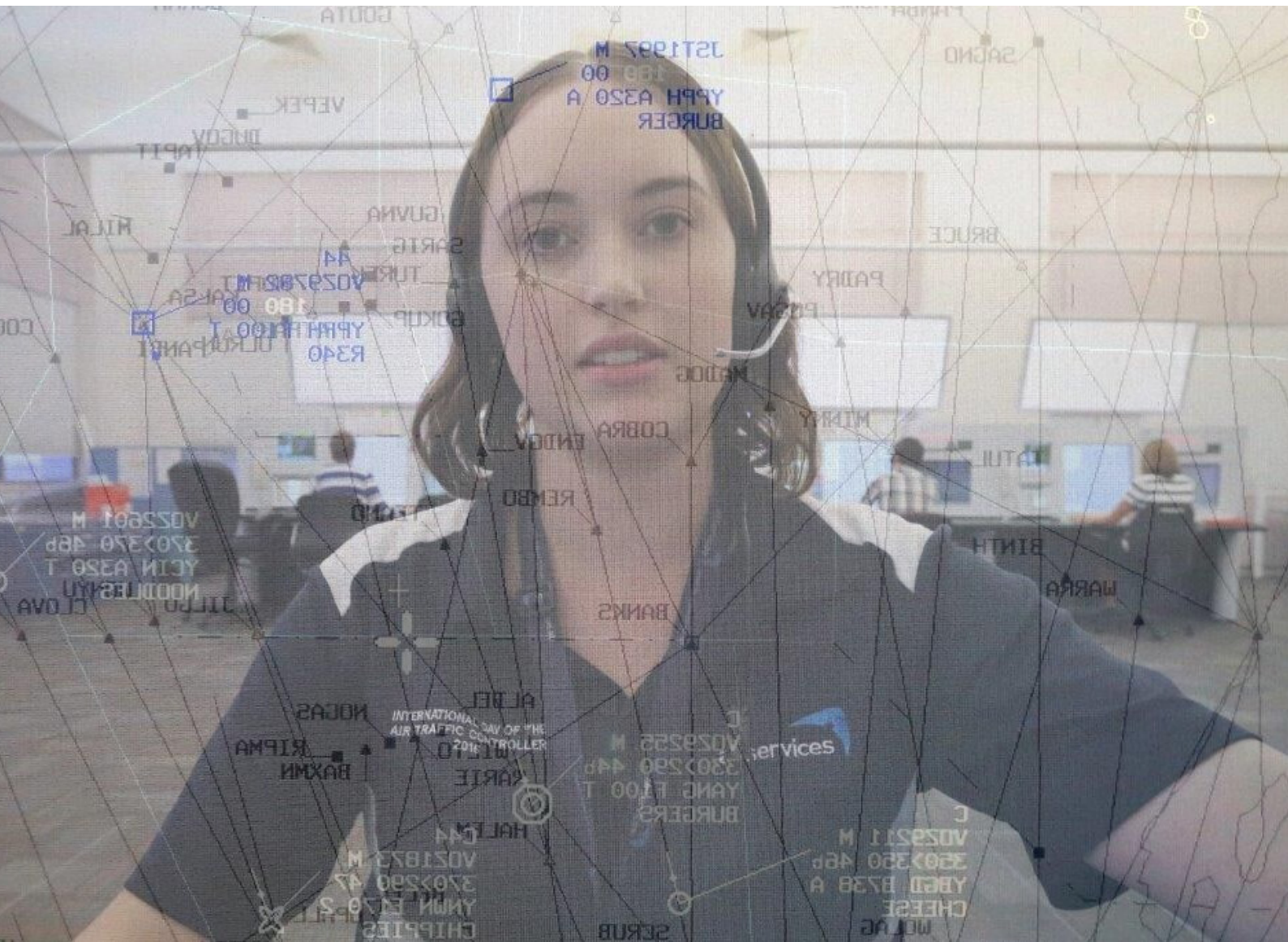
Post September 11 2001 has seen heightened concern in the civil aviation industry over surveillance and inflight communication. In a 2007 edition of the magazine *Flight Safety Australia*, it was noted that: 'In these days of locked cockpit doors, communication between flight and cabin crew has never been so important. With most contact between the flight deck and cabin via the interphone, CASA [Civil Aviation Safety Authority] cabin safety inspector Susan Rice says pilots and cabin crew should consider the effectiveness of how they are communicating'.³



1.3 Trainees learning to operate aircraft radio (Argus Newspaper Collection of Photographs, State Library of Victoria)

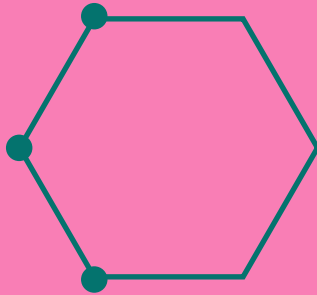
1.4 Olga Tarling working in Brisbane Airport's Air Traffic Control tower in the early 1960s. Olga was a teleprinter operator at Townsville Airport in the 1950s until she gained a commercial pilot's license. She then worked for Southern Airlines until it folded in 1959. Subsequently, she trained with the Department of Civil Aviation and became Australia's first female air traffic controller. Olga worked at Brisbane airport and finally became an instructor in Melbourne's Central Training Centre. Retiring in 1985, she was awarded and Order of Australia for her contribution to aviation. (State Library of Victoria)



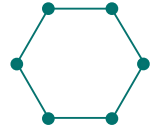


1.5 En route air traffic controller Michelle Devine at Airservices Melbourne Air Traffic Services Centre (Photograph Paul Sadler; Airservices Australia)





Throughout rural and regional Australia there are numerous monuments, memorials and museums that recognise the role of civil aviation in regional development in the twentieth century. Many individuals are remembered for building aerial networks which contributed to developing or sustaining communities of producers, country towns or remote settlements.

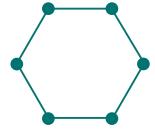


Edward John ('Eddie') Connellan, for example, gained a pilot's licence on 8 July 1936. He wrote 'Notes on Proposals for Aerial freight Transport in Australia' in October 1937. And in the following year he flew two aerial surveys of the Northern Territory which were backed by a group of pastoralists. In the Northern Territory, which became his home, he started a medical flight for the Royal Flying Doctor Service on 11 July 1939 and an official mail run in August that year. His business, Survey and Inland Transport, was registered as Connellan Airways in July 1943. It eventually became a regional airline in September 1977.⁴

2.1 The first air mail stamp issued in Australia
(Private Collection)



2.2 Flying Doctor Service plane (right) arriving at Charleville, Queensland, 1946
(Photographer Alfred Amos; National Library of Australia)

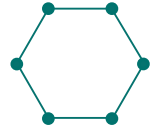


Regional civil aviation, however, has been in decline since the rural recession of the 1970s.⁵ Lacking capital, Connellan Airways was sold to East-West Airways in 1980. This Airline, founded in 1947 and based at Tamworth, was then the third largest domestic Australian airline. It ceased operations in October 1993. Between 1984 and 2005, the number of regional airports being serviced by airlines declined from 278 to 170.⁶

The trend is continuing. In 2013 both Aeropelican, established in 1968 and headquartered at Newcastle, and Brindabella, which began operation from Canberra International Airport in 1994, collapsed. Passenger movements, however, jumped from 8.5 to 17.5 million between 1984 and 2005.⁷ The rise of FIFO – fly in/fly out – associated with mining in remote and regional Australia since the early 1990s, mainly in Western Australia and Queensland – has also had both negative and positive impacts on communities.⁸



2.3 A sea plane landing at Darwin, 1926 (National Library of Australia)



2.4 East-West Airlines premises, airhostess and well-dressed passengers, north-eastern Victoria, c1970 (Photograph Bob Beel; Le Dawn Studios Collection, State Library of Victoria)



2.5 Sheep aboard a TAA plane at Haddon Rig Stud at Warren, New South Wales, on the way to a sheep show, 1962 (Photograph John Mulligan; State Library of Victoria)

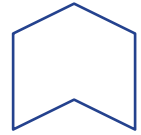


2.6 Santa Claus at Canberra Airport, c1929
(National Library of Australia)



Throughout the twentieth century, warfare provided a major catalyst for developments in aviation.

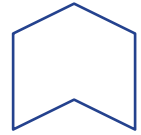
Aircraft were used to provide medical services during World War I. The first recorded aeromedical evacuation of wounded took place in 1915 when a French fighter plane transported Serbian combatants to a medical facility. It was not long before the 'potential value of aircraft as airborne ambulances became obvious'.⁹ In Australia, the first civilian patients were conveyed by aircraft in 1922.¹⁰ In 1926, later the (later Royal) Australian Flying Doctor Service was established. It made its first flight in 1928.¹¹



Former World War I pilots were to contribute to the emergence of civil aviation after the war. In 1920, former Australia Flying Corps (AFC) officers Hudson Fysh and Paul McGinnis established what was to become Qantas. In that year the AFC was officially disestablished.¹² On 2 December of the same year, the *Air Navigation Act* was passed in Federal Parliament. As a result of this a Civil Aviation Branch was created in the Department of Defence, which became operational on 31 March 1921, and both Melbourne (Essendon) and Sydney Airports were officially established.¹³



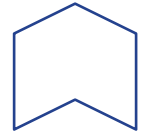
3.1 Melbourne-based commercial artist and portraitist, Albert Mockridge, created this tribute to the Australia Flying Corps in November 1917 (State Library of Victoria)



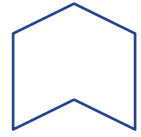
International rivalries and mounting tensions in Europe in the 1930s were to prompt several countries to intensify their efforts in developing what the United States Signal Corps was in 1939 to call radar. At that time, Britain began to collaborate on this technology with Australia, Canada, New Zealand and South Africa, as Commonwealth countries, and the United States. Great advances were made in radar during the World War II and a chain of four radars was constructed along the northern coast of Western Australia. These were taken up by civil aviation in the post war period.¹⁴



3.2 Paul McGinnis (left) and a passenger in front of an Avro 540, the first plane purchased by Qantas, 1921 (State Library of Victoria)

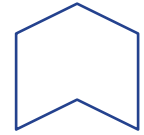


3.3 Artist Roland Skate produced this poster in the early 1950s for Australian National Airways (ANA) (1936–1957). Plagued by a run of air crashes and accidents that took the lives of around 100 people and on the brink of collapse, the airline was taken over by Ansett Transport Industries in 1957 to form Ansett-ANA. (State Library of Victoria)



3.4 Coober Pedy Airport, South Australia, 1970, photographer Jeff Carter (National Library of Australia)

After the federal Labor Government's failed attempt in 1945 to nationalise Australian National Airways (ANA), it established Trans-Australian Airways (TAA) on 8 February 1946. This was done initially by drawing on both government aircraft – through the purchase of ex-RAAF Douglas DC3s – and by recruiting a talented and dynamic group of people largely from the RAAF. For a while it also operated out of a shed at the Laverton RAAF base. TAA was highly successful, almost bankrupting its older, private competitor.¹⁵



As air travel became more democratised and airport capacity increasingly strained, some groups have called for greater cooperation between civil and defence aviation. The Tourism and Transport Forum, for example, wrote in a 2011 submission to the Federal government that: ‘Australia will have to use all of its aeronautical assets collaboratively if growing demand for air travel is to be met. The formal shared use airports such as Darwin and Townsville paint an excellent picture of cooperation between civil and military aviation needs. The lease of Newcastle Airport of land and facilities at RAAF Base Williamtown further illustrates the mutual benefits of pragmatic decision making’.¹⁶ As Greg Hood, then Executive General Manager of Airservices Australia’s Air Traffic Control, has observed:

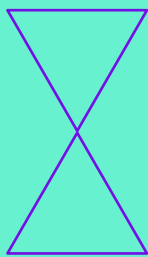
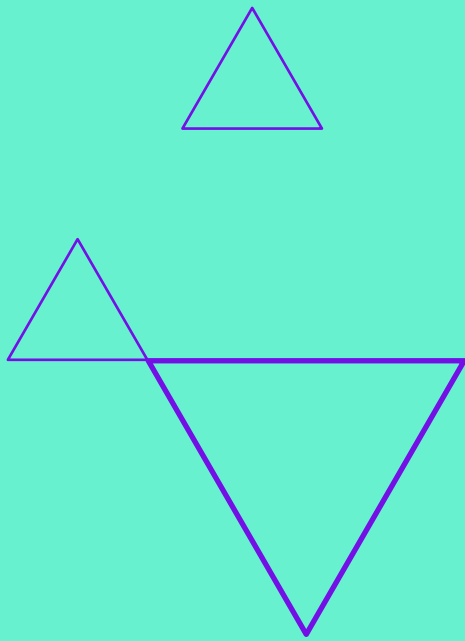


We certainly have some very close links with defence. As we move forward that’s another area in which Australian Government policy has changed and we’re directed now to secure a single system – CMATS, the Civil Military Air Traffic System – and the working relationship is excellent. The Military has large restricted areas where they need to go to maintain their capability and fly the fast jets. That’s sometimes a rubbing point between the military and the civil... [For example] The RAAF Base Pearce in Perth is ten miles to the north of Perth and of course all the traffic wants to go north. And if the military is flying, then civil flights have to go considerable miles out of heir way to get around the military airspace. You need to get the right people in the room... we’re discussing at the moment how to share that airspace better.’¹⁷



This is all part of the OneSKY Australia Program.





Civil aviation in Australia was in one sense brought into being by the pilots who returned to the country after World War I.¹⁸ In response to the rising use of aircraft in warfare – Turkish positions were bombed with hand grenades from Italian aircraft during the Italo-Turkish war in 1911¹⁹ – the Commonwealth government established the Australian Flying Corps in 1912 and the Central Flying School in the following year at Point Cook, Victoria. At the 1911 Imperial Conference in London, it had been agreed that aviation needed to be fostered by all national armed forces in the Empire. Australia was the first Commonwealth country to do so.



Some Australians had a more roundabout path into aviation via the defence forces. Bert Hinkler, for example, had been rejected after applying to join the newly formed aviation section of the Australian Army. He left Australia in 1913 and gained a position in the Sopwith aircraft factory in south-west London. He enlisted in the British Royal Naval Air Services in September 1914.



4.1 Bert Hinkler, possibly with his wife-to-be, Katherine Rome, arriving at Elwick Racecourse, Hobart, in 1929 (State Library of Victoria)

These aviators were imperial nationalists. While being patriots and Australian nationalists, they were also empire loyalists. Their wartime experience also left them restive and not a little devil-may-care at the cessation of hostilities. During March 1919, the Australian government, at the instigation of Prime Minister Billy Hughes, announced a breathtakingly large prize of £10,000 – the average weekly wage was then just over £9 – for the winner of



an air race from England to Australia. Pilots had to be Australian and they needed to complete the journey in no more than 30 days in a British-made plane. Six aircraft and sixteen men entered the competition. The event unfolded like a Bulldog Drummond saga:

“

four [men] died in crashes, two were arrested as spies in Yugoslavia and two others, after a forced landing in Mesopotamia (now Iraq), had to fend off local tribesmen with hand grenades. Victory went to Ross and Keith Smith (both... [immediately] Knighted) in a British-built twin-engine Vickers Vimy heavy bomber, repaired en route with chewing gum and pieces of fruit crates.²⁰

”

This real-life adventure struck the popular imagination so much so that a Sydney manufacturer produced a children's board game, 'The Sir Ross Smith Aeroplane Race Game'.²¹



4.2 Reception for Charles Ulm and Charles Kingsford Smith at the end of the first trans-Pacific flight, Mascot Aerodrome, 10 June 1928 (National Library of Australia)



'Imperial' air space was one of a few spaces in which aviators could operate: the others were private, commercial and national. And it was a space which accommodated women. Commercial space was far less accommodating: between 1924–27 the International Commission on Air Navigation banned women from holding commercial licenses. Transnational flight gave some women opportunities to explore imperial airspace.²² Empire aviatrixes thrilled publics across the world with their death-defying feats. British pilot Amy Johnson arrived in Brisbane in 1930; Freda Thompson was the first Australian women to fly solo from England to Australia in 1934; Maude Bonney was the first Australian women to fly solo to England in 1933 and Africa in 1937.



