

**Land Warfare Studies Centre**

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**MECHANISING AN ARMY:  
MECHANISATION POLICY AND THE  
CONVERSION OF THE LIGHT HORSE,  
1920–1943**

by

**Captain James C. Morrison**

**June 2006**

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## ABBREVIATIONS AND ACRONYMS

AASC	Australian Army Service Corps
AFV	Armoured Fighting Vehicle
AIF	Australian Imperial Force
AMF	Australian Military Forces
AWM	Australian War Memorial
CID	Committee of Imperial Defence
CIGS	Chief of Imperial General Staff
CGS	Chief of General Staff
CMF	Citizen Military Forces
CRS	Commonwealth Record Office
GOC	General Officer Commanding
MD	Military District
NLA	National Library of Australia
PRO	Public Record Office
RAA	Royal Australian Artillery
RAAC	Royal Australian Armoured Corps
RAAF	Royal Australian Air Force
RAF	Royal Air Force
RAE	Royal Australian Engineers
RTC	Royal Tank Corps
WO	War Office

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## ABSTRACT

As the Hardened and Networked Army comes into being at the start of the 21st century, it is useful to reflect on previous periods of great change in the Australian Army's proud history. Once such period is 'mechanisation', where the horse power that moved troops, artillery, logistics and engineering support gave way to tanks, armoured cars, trucks and motorcycles, all in the space of two decades. There is much to learn today, on the eve of the era of network-enabled operations, about the impact new technologies have on unit organisation, procurement priorities and the development and adoption of doctrine.

This in-depth study uses archival material and historical analysis to trace the evolution of Army policy and doctrine during the Interwar Period. At a time when the Army was constrained by the *Defence Act* in its permanent force size, and largely composed of 'hollow' militia units, how did senior commanders ensure existing capability whilst developing an entirely new set of technologies? How did they introduce current capability while also developing a nucleus force for tomorrow at a time of significant social, economic and political uncertainty?

Through the prism of the Light Horse, and exploring the tensions between militia and permanent forces, the drivers of change and stability are examined as the Army moved to mechanising its force structure in light of the lessons of the First World War. Challenging long-held perceptions that cavalry officers fought the loss of their mounts, this work throws new light onto the questions and concerns of senior officers as they struggled to balance the need to innovate with limited funds and competing demands, all while ensuring the defence of Australia and maintaining readiness to deploy and fight.

This study reveals the process of institutional adaptation, where new concepts and doctrine were debated, argued, and introduced, all in a time of manpower and fiscal constraints in a fluid strategic

environment. Further, as our allies evolved their technologies and fully mechanised, how could the Australian Army remain interoperable? As a ‘lessons learnt’ guide to the trinity of doctrine, training and organisation, the process of Army mechanisation in the Interwar Period has much to offer the Army of today and tomorrow.





**Mechanising an Army:  
Mechanisation policy and the  
conversion of the Light Horse, 1920–1943**

**Captain James C. Morrison**

*Any change from the horse to the mechanical vehicle must be gradual and  
therefore must fit in with existing establishments.*

Lecture on Mechanisation (1937)<sup>1</sup>

**INTRODUCTION**

The way military institutions deal with technological innovation is determined by what historian Harold R. Winton has labelled a ‘curious trinity’.<sup>2</sup> This trinity is composed of strategic assumptions, political and social considerations, and the internal mechanisms of the military itself. These factors interact with one another and influence technological adaptation in different ways. One of the most vivid examples of this trinity was the impact of mechanisation on the Australian Army between the wars. In contrast to contemporary doctrine, which distinguishes between mechanisation and motorisation—with the former being applied to tracked vehicles while the latter is concerned with wheeled vehicles—the Army between the wars perceived ‘mechanisation’ as covering all aspects of technological innovation that utilised mechanical engines. Based on this assumption, mechanisation policy influenced all Corps, but three in particular—the Australian

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<sup>1</sup> ‘Lecture on Mechanisation 1937’, attached to ‘Periodical Letter 1/1938’, 21 January 1938, PRO WO32/4120.

<sup>2</sup> Harold R. Winton, ‘On Military Change’, in David R. Mets and Harold R. Winton (eds), *The Challenge of Change: Military Institutions and New Realities, 1918-1941*, University of Nebraska Press, Lincoln, 2000, p. xi.

