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THE VULCAN OPTION FOR THE RAAF

By

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INTRODUCTION

For Australia, the decade following World War II witnessed major changes in our defence policy and international alliances. The immediate tasks facing the Commonwealth government in the post-war period revolved around the demobilisation and repatriation of Australian servicemen, provision of an occupation force to Japan, the restructuring of the defence forces and a return to a peacetime economy. The war certainly focused attention on the concept of home and regional defence. The Korean conflict confirmed South East Asia as the sphere in which our regional defence should develop.

By the early 1950s the international community had become aligned into two blocs, the Western Alliance and the Communist Bloc. This period was accompanied by the proliferation of nuclear weapons, with the United Kingdom joining the United States and the Soviet Union in the nuclear club in 1952,¹ to be followed by France in 1960. The nuclear threat held a pre-eminent position in international politics. The technological focus was directed to refining nuclear weapons and to developing accurate delivery and countermeasure systems. The development of conventional weapons and military hardware also continued at a rapid pace.

Analysis of military equipment purchases, particularly of equipment as sophisticated as aircraft, can provide valuable corroborative evidence of the contemporary military and political thinking. To concentrate attention on those aircraft taken on charge by the RAAF provides but part of the story of military thinking and planning. Often analysis of the evaluation process of those aircraft considered and perhaps even recommended for purchase yields a broader view of military and political reasoning of a particular epoch. The consideration of the Avro Vulcan is a case in point. The mid and late 1950s, when the Vulcan came under RAAF scrutiny, was to be a transitional period where the whole question of aircraft requirements would be closely evaluated against a background of rapid advances in technology and changing defence requirements. This evaluation encompassed not only the mission requirements but also weapon systems, including the nuclear option.

The Vulcan had its origins in the Air Staff as Operational Requirement 229, finalised towards the end of 1946. The project was ratified by Britain's Ministry of Supply with the issue of Specification B.35/46 in January 1947. Avro Type 698 was designed to this specification. The Operational Requirement called for a bomb carrying capacity of 20,000 lbs and a bomb bay configuration to enable the carriage of a 'Special Bomb'² with a maximum diameter of 60 inches and an overall length of 290 inches.³ This was to be a *nuclear capable aircraft*. During its long operational life the Vulcan operated in varying strategic roles and different operational modes. As a strategic bomber it operated initially at high level before its switch to tactical low level operations. Towards the twilight of its career some aircraft were modified for a maritime reconnaissance role and others as tanker aircraft.⁴

¹ Britain exploded its first atomic weapon at Montebello on 3rd October 1952.

² The euphemism for the atom bomb.

³ Appendix "B" to Specification B35/46, DB 57990/3/632 60 1/47 R. The length of this weapon was stated to be a first estimate only.

⁴ *Aviation Heritage*, Vol. 25, No. 4, p 82. 'The RAF Vulcan in Australia', gives a brief outline of the operational roles

In 1954, with less than a quarter of the Government Aircraft Factories Canberra aircraft delivered into squadron service, an air mission, led by Air Vice-Marshal A. M. Murdoch,⁵ departed Australia charged with the responsibility of selecting aircraft to meet the RAAF's needs into the 1970s. The Air Attaché in Washington and the Air Officer Commanding the RAAF Headquarters in London were instructed to obtain preliminary information relating to the new generation of aircraft. The relevant aircraft and engine manufacturers were contacted and requested to prepare documents detailing the information that the air mission would require. A. V. Roe & Co. Ltd. had prepared a paper, 'A Comparison of Bomber Performance',⁶ and this was made available to the RAAF. This paper compared the V-bomber, the Canberra and the Boeing B-47B Stratojet. Armed with RAAF operational requirements for bomber aircraft (No. OR/AIR36), fighter aircraft (No. OR/AIR34), medium range transport aircraft (No. OR/AIR33) and an Applied Jet Training aircraft (NO. OR/AIR37), the Murdoch mission⁷ left Australia for the United Kingdom on 17 October 1954. Apart from the more precise requirements stipulated in OR/AIR36 the mission was to consider bomber aircraft on the basis of the selected aircraft entering squadron service from mid-1959 replacing the Canberra. Without precluding the local manufacture of some components and spares it was felt that, '[b]ecause of the high cost, the complexity, and the relatively small numbers required of this type, these aircraft may be purchased overseas'.⁸

The brief given to the mission in relation to the bomber and OR/AIR36 originated in 1954, when the RAAF Air Staff were directed to submit a recommendation on the most suitable aircraft to fulfil its bomber requirements. The Directorate of Operations produced a document⁹ in May 1954 detailing the bomber requirements to meet Australia's defence commitments 'of the foreseeable future'.