4.3 Wreckage of Amy Johnson's DH Moth after a crash landing at Eagle Farm, Queensland, 1930 (National Library of Australia)



This, as a number of writers have noted, was the so-called ‘heroic age’ or ‘golden age’ of Australian and imperial aviation. There is a leather suitcase in the National Library of Australia.²³ It relates to an incident in 1935 when pilot Charles Kingsford Smith, co-pilot P.G. (Bill) Taylor and radio operator John Stannage had taken off from Sydney’s Mascot Airport for New Zealand on a promotional freight and mail run. During the flight the centre engine’s exhaust manifold broke off and badly damaged the starboard propeller. Turning back to Sydney, Kingsford Smith closed down the starboard engine, fully powered the other two and jettisoned the cargo. The port engine, however, started leaking oil. Taylor walked out on the starboard wing strut six times to save its oil in a thermos. Each time the full thermos was passed to Stannage in the cockpit who poured it into the suitcase. Taylor then topped up the port engine using the oil in the suitcase. He was awarded the Empire Gallantry Medal for this act of heroism.²⁴



4.4 Charles Kingsford Smith with bags of the first official mail between Australia and England at Croydon Airport, Brisbane 1931 (National Library of Australia)



The health of an empire could be measured through dominance of different airspaces, and technological sophistication.

Such stories circulated powerfully in the culture and feed into imperial dimensions of civil aviation. Governments did not just make significant financial contributions to supporting the fledgling industry. They also made heavy emotional, ideological and political investments.²⁵ While aviation grew significantly between the war, it spread out, if somewhat slowly, through empires. Britain, like Belgium, France and the Netherlands, strove to build aerial networks within its empire which reached its territorial height in this period. Capturing markets was certainly a consideration. But more importantly, as Marc Dierikx has noted, ‘national prestige’ was paramount.²⁶

Few private interwar airlines were profitable in Britain or Australia and most were heavily subsidised. Contracts to fly mail and freight were the most usual form these took. Thus airlines were first and foremost ‘high-profile national flag-carriers’.²⁷ Legal considerations also prompted governmental intervention. The Paris Convention of 1919 at the Versailles Peace Conferences had agreed that the international movement of aircraft should not be unrestricted.²⁸

Aerial connections with territories in the Empire allowed imperialist rivalries to be played out in a new space. Dominance in different air spaces and the level of technological sophistication were measures of the health of empires. And imperialistic competitiveness was ‘the decisive factor in government promotion of the development of long-distance air routes’.²⁹

Merging four struggling British airlines, Imperial Airways Ltd was established by the British government in 1924. Its purpose was to forge routes between Britain and its empire. Two years later at the Imperial Conference, a plan was proposed for creating a regular service from Britain to India, Ceylon and Australia. Imperial Airways increasingly withdrew from European services to concentrate on this route. In the process it ran into diplomatic and other clashes with the Koninklijke Nederlandsch-Indische Luchtvaart



In 1934, QANTAS and Imperial Airways set up a subsidiary named Qantas Empire Airways, an Australian company which began the 'Kangaroo Route'.

Maatschappij (KNILM), the airline of the Dutch East Indies, founded in 1928.³⁰ KNILM wished to commence a Batavia to Sydney service in 1929. Writing to the Netherlands Consul-general in Sydney that year, Prime Minister Stanley Bruce pronounced that as far as he was concerned, 'air services to and from Australia operated by an airline other than Imperial Airways or an Australian company, were simply out of the question'.³¹ Due to a complex set of international relations and agreements, KNILM did begin a twice-weekly service to Sydney from July 1938. But a Royal Dutch Airlines (KLM) aircraft was not to touch down in Australia, on this occasion in Sydney, until 9 December 1951.

The imperial connection was strengthened in other ways. In 1934, to get around a number of legal restrictions, QANTAS and Imperial Airways set up subsidiary named Qantas Empire Airways which was generally referred to as QEA or Qantas. Substantially subsidised, it operated its first London to Brisbane flight in December that year. QEA was legally an Australian company and it had the contract for the Brisbane-Singapore leg (which fell through) and from 1935 that from Darwin-Singapore. This was the beginning of the Kangaroo Route. Imperial Airways, however, was the majority shareholder in the company. But the bonds of Empire were also threatened that year. QEAs first flight had taken 12 days. Three months earlier, the MacRobertson Air Race, held to commemorate Melbourne's centenary and with a prize pool of £15,000, had been run from Mildenhall near London to Melbourne. The winner of the handicap division, and the overall runner up with a race time of 81 hours and 10 minutes – under three-and-a half days – was a Dutch airliner flying an American-built Douglas DC-2. It had been entered by KLM.³²



VERKADE'S Melbourne-race spel

ALGEMENE REGELS.

- a. Aan de Melbourne-race kan door een onbepaald aantal personen worden deelgenomen.
- b. Iedere deelnemer betaalt als inzet 5 fiches, of Verkade's biscuits, (Klein Dulesje, Gem, Biscuit-Eruten of andere). Daarna bepaalt men wie het eerst zal spelen. Wie het hoogste aantal ogen werpt (met 2 dobbelsteenen), speelt eerst en kiest zich een vliegtuig.
- c. Wie door een speler wordt ingehaald, gaat op diens plaats terug.
- d. Wie te Melbourne aankomt heeft het spel gewonnen. Komt men boven 63, dan moet men evenveel nummers van 63 terug tellen, als men er boven is en speelt mee door.

Komt men op één der onderstaande blauwgedrukte nummers dan gelden de volgende regels:

5. Vlieger is een verkeerde richting ingeslagen en moet opnieuw beginnen.
11. Moet benzine innemen. Een der vliegers is licht beschadigd en moet bijgeschilderd worden. Men moet 1X zijn beurt voorbij laten gaan.
14. Indien Marseille (8) als verplichte landingsplaats is overgeslagen betaalt men 2 fiches aan de pot.
16. Constantinopel had geen toestemming tot landen gegeven. Bestuurder moet zich bij autoriteiten verantwoorden. Betaalt 1 fiche boete en moet 1X zijn beurt laten voorbijgaan.
27. De vliegtuig is bij de landing over de kop geslagen. Moet gedemonteerd en naar Mildenhall terug gestuurd worden om opnieuw te starten.
36. De vlieger is iets te haastig geland, waardoor het landingsgestel is beschadigd. Reparaties duren 3 dagen. 1X zijn beurt voorbij laten gaan.
39. Door de vlieger te veel van zijn motoren heeft geoverd, zijn ze warm gelopen. Hij moet wachten tot ze afgekoeld zijn en moet 1X zijn beurt voorbij laten gaan.
45. Door storingen in het kompas, veroorzaakt door onweer, is men uit de koers geraakt. Men moet landen op het vliegveld te Peking om benzine in te nemen en daarna terug naar Karachi (37).
48. Het vliegveld te Alor Star is zoo slecht dat men moet wachten tot men verlost wordt.
51. De vlieger enthousiast ontvangen en krijgt een blok Verkade's Biscuit als proviand mee (één biscuitje of fiche uit de pot). Hij mag doorvliegen tot Koepang.
61. Het vliegveld te Charleville was bij de landing niet verlicht door er geen personeel aanwezig was. Na lang zoeken is de vlieger pot in staat te landen. 1X zijn beurt overvloan.
62. Door het slechte weer en gebrek aan benzine is men verplicht op de renbaan te Albury te landen. Daar er geen benzine aanwezig is moet deze uit Melbourne per tankwagen worden aangevoerd. Afstand is : 225 K.M. Men moet zijn beurt 1 maal overvloan.

4.5 Dutch poster for MacRobertson International Air Race, 1934. A Dutch team flying a KLM Royal Dutch Airlines DC-2 came second in the race but won the handicap prize. (State Library of Victoria)



4.6 Front cover of the Air Race Souvenir of *The Queenslander*, 1 November 1934 (State Library of Queensland)



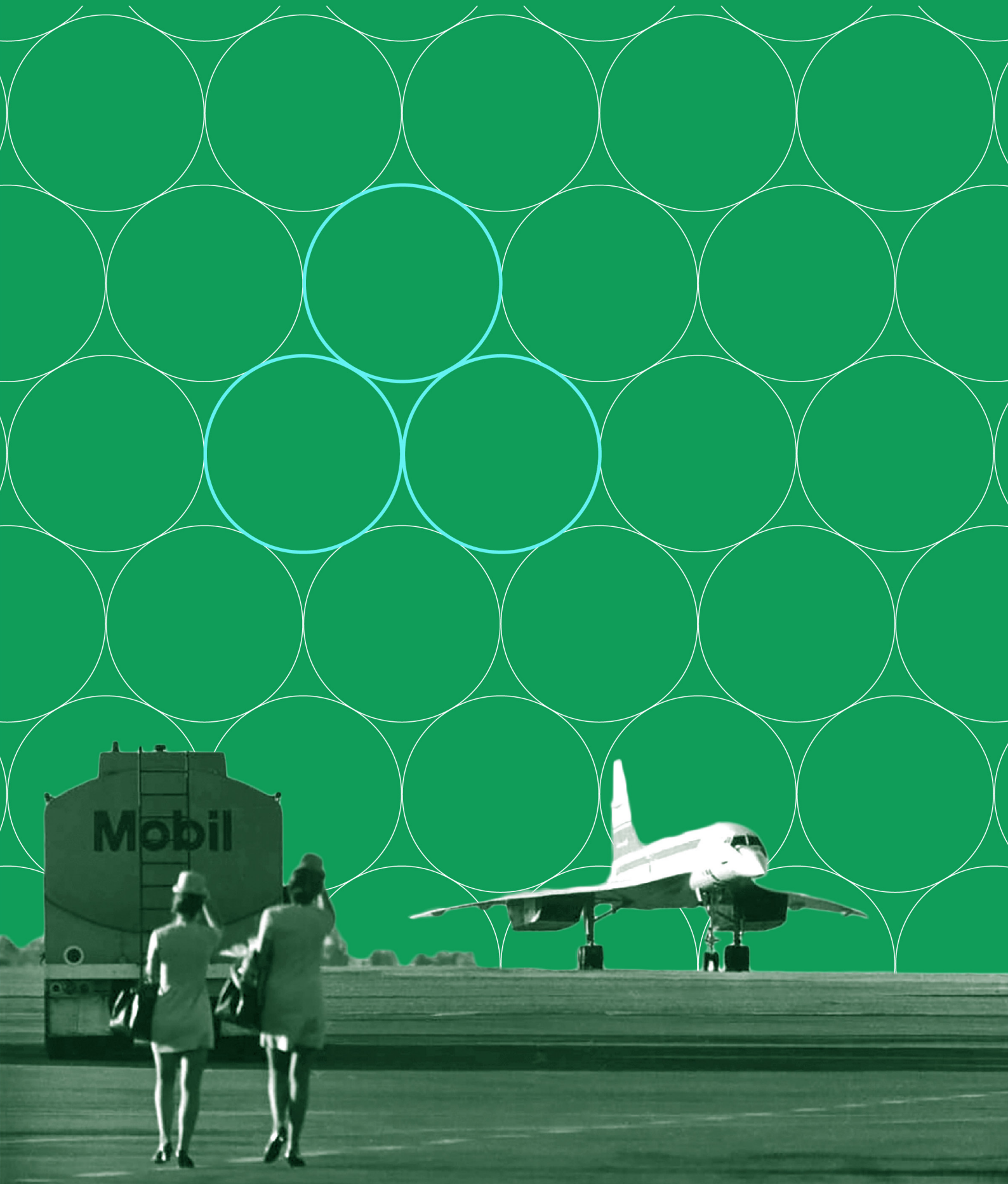
4.7 MacRobertson Air Race Trophy, 1934
Sydney Mail



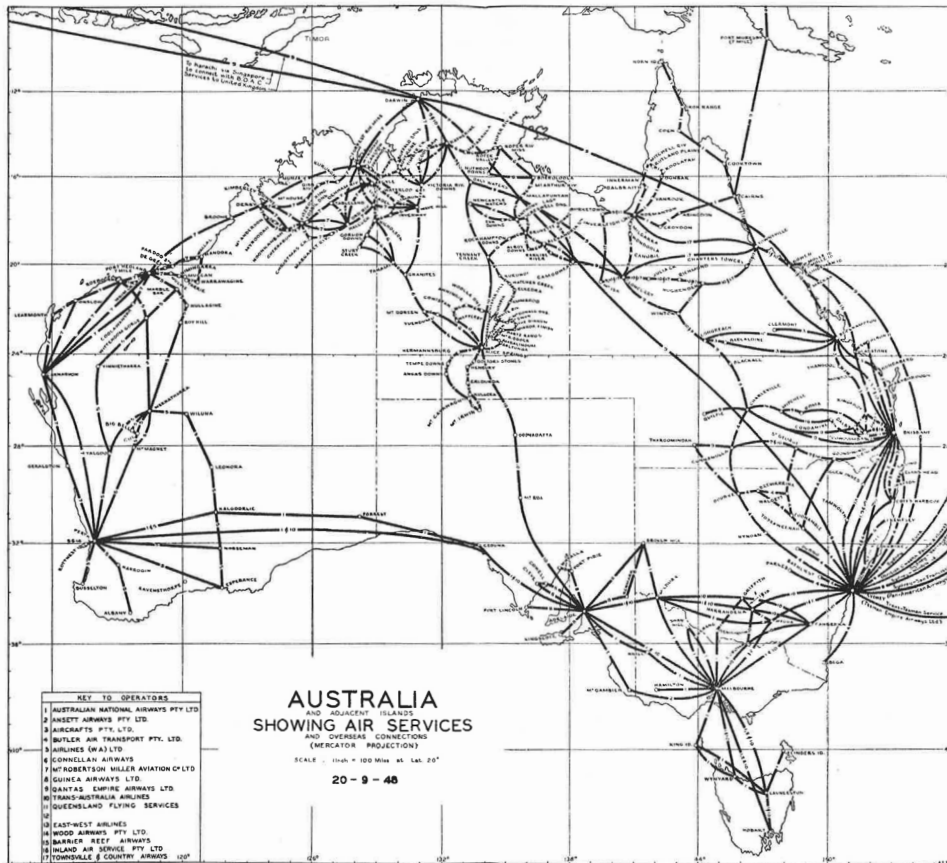
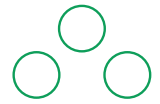
In response to competition from America, Imperial Airways introduced the 'Empire Air Mail Service', using aircraft of similar speed and superior comfort.

This powerfully symbolised a watershed in civil aviation. America had made significant technological advances in stressed metal aircraft and aerodynamics. The days of wooden-bodied planes were numbered. Imperial Airways responded quickly by devising a scheme to introduce the 'Empire Flying Boat Scheme' – later renamed the 'Empire Air Mail Service' – using aircraft which were much more comfortable and roughly as fast as their competitors. Imperial Airways formally adopted the scheme in January 1936 which meant that ultimately QEA had little choice than to follow suit.³³ This, however, did not happen until January 1937. A negotiating team was sent to Britain which initially rejected the plan. Peter Ewer has documented the 'political surrender' brought about, among other things, by pressure applied by Britain, lobbying by certain 'Australian politicians and officials' and the desire of the Australian government to avoid international embarrassment from 'declining again the repeated Dutch offers to run the Douglas service on from Java'.³⁴

During World War II Qantas stuck by the Empire, keeping open the Imperial transport route from Perth via Colombo to Karachi and London. After the bombing of Pearl Harbour on 7 December 1941, Australia began to shift its allegiance from Britain to the USA.³⁵ After the war, in a post-colonial environment, imperial nationalism gave way to Australia nationalism in civil aviation.



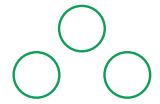
For many, if not most people in Australia, their first experience of an aircraft would have been a sonic one. The gradual spread of civil aviation across parts of the continent from the 1920s introduced a new sensory experience into people's everyday lives. Some would have marvelled at the whirring, modern flying machines. Some became expert in identifying particular planes by the sound that they made. Others would have resented the noise produced by this newfangled invention. But these sounds, some of which today are kept in archives,³⁶ can extend our ability to understand past experience.³⁷



5.1 This map of Australian air services in 1948 indicates not just increased passenger routes but the growing environmental impact of civil aviation on the continent (Hudson Fysh, *Qantas Rising*)

Sounds coming from aircraft changed over time as they became faster, more numerous and flew higher. On 14 August 1953 at the Commonwealth Aircraft Corporation’s Avalon airfield near Geelong, the sound barrier was broken for the first time in Australia in a Sabre swept-wing jet fighter. The pilot was Flight Lieutenant William Scott. A few years later the *Newcastle Morning Herald and Miners’ Advocate* predicted that sonic booms caused by these planes would ‘soon become a familiar sound’ in regions where they were based.³⁸

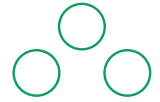
The first sonic boom in Australian civil aviation was made in June 1972 during the visit of the Concorde. Landing in Darwin on 15 June, it travelled to Sydney via a route planned by the Department of Civil



Aviation which avoided Aboriginal reserves and regional towns. It did, however, pass by Alice Springs where tests were carried out on the impacts of the sonic boom. And it did two demonstration flights from Sydney.³⁹



5.2 Concorde arriving in Darwin Airport, 1972
(Photograph Michael Jensen; National Library of Australia)



The Concorde was the embodiment of the ideology of Progress, but was received with mixed feelings by the Australian population.