Army Service Corps (AASC), the Royal Australian Artillery (RAA), as well as the Light Horse and the newly created Tank Corps, later renamed the Royal Australian Armoured Corps (RAAC). While the development of these Corps during the Interwar Period has been covered at length in specific texts, this monograph concerns itself with the factors that shaped mechanisation policy and the way the Army responded to technological change.<sup>3</sup>

The First World War had a profound impact on the Army's ideas about warfare, ushering in a new era of industrialised war and the emergence of new technologies and tactical procedures. Between the World Wars, the Army had to assimilate these advances as well as adapt to changes brought about by mechanisation. These changes affected the Army at a time when it was crippled by severe reductions in funding, personnel and training. General indifference to defence matters was magnified by strategic planning that favoured naval deterrence. Within the framework of the Singapore Strategy, the Army was relegated to a role of secondary importance, defence against raids. Although the Army's leadership rejected this in favour of an anti-invasion posture, its reluctance to accept the Government's strategic principles created distrust between the two organisations.

The Army welcomed mechanisation as a means of conserving personnel and enhancing firepower. From as early as 1920, the Military Board advocated mechanisation and subsequently published three policy directives (in 1928, 1933 and 1938) and numerous other memoranda on the implementation of mechanisation. These directives were shaped as much by funding and bureaucratic constraints as they were by perceptions of mechanisation. During the Interwar Period, the Army was a militia-

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<sup>3</sup> For a history of mechanisation of specific corps see: R. N. L. Hopkins, *Australian Armour: A History of the Royal Australian Armoured Corps 1927-1972*, Australian War Memorial and Australian Government Publishing Service, Canberra, 1978; David Horner, *The Gunners: A History of Australian Artillery*, Allen & Unwin, St Leonards, 1995; and Neville Lindsay, *Equal to the Task*, vol. 1, *The Royal Australian Service Corps*, Historia Productions, Kenmore, 1992.

based force governed by limitations in the *Defence Act* that prohibited the creation of permanent units in combat corps. Unable to re-organise to meet mechanisation requirements, the Army was forced to adapt through temporary measures, while continually shaping its policy along British lines. Although this provided the Army with direction it often resulted in confused thinking. Lacking the vehicles and funds to replicate the more widespread mechanisation being pursued by the British Army, the Australian Army developed a distorted understanding of the use of mechanised forces.

Throughout the Interwar Period, Army mechanisation policy became increasingly sophisticated. The initial expressions of policy failed to address the specific requirements of each vehicle type and stretched scarce resources too far. Although these problems were identified in the 1930s, when new policies that reflected the complex nature of mechanisation were introduced, the Army constantly deviated from stated policy and made attempts to mechanise that were far beyond its meagre financial capabilities. While the increased sophistication of mechanisation policy was important, these developments also obscured the Army's lack of doctrine on the employment of mechanised units.<sup>4</sup> This was most evident in the debate surrounding the conversion of the Light Horse that emerged in 1940.

It is important to make a distinction between the term 'reactionary' and the concept of doctrinal immaturity. A reactionary Army is one that is reluctant to embrace change, whereas a doctrinally immature Army is one that lacks a systematic process of developing doctrine—in this case, on the use of emerging technologies. While the Army embraced mechanisation, it did not approach doctrinal concepts with the same degree of enthusiasm. The debate over the conversion of the Light Horse—which, unlike most other aspects of mechanisation policy, only emerged during the Second World War—highlighted the Army's

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<sup>4</sup> Military doctrine can be defined as a set of working guidelines that embody strategic ideas and operational plans: John Gooch, 'Military Doctrine and Military History', in John Gooch (ed.), *The Origins of Contemporary Doctrine*, Strategic and Combat Studies Institute, London, 1997, p. 5.

doctrinal immaturity. This is not to suggest that doctrine is the most important factor in determining how military institutions deal with technological change. After all, the British Army was able to develop advanced battle tactics during the First World War despite lacking a systematic method of formulating doctrine.<sup>5</sup> Doctrine, or lack of it, is only one of a multitude of factors explaining the manner in which the Army mechanised, but it is arguably the most important and has the most significant implications for military professionals. While the Army's senior leaders constantly tried to amend the Government's strategic and fiscal priorities—the two biggest constraints on mechanisation—they lacked the introspection to implement economical policy based on doctrinal processes, the hallmark of a modern Army.

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<sup>5</sup> Dominick Graham, 'Sans Doctrine: British Army tactics in the First World War', in Timothy Travers and Christon Archer (eds), *Men at War: Politics, Technology and Innovation in the Twentieth Century* Precedent, Chicago, 1982, p. 88. British tactical innovation is covered in Paddy Griffith, *Battle Tactics of the Western Front: The British Army's Art of Attack 1916-18*, Yale University Press, New Haven, 1994.