These defence commitments were established by the lessons of the Korean war, the United States' desire to rebuild Japan and contain communism to the Asian mainland and the changing relationships with Britain. The Korean War was to have political consequences extending far beyond the contemporary events. It highlighted the political instability within South-East Asia and emphasised the need to improve the living standards of the peoples of the region as a bulwark against communism. On a strategic level, Australia's prompt response to North Korea's invasion of the South influenced American opinion and aided the signing of the ANZUS Treaty in 1951. The dominant reason for the signing of this Treaty was, 'in compensation for Australian and New Zealand agreement to the conclusion of a "soft" peace treaty with the Japanese in 1952, the Treaty of San Francisco'.¹⁰ The Korean conflict again demonstrated the lack of preparedness of the RAAF in terms of aircraft. Commonwealth Aircraft Corporation Mustang aircraft of No. 77 Squadron deployed from Japan were totally outclassed by the MiG-15. The Gloster Meteors hurriedly

⁵ 1954 Aircraft Mission, Report on Investigations in the United Kingdom & North America, Part 1 & 2, 'The Murdoch Report'.

⁶ Copy in AA CRS A1196, File 1/501/717.

⁷ Led by Air Vice-Marshal A. M. Murdoch the group included Group Captain E. Hey, J. Hanford Stevens, Group Captain B. A. Eaton, N. W. Hodgson, D. G. Humphries and I. B. Fleming.

⁸ 1954 Aircraft Mission, Report on Investigations in the United Kingdom & North America, Part 1, p 5.

⁹ 'The Most Suitable Bomber Aircraft To Meet the Current R.A.A.F. Requirements', May 1954, cited in AA CRS 705A, File 1/501/694.

¹⁰ *A Military History of Australia*, Jeffrey Grey, Cambridge University Press, 1990, p 208.

acquired from Britain were also no match for the MiG-15, although both these aircraft were successfully employed in a ground attack role. The RAAF was once again in the position of having to function with second-best equipment. Against this background Australia's strategic defence policy towards the mid 1950s, in broad terms, involved a balance between:

- a. meeting its commitments as a member of the United Nations,
- b. meeting its commitments as a member of the British Commonwealth of Nations,
- c. meeting its commitments in Regional Defence Schemes, and
- d. safeguarding Australia's own security.¹¹

Whilst the defence of Australia held pre-eminence, it was considered that such defence planning, 'should assist in the preparation for a global war'.¹² Concerns expressed about the security of Malaya and Australia if 'Indo China falls under Communistic domination',¹³ were realised when later that year the French were defeated in Indo-China. The Geneva Conference failed to resolve the problems of Korea and Vietnam, heightening the tensions and reinforcing the prevailing belief of Chinese Communist expansionism. This was the geopolitical landscape that predicated defence planning and equipment requirements in the early 1950s.

The bomber requirement was for an aircraft that could mount an offensive strike deep into enemy territory to destroy the enemy's air force. Together with this objective there was a requirement for a major interdiction task of hitting the main concentrations of fuel and equipment, the communications centres and airfields. The operational range for the defence of Malaya was based on the assumption that the majority of suitable targets were in the Hanoi-Haiphong area.¹⁴ In the defence of Australia, the range requirement was to permit operations from Darwin to Saigon.¹⁵ These requirements, with significant reference to the British Ministry of Supply Specification No. B35/46 document,¹⁶ were more precisely defined in OR/AIR36. The key operational aspects for a bomber aircraft can be summarised as:

- a. Operating Height above 50,000 ft
- b. Speed 500 knots at operating height

¹¹ 'The Most Suitable Bomber Aircraft To Meet the Current R.A.A.F. Requirements', May 1954, cited in AA CRS 705A, File 1/501/694, para.4.

¹² 'The Most Suitable Bomber Aircraft To Meet the Current R.A.A.F. Requirements', May 1954, cited in AA CRS 705A, File 1/501/694, para.5.

¹³ 'The Most Suitable Bomber Aircraft To Meet the Current R.A.A.F. Requirements', May 1954, cited in AA CRS 705A, File 1/501/694, para.6.

¹⁴ Distance from Singapore to Hanoi being 1180 nautical miles.

¹⁵ 2000 nautical miles.

¹⁶ Comparison of OR/AIR36 and B35/46 show a significant commonality.