By this time, sound created by civil aviation had become little more than unwanted noise. But the Concorde was special, albeit ultimately unsustainable. It was the embodiment of the ideology of Progress. And a substantial crowd of people gathered at Kingsford Smith Airport in 1972 to welcome it. Another, smaller crowd, met as part of the Anti-Concorde Project to protest about environmental noise and air pollution.⁴⁰ That evening the *Telegraph* newspaper reported: ‘for many people, stopping the Concorde has become a tiresome obsession. It would be a pity if the strident protests of a minority succeed in denying Australians the benefits of a new era in travel. Australia needs supersonic aircraft more than anyone else, to bring us closer to a world of power and ideas. So let’s give the Concorde a fair trial’.

Noise caused by civil aviation had been controlled by the federal *Air Navigation Act* of 1921. And Essendon and Sydney Airports had curfews from the late 1960s. But it was not until 1984 that the *Air Navigation (Aircraft Noise) Regulations* came into being.⁴¹ This reflected the general rise from the mid 1970s of legislation aimed at protecting an environment that was under severe pressure on all fronts.

On the ground, aircraft were to have immense and complex impacts, mostly of a negative kind. These related, among others, to biodiversity, heritage, risk and public safety zones, costs to local communities, vehicular traffic, water pollution and water use. The provision of aviation infrastructure and technology often demands large urban redevelopment. And this can have major ramifications for communities and cause disputes and planning conflicts.



Table 5.1	Year	Hours Flown	Passengers
Civil Aviation, Regular Internal Services, 1925–1980	1925	5,303	3,663
	1930	42,963	91,415
	1935	45,693	45,540
	1940	120,133	121,700
	1945	93,055	320,377
	1950	225,841	1,499,816
	1955	257,787	1,918,125
	1960	225,050	2,660,412
	1965	256,231	3,763,936
	1970	251,582	5,911,002
	1975	282,706	9,393,104
	1980	284,381	11,504,957
	2015	—	58,250,000

Source

Wray Vamplew (ed), *Australians: Historical Statistics*, Fairfax, Syme and Weldon Associates, Sydney, 1987, p172; Department of Infrastructure and Regional Development, 'Domestic aviation activity' <https://bitre.gov.au/statistics/aviation/domestic.aspx> (accessed 5 August 2016)

Table 5.2	Financial Year	Flights	Passengers
Domestic Airline Activity, 1980–81 –2014–15	1980–81	416,282	13,563,340
	1985–86	426,450	14,798,619
	1990–91	444,183	16,935,005
	1995–96	589,501	28,611,325
	2000–01	625,903	34,105,561
	2005–06	545,410	42,531,425
	2010–11	615,706	54,747,719
	2014–15	635,465	57,217,177

Source

Bureau of Infrastructure, Transport and Regional Economics, *Yearbook 2015: Australian infrastructure statistics*, Department of Infrastructure and Regional Development, Canberra, 2015, p102-103

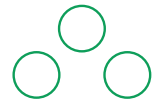
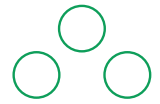


Table 5.3	Financial Year	Flights	Passengers
International Airline Activity, 1970-71–2014-15	1970-71	17,067	1,199,198
	1975-76	23,267	2,801,883
	1980-81	20,487	4,108,265
	1985-86	25,308	5,424,377
	1990-91	45,300	8,424,511
	1995-96	68,387	12,679,451
	2000-01	93,828	17,126,504
	2005-06	117,790	21,096,951
	2010-11	150,440	27,549,289
	2014-15	175,249	33,864,637

Source

Bureau of Infrastructure, Transport and Regional Economics, *Yearbook 2015: Australian infrastructure statistics*, Department of Infrastructure and Regional Development, Canberra, 2015, p102-103

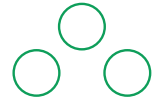
In March 1989, for example – after two decades of arguments about Sydney airport’s future – the Hawke Labor Government announced its decision to construct a third runway at Kingsford Smith Airport. Three years earlier, that Government had indicated that a second airport would be built at Badgery’s Creek in south-western Sydney.⁴² Heated debates erupted and a protest rally attracting around 15,000 inner-city residents was held on 3 December 1994, just before the runway opened.⁴³ In the following year the NSW No Airport Noise Party was formed.



5.3 Geoff Pryor, pen and ink on board, 1996 (National Library of Australia)

The mid 1990s saw the beginning of the ‘privatisation, deregulation and marketisation’ of Australia’s major airports in a neo-liberal climate where the Commonwealth Government had the ultimate development authority.⁴⁴ This was done through the Federal Airports Corporation which had been established in 1988. Melbourne and Brisbane International airports were privatised in 1997. In the following year, several others were privatised including Adelaide, Canberra, Hobart and Perth. Kingsford Smith airport was privatised in 2002.⁴⁵

Some observers called for interventions into the ‘business-political nexus’.⁴⁶ This was in part addressed in the *Airports Act* of 1996



which made it mandatory for all privatised airports to have a community consultation group. This period also saw, as never before, the ‘confluence of aviation policy and urban planning’ in an era where airports are ‘critical infrastructure in the economy’.⁴⁷

Today, global warming is a key issue for the industry. As the Australian Division of the Royal Aeronautical Society wrote in 2013:



*The impact of aviation on the environment is a topical issue and a critical one for the aviation industry. Much has been done to improve fuel efficiencies, but major technological breakthroughs are necessary if aviation is to continue to grow at 5% [annually] without increasing its impact on the environment through greenhouse gas emissions.*⁴⁸



Airservices Australia introduced the Asia and South Pacific Initiative to Reduce Emissions (ASPIRE) during February 2008 and the Indian Ocean Strategic Partnership to Reduce Emissions (INSPIRE) program in March 2011. During September 2013 a demonstration was conducted with Emirates – flight EK434 from Dubai to Brisbane – on how better air traffic management can lessen civil aviation’s impact on the environment.⁴⁹



The rise of modern aviation coincided with the formation of the Australian nation in 1901 and it has been intimately connected to the construction of national and other identities.

Early aviators were assimilated into and reinforced the pioneer legend. Rising in the late nineteenth century, this is a 'nationalist legend', as John Hirst has written, 'which deals in a heroic way with the central experience of European settlement: the taming of the new environment to man's use'.⁵⁰ Thus while selectors, small holders and, later, soldier settlers strove to establish modern agriculture – which only happened in the twentieth century with dire environmental consequences – aviators sought to conquer air, space and time.



Only weeks after completing his fifteen-day solo flight from England to Darwin in 1928, Bert Hinkler made a two-sided gramophone recording. One side had on it 'My message to Australia' which championed the 'gospel of the air'. Acknowledging Lawrence Hargrave as a 'great pioneer', Hinkler told his fellow Australians that:



It was like all other pioneering work; it was hard. There were the usual sacrifices and setbacks and scares, but aviation went from success to success, from strength to strength. Today, the experimental stage is long past. Flying is a definite improvement factor in transportation. Like other methods of transport, there may be minor disadvantages, as well as its advantages, but we are getting on. Each year sees more aeroplanes, better aeroplanes and greater public interest. I venture to say that in 20 years' time, the aeroplane will be almost as familiar a figure in our scheme of things as the motor car is today...

Aviation has a lot to thank Australia for: Hawker, the Smith brothers, Parer and McIntosh, Sydney Pickles and Kingsford Smith, and many other excellent pilots you have right here in your own midst. These good Australians have done, and are doing, big things in the air. And I am quite sure that there are many other Australians who will carry on the good work...

Flying must come into its own in the Commonwealth. Only one thing is necessary – the goodwill of the public. With this assured, and the feeling is growing stronger every day, Australia will prove itself as great a flying country as Australians have proven themselves flyers.⁵¹





Other pilots were to make gramophone recordings of accounts of their flights. And various popular songs and tunes were written and recorded to honour both aviators' feats and their inspiring Australianness. There were several to Hinkler, such as 'Hustling Hinkler', written by L. Wolfe Gilbert and Abel Baer soon after his arrival in Australia. Songs about other aviators included 'Kingsford Smith, Aussie is Proud of You', recorded by Len Maurice in 1928.⁵²



6.1 Nancy Bird and Jack Kingsford Smith in front of a de Havilland DH 60 Moth, c1933 (National Library of Australia)



Flying women, too, were to be part of the pioneer legend from the 1930s.⁵³ And like their counterparts in countries such as New Zealand, they contributed to the formation of a distinct national story concerning Australian identity.⁵⁴ This narrative grew in the context of technological innovation and an evolving modernity. But other identities were also to be shaped.



6.2 Mary Robertson Murray, shown here in the early 1930s, was a well-known pilot in Victoria. She and her pilot husband were killed when their plane crashed at Essendon on 26 May 1935. An obituary in the *Melbourne News* said: ‘A girl of very charming personality, she was a ‘sportswoman’ to her fingertips. Considered one of the best women pilots in this State, she was certainly the most attractive. With her svelte, slim figure, fair colouring, and pretty hair, she always looked most attractive in her flying kit without pandering to the eccentric or the outré. At the aerial pageant on Saturday afternoon, for which she had flown down from Lara with her husband, she was the cynosure of all eyes in her trim camel’s hair overalls, under which she always wore a tailored skirt and woollen jumper.’



6.3 Freda Thompson's de Havilland DH.60G-III Moth Major, VH-UUC, taxiing on an airfield during the South Australian Centenary Air Race, 1936 (National Library of Australia)

The first female flight attendant was 25-year-old American registered nurse Ellen Church who talked her way into working for United Airlines in 1930. During 1935, Royal Dutch Airlines (KLM) employed its first airhostesses. In the following year Marguerita Grueber and Blanche Due became Australia's first airhostesses. These 'pioneers of this new career [for women]', as the *Cairns Post* put it, flew with Australian National Airlines for the Bass Strait crossing. The airhostess required particular qualities:

“

Besides an attractive personality, a knowledge of first aid, short-hand and typing, cooking [to prepare a meal for passengers if planes should need to land on an emergency field], an encyclopaedic understanding of countries and their attractions to tourists, and a good voice in which to tell people what they want to know, airhostesses must be lightweights – 9st. 7lbs. is the maximum for the Australian lines; and the American limit is less than that.⁵⁵

”



The gendering of work in civil aviation prior to the jet age mass transit boom was to give rise to a public perception of a ‘world of airline glamour’ in which the airhostess was sexualised.⁵⁶ Material remains of this can be found in female uniforms. Recruitment practices also reinforced the White Australia policy in the air. One Australian newspaper explained that in America the airhostess was ‘one of the most attractive features of a highly developed system of travel’:



Susceptible businessmen find it pleasanter to be ushered into an aeroplane by an airhostess than into a railway train by a Negro Porter.⁵⁷



All of this was reflected in advertising, popular literature – such as the successful American Vicki Barr Flight Stewardess series which was published between 1949 and 1964 – film and, after 1956 in Australia, television. Between 1933 and 1934, Australian audiences could view the film ‘Air Hostess’, a pacey, B-grade film starring Evalyn Knapp and James Murray which captured much about the first few decades of the industry.⁵⁸ It was billed as ‘A story of sky-high romance’. In 1950 in the comic series Batman, it transpires that the voluptuous Catwoman is an airhostess with amnesia caused by a head injury she received in a plane crash.

The industry’s first flight attendants, however, were men. The ratio between men and women grew to be not so disproportionate into the 1950s. But women came to dominate as flight attendants in the 1960s.⁵⁹ The Gay Liberation Movement reversed this trend from the 1970s, though this was to reproduce stereotypes of gay flight attendants such as those presented in Australian comedy sketch series *Fast Forward*.⁶⁰



6.4 Poster for the 1933 B-grade Hollywood film *Air Hostess* (Private Collection)



6.5 Carla Thompson, TAA stewardess, sitting on one of the newly installed telescopes for viewing planes at Mascot Airport, 18 August 1962 (National Library of Australia)



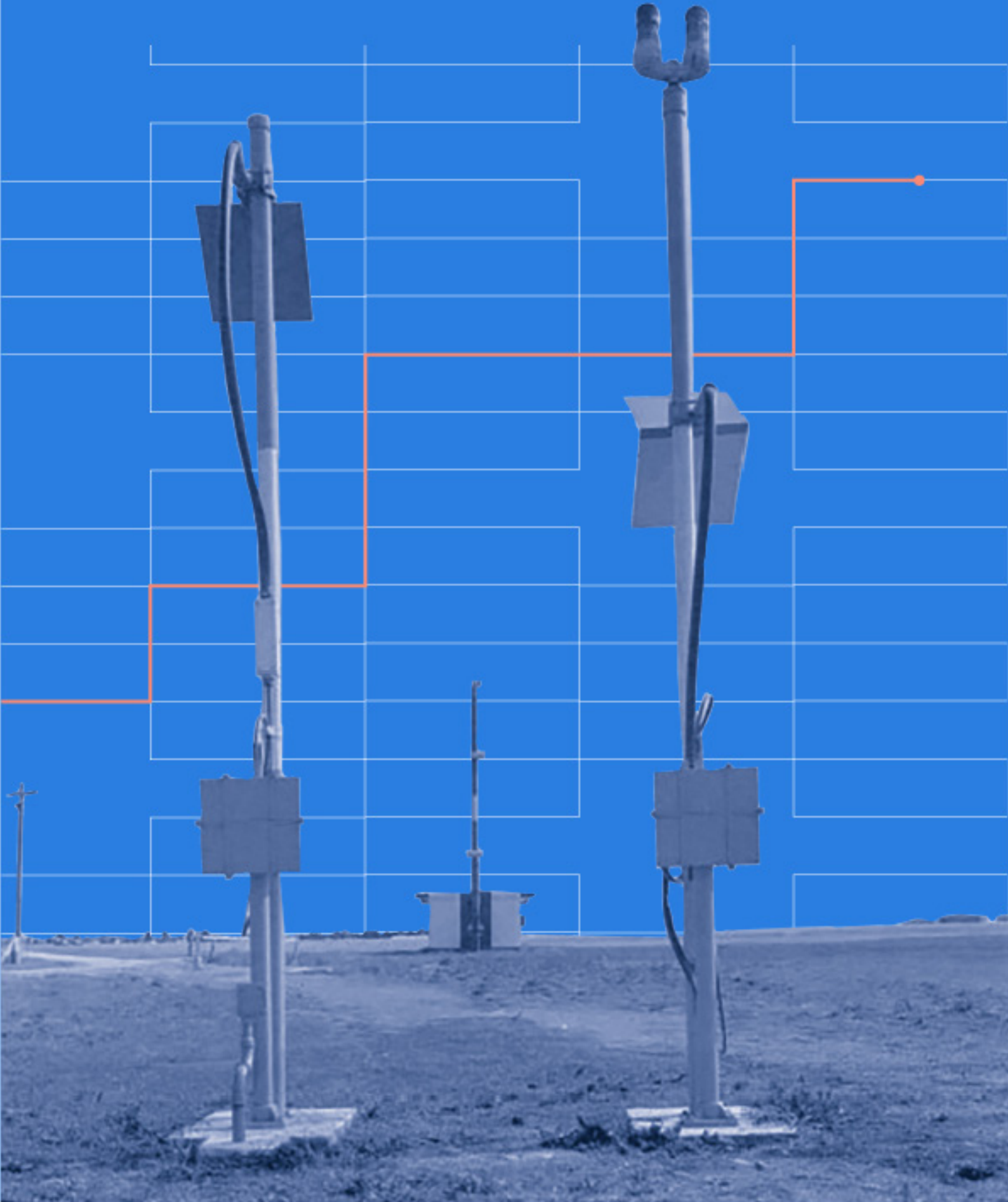
6.6 Gold Coast models in bikinis at Mascot Airport for the Journalists Fashion Parade, 24 September 1963. Much advertising concerning civil aviation was and continues to be sexualized. (Photograph John Mulligan; National Library of Australia)