## CHAPTER 1:

### ARMY MECHANISATION POLICY, 1920–1930

#### Factors affecting the formulation of policy

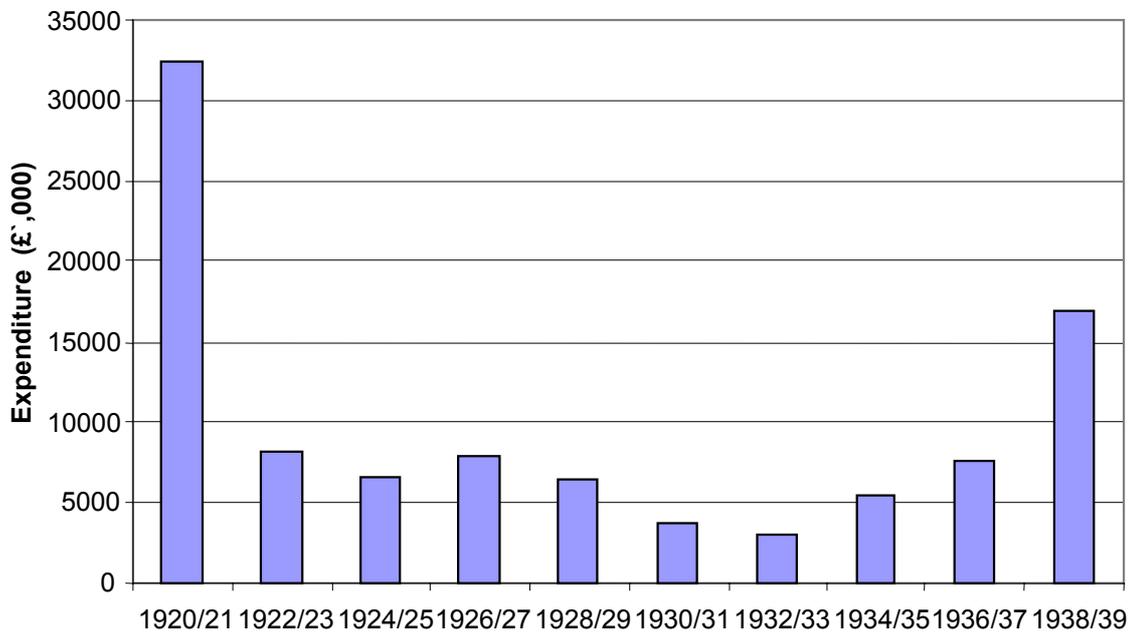
After the First World War, the Australian Army entered a period of steady decline. Both the Government and the public were generally uninterested in defence matters. Strategic planning favoured navalist thinking and reliance on the British Empire in providing local defence. Successive Chiefs of the General Staff (CGS) were unable to convince the Government of the need to maintain defence spending, and the Army was forced to dramatically reduce personnel, training schedules and equipment acquisitions.<sup>6</sup> The reduced defence expenditure is detailed in Figure 1 (overleaf).

The Army's senior leadership was conscious of its predicament. The impact of reduced funding was vividly illustrated by Lieutenant General H. G. Chauvel who, in his capacity as Inspector General, reported in 1927 that the 'nucleus [force] does not yet possess the equipment nor receive the training which [is] essential to the effective performance of its functions'.<sup>7</sup> Many politicians were openly hostile towards the maintenance of an army in peacetime. They argued that the

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<sup>6</sup> For a general overview of the Army between the wars see Jeffrey Grey, *The Australian Army*, Oxford University Press, Melbourne, 2001, and Albert Palazzo, *The Australian Army: A History of its Organisation, 1901-2001*, Oxford University Press, Melbourne, 2001. The Citizen Militia Forces (CMF) are covered in Claude Neumann, *Australia's Citizen Soldiers, 1919-1939: A Study of Organisation, Command, Recruiting, Training, and Equipment*, MA Thesis, Department of History, UNSW, 1978.

<sup>7</sup> 'Report of the Inspector-General', 30 June 1927, p. 2. Chauvel was one of the prominent Australian generals of the First World War, commanding the 1st Light Horse Brigade and the 1st Australian Division before leading the Desert Mounted Corps in 1918. During the war he was pivotal in successfully driving the Turkish Army from Egypt and the Sinai, winning battles at Magdebah, Rafa, Beersheba and

**Figure 1: Total Defence expenditure, 1920–1939**

Source: Joan Beaumont, *Australian Defence: Sources and Statistics*, Oxford University Press, Melbourne, 2001, p. 30.

outstanding performance of the Australian Imperial Force (AIF) on the battlefields of the First World War demonstrated that Australians were ‘natural’ soldiers and that the country did not require a standing army. This conviction was crystallised by the Labor politician Mr D. C. McGrath, who suggested that:

If the war proved anything it proved that young Australians many of whom had not previously known one end of a rifle from another were, after training for a month or two, equal if not superior to any other troops.<sup>8</sup>

Such perceptions severely restricted the professional development of the Army and ignored the fact that warfare had become more complex:

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Megiddo. After the war he served as Inspector General from 1919 until his retirement in 1930. See Alec J. Hill, *Chauvel of the Light Horse*, Melbourne University Press, Melbourne, 1978.