- c. Range not less than 4,000 nautical miles in still air¹⁷
- d. Take-Off to 50 ft in 2,400 yds at maximum AUW¹⁸ and ISA¹⁹ conditions
- e. Bomb Load maximum load up to 40,000 lb including '1 x special bomb'

If the politicians were undecided about a nuclear capacity, the RAAF Air Staff were certainly anxious to obtain a nuclear capable aircraft should this option become available. While nuclear arms control was a major objective of the United Nations in the early 1950s very little progress had been made in that direction. When the Treaty of the United Nations came into force on 24 October 1945, only the United States had a nuclear capability. The first Resolution of the United Nations, adopted unanimously on 24 January 1946, proposed the establishment of an Atomic Energy Commission (AEC).²⁰ Superpower mistrust and suspicion was intensified as the United States postured to preclude the Soviet Union from developing nuclear weapons. The discussions continued to be frustrated by arguments relating to the precedence of inspection and verification of weapons versus weapon destruction until the Soviets detonated their first atomic bomb on 23 September 1949. A few months later the Soviet Union withdrew from the AEC. In 1952, the General Assembly of the United Nations established the Disarmament Commission. Whilst members of this Commission investigated solutions to nuclear arms control, the superpowers and others continued the 'arms race' with Britain exploding its first atomic bomb and the US detonating its first hydrogen bomb on 1 November 1952.

In 1953 'a more conciliatory and businesslike attitude'²¹ evolved in relation to nuclear arms control. The events at the United Nations in relation to nuclear arms control were quite peripheral for a RAAF aiming to be prepared to meet any current threat. On a political level the objectives of nuclear arms control were openly supported. Australia was to be indirectly involved in nuclear weapon development when it was announced in June 1953, that the United Kingdom was developing nuclear weapons and that these weapons would be tested in Australia. This involvement in the United Kingdom's nuclear programme certainly maintained the RAAF's support for the nuclear option. When the Murdoch mission²² in its report of March 1955, unanimously recommended 'the purchase of the AVRO VULCAN or HANDLEY PAGE VICTOR'²³ the desire to be nuclear-capable was confirmed. Both these aircraft could accommodate a 10,000 lb 'Special Bomb'.

¹⁷ Section 72 of OR/AIR36 required that, 'The aircraft is to be capable of simple conversion to either receive or transfer fuel in flight'. Correspondingly OR/AIR34 called for the provision of flight-refuelling for the fighter aircraft.

¹⁸ All Up Weight.

¹⁹ International Standard Atmosphere.

²⁰ *Nuclear Arms Control*, Julie Dahlitz, McPhee Gribble, Melbourne, 1983, p 11.

²¹ *Nuclear Arms Control*, Julie Dahlitz, McPhee Gribble, Melbourne, 1983, p 13.

²² 1954 Aircraft Mission, Report on Investigations in the United Kingdom & North America, Part 1, p 2.

²³ The other aircraft unanimously recommended by the 'Murdoch Mission' were the Lockheed F.104A fighter, the Lockheed C.130 (Hercules) transport and Mk.33 Vampire Jet Trainer.

In reference to the Vulcan, the report of the Murdoch mission stated that:

Although a heavy and varied bomb load may be carried for a tactical mission, a strategic mission bomb load would consist of approximately 21 x 1,000 lb. or L. C. bombs or 1 x 10,000 lb. special bomb, depending on the operational conditions and requirements.²⁴

As it was not planned to order a medium bomber until the 1956/57 financial year a decision between the Vulcan and the Victor was to be delayed so that evaluation of the aircraft could continue as their development and flight testing programme progressed. 'If, however, a decision had to be made at the time of writing the report, the Mission would recommend the AVRO VULCAN', it concluded in its report.²⁵

As if to give assent to this recommendation the Minister for Air, William McMahon in a letter to the Minister for Defence, Sir Philip McBride proposed that if additional funds became available for the defence vote, 'they should be used to acquire British V-Bombers'.²⁶ More direct evidence of the RAAF's desire to be nuclear-capable is contained in a letter to Air Commodore N. Ford, Overseas Headquarters, London, from Air Marshal Sir John McCauley dated 5 July 1956:

For your personal information only, I am taking the initial steps in an endeavour to have a supply of tactical atomic weapons made available from the *United States* for use from our Canberras and Sabres. Much will depend on the outcome of these negotiations.²⁷

In his reply, dated 5 October 1956, Air Commodore N. Ford advised:

The only nuclear bomb at present available to the R.A.F. of U.K. origin is the 10,000 lb H.C. M.C. otherwise known as the BLUE DANUBE. This bomb has only just been cleared for Valiants. Vulcan trials are still proceeding. A smaller nuclear bomb – 2000 lb is being developed for the CANBERRA force.²⁸

The assignment of the Murdoch mission to investigate the available aircraft, compile a report and make recommendations was the easy task. To convince the Australian government that the massive expenditure was warranted was a far more difficult assignment. Any plans to re-equip with Vulcans would have to go before Cabinet. Following release of the Murdoch report a series of papers was produced by the RAAF with that objective in mind. In June, Group Captain G. C. Hartnell²⁹ produced a paper³⁰ reviewing the role of the bomber and assessing the relative costs of buying

²⁴ 1954 Aircraft Mission, Report on Investigations in the United Kingdom & North America, Part 1, p 50.