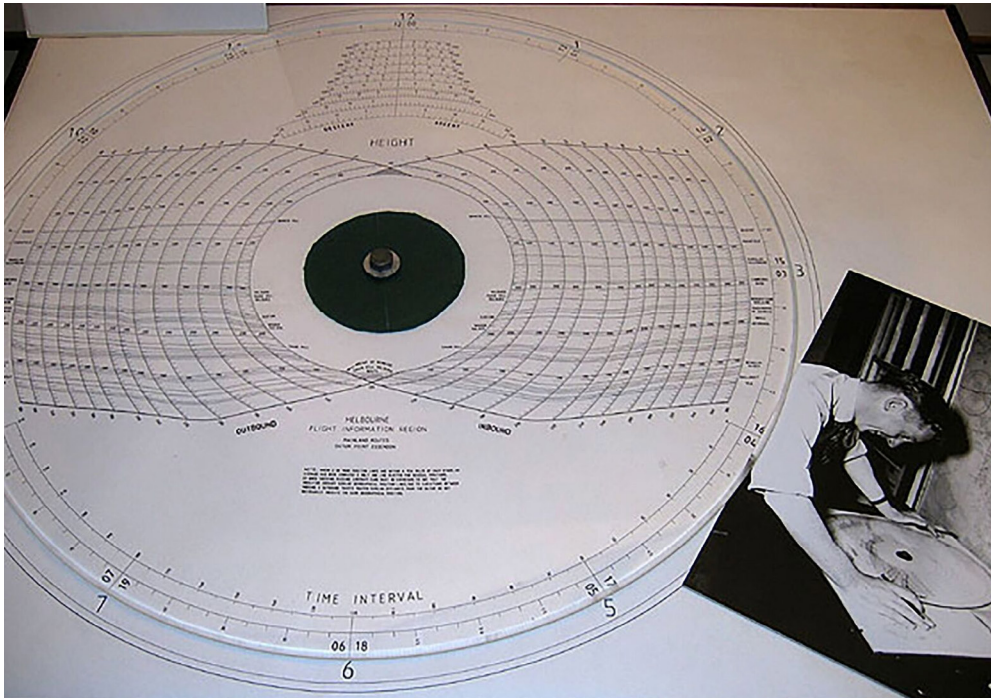
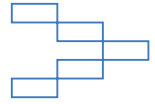
6.7 Front cover of *The Queenslander Annual*, November 1938 (State Library of Queensland)



Today the National Film and Sound Archive of Australia has a National Registry of Recorded Sound. Of the 84 items on the Registry, three relate to civil aviation. The first is 'Hinkler's Message to Australia/ Incidents of My Flight' (1928); second, the Aeroplane Jelly song (1939); and third, Peter Allen 'I Still Call Australia Home'.⁶¹ A hit in Australia in its own right, Allen's song was critical to the enormous success of the Qantas advertising campaign which ran from 1997 to 2009.⁶² This campaign put a multicultural face on Australia's national identity and its national carrier. The campaign ended, however, at a time when 'pride in the flag and strong national loyalties' to national carriers had been seriously eroded by economics.⁶³ But this has not diminished the significance of civil aviation to national identity and nation building.



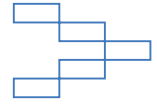
Various new technologies and methodologies were developed in Australian aviation in a range of fields. Lawrence Hargraves' invention of a train of four box kites in 1893 which lifted him off the ground in the following year was probably the first of these. Procedural innovations were also important such as the introduction in 1940 of Flight Checking Officers (FCOs). FCOs provided an Operational Control service which was uniquely Australian. Their critical role was to 'check flight plans and ensure that adequate fuel was carried, to divert aircraft if conditions at the destination were unsafe, close airports if weather conditions deteriorated below minimum standards, and to keep pilots informed of changing flying conditions'.⁶⁴ Events such as the tragic Kyeema airline crash underscored the importance of such a development. A Sydney FCO, Norman Rodoni, was also to invent a computational device called the 'Rodoniscope' in 1944. It made possible the accurate prediction of when faster planes travelling in the same trunk air routes would pass a slower aircraft.⁶⁵



7.1 Control Officer Peter Allen making calculations on the 'Rodonoscope' at Essendon, c1946 (Airways Museum and Civil Aviation Historical Society)

A major innovation in aviation navigation pioneered in Australia was distance measuring equipment. A prototype was developed by James 'Gerry' Gerrand (1919-2012) at the Commonwealth Scientific and Industrial Research Organisation's Division of Radiophysics between 1944-45 under the supervision of Dr E.G. Bowen. Gerrand had previously been working on radar systems. Easy to operate and weighing eleven kilograms, the equipment measured the distance between a plane and beacon on an aerodrome. The design was adopted by the Federal Department of Civil Aviation and subsequently by the International Civil Aviation Organisation.⁶⁶ In the early 1950s, the Amalgamated Wireless Australasia Limited developed a variation of the system.⁶⁷

Australian scientist David Warren (1925-2010) worked at the Aeronautical Research Laboratories in Melbourne from 1952 to 1983. There, he was to invent and develop the cockpit voice

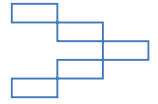


Recording devices in use before the invention of the 'black box' were limiting in that they had a one-off use, and did not record voices.

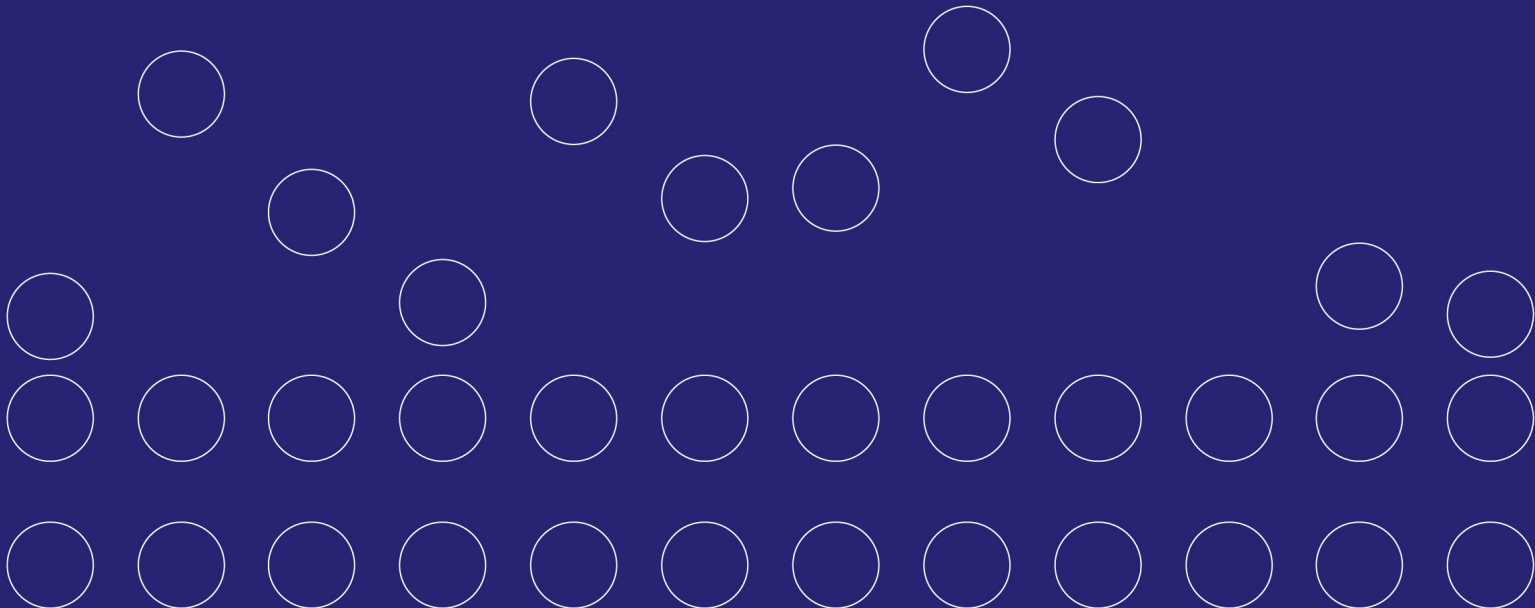
recorder and flight data recorder – the 'black box'. Instruments designed earlier had been used to record a variety of flight data. But they did not record voices and had a one-off use. On 19 March 1954, Warren wrote a memorandum entitled 'A device for assisting investigation into aircraft accidents'. Two years later, he produced a prototype called the ARL Flight Memory Unit. In a 1985 interview with the Australian Broadcasting Commission he told a reporter that: 'If a businessman had been using one of these in the plane and we could find it in the wreckage and we played it back, we'd say: "We know what caused this"'. The invention was developed in Britain and the USA due to lack of interest on the part of Australian authorities.⁶⁸

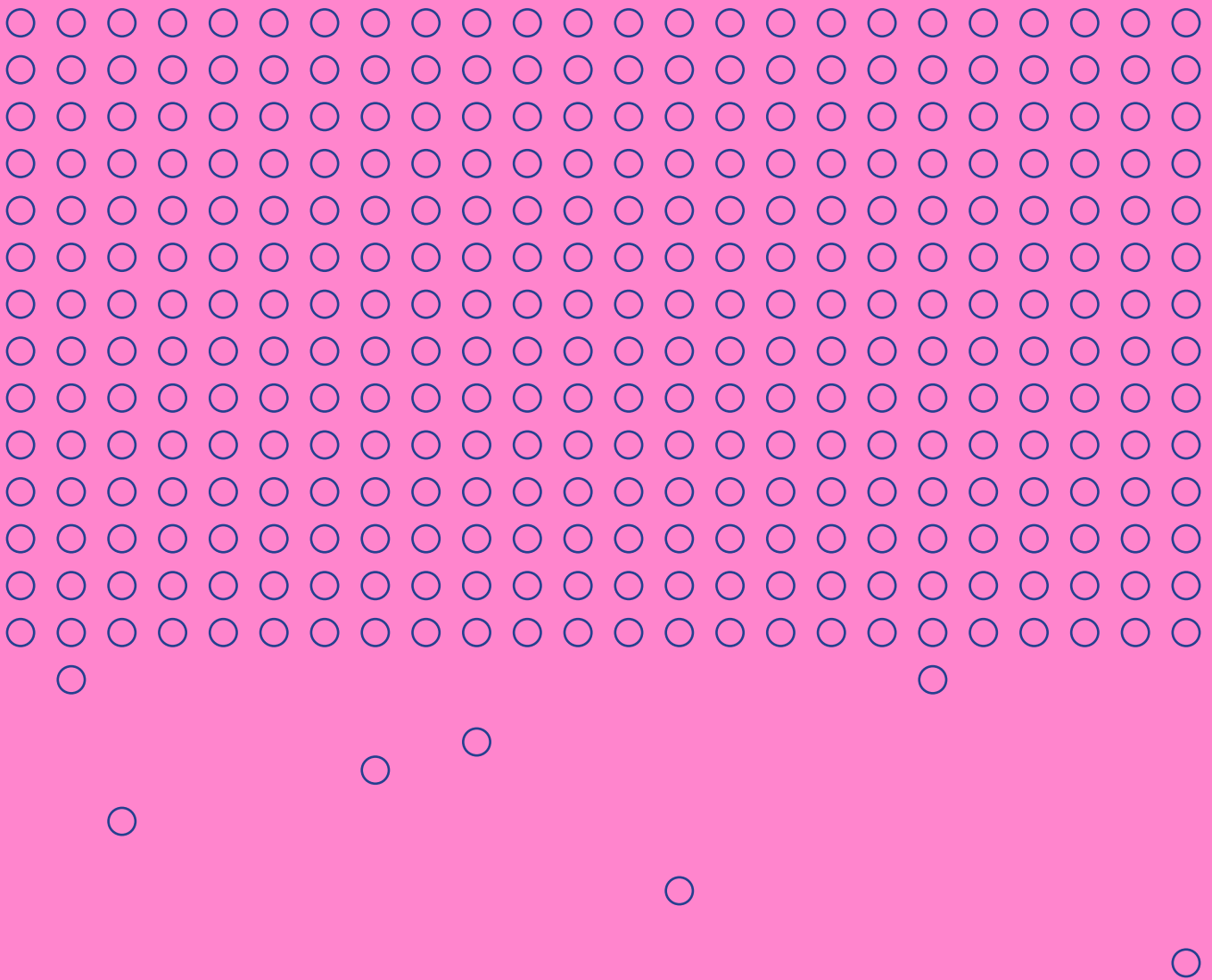
Later innovations in Australian aviation include the all-glass Control Tower built in 1995 at Sydney's Kingsford Smith airport, the first of its kind in the country. Each controller workstation was equipped with five glass displays for Surface Movement Radar, Terminal Area Radar, meteorological data, Voice Switch and Monitoring.⁶⁹ The implementation of the Australian Advanced Air Traffic System (TAAATS) in 1998 led the world with an integrated oceanic, enroute and terminal control system which also provided surveillance over the high seas and controller-pilot data link communications.

A 2014 report undertaken for the conservative American Hudson Institute noted that the most advanced and innovative systems in air traffic control were in Australia, Canada, Germany, Britain and New Zealand where they 'have moved air traffic control into single-mission organisations charging directly for their services, issue revenue bonds for capital improvements, and [are] governed by aviation stakeholders'.⁷⁰ Innovation is also fostered in Australia in areas such as industrial design and aviation psychology.⁷¹



7.2 Distance measuring equipment, 1957
(Photograph Wolfgang Sievers; National Library of Australia)





- In his now classic book *The Tyranny of Distance*, first published in 1966, Geoffrey Blainey asked his readers: ‘Were aircraft ever as miraculous as the first Australian mail steamers which were faster than any other form of passenger transport and carried the latest news as well? Did aircraft shape the lives of Australians more than the network of railways in the nineteenth century? Were aircraft in their first half century ever as miraculous as the international telegraph which conveyed messages and news faster in the 1870s than the latest aircraft can carry them?’.⁷² For Blainey, the answer to all these questions was a vaguely qualified no. This perhaps explains why he only devoted 7 of the 365 pages of his book to the rise of aircraft. Many, however, would disagree with his assessment.

The Tyranny of Distance is essentially a work about the nineteenth century. In terms of modern inventions, it concentrates on the first surge of change in Australia brought about by railways, steamships and the telegraph. The rise of civil aviation was part of the next phase of technological innovation which occurred in the late nineteenth and early twentieth centuries primarily around the development of aircraft, cars and radio.