<sup>8</sup> Quoted in Gavin Long, *Australia in the War of 1939–1945: Series 1 (Army), To Benghazi*, Australian War Memorial, Canberra, 1952, p. 3.

‘the demands of modern industrial warfare required well trained, equipped and balanced armed forces and these are not created overnight’.<sup>9</sup> As a consequence of the lackadaisical approach to military affairs, the number of personnel within the Army sharply declined during the Interwar Period, from 124 489 Citizen Militia Forces (CMF) members in 1922 to 28 285 in 1932.<sup>10</sup> These reductions prevented the Army from operating effectively and efficiently. For the majority of the Interwar Period, as Albert Palazzo remarks, ‘the Army consisted of skeleton formations that were so under-strength that even after linkage they more closely resembled social clubs than military units’.<sup>11</sup> Although the Army maintained a nominal strength of seven divisions, most units struggled to retain personnel and often formations lacked entire sub-units.<sup>12</sup> Moreover, the level of training in both the permanent forces and the CMF was severely curtailed by inadequate equipment, allowances, and length of time devoted to training.<sup>13</sup> The abolition of compulsory military service by the Scullin Labor Government in 1929 further reduced the Army’s ability to train. Given these reductions, it is little surprise that David Horner has suggested that this force ‘could hardly be described as a real Army’.<sup>14</sup>

In addition to the problems imposed externally, the Army was also riddled with problems of its own making. There was animosity between the permanent force and the CMF over the number of officers that could serve full-time, as well as strong divisions within the Staff Corps between Duntroon graduates and non-Duntroon graduates. This, according to Jeffrey Grey, ‘was one of the consequences of a tiny

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<sup>9</sup> Jeffrey Grey, *A Military History of Australia*, Cambridge University Press, Melbourne, 1999, p. 139.

<sup>10</sup> Long, *Australia in the War Of 1939–1945: Series 1 (Army), To Benghazi*, p. 14.

<sup>11</sup> Palazzo, *The Australian Army*, p. 132.

<sup>12</sup> Jasmin Northey, *The Limitations of Office: The Role of the Chiefs of the General Staff During the Interwar Period*, BA (Hons) Thesis, Department of History, UNSW, 1993, p. 36.

<sup>13</sup> Craig Wilcox, *For Hearths and Homes: Citizen Soldiering in Australia 1854–1945*, Allen & Unwin, St Leonards, 1998, p. 93

<sup>14</sup> Horner, *The Gunners*, p. 192.

military establishment in a long period of peace during which professional jealousies and personal animosities could and did fester'.<sup>15</sup> The Australian Army was a professional clique of officers who debated strategic imperatives and the role of the Army with the Government instead of issues concerning organisation, doctrine, and training; it is within this context that mechanisation policy must be examined. The Army faced an enormous task during the Interwar Period. Its very existence was under threat, and at the same time it was confronted with sweeping technological changes that required collective approaches to formulating policy and doctrine.

### **The Conference of Senior Officers: 1920**

In 1920, the Minister for Defence, George Pearce, gathered the Army's senior leaders for a conference in Melbourne. The purpose was to provide a framework for the organisation and training of the Army in the wake of the First World War. Chaired by Lieutenant General H. G. Chauvel, it served as an opportunity for the Government to assert the importance of finances in determining policy. As Pearce initially remarked:

Finances were strained, and that therefore any scheme submitted must be within reason. Proposals that were too ambitious could not be accepted; not counsels of perfection, but counsels of practicability were required.<sup>16</sup>

The conference attempted to amalgamate a strategic appreciation of the threats to Australian security with a realistic force structure. It proposed the formation of two cavalry divisions and four infantry divisions, with three mixed brigades and a number of Light Horse Regiments for local defence. This force structure amounted to 130 000 men with a War Establishment of 270 000.<sup>17</sup> Japan was identified as 'the only potential and probable enemy'. Australian security, the conference asserted, relied on 'remaining one of the groups of nations under the Crown' and on

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<sup>15</sup> Jeffrey Grey, *Australian Brass: The Career of Lieutenant-General Sir Horace Robertson*, Cambridge University Press, Melbourne, 1992, p. 67.