²⁵ 1954 Aircraft Mission, Report on Investigations in the United Kingdom & North America, Part 1, p 46.

²⁶ *Power Plus Attitude*, Alan Stephens, AGPS< 1992, p 122.

²⁷ CRS AA A6456/3, File R158/9.

²⁸ CRS AA A6456/3, File R158/9.

²⁹ Director of Air Staff Plans and Policy.

³⁰ 'The Offensive Roles of the R.A.A.F. Requirement for a Medium Bomber Aircraft', June 1955, cited in AA CRS 705A, File 1/501/694.

and operating Canberra and Vulcan aircraft.³¹ Validating the economic concerns relating to such a purchase, the introduction to this paper stated that ‘some doubt ha[d] been expressed as to the ability of the RAAF to operate such aircraft (Vulcans) within the limits of the national economy’. Referring to the third principle of War in the War Manual – offensive action, Hartnell’s paper emphasised the role of the bomber as an offensive weapon. ‘An Air Force cannot hold,’ he observed. ‘Tactically, its operations can only be offensive.’³²

The aircraft requirements for the defence of Malaya, as assessed by the ANZAM planners in Singapore in December 1954, was for 32 medium bombers and 193 light bombers. The tasks to be fulfilled to meet the defence of South East Asia were considered to be:

- a. ‘A favourable air situation must be firmly established over Malaya, ... and the air situation should be made as difficult as possible for the enemy over the rest of the Kra Peninsula and Southern Indo China.’
- b. ‘A major offensive must be developed against Chinese military, industrial and economic targets.’
- c. ‘A thorough denial and interdiction programme ... this would be confined to enemy communications from Bangkok southwards.’³³

It was considered that the RAAF’s role would encompass (a) and (c) above, the ‘larger task of developing the Offensive to South East Asia as a whole, and, more particularly, China proper is considered to be a task more applicable to a major force such as the United States Strategic Air Command’.³⁴ Having validated the need for an offensive bomber force, the paper then continued to assess the relative ‘hitting power’ of the Canberra and the Vulcan, concluding that one Vulcan had the same ‘hitting power’ as four Canberra. What they were trying to justify was the high capital cost, the higher maintenance costs and the significant increase in personnel required to maintain operational Vulcan squadrons. In essence, the Vulcan would cost as much as two Canberra aircraft, maintenance of each Vulcan would be nearly three times that of a Canberra and twice the personnel would be necessary to maintain a Vulcan operational than for one Canberra. Balancing this equation was the increased ‘hitting power’ over the operational range of the Canberra or the same ‘hitting power’ over an increased offensive radius of action.

In response to this paper the Directorate of Operations in a minute paper³⁵ dated 24 June 1955, advised that the ‘hitting power’ should be increased as the Vulcan had superior bombing accuracy with an all weather capability. A convenient argument that

³¹ *ibid*, the appendix to his paper include detailed costings of the Vulcan option, included are costings for engine spares, ground handling equipment, bomb gear, vocabularies and technical publications, flight simulator, etc.

³² ‘The Offensive Roles of the R.A.A.F. Requirement for a Medium Bomber Aircraft’, June 1955, cited in AA CRS 705A, File 1/501/694, p 1.

³³ ‘The Offensive Roles of the R.A.A.F. Requirement for a Medium Bomber Aircraft’, June 1955, cited in AA CRS 705A, File 1/501/694, p 2.

³⁴ ‘The Offensive Roles of the R.A.A.F. Requirement for a Medium Bomber Aircraft’, June 1955, cited in AA CRS 705A, File 1/501/694, p 2.

³⁵ ‘Requirement for a Medium Bomber’ cited in AA CRS A705, File 1/501/694.

ignored the fact that the loss of one aircraft would be more significant than the loss of one Canberra and did not allow for a future upgrade of the Canberra's weapons delivery system. Overlooking the relative effect of the loss of an aircraft was perhaps justified as the 'nuclear capability' of the Vulcan was not factored-in to the assessment of the 'hitting power'. This paper also considered that the area of operations for both the establishment of air superiority and the denial and interdiction programme should extend north of the Kra Peninsula to the South China border.