8.1 A Sopwith F1 Camel plane in front of Sopwith Hangers, possibly at Brooklands, Western Australia, c1917. The rise of air travel was to overcome the tyranny of distance in Australia. (National Library of Australia)



In his book *Wings to the World*, Hudson Fysh, early Australian aviator and chairman of Qantas until 1967, wrote that his generation in the industry had been ‘dealers in time and space’, ‘lifting our former isolation and enabling us to take our part in world affairs’.⁷³ Aircraft increasingly shrank space as they became faster, reducing isolation. Reporting on the 1934 MacRobertson Air Race that had been won by Campbell Black and Charles Scott, the *Argus* wrote that:



*In the [eighteen] ‘sixties Melbourne was 70 to 100 days out from England; a few years ago it was six weeks distant; and in 1926 Sir Alan Cobham opened up a new vista by reducing the time to 27 days. Sir Charles Kingsford Smith made it in 12 days in 1929; and two years later Scott flew to England in 10 days. But the air race has made those flights, valuable as they were as pioneering achievements, seem like leisurely strolls. Where pioneers walked, Scott and Black ran.*⁷⁴



As Graeme Davison has noted, in two generations, people went from measuring international travel time from weeks, to days and finally to hours.⁷⁵

Domestically, remote communities were to benefit enormously from developments in civil aviation. In 1926, the Royal Flying Doctor Service (RFDS) was established as a partnership between the Australian Inland Mission and Qantas. Championed by the Reverend John Flynn, the RFDS was the world’s first aerial medical organisation. Its first flight took off on 17 May 1928. Later, Ernestine Hill was to write that ‘the most elegant cry for the Flying Doctor is a silent one – the station graveyards and the little graves’ that were scattered throughout



outback Australia.⁷⁶ State Department of Health Nurses began to work on the RFDS planes not long after the commencement of the service and in 1947 it employed the Service's first nurse. At the end of the twentieth century nurses – mainly female – were performing around 85 per cent of health care as sole practitioners. Nurse-Doctor teams were used in emergencies. At this time the service was flying around 8.8 million kilometres a year, servicing 155,000 clients, 14,500 of which needed to be hospitalised.⁷⁷



8.2 Dr John Lavern, Sister M. McKay and Dr Don McMaster of the Royal Flying Doctor Service somewhere in Queensland in 1939 (John Oxley Library, State Library of Queensland)



Other services followed. The Aerial Medical Service, operating at the top end of the Northern Territory, was set up in 1943. Established in 1924, the Royal Far West Children's Home developed an aerial transport service in the 1930s and lobbied the NSW government to construct airstrips. Nancy Bird-Walton was employed to run this aerial scheme in 1935.⁷⁸

Civil aviation was to have a significant impact on only a small number of Australians in terms of isolation until late 1960s. It did, however, for many years serve to heighten White Australia's sense of remoteness from the Mother country and, from World War II, the United States as well as its precarious position in Asia. Qantas, for example, did not commence its first services outside the Empire until just after it was nationalised in 1947. In 1978, advertising executive and broadcaster Phillip Adams remarked: 'It's enormously encouraging to see more and more of us queuing at Customs at Mascot or Tullamarine with our cartons full of trannies and Johnny Walker bought at a useful discount in Singapore. It shows our growing sophistication and our ability to come to terms with our Asian destiny'.⁷⁹



8.3 A group mainly of Viscount planes at Eagle Farm Airport, Brisbane, in the 1950s (National Library of Australia)

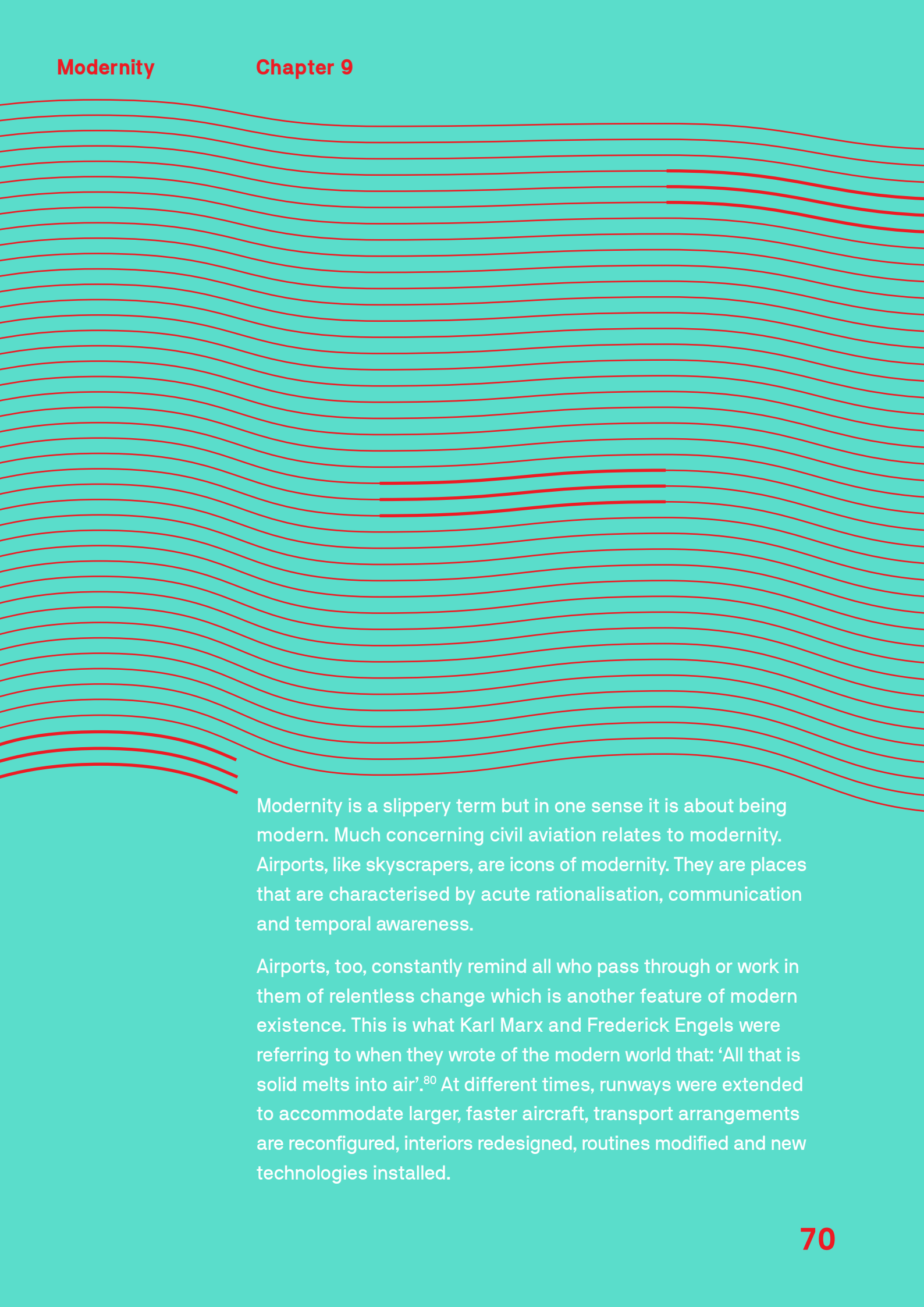


8.4 Qantas poster for the 1960 Rome Olympiad (Private Collection)



8.5 Cover of *The Queenslander Annual*, 1936 (State Library of Queensland)





Modernity is a slippery term but in one sense it is about being modern. Much concerning civil aviation relates to modernity. Airports, like skyscrapers, are icons of modernity. They are places that are characterised by acute rationalisation, communication and temporal awareness.

Airports, too, constantly remind all who pass through or work in them of relentless change which is another feature of modern existence. This is what Karl Marx and Frederick Engels were referring to when they wrote of the modern world that: 'All that is solid melts into air'.⁸⁰ At different times, runways were extended to accommodate larger, faster aircraft, transport arrangements are reconfigured, interiors redesigned, routines modified and new technologies installed.



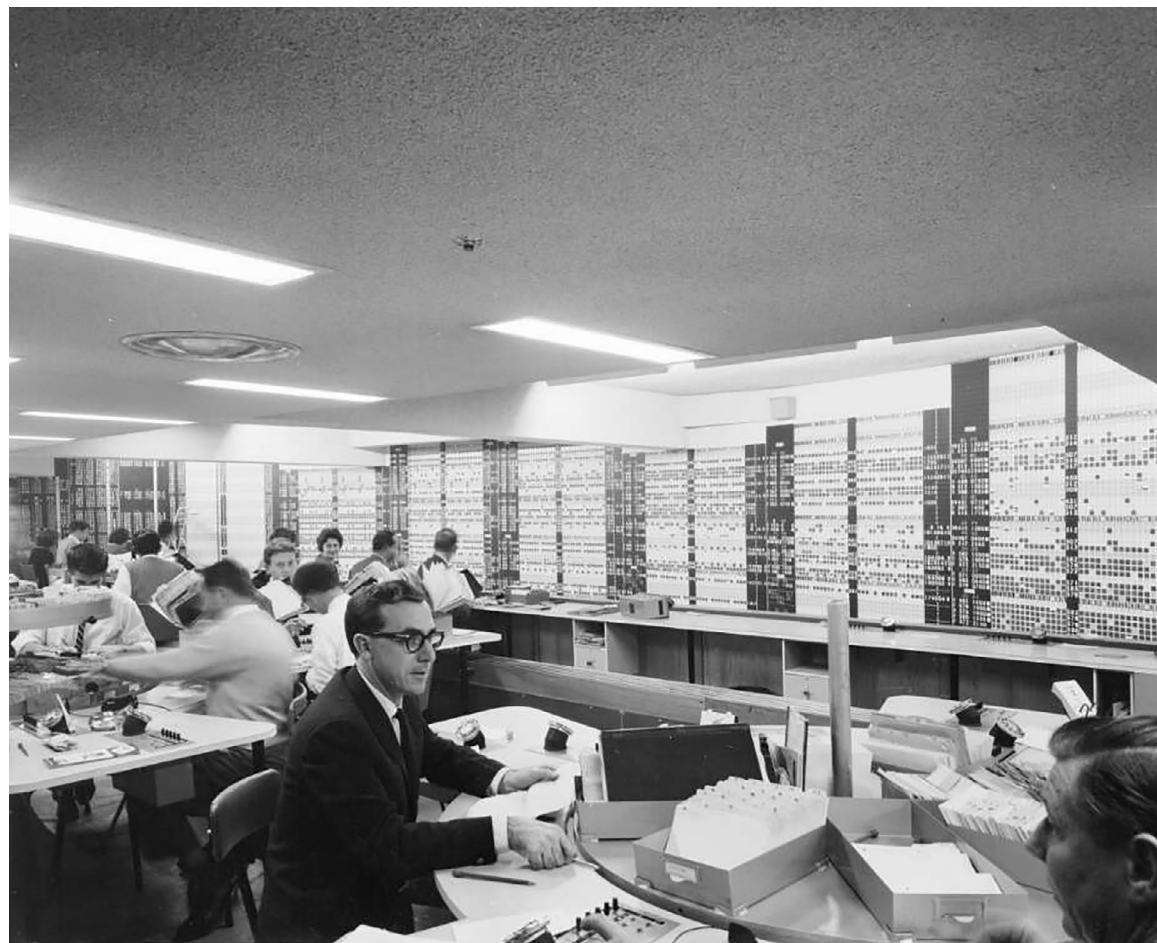
9.1 Aviation House,
Queen Street,
Melbourne, 1966
(Photograph Wolfgang
Sievers; State Library
of Victoria)

The modern airport – and indeed the civil aviation industry as a whole – is also about ‘order, regularity, system and control’.⁸¹ It is an evolving complex of systems and networks which continually solve difficult problems; an information knowledge management system which processes enormous quantities of data. Accompanying this development has been the growth of various professions involved in the aviation industry, professionalization being another feature of modern times.

Some of the larger airports have become ‘glocal’ – globally homogenized with local inflections⁸² – sites for modern consumption. In-transit passengers and others can experience the modern in designer shops. Various photographers were also commissioned at times to capture modernity on film and, more recently, digitally.

In 1962, John Mulligan photographed Sydney's Mascot airport. One image showed off the 'New TAA control room', another the international check-in counters. Both spoke reams about 'order, regularity, system and control'. Progress – the great myth of modernity – was at work in these critical gateways.

A little earlier, Russell Smith had photographed a Qantas Boeing 707-138 jetliner at Avalon airport in Victoria in 1959. It points to civil aviation's role in globalizing modernity. Here, mobility is an agent of modernity – in this case, in the modernisation of Australia, as its citizens began to travel in growing numbers to other parts of the developed world.



9.2 The new TAA control room at Mascot Airport, 1962 (Photograph John Mulligan; National Library of Australia)



9.3 Qantas Boeing 707-138 jetliner at Avalon Airport, Victoria, 1959 (Photograph Russell Smith; National Library of Australia)



9.4 Essendon Airport arrivals lounge and viewing balcony, 1963 (Photograph Wolfgang Sievers; State Library of Victoria)

In the 1920s and 1930s, young women in Australia including Helen Blackburn, Millicent Bryant, Irene Dean, Joan Taubman, Freda Thompson and Nancy Bird-Walton:

“

*took to the skies wearing clothes designed for both comfort and the extremes of temperatures, and stories and images of them in daily newspapers and women's magazines portrayed them as female exemplars of early twentieth century Australian modernism.*⁸³

”

For these women and others who followed them, the sky was the limit. And they pioneered a cosmopolitan modernism and the formation of an international image of the modern woman.

Architecturally, airports conformed to the modernist ideals of purity and vitality of form. Technological efficiency was turned into an aesthetic. This is evident in John Mulligan's image of Sydney International airport's waiting room taken in 1970. Like some of the surrounding airport hotels, much of the airport is a 'machine for viewing'.⁸⁴ These are liminal spaces that connect places. In a way the waiting room became for a while a new frontier. The frontier disappeared from the 1980s with the rise of globalisation and free markets. Marc Auge has suggested that towards the end of the twentieth century large airports have become one of the new transit 'non-places', like shopping malls – part of what he has termed 'supermodernity' – that are characterised by an overabundance of space and information.⁸⁵



Civil aviation involves a complex of entangled networks. On one level there are groups of professionals who work closely together. Air traffic controllers are a key profession. As Greg Hood, then Executive General Manager of Airservices Australia's Air Traffic Control, observed: 'There's only 1000 people who make up the air traffic control profession in Airservices Australia. They're a great workforce. They work 24/7, 365 [days a year]. They don't make too many mistakes'.⁸⁶



Air traffic controllers literally control the movement – the schedules, routes, altitude and speed – of commercial aircraft in the vast area of civilian airspace that Australia regulates. This makes up eleven per cent of global airspace including sections of the Pacific Ocean and the Tasman Sea and large parts of the Indian and Southern Oceans to the South Pole. Controllers have formal and informal networks. One of these is Civil Air Australia, an organisation that advocates for Air Traffic Controllers and Air Traffic Control Support Staff.⁸⁷



10.1 A crowd, including members of the Royal Queensland Aero Club, watching a Fairchild 91 (A-942) amphibian airplane being hoisted onto the Brisbane River in the late 1930s. The airplane was designed in the mid 1930s by Fairchild for Pan American Airways which wanted a flying boat for their routes along the Amazon and Yangtze Rivers. (Argus Newspaper Collection of Photographs, State Library of Victoria)



Various agencies – including Airservices Australia, an Australian Government owned Corporation, and the Civil Aviation Safety Authority (CASA), a Federal Statutory Authority – constantly interact with airlines. This involves a broad range of matters including the daily coordination of flights based on weather forecasts. Agencies also interact with other agencies. Given the enormous amount of data it handles on the movement of airplanes and people, for example, Airservices liaises with other government agencies such as Defense, Customs and Immigration and ASIO, the Australian Security Intelligence Organisation.

Jeff Boyd, an aircraft maintenance engineer, commercial pilot, company director and founder of Brindabella Airlines, was appointed Chair of CASA in July 2014. In an interview, he outlined the complex rules and relationships that exist in the aviation industry around safety. Sometimes, he noted, these can become too complex. He sees his role as helping to

“

realign CASA to be an organisation that's more focussed on what it's meant to be there for, to provide safe and practical rules to work with and provide a good safety oversight of the industry. If some in the industry are working well... whether it's Qantas or a small organisation at Cootamundra, help them do their job... If someone isn't doing their job properly, then come down on them like a ton of bricks...⁸⁸

”

Agencies also cooperate with international bodies and neighbours to ensure safety and security in airspace.



10.2 Australian and New Zealand delegates to the Chicago Convention in 1944: front row (left to right), E. C. Johnston (Assistant Director General, Department of Civil Aviation), Daniel McVey (Director General of Civil aviation), A. S. Drakeford (Minister for Air and Minister for Civil Aviation), Lt. Col. W. R. Hodgson (Secretary, department of External Affairs); back row, A. P. Drakeford, H. R. Adam, W. L. Ellis and H. Neil Truscott; Daniel Giles Sullivan, Minister of Commerce Supply in the New Zealand War Cabinet. (State Library of Victoria)

The International Civil Aviation Organisation (ICAO) arose out of the 1944 Chicago Convention on Civil Aviation, coming into being after ratification of the Convention in 1947. Headquartered in Montreal, Canada, it is the aviation element of the United Nations. Under ICAO guidance and using its standards, States cooperate



with neighbours to ensure access, safety and security in airspace. The international civil aviation community also has a number of umbrella groups including the International Air Transport Association which represents airlines. The Airports Council International (ACI) and the Civil Air Navigation Service Organisation (CANSO) represent providers.

Peter Evans was the Australian representative on ICAO's 36-member Council from 2008 to 2010. He had a long career in civil aviation as an operational air traffic controller, operational manager and senior project and program manager before this appointment. He recalled that when:



You walk into an environment like that... it doesn't matter how much previous experience you've had, you do not understand how an international organisation works until you get in there and watch it. The Council of ICAO is the equivalent of the Security Council of the United Nations... There's a General Assembly every three years but the Council runs the business. As a Councillor you're formally appointed by the Federal Minister [for Foreign Affairs and Trade]... [ICAO] is not the world regulator. But it identifies and sets standards which... [States] are expected to adopt and implement. The intent is to have an internationally standard operation. It has no authority to do anything if you don't. It can audit and pass comment but it can't stop airplanes flying... You can dictate where they flew over your territory but you couldn't prevent them from flying over. We're legally obliged to provide... international service. We've got a whole world out there that's divided up into big lumps of airspace... It's a frustrating organisation but aviation wouldn't work without something like it...