<sup>16</sup> 'Report on the Military Defence of Australia', 22 January 1920, CRS AWM1, 20/7.

<sup>17</sup> Northey, *The Limitations of Office*, p. 34.

Australia's 'own ability to prevent an invading enemy from obtaining decisive victories pending the arrival of other parts of the Empire'.<sup>18</sup> The senior officers were aware of funding shortages and, while discussing the extent of mechanisation, they noted that 'financial or economic facts may render it impracticable for the Government to initiate forthwith, and to carry on completing the preparations recommended'.<sup>19</sup> Recognising this, they merely sought to develop a reasoned approach to the defence of Australia within the parameters established.

The officers discussed mechanisation in the context of financial restrictions and the limitations of Australian industry. Chauvel noted that 'the question of the employment of tanks, and the formation of a tank corps, is one which must sooner or later come up for practical consideration'.<sup>20</sup> The conference understood that mechanisation was necessary but approached the concept with caution because most armoured fighting vehicles (AFV) were cumbersome and unreliable. For these reasons, the conference noted that 'immediate action [was] not considered prudent'.<sup>21</sup> Aside from a vague concept of using tanks in combination with artillery against defended positions, the conference had little understanding of the employment of AFVs. It was keen to mechanise, but lacked any appreciation of using tanks and remained content to monitor British developments. In order to provide the basis for an Australian armoured unit, Chauvel and his colleagues recommended the formation of a tank section to become a nucleus force and provide the basis of a CMF unit. The Government agreed in principle to these recommendations but did not agree to provide the funds to implement them. Politically inconvenient issues that required large amounts of money, such as mechanisation, were generally ignored. As Chauvel's biographer contends, the Military Board 'soon learnt that although the Government approved in general of the senior officer's recommendations, they were by no means prepared to act on particular matters'.<sup>22</sup>

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<sup>18</sup> 'Report on the Military Defence of Australia'.

<sup>19</sup> *ibid.*

<sup>20</sup> *ibid.*

<sup>21</sup> *ibid.*

<sup>22</sup> Hill, *Chauvel of the Light Horse*, p. 203.

### Early experiences with mechanisation

The Australian Army was not entirely unfamiliar with mechanised forces, and the mixed success of armour in the First World War affected its perceptions of mechanisation between the wars.<sup>23</sup> As early as 1908, the Australian Volunteer Automobile Corps was formed, with detachments in each State comprised of drivers who provided their own vehicles.<sup>24</sup> The Army also formed the 1st Armoured Car Section in 1915, which consisted of three vehicles with light armoured plating and machine-guns. The unit saw service alongside the British 11th and 12th Light Armoured Motor Batteries in the Libyan Desert until it was amalgamated with similar units from New Zealand in 1917 to form the 1st Australian Light Car Patrol.<sup>25</sup> Although the vehicles were tasked to perform reconnaissance and supporting roles, most of the Australian vehicles were inferior to their British counterparts and could not operate in the harsh desert environment. In addition, the use of tanks on the Western Front also made Australian commanders sceptical of the fighting capability of armour. While tanks were used successfully at Hamel, the earlier failure to achieve decisive results at Bullecourt fostered a belief that the key to victory was the use of ‘combined arms’ rather than distinct armoured units. Despite offers from the Imperial Staff to form a tank battalion using British vehicles and equipment, Birdwood declined because of manpower shortages and logistical considerations.<sup>26</sup> This decision, coupled with the limited success of Australian armoured formations in the desert, engendered a mild degree of scepticism that affected developments in mechanisation. This scepticism, while not unwarranted, was symptomatic of the confused thinking that surrounded the process of mechanisation and which was never resolved during the Interwar Period.

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<sup>23</sup> The limited capability of armour in the First World War is reviewed in Griffith, *Battle Tactics of the Western Front*, pp. 159–69.

<sup>24</sup> Hopkins, *Australian Armour*, p. 11.

<sup>25</sup> *ibid.*, p. 12.

<sup>26</sup> Grey, *The Australian Army*, p. 94.

## Strategic policy and the role of the Army

Much ink has been spilled discussing the errors underpinning Australian interwar strategic planning and the Singapore Strategy in particular.<sup>27</sup> Numerous historians have highlighted the serious deficiencies in Australian planning, including its over-reliance on naval power and the ability of Britain to simultaneously deter Japan and Germany. Much criticism has also been made of Australia's acceptance of British imperial defence assumptions 'without critical thought' and of the lack of cooperation between the three Services.<sup>28</sup> The direct effects of the Singapore Strategy on the Army have received considerably less coverage, however, and are worth clarifying.

Throughout the Interwar Period, the Army and the Government were