Continuing to promote the introduction of V-bombers, the Directorate of Operations presented a paper³⁶ in September 1955, examining the suitability of airfields, hangarage and fuel dumps. Whilst none of the existing RAAF bases fulfilled the RAF Bomber Command Class 1 airfield criteria, it was considered that limited AUW operations (150,000 lbs) would be possible at Amberley, Darwin, Williamtown and Pearce. The main deficiencies restricting AUW related to the recommended 200 feet runway width, and the size and strength of the hardstanding areas. The more immediate work required was a widening of the taxiways at any base 'selected for *full-time* training operations'. To completely comply with the RAF standards would have required significant additional expenditure. It could be argued, and indeed it was pointed out, that the United Kingdom requirements embraced operational and meteorological conditions quite different to those in Australia. Peacetime flying training requirements were estimated at 480 hours per month or 30 hours per aircraft per month. Fuel requirements were for 60,000 gallons per month.

If the recommendation to acquire V-bombers was based upon the less tangible and more hypothetic concepts of strategic planning, then its subsequent rejection resulted from far more pragmatic considerations. These considerations, based upon an interaction of economic, political, operational and technical factors, evolved with economic factors playing the dominant role. Mr M.B. Woodfull, general manager of the Government Aircraft Factories, was also requested to comment. In a detailed report,³⁷ dated 23 May 1955, he concentrated on the ability to manufacture and/or maintain and modify the selected aircraft. Assessment of the selected aircraft he viewed as a matter for the RAAF, 'because only the RAAF personnel are really acquainted with their own operational requirements'. In conclusion he commented:

It is my opinion that both the bomber and fighter, including the engine, have now become so costly and complex, that Australia has neither the technical nor productive manpower and money to build them and I would therefore recommend that all our first-line aircraft be purchased from the U.S.A. and that our available money be spent over a much broader field than hitherto, to the end that we shall, at least, develop the facilities necessary for the maintenance of these aircraft in the event of War.³⁸

So concerned was Woodfull about the reliability of the United Kingdom to provide spares, particularly in the time of war that he suggested that if the Vulcan was selected then a redesign of the aircraft installations 'to take a U.S.A. engine and Appendix "A" equipment should be performed'.

³⁶ 'Present and Future Capacity of the RAAF to Operate "V" Class Bombers in Australia', September 1955, cited in AA CRS 705A, File 1/501/694.

³⁷ Comments on the 1954 Aircraft Mission Report, copy in CRS AA A1209/23, File 57/4132.

³⁸ Comments on the 1954 Aircraft Mission Report, p 16, copy in CRS AA A1209/23, File 57/4132.

Time and events would overtake the Vulcan recommendation.

At an estimated cost of £Sterling 538,000 per aircraft ex-works,³⁹ it was always going to be difficult to justify the purchase. The rapid development of airframes, engines and avionics in the 1950s was more than matched by the rapid escalation in cost, a fact that disturbed both defence planners and politicians alike. By August 1956 the cost of an aircraft had increased to £Sterling 760,000 with the Olympus 12 engine and £Sterling 900,000 with the Olympus 6 engine.⁴⁰ This figure did not include costings for engine spares, ground handling equipment, bomb gear, vocabularies and technical publications or flight simulators. The cost of infrastructure was also a significant factor. Concerned that a V-bomber purchase could seriously compromise defence spending for many years, the RAAF looked critically at the number of aircraft required and the strategic requirements. The initial estimate, based on the 'current Order of Battle'⁴¹ was for 39 bomber aircraft with an expected service life of 16 years.⁴² In the 1955 Air Force Programme the number was down to 28 with an expectation of approval for the 1957/58 financial year.⁴³ Intrinsic to the economics was the political reality of satisfying the other defence chiefs as well as keeping the defence vote in a proper relationship with the whole budget strategy. After a close election in 1954, the Coalition had a comfortable electoral victory in 1956. Furthermore the split in the Australian Labor Party that occurred in October 1954 rendered the government less susceptible to opposition pressure. The amounts allocated to the Air Force in the Defence Programme 1955/56 and 1956/57 was substantially less than the programmes submitted by the Department.⁴⁴ In a scathing attack, *Aircraft* magazine announced 'RAAF in Jeopardy', and '[t]he Government has reneged on the pledge it made a few years ago to build up the RAAF as the chosen vessel of defence'.⁴⁵

In June 1956, the Minister for defence, Sir Philip McBride, wrote to the Prime Minister echoing the concerns of the Minister for Air, Athol Townley, relating to the 'tremendous cost of re-equipping the Royal Australian Air Force'.⁴⁶ Townley had been advised by Lockheed that they could provide sixty-six F-104A fighters for £A44m with delivery in 1957/58 compared to an estimated cost of £A55m for local production with deliveries over the period 1960-65. Against this proposal was the effect it would have on the local aircraft industry. Townley had also pointed out that, 'although fighters may be within our financial capacity, modern Medium Bombers appear to be well beyond it'. McBride's letter continued, 'the Americans might be induced to assist our defence effort by storing some of their reserve aircraft in Australia'. 'He (Townley) mentions that the U.S. Air Force is re-equipping with the

³⁹ 1954 Aircraft Mission, Report on Investigations in the United Kingdom & North America, Part 1, p 47.