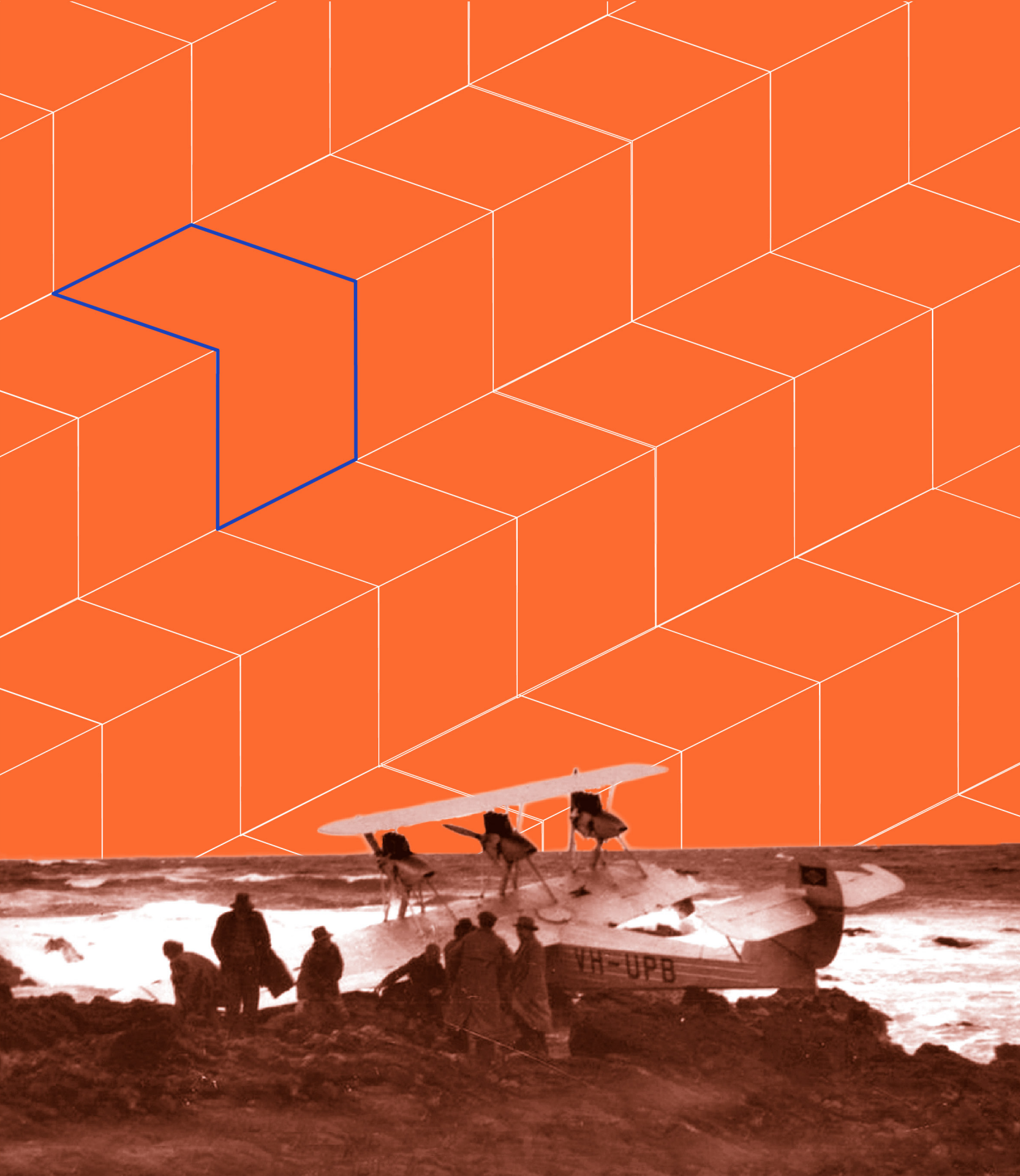


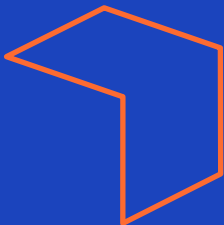
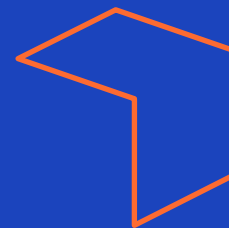
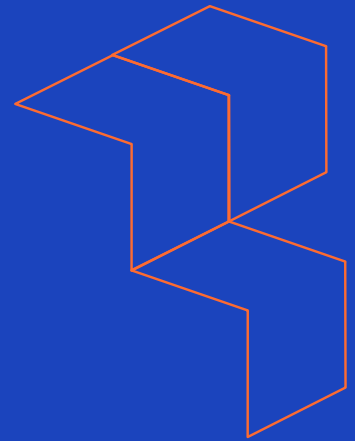
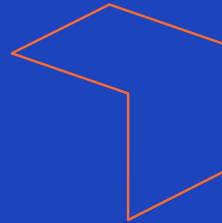
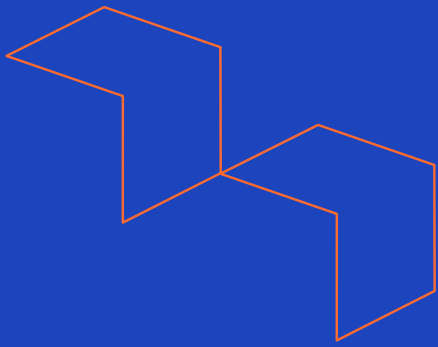
There's one funny process within the Council and they call it Australian editing... The French member of the Council wandered up to me one day and said: 'Do you know where the term Australian editing comes from? Australia was absolutely critical to the establishment of the Chicago Convention [in 1944]... [The Australian representative at that time argued that if an item of discussion was] a problem and you can't get agreement, just take it out.' So Australian editing was a large part of the reason that the Convention got up.⁸⁹

”



10.3 A Cutty Sark plane belonging to Matthews Aviation, taking part in an experimental operation between Victoria and Tasmania, in the early to mid 1930s. Aviation involves networks of production and distribution. A British amphibious plane, the Saro A17 Cutty Sark – called after the vessel of that name – was manufactured by the company Saunders-Roe. The aircraft was first flown in 1929. While it was exported to Australia, Canada, China, the Dominican Republic, Japan and New Zealand, only twelve were built. (Argus Newspaper Collection of Photographs, State Library of Victoria)





For the public by and large, civil aviation was initially perceived to be a dangerous business.⁹⁰ It was associated with warfare as well as the daring escapades of pioneering aviators, significant numbers of whom died in accidents and other misadventures that were widely reported in the media. In 1933 Bert Hinkler was killed when he crashed into the Italian Apennines; Charles Ulm died the following year in a crash in the Pacific Ocean; and Charles Kingsford Smith's plane disappeared over the Bay of Bengal in 1935.



Although deaths in civil aviation were not numerous, there were several high profile disasters in the 1930s that captured the public's attention. On 19 February 1937, a Stinson plane crashed into the Lamington Ranges in Queensland. Of the seven on board, four were killed instantly. A search failed to locate the wreckage but a Beaudesert grazier, Bernard O'Reilly, famously used his bush skills to locate the wreck and two survivors.⁹¹ The story stunned the nation. In the following year, eighteen people, including the Federal MP Charles Hawker, died when their aircraft crashed into Mt Dandenong in a fog. This was a catalyst for the creation of the Department of Civil Aviation.



11.1 An amphibian airplane, 'Windhover' – a three-engine flying boat which carried mail on the Tasmanian route – crashed on King Island in 1936 (State Library of Victoria)



Table 1	Year	Deaths	Year	Deaths	Year	Deaths
Deaths in Civil Aviation, Australia, 1923–88	1923	1	1946	45	1969	47
	1924	0	1947	15	1970	49
	1925	1	1948	50	1971	48
	1926	0	1949	42	1972	37
	1927	4	1950	61	1973	41
	1928	2	1951	13	1974	46
	1929	7	1952	36 ¹	1975	25
	1930	18	1953	5	1976	55
	1931	29	1954	36	1977	45
	1932	7	1955	27	1978	58
	1933	5	1956	22	1979	35
	1934	10	1957	24	1980	61
	1935	28	1958	28	1981	53
	1936	20	1959	21	1982	53
	1937	21	1960	44	1983	47
	1938	10	1961	28	1984	45
	1939	38	1962	52	1985	43
	1940	11	1963	16	1986	44
	1941	3	1964	24	1987	33
	1942	18	1965	21	1988	63
	1943	4	1966	29		
	1944	1	1967	66		
	1945	26	1968	47		

Note

¹ 1952–56 includes Papua and New Guinea
Source: ABS various publications



On 6 March 1937, a referendum was held to amend the constitution to allow the Commonwealth to legislate for air navigation generally. It failed to gain a majority of states.

Australia had ratified the International Convention for the regulation of aerial navigation on 13 October 1919. The Commonwealth *Air Navigation Act*, 1920, came into being to give effect to this Convention. In turn, this Act prompted the Tasmanian *Commonwealth Powers (Air Navigation) Act* of 1920, the 1928 *Commonwealth Arrangements Act* (part 3) in Victoria and the *Commonwealth Powers (Air Navigation) Act* of 1920 in South Australia.

A High Court challenge in 1936, however, found that the Commonwealth did not have constitutional power to make general legislation for the control of air navigation. (It had legislated to implement the Convention via the ‘external affairs’ section [55, xxiv] of the Constitution.) The Court also ruled the regulations invalid as they differed in some ways from the Convention.⁹² They were repealed and replaced by those in the *Air Navigation Regulations*.⁹³ These were to be temporary until the outcome of a referendum to amend the constitution to allow the Commonwealth to legislate for air navigation generally. The High Court Challenge originated on 1 November 1934 when Henry Goya Henry was charged and found guilty at Sydney’s Central Court under the *Air Navigation Act* of breaching a number of regulations at Mascot Aerodrome in September 1934. He was fined £1 with costs.

The referendum was held on 6 March 1937. Some newspapers reported that ‘the only serious opposition comes from railway quarters, particularly in New South Wales and Western Australia. In these quarters’, the *Cairns Post* noted, ‘the view is held that if the Commonwealth has complete power of regulation over the air it will prevent any state from taking action to co-ordinate air and railway transport in connection with air services which are confined to the state’.⁹⁴ Of all voters, 53.56% supported the amendment. But it failed to gain a majority of states and was thus rejected.



In an article in the British magazine *Flight*, Edward J. Hart, former editor of the Australian paper *Aircraft*, told his readers:

“

Between sunrise and sunset of March 6, 1937, the whole aspect of civil aviation in Australia changed from national acceptance of the Air Navigation Act (1921) to what Australia's Prime Minister terms “absolute chaos” – and back has swung the pendulum to the disastrous pre-control era of 1918-20 when a pilot was free to break a neck without breaking an Act...

...In 1918 two so-called commercial aviation companies were registered; one with a nominal capital of £150,000. Twelve others were born in 1919, and fourteen more in 1920. Also there were several private owners – some wholly untrained. Most of these enterprises were short-lived – literally. For three years there was no semblance of official control.⁹⁵

”

In response to the failed referendum, a conference of Ministers of the commonwealth and states, chaired by Robert Menzies, agreed to introduce uniform legislation in each state with administrative responsibility resting with the commonwealth. During the proceedings, Menzies said that he would put a request from Tasmania to the federal cabinet for a comprehensive inquiry into civil aviation. Tasmanian Premier Ogilvie, ‘suggested that the appointment of a royal commission or some similar body was essential to restore public confidence, particularly in Tasmania. His State had a severe experience from aviation disasters’. A new Air Navigation Bill was introduced into federal parliament



later that year. During the second reading, Attorney General Albert Bussau alluded to air safety issues for which new provisions had been developed. These related to ‘flights over the sea; smoking on aircraft; imperilling the safety of aircraft by interference with the crew or by disorderly conduct; carriage of persons on the wings or under-carriage of aircraft; the carriage of intoxicated persons on aircraft; and parachute descents’.⁹⁶

11.2 Aviation Rescue
Fire Fighting Instructor
Wayne Bewley monitors
a training drill involving
new recruit fire fighters
at Airservices Hot Fire
Training Ground in
Melbourne (Photograph
Paul Sadler; Airservices
Australia)





Fatalities in civil aviation have been relatively low and reasonably constant since the 1960s. The majority of accidents involve light aircraft.

Before 1927, accidents were investigated by individually appointed boards of inquiry. Public disquiet led in that year to the establishment of an Air Accident Investigation Committee. Most civil aviation investigations related to minor incidents involving light planes. In 1936-37, for example, the Committee dealt with 107 minor and 15 major accidents.⁹⁷

There was a rapid increase in internal air travel from the 1950s to 1970s in Australia. But fatalities in civil aviation have been relatively low and reasonably constant, considering population increases, from the 1960s. The majority of accidents still involve light aircraft. More accidents and incidents, however, occur more frequently than is commonly understood. In 2002, for example, '107 accidents, 195 serious incidents, and over 7,300 incidents' were reported to the Australian Transport Safety Bureau.⁹⁸

The agencies, departments and organisations currently responsible for civil aviation safety are Airservices, the Civil Aviation Safety Authority, the Australian Transport Safety Bureau, the Department of Infrastructure and Transport and the Bureau of Meteorology. And they have both national and international roles to play. As the Royal Aeronautical Society (Australian Division) has observed, Australia 'is located in what will soon be the largest aviation market in the world. Whilst Australia may be a relatively small player in the global sense, it is recognised internationally for its high technology and safety standards... Australia is... in a strong position to develop aviation policies and operational practices appropriate to our region'.⁹⁹



The most recent developments in safety measures relate to surveillance broadcasting. Greg Hood, Executive General Manager of Airservices Australia's Air Traffic Control, has noted:

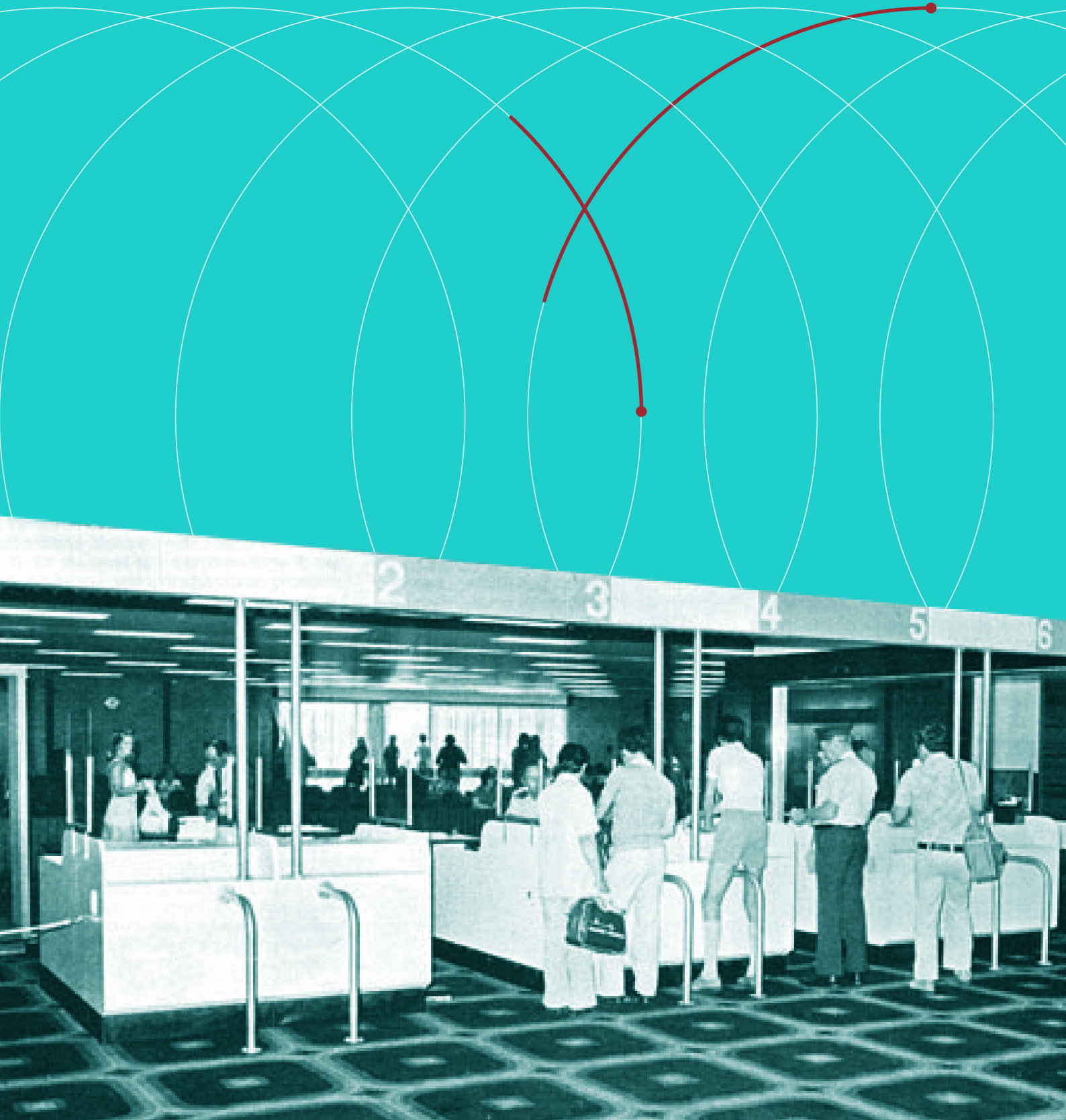
“

About twenty emergencies or unusual events occur every day. Yesterday Brisbane airport was closed because of thunderstorms and flights were diverted to Coolangatta... [we] have to put safety first and efficiency second... We also interface well with our neighbours... we've got ADSB [Automatic Dependent Surveillance-Broadcast] stations along our boundary so if we make a mistake and coordinate an airplane across a boundary at 34,000 feet and then change the level but forget to tell Indonesia, they can see it coming, and the same the other way... so we now have surveillance... We're experimenting at the moment with putting some [ADSB] surveillance on oil rigs up in the north-west... The other emerging technology is space based ADSB. Iridium is about to launch their first satellite in 2017... eventually the whole globe will be covered with satellites which will pick up the ADSB signal and relay it to the ground stations... we haven't got any surveillance coverage for the narrow bodied jets between Australia and New Zealand but with space-based ADSB the ADSB squitter every half a second will be picked up by the satellite and transmitted to the ground stations. So we'll have surveillance across all of the oceans as well... that will also result in the 73 ground stations we have becoming redundant in say a maximum of 25 years.¹⁰⁰

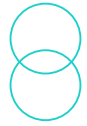
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11.3 Civil Aviation Safety Authority inspector checking an engine c2016 (CASA)



On 1 March 1947, the Convention on International Civil Aviation, also known as the Chicago Convention – signed on 7 December 1944 – came into force in Australia after the requisite number of ratifications had been received from member countries. The Convention created the International Civil Aviation Organization under the United Nations Economic and Social Council and set out rules concerning civil aircraft safety and registration and the governance of airspace.



At the very beginning of the preamble to the Convention, is a declaration that says:

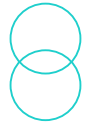
“

*the future development of international civil aviation can greatly help to create and preserve friendship and understanding among the nations and peoples of the world, yet its abuse can become a threat to the general security.*¹⁰¹

”

Signed less than a year before the end of World War II, the Convention sought ‘to avoid friction and to promote that cooperation between nations and peoples upon which the peace of the world depends’.

This was a particularly modernist take on the role of civil aviation at the time. So, too, was the Convention’s underlying insistence on the ‘exclusive sovereignty’ of the State and the dominance of its interests over those of the international community. This, however, was to change from the 1960s with the rise of civil and human rights movements across the Western world. As international aviation lawyer Ruwantissa Abeyratne has noted, this ushered in ‘a postmodernist era of recognition of the individual as a global citizen whose interests at public international law were considered paramount over considerations of individual State interests’.¹⁰² Post September 11 saw a reemphasis on the part that civil aviation can play in facilitating global peace and security through forging transnational bonds and friendships. And it saw security measures loom larger than ever.



Prior to 1960, danger associated with civil aviation in Australia related to accident or misadventure. That year saw the first aircraft hijack in the country. Alex Hilderbrandt, a passenger on TAA's Lockheed Electra 'John Gilbert', threatened to blow up the plane with a bomb made of two sticks of gelignite, a detonator and a battery, if not diverted to Singapore or Darwin. He also had a sawn-off .22 calibre rifle and a spare magazine. Hilderbrandt discharged a shot but he was overpowered by the crew.¹⁰³

The coming of the jet age from the 1960s exponentially increased risks associated with civil aviation. The infamous 1988 Lockerbie bombing of Pam Am flight 103 from Heathrow to JFK International Airport – which killed 259 people – prompted the introduction of x-ray machine luggage scanning in Europe, the USA and the Middle East. In the wake of September 11, body scanners began to be used overseas from 2007; these were introduced in Australian international airports from 2013.¹⁰⁴ The Schapelle Corby case (2004) concerning drug smuggling between Australia and Indonesia raised issues concerning internal airport security.



12.1 Passengers at the primary customs line at Perth International Airport, 1976 (Australian Customs and Border Protection)



12.2 Customs detector dog (Australian Customs and Border Protection)





Civil aviation's contribution to Australian tourism was not significant until the 1970s. Prior to this decade most people who travelled by air to, from and within Australia were businessmen and public servants. Between the two World Wars, tourist bureaus were established by state and territory governments in capital cities. But the modern Australian holiday was a way off. Annual leave, for example, was only introduced into industrial awards from 1936.¹⁰⁵



It was the jet age that saw domestic tourists take to the air. Internationally, the arrival of the wide-bodied jet gave Australia the chance to engage in the global tourist market. Qantas took delivery of its first batch of 747 jumbo jets in 1971. Airlines also began to develop package tours and invest in luxury resorts.

International tourism was vital to the rise of cities such as Sydney and Melbourne as world-class global cities in the 1980s and 1990s. Australia's states were transformed into 'event led' economies.¹⁰⁶ Sydney has its gay and lesbian Mardi Gras, Melbourne its Formula One Grand Prix, international festivals abound and major sporting events such as 'the tennis' see airlines changing their international schedules.¹⁰⁷

Table 1	Year	Arrivals	Flights	Departures	Flights
Civil Aviation, International Passenger Arrivals and Departures and Flights, 1960-2013	1960	93,113	2237	81,328	2226
	1965	251,271	4584	224,237	4626
	1970	529,633	7280	489,155	7225
	1975	1,220,860	13,594	1,171,242	13,419
	1980	2,059,450	10,253	1,959,866	10,225
	2002	4,655,800*			
	2008	5,699,400			
	2013	6,273,000			

Source

Wray Vamplew (ed), *Australians: Historical Statistics*, Fairfax, Syme and Weldon Associates, Sydney, 1987, p181; Australian Bureau of Statistics, ABS 3401.0 Overseas Arrivals and Departures, Australia, June 2013

* Last three year financial years



13.1 An airline promotional image of trout fishing at Adaminaby in the Snowy Mountains, 1962 (Photograph John Mulligan; National Library of Australia)




13.2 Australian travel poster by Percy Trompf (1902-1964), 1934, commissioned by the Australian National Travel Association (State Library of Victoria)



13.3 Western Australian Government Tourist and Publicity Bureau poster, c1960 (State Library of Victoria)





The first formal training undertaken in Australian aviation was done by the Australian Flying Corps in 1914, two years after its establishment at Point Cook in Victoria. The Queensland Volunteer Flying Civilian Corps began operations in 1915. Both civil and military flight training began at the New South Wales Aviation School based at Richmond, on the western outskirts of the Sydney metropolitan area, in August 1916. Opened by the State Governor, Sir Gerald Strickland, the school started with 29 students.¹⁰⁸



Attempts to develop flight simulators began around 1910. Edmond Link patented the 'Link Trainer' in the USA in 1930. Their popularity grew and in 1937 the first Link Trainer was sold to an international carrier – American Airlines. Some were delivered to Australia in the late 1930s.¹⁰⁹

Developments in electronics and analogue computing during World War II were to pave the way for the modern flight simulator. The 1960s saw a strong shift to digital simulators. Ray Page has contended that: 'The basis for the credibility that the Stimulation Industry enjoys today is due to the efforts of a relatively small number of airlines to establish common standards for flight stimulation, which led to the granting of training credits by regulatory authorities for use of a flight simulator for the training and licensing of crew'.¹¹⁰ Today, the Ansett Aviation Training facility near Tullamarine International airport contains eleven full-flight simulators.¹¹¹

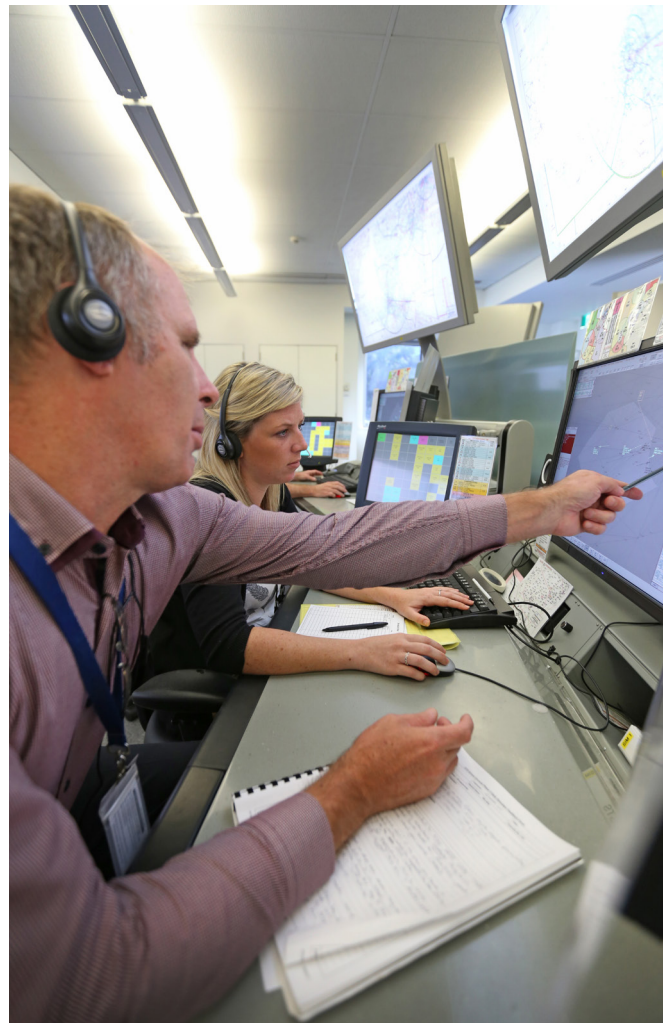
The rise of modern passenger airlines from the 1930s brought with it the need for various types of training for pilots and cabin crew – stewards and, from 1936 in Australia, stewardesses – and ground staff. New ways of processing passengers generated training needs. Airport hangars and workshops became training grounds for apprentices and places for the retraining of older hands.

Safety and security generally drove training requirements. The invention of inflatable slides in 1954 – which replaced canvas slides that were previously used in some passenger aircraft – necessitated the training of a range of staff from flight attendants to maintenance staff.¹¹²



14.1 Ex-servicemen in a classroom at Essendon on a one-month training course with Australian National Airways instructors to convert to civil aviation (Argus Newspaper Collection of Photographs, State Library of Victoria)

14.2 Air traffic controller in training Francine Oryino and En Route Instructor Geoff Weston during a training exercise on the en route simulator at Airservices Melbourne Air Traffic Services Centre (Photograph Paul Sadler; Airservices Australia)





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Chronology

THE 7 KEY THEMES



Accidents



Milestones



Military



Industry Bodies



Tourism



Infrastructure



Exploration

1894 | Lawrence Hargrave lifted off ground through a train of 4 box kites (which he had invented prior year).

1909 | Australian Government offers a 5000 pound prize for the invention of an Australian 'flying machine' for military purposes.

1909 | George A. Taylor makes the first 'heavier than air' flight at Narrabeen – a series of 'hops'.

1910 | First controlled flight in Australia made by Harry Houdini (visiting) at Digger's Rest, Vic in a Voisin biplane (though this is subject to debate).

1910 | (16 July) First flight of an Australian built aircraft made by John Robertson Duigan.



- 1911** | | Aerial League of Australia established to regulate a fledgling 'reckless' industry.
- 1911** | | Douglas Mawson planned to use a plane in his 1911-12 Antarctic expedition but the plane crashed during a fund-raising demonstration in Adelaide; extensive use of aircraft in Antarctic exploration from the 1920's.
- 1912** | | International death toll of aviators 127.
- 1912** | | Australian Flying Corps (AFC) established as a branch of the Australian Army; flight training commenced in 1914.
- 1912** | | Australia's first Aviation School established in Penrith NSW by William Hart.
- 1914** | | First air base established at Point Cook, Victoria, as Australian Flying Corps's Central Flying School.
- 1914 -1918** | | WWI – Australian Flying Corps sent troops to assist.
- 1916** | | NSW Aviation School formed and began civil and military training at Richmond.
- 1919** | | Mascott (Sydney) established as one of Australia's first civil aviation aerodromes.
- 1919** | | (December) First air trial between England and Australia successfully completed by Ross and Keith Smith.



- 1920-1930 || 'Heroic Age' of Australian aviation.
- 1920's || Major period in Australia for the manufacture of small aircraft.
- 1920-1930 || Multiple engines improved aircraft safety.
- 1920's || Aircraft used widely in Australian inland exploration (eg C.T. Madigan and Donald Mackay).
- 1920 || (2 December) Air Navigation Act introduced.
- 1920 || Paul McGinnes and Hudson Fysh, former Australian Flying Corps officers, established what became Qantas.
- 1920 || Temporary airfield at Brighton (Hobart) Tasmania.
- 1921 || (28 March) Civil Aviation Board becomes operational.
- 1921 || First Commonwealth licenses issued.
- 1921 || Royal Australian Air Force (RAAF) established.
- 1921 || Western Australian Airway Ltd (WAA) established by Major Norman Brearley; first regular air mail service in Australia.
- 1922 || Australia signs the International Convention Relating to Air Navigation.
- 1922 || Essendon Airport opened.
- 1924 || Goble and McIntyre complete the first aerial circumnavigation of Australia.



- 1924** || Australian Aerial Services formed by Herbert Larkin and Major Frank Roberts.
- 1924** || Enclosed cabins become generalised for passenger and mail aircraft (passengers did not wear goggles and helmets).
- 1925** || Eagle Farm Airport opened; site near racecourse used by aircraft from 1922.
- 1926** || Royal Flying Doctor Service established by John Flynn; first flight 1928.
- 1926** || Guinea Airways established by C.J. Levien using all-metal Junkers; massive cargo lifts.
- 1926** || Proliferation of aero clubs.
- 1927** || Australia had 45 Commonwealth aerodromes, 12 licensed private aerodromes, 2 private fields and 91 emergency landing grounds.
- 1927** || (27 March) Australian Aerial Medical Service forms.
- 1927** || (28 March) Millicent Bryant became the first woman to gain a pilot's license.
- 1927** || (June) Smith and Ulm's round-Australia circuit, 10 days 5 hours.
- 1928** || (February) Bert Hinkler makes first solo flight from England to Australia in Avro Avian in a little over 15 days.



1928 (May-June) Charles Kingsford Smith and Charles Ulm make first trans-pacific flight from US to Australia (crossing the Tasman).

1930's Proliferation of domestic airlines.

1930 Tasmania's first aerodrome opened at Western Junction.

1930 Australian National Airways (ANA) flies inaugural flight.

1930 Murray Valley Aerial Services Ltd established by Herbert Larkin.

1930 Amy Johnson makes solo flight from Britain to Australia.

1930 First female flight attendant, 25-year-old American nurse Ellen Church, began working for United Airlines.

1930 Eagle Farm Airport moved to Archerfield.

1931 Australian government considered establishment of an Australian-British experimental airmail service; tenders called for in 1933.

1931 New England Airways established.

1932 Holyman's Airways established.

1932 Gravel runways introduced at Mascot.

1932 Wireless facilities introduced at Mascot.



1933 || Bert Hinkler dies in crash in Italian Apennines.

1934 || (January) QANTAS and Imperial Airways set up subsidiary named Qantas Empire Airways (called QEA or Qantas); first London to Brisbane flight December known as the Kangaroo Route.

1934 || (October) London to Melbourne Air Race (aka MacRobertson Air Race).

1934 || Ulm dies in crash in the Pacific.

1930's || Rise of all-metal planes with higher cruising speeds (around 170 miles (275kms) per hour; retractable landing gear; and climate control.

1935 || Charles Kingsford-Smith dies in crash in Gulf of Bengal.

1935 || Wireless facilities introduced at Essendon.

1935 || Ansett founded by Sir Reginald Myles.

1935 || Nancy Bird Walton began running an aerial service with the Royal Far West Children's Health Scheme.

1935 || Qantas took over Darwin-Singapore section of the Royal Mail route.