⁴⁰ CRS AA A1196/2, File No. 1/501/719, letter from RAAF Overseas HQ, London, dated 9 August 1956.

⁴¹ 1954 Aircraft Mission, Report on Investigations in the United Kingdom & North America, Part 1, p 5.

⁴² The Vulcan B. Mk. 2 first entered squadron service with the RAF in April 1961 with the type continuing in service until 1983.

⁴³ Air Force Programme 1955-1961, p 3 attached to the Defence Budget Papers, Decision Number 684, 3 November 1955, cited in CRS AA A4906/XM1, Volume 23.

⁴⁴ CRS AA A4906/XM1, Volume 23, 'Air Force Programmes 1955-1961'.

⁴⁵ *Aircraft*, November 1955, p 20.

⁴⁶ Letter dated 22 June, 1956, cited in CRS AA A1209/23, File 57/4132.

B.52 Bomber which is too heavy for our requirements, but that the B.47 which it replaces would be suitable; he suggests that 30 of the latter could be stored here, and we would pay a hiring fee for those used’.

No doubt, it was becoming apparent to authorities in the United Kingdom that the Australians were going cold on the idea of equipping with Vulcans. On 27 June 1956, Townley announced that an RAF Vulcan B Mk. 1 aircraft would visit Australia for Air Force Week.⁴⁷ Vulcan B Mk. 1 XA897, departed Boscombe Down in Wiltshire on 9 September on the first leg of a journey to Australia and New Zealand. Staging via Aden and Singapore, XA897 arrived overhead RAAF Avalon about 1700 hours on the 11 September, 1956, having logged a flying time of 22 hours 30 minutes. On board the Vulcan was the Commander-in-Chief of RAF Bomber Command, Air Marshal Sir Harry Broadhurst. The aircraft was under the command of Squadron Leader Donald Howard. The other crew comprised Squadron Leader Edward Eames as navigator, Squadron Leader Albert Gamble as the air electronics officer and a civilian, Avro’s construction chief, Mr Frederick Bassett. The aircraft landed at Avalon. Among the VIP’s waiting on the tarmac to greet Sir Harry, were Air Marshal Sir John McCauley, Chief of Air Staff, and Air Vice-Marshal W. L. Heley. The following day Sir Harry flew to Canberra for talks with Air Force staff and politicians. Whilst in Melbourne, Sir Harry Broadhurst created quite a controversy over statements he had made concerning the Avon Sabre. He was quoted in the press as saying, ‘the Sabre was well suited to its task when first built, but has been completely outdated by recent developments’.⁴⁸ This statement produced a quick response from Sir Philip McBride. The Sydney press were quick to revive the issue when they interviewed Sir Harry. In an attempt to quell the debate, Sir Harry denied saying the Avon Sabre could not stop an atomic attack by a bomber like the Vulcan. ‘What I said was, the Vulcan, flies at night, and there was not a night fighter in the world today which could stop her’. ‘By day, however, the Vulcan is vulnerable and can be caught by a fighter like the Avon Sabre.’⁴⁹ If one of the reasons for this flight was the opportunity to ‘show it off’ to a potential customer, A. V. Roe and Company would not have been impressed when Sir Harry commented that ‘Australia had no real use for a bomber like the Vulcan’.⁵⁰ He went on to explain that the Vulcan was more suitable to the European theatre and that the RAF’s policy of air mobility could see Vulcan aircraft deployed ‘to any part of the British Commonwealth at the shortest notice’.

The Vulcan visit in 1956 had confirmed the successful long range deployment of this type of aircraft. The connotations were obvious: rapid deployment to Australia in the event of a regional threat. On leaving Australia, Sir Harry Broadhurst promised a non-stop flight from Britain to Australia with either a Vulcan or a Victor aircraft for Air Force Commemoration Week in September 1957. As *Aircraft*⁵¹ magazine pointed out, ‘[i]ts implications for the planners of Australian defence cannot be over estimated’. ‘In a war confined to SE Asia, the RAF could have atom-bomb aid in Australia within 24 hours.’ As events unfolded this non-stop flight would not be made until June 1961.⁵²

⁴⁷ *Sydney Morning Herald*, 28 June 1956.

⁴⁸ *Sydney Morning Herald*, 13 September 1956.

⁴⁹ *Courier Mail*, 15 September 1956, p 7.

⁵⁰ *Sunday Mail*, 23 September 1956, p 2.

⁵¹ *Aircraft*, October 1956, p 48.