1936 || Mascot renamed Kingsford Smith Airport.

1936 || Work began on Hobart's airport at Cambridge.

1936 || Adelaide Airways Ltd established.

1936 || Commonwealth Aircraft Corporation established; included the Beaufort Division (later called the Government Aircraft Factories; built a total of 775 aircraft).



- 1936** || Reginald Ansett begins flights between Melbourne and Hamilton; moved operations to Essendon Airport in 1937.
- 1936** || WAA collapses; fleet of 21 aircraft acquired by Adelaide Airways Ltd.
- 1936** || (March) Marguerita Grueber and Blanche Due first airhostesses in Australia with Australian National Airways (ANA).
- 1937** || Empire Air Mail Scheme begins.
- 1937** || Australian ban on importing non-British aircraft lifted.
- 1938** || (25 October) Douglas DC-2 Kyeema crashed in fog into Mt Dandenong; all 18 people on board were killed including federal MP Charles Hawker; enquiry led to the formation of the Department of Civil Aviation.
- 1938** || (14 November) Civil Aviation Branch (retitled Civil Aviation Board in 1930s) renamed Department of Civil Aviation; civil aviation separated from defence.
- 1938** || Qantas introduces Short C Class Empire metal flying boats to meet growing demand (due to earlier restriction on importing non-British aircraft); terminus at Rose Bay, Sydney; service discontinued in 1942 due to fall of Singapore.
- 1938-1940** || Department of Civil Aviation constructs new terminals and control towers at Archerfield, Mascot and Parafield using British designs in use in other countries.
- 1939** || (17 December) Empire Air Training Scheme agreement signed by Australia.



1939 -1945 Most Qantas aircraft and crew taken into or chartered by military.

1939 (March) First flight of Wirraway aircraft.

1939 -1945 War boosts aircraft manufacture in Australia.

1940 Royal Australian Air Force Nursing Service comes into existence.

1942 Holyman Airways took over Airlines of Australia; Holyman's Australian National Airways (ANA) dominant services from the 1930s to the mid 1940s.

1943 Department of Civil Aviation releases Post-war Reorganisation: Proposal Outline of a Plan for Civil Aviation: beginnings of two-airline policy.

1944 44,000 people employed in aircraft manufacturing.

1945 Wartime radar technology applied to civil aviation.

1945 National Airlines Act; unsuccessfully challenged in High Court.

1945 Trans Australian Airlines (TAA) established under National Airlines Act; operational from 1946; operated routes previously run by Australian National Airways (ANA) plus Qantas' international Northern Territory and Queensland flights from 1949 and PNG routes from 1960.



- 1946** | (February) Creation of Australian National Airways Commission, Arthur Coles chair; 8 February formation of Trans-Australian Airlines.
- 1947** | (1 March) Convention on International Civil Aviation, or the Chicago Convention (signed in 1944), comes into force in Australia.
- 1947** | (October) First RAAF helicopter (Sikorsky S-51) test-flown, Laverton, Victoria.
- 1947** | Qantas nationalised by Chifley Labor Government for international aviation; federal government purchased BOAC's shares in QEA then Qantas shares in QEA.
- 1947** | Qantas commenced regular 'kangaroo route' from Australia to the UK.
- 1947** | Ansett introduces direct flights to Barriers reef islands with Catalina flying boats.
- 1947** | East-West Airlines founded in Tamworth, NSW, to 'fight the city based airline monopolies' (TAA and Qantas see as Sydney based; Ansett, Melbourne); third largest domestic airline by 1980s.
- 1947** | Qantas introduces first route outside British Empire: Sydney-Tokyo via Darwin and Manila.
- 1948** | TAA introduces the Convair, first pressurised aircraft in Australia.
- 1948** | Qantas introduces 'Wallaby Route' from Australia to south Africa.



- 1950** || Australian Women Pilots' Association (AWPA) formed by Nancy Bird-Walton.
- 1951** || (8 August) TAA DC-3 crashed near Hobart having just taken off for Melbourne; both crew killed; TAA's first fatal accident.
- 1952** || Two Airlines Policy formally established though in practice operational since 1945; in place until 1990.
- 1952** || (1 September) Qantas Empire Airways Constellation Charles Kingsford Smith departs from Sydney on first 'Wallaby' service between Australia and South Africa.
- 1952** || (16 October) Qantas inaugurates first service to Europe: Cairo route via Beirut to Frankfurt.
- 1952 -1992** || Over 500 Jindivik pilotless aircraft built by Government Aircraft Factories.
- 1953** || (14 August) Lt W.H. Scott test-flew first CA Avon-engineered Sabre at Avalon: first sonic booms in Australia.
- 1953** || TAA introduces first propjets for domestic routes (Vickers Viscount 700).
- 1953** || 'Tourist' (ie economy) class introduced.
- 1954** || Dr David Warren at Aeronautical Research Laboratories explains an idea for a device that would become known as the 'black box'.



- 1956** || Ansett purchases first Carvair nose-loading freight planes.
- 1957** || (October) Ansett buys Australian National Airways (ANA) forming Ansett-ANA.
- 1958** || Airline Equipment Act; airlines had to purchase the same aircraft and begin operating them at the same time.
- 1959** || Department of Civil Aviation has air traffic control in 24 aerodromes.
- 1959** || Guinea Airways purchased by Ansett and rebadged Airlines of South Australia.
- 1960** || (19 July) First aircraft hijack in Australia: a passenger on TAA's Lockheed Electra 'John Gilbert'; Alex Hilderbrandt threatened to blow up the plane if not diverted to Singapore or Darwin; passenger restrained.
- 1960's** || The 'jet age' ushers in a boom in passenger flight.
- 1961** || First radar navigation charts published.
- 1961** || Australia first country to make the fitting of 'black box' to aircraft mandatory.
- 1961** || Tullamarine airport developed; runway finished 1968; introduction of Jumbo jets forced extension of runway.
- 1964** || TAA and Ansett start using jet aircraft (Boeing 727s) on domestic flights.
- 1966** || Last large domestic airliner major crash in Australia (Winton, Queensland).



- 1967** || Qantas formally changes its title from Qantas Empire Airways to Qantas Airways Limited.
- 1969** || (1 July) PM John Gorton opens Melbourne Airport at Tullamarine; finish of international flights to Essendon.
- 1969** || Ansett became Australia's dominant domestic airline.
- 1970-1980** || Approximately 170 Nomad utility aircraft built by Government Aircraft Factories.
- 1970** || Mascot's new international terminal opened by Queen Elizabeth II; almost immediately unable to deal with increased traffic.
- 1971** || (September) 747 Jumbo jets delivered to Qantas; 767s purchased from 1986 to service routes with less passengers.
- 1972** || Mascot's main north-south runway reaches 3962m after 2 extensions from the 1960s.
- 1973** || (30 November) Department of Civil Aviation merged with Department of Shipping and Transport to form the Department of Transport, Air Transport Group.
- 1974** || Last flying boat service ended 10 September (run by Ansett between Rose Bay and Lord Howe Island with Sandringham Beachcomber: last regular service in the world).



- 1974** | | Qantas evacuates 673 passengers on flight from Darwin after Cyclone Tracy disaster; world record.
- 1974** | | Christine Davy first passenger airline pilot; appointed Senior Captain with first Class Air Transport Licence at Connair, based at Alice Springs.
- 1976** | | (6 October) World's first terrorist attack on a passenger aircraft (Cuban flight 455).
- 1979** | | Deborah Wardley used equal opportunity legislation to take legal action against Ansett Airlines, alleging it had discriminated against her in an attempt to train as an airline pilot.
- 1980** | | (22 January) Deborah Wardley undertakes her first commercial flight: co-piloted an Ansett Australia Fokker Friendship from Alice Springs to Darwin.
- 1982** | | (7 May) Air Transport Group reformed as the Department of Aviation established.
- 1982** | | (7 June) Bureau of Air Safety Investigation established as an independent unit in the Department of Aviation.
- 1986** | | Chicago Convention on International Civil Aviation ratified in Australia through the Air Navigation Amendments Bill.
- 1986** | | TAA announces name change to Australian Airlines at the same time as first delivery of its Boeing 737-300s.



- 1987** (24 July) Department of Aviation moved into the Department of Transport and Communication; Commonwealth government decides to deregulate domestic aviation in 3 years.
- 1988** (1 July) Civil Aviation Authority established to control aviation safety regulation and provide air traffic services; responsibility for domestic and international policy remained with Department of Transport and Communications.
- 1988** Federal Airports Corporation established.
- 1989** (August-December) Pilots' strike.
- 1990** Two-airline policy terminated (1 November).
- 1990** (December) Compass airlines becomes operational.
- 1990's** International deregulation of the aviation industry.
- 1990's** Asian airlines penetrate Australian travel market.
- 1990's** Rise of international airline alliances.
- 1990's** Rise of customer loyalty programs and frequent flyer points.
- 1992** Civil aviation deregulation.
- 1992** TAA sold to Qantas.
- 1992** Qantas privatised after passing of Qantas Sale Act 1992.



1993 | | British Airways purchases 25% holding in Qantas.

1994 | | Sydney Airport's 'third runway' completed.

1994 | | Commonwealth government announces that all airports run by the Federal Airports Corporation would be privatised.

1995 | | (1 July) Civil Aviation Safety Authority established.

1995 | | (6 July) Civil Aviation Authority divided into 2 separate bodies: Airservices Australia responsible for airspace management, aeronautical information, communications, radio navigation aids, airport rescue and fire fighting services and aviation search and rescue; the Civil Aviation Safety Authority responsible for safety regulation, pilot and aviation engineers licensing and certification of aircraft and operators.

1997 | | Responsibility for aviation search and rescue transferred from Airservices Australia to Australian Maritime Safety Authority.

1997 | | Brisbane and Melbourne International Airports privatised.

1998 | | Adelaide, Canberra, Hobart, and Perth International Airports privatised.

1999 | | Airservices Australia begins using The Australian Advanced Air Traffic System (TAAATS).

1999 | | (1 July) Bureau of Air Safety Investigation amalgamated with other investigation agencies into Australian Transport Safety Bureau.



- 2000 | | Virgin Blue (now Virgin Australia Airlines) operational.
- 2001 | | September 11 terrorist attacks in USA.
- 2002 | | Liquidation of Ansett Australia.
- 2002 | | Regional Express Pty Ltd (Rex) airline founded (purchased Hazelton and Kendell Airlines).
- 2002 | | QantasLink established.
- 2002 | | Kingsford Smith Airport privatised.
- 2003 | | Tiger Airways established (Singapore based).
- 2003 | | Jetstar established (Qantas subsidiary); operational 2004; begins flying to Singapore 2004 and New Zealand in 2005.
- 2008 | | (September) Qantas' first Airbus Industrie A380 delivered.
- 2020 | | Centennial of Australian Aviation.



Communications

Development of the complex array of communications and information processes and technology in civil aviation

Examples:

- Flight Information Display Systems
- New control towers and terminals at Archerfield, Mascot and Parafield (1938–40)
- Aircraft telephones

National Thematic Framework Theme/s:

- 5 Building a Nation: 5.6 Transport and communication



Community Building

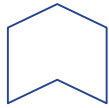
Civil aviation's role in the evolution of regional and remote communities

Examples:

- Regional airline facilities
- Regional airline brands
- Defunct airlines

National Thematic Framework Theme/s:

- 3 Peopling the land: 3.2 Changing ways of life
- 5 Building a Nation: 5.6 Transport and communication
- 6 Living as Australians: 6.4 Memorialising events and people



Defence

Advances in civil aviation brought about by research and development as well as other contributions by defence forces and contributions of civil aviation to wartime activities

Examples:

- Items relating to early radar use in civil aviation
- Deployment of aircraft to war efforts

National Thematic Framework Theme/s:

- 3 Peopling the land: 3.2 Changing ways of life
- 5 Building a Nation: 5.6 Transport and communication
- 6 Living as Australians: 6.4 Memorialising events and people



App 1.1 A Qantas Empire Airways passenger aircraft being used to move occupation troops into Korea, 1950 (Argus Newspaper Collection of Photographs, State Library of Victoria)



Empire

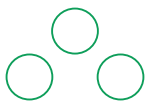
Products or by-products of imperial relations, mainly with Britain

Examples:

- Short C Class Empire metal flying boats introduced by Qantas due to the restriction on importing non-British aircraft
- New control towers and terminals at Archerfield, Mascot and Parafield (1938-40) based on British designs
- Empire air mail scheme

National Thematic Framework Theme/s:

- 3 Peopling the Land: 3.2 Changing ways of life
- 4 Understanding and Shaping the Land: 4.5 Exploration and settlement
- 5 Building a Nation: 5.6 Transport and communication
- 6 Living as Australians: 6.4 Memorialising events and people



Environment

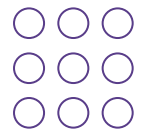
Environmental by-products (both positive and negative) of the development of civil aviation

Examples:

- Items relating to aircraft noise
- Planning
- Global warming

National Thematic Framework Theme/s:

- 3 Peopling the land: 3.2 Changing ways of life
- 5 Building a Nation: 5.6 Transport and communication



Identity

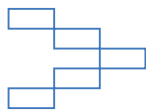
Contributing to the development of national, city and regional identity as well as airline branding

Examples:

- Qantas taking over Darwin-Singapore section of Royal Mail route (1938)
- Airline insignia and livery
- Memorabilia
- Quarantined culture between the wars

National Thematic Framework Theme/s:

- 5 Building a Nation: 5.6 Transport and communication
- 6 Living as Australians: 6.4 Memorialising events and people



Innovation

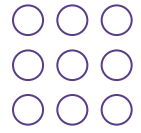
Responses to the changing needs of Australian and international aviation

Examples:

- The Rodoniscopes
- The 'black box'
- Distance Measuring Equipment

National Thematic Framework Theme/s:

- 5 Building a Nation: 5.6 Transport and communication
- 6 Living as Australians: 6.4 Memorialising events and people



○○ ○ Isolation

Responses to Australia's geography as well as its location in the world – the 'tyranny of distance'

Examples:

- Remote civil aviation facilities and infrastructure
- Royal Flying Doctor Service
- Items relating to aeromedical evacuation

National Thematic Framework Theme/s:

- 3 Peopling the Land: 3.2 Changing ways of life
- 4 Understanding and Shaping the Land: 4.5 Exploration and settlement
- 5 Building a Nation: 5.6 Transport and communication
- 6 Living as Australians: 6.4 Memorialising events and people

— — — Modernity

Being and becoming modern; involving the processes of modernisation and/or modernism (western artistic movement expressed in architecture, literature, art and music)

Examples:

- 1930s control tower
- Facilities for women pilots
- Memorabilia such as advertising posters

National Thematic Framework Theme/s:

- 3 Peopling the Land: 3.2 Changing ways of life
- 5 Building a Nation: 5.6 Transport and communication
- 6 Living as Australians: 6.4 Memorialising events and people



Networks

The complex web of relationships between authorities, agencies, companies and corporations involving a range of professions and technologies

Examples:

- Agency and authority headquarters
- Sites of work
- Memorabilia such as photographs

National Thematic Framework Theme/s:

- 5 Building a Nation: 5.6 Transport and communication
- 6 Living as Australians: 6.4 Memorialising events and people



Safety

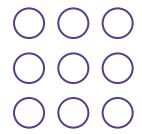
Development of processes and technologies to facilitate safe civil aviation

Examples:

- Signage
- X-ray machines

National Thematic Framework Theme/s:

- 3 Peopling the land: 3.2 Changing ways of life
- 5 Building a Nation: 5.6 Transport and communication



Security

Preventing criminal activity, undertaking surveillance and working with other Australian and overseas governmental agencies

Examples:

- Close circuit TV
- Metal detectors

National Thematic Framework Theme/s:

- 3 Peopling the Land: 3.2 Changing ways of life
- 5 Building a Nation: 5.6 Transport and communication



Tourism

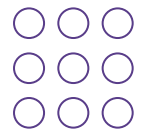
Domestic and international movements of tourists

Examples:

- Advertising
- Tourist related facilities

National Thematic Framework Theme/s:

- 3 Peopling the land: 3.2 Changing ways of life
- 5 Building a Nation: 5.6 Transport and communication
- 6 Living as Australians: 6.4 Memorialising events and people



Training

Development of processes and technologies for training people employed in civil aviation

Examples:

- Flight simulators
- Aviation schools (from 1916)
- Engineering workshops

National Thematic Framework Theme/s:

- 5 Building a Nation: 5.6 Transport and communication

Notes on Contributors



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