⁵² *Vulcan Magazine*, November 1988, Issue No. 4, p 9, details all the Vulcan visits to Australia.

Tragedy would strike on return to the United Kingdom. In poor weather conditions Vulcan B Mk. 1 XA897 crashed at London Heathrow on 1 October 1956. The aircraft was totally destroyed and the crew, except for the pilot, Squadron Leader Donald Howard and Air Marshal Sir Harry Broadhurst, who successfully ejected, were killed. In poor visibility and misty rain whilst on a ground controlled approach to runway 10L, the aircraft landed 2,000 feet short of the threshold. In the attempted overshoot the aircraft uncontrollably banked slowly to starboard then dived into the ground at an angle of 20 to 30 degrees.⁵³

Just as economic and political factors were intertwined so too were the operational and technical considerations. The rapid advances in airframes and engines was certainly appreciated by the Murdoch mission. Details of experimental aircraft such as the Avro 720, Bristol 188 and Chance Vought XF8U-1 were included in its report.⁵⁴ While not considered by the mission, the Convair B-58 Hustler was known to be under development. A letter⁵⁵ from the Office of the Air Attaché, Australian Embassy in Washington to the secretary of the Air Board, dated 30 November 1954, gave details of this development and quoted an attack speed of 2.0 Mach. Had a firm order for the Vulcan been placed by mid-1956 delivery would not have been possible before mid-1959 to late 1960. Would it be outdated then – replaced by a supersonic equivalent? By late 1956 this question had been answered in the affirmative. A top secret meeting⁵⁶ attended by the Prime Minister, the Ministers for External Affairs, Defence, Army, Navy and Air and the Chiefs of Staff was held on 10 October, 1956. At that meeting, Air Marshal Sir John McCauley advised that '[t]he Air Force was looking for a supersonic light bomber'.

By 1957 another major political factor affecting defence thinking appeared with the release in April 1957 of the white paper by the British Defence Minister, Duncan Sandys. This paper drastically slashed Britain's defence spending by £128m.⁵⁷ Fighter development was cut with many highly developed experimental aircraft designs abandoned overnight. The plans for a supersonic bomber were dropped. The highest priority was to be given to the development of nuclear weapons suitable for delivery by existing manned bombers and ballistic rockets. The Commonwealth Government had received prior warning of this policy change when Lord Home⁵⁸ and the Chief of Air Staff, United Kingdom, Sir Dermot Boyle visited Australia for the ANZAM Defence Committee Meeting in March 1957.⁵⁹ When Duncan Sandys, Lord Carrington and Sir William Dickson, Chairman of the United Kingdom Chiefs of Staff, visited Australia in August 1957 the question of defence Policy in South East Asia was fully examined.⁶⁰ Sir William advised that Tengah airfield in Singapore was to be rebuilt to cater for the 3 squadrons of V-bombers on the RAF order-of-battle for permanent garrison at Tengah. During these meetings it was further advised that the

⁵³ Report of the Special Investigation by Dr A. G. Touch into Certain Aspects of the Accident to the R.A.A. Vulcan Aircraft B.1.XA.897 at London Airport on 1st October, 1956, HMSO, 1957, copy in AA CRS A705, File 32/10/3632.

⁵⁴ 1954 Aircraft Mission, Report on Investigations in the United Kingdom & North America, Part 2.

⁵⁵ CRS AA A1196/2, File 1/501/717.

⁵⁶ 'Summary Record of Meeting held in the Cabinet Room, at 3.30p.m. on Wednesday, 10th October, 1956', AA CRS A4940/1, File C1615.

⁵⁷ *Sydney Morning Herald*, 5 April 1957, p 3.

⁵⁸ United Kingdom Secretary of State for Commonwealth Relations.

⁵⁹ CRS AA A816/52, File 58/301/437.

⁶⁰ Defence Policy in South East Asia, copy in AA CRS A4940/1, File C1917.

United Kingdom intended 'to stockpile nuclear weapons in Singapore. Atomic bombs for Canberras will be available in 12-18 months'.⁶¹

Public confirmation that the Vulcan proposal had been abandoned came with the release of the 1957 Australian defence review.⁶² This review, by the Minister for Air, Mr F. M. Osborne, was drafted in response to two papers prepared by the Defence Committee., 'The Strategic Basis of Australian Defence policy' and 'The Composition of Australian Defence Forces'. Osborne stated: 'Though it is of the opinion that modern bomber aircraft are strongly desirable, the Air Staff has adopted the realistic view that they are at present beyond our economic capacity, and indeed no supersonic bomber is yet in service'.⁶³ Australia's defence planners, in the preparation of the 1957 defence review, had moved to a position where it was considered desirable to operate equipment, 'standard or compatible as far as possible with that used by the United States Air Forces with whom they are likely to be associated in war'.⁶⁴

The Defence Programme 1957/58 to 1959/60 gave the Air Force's principal new proposals as:

- a. The rearming of one fighter squadron with U.S. Lockheed F.104 aircraft.
- b. The rearming of one Dakota squadron with Lockheed C.130 (Hercules) medium range transport aircraft towards mobility requirements of all Services.
- c. The introduction of the first RAAF surface-to-air guided weapons unit.
- d. The procurement of additional light aircraft for the Army's expanded requirement, and the formation of two additional Control and Reporting Units.⁶⁵

The Minister for Air, quoting a speech by Sir Winston Churchill given at Boston in 1949,⁶⁶ was critical of the allocation of the defence vote given to the Air Force: 'None of these proposed alterations does more than make minor adjustments to the pattern of Australian post-war Defence'.⁶⁷ Whilst a strategic bomber was no longer an option, the recognition that the F-104 was capable of carrying conventional guided weapons and nuclear weapons was highlighted in both 'The Defence Review' and the paper on the 'Composition of the Australian Defence Forces'. Thus the nuclear option remained a viable defence objective. At a cabinet level the nuclear option was canvassed in a top secret atmosphere: 'the recent changes in the arrangements

⁶¹ United Kingdom Defence Policy in South East Asia – Discussions with Mr Duncan Sandy. Notes for Minister for Defence, p 7, copy in AA CRS A4940/1, File C1917.

⁶² Cabinet Submission No. 526, cited in CRS AA A4940/1, File C2466.

⁶³ Cabinet Submission No. 526, Australian Defence Review, para.17, cited in CRS AA A4940/1, File C2466.

⁶⁴ 'Australian Defence Equipment Mission to the United States – May 1957', p 9, cited in AA A5462, File 12/1/1 Part 1.

⁶⁵ Annexure to Cabinet Decision No. 654, p 7, cited in CRS AA A4940/1, File C2466.

⁶⁶ 'For good, or for ill, air mastery is today the supreme expression of military power and fleets and armies, however vital and important, must accept a subordinate rank' – Sir Winston Churchill.

⁶⁷ Cabinet Submission No. 526, Australian Defence Review, para.9, cited in CRS AA A4940/1, File C2466.

between Britain and the United States raise the expectation that we may have early success in obtaining tactical nuclear weapons'.⁶⁸ The issue was more openly canvassed by the Victorian Liberal, Mr W.D. Bostock, a former Air Vice-Marshal of the RAAF. He was quoted as saying: 'Australia should arm herself with atomic bombs and long-range bombers'.⁶⁹

During a meeting⁷⁰ at Parliament House, Canberra, on 29 January 1958, with the British Prime Minister, Mr Harold Macmillan, Mr Menzies, the Australian Prime Minister, raised the question of nuclear weapons. Whilst referring to 'internal pressures' for Australia to develop a capacity to produce such weapons, Menzies expressed personal doubts 'about the wisdom of any such action'. Macmillan advised that the United States government had a strong desire that no further powers should develop a nuclear capability. Macmillan expressed the view that Australia should look closely at its infrastructure, runways and technical equipment, so that nuclear weapons provided either by the United Kingdom or the United States could be used if the need arose. This may have been an appropriate objective but it failed to appreciate the problem facing the service chiefs – the denial of information on the nuclear weapon. Both Mr R. G. Casey and Sir Philip McBride highlighted this point at a further meeting at Parliament House on 11 February 1958.⁷¹ There was insufficient practical knowledge in Australia concerning nuclear weapons. The Australian services needed to know 'what organisational and other changes the use of nuclear weapons would involve'. Sandys promised to make such arrangements upon his return to the United Kingdom.

The Vulcan chapter was closed, or almost! Perhaps, somewhat ironically there was a proposal in 1961 that Vulcan aircraft be made available to Australia as an interim measure pending the delivery of the British TSR.2, should Australia choose the aircraft as a Canberra replacement! Although it is unlikely to have influenced its decision, that plan was wrecked by the Air Staff. 'Instead of a "no strings" deal, the Australians were told that they might have eth Vulcans provided the operational control remained with the RAF'. The Australian reaction was natural and caustic.⁷²

⁶⁸ Cabinet Submission No. 526, Australian Defence Review, para.2, cited in CRS AA A4940/1, File C2466.

⁶⁹ *Sydney Morning Herald*, 8 May 1957, p 4.

⁷⁰ AA CRS A4940/1, File No. C1962 Part 1, 'Supplementary record for strictly limited circulation'.

⁷¹ AA CRS A4940/1, File No. C1962 Part 2.

⁷² *Project Cancelled*, Derek Wood, Tri-Service Press, 1990, p 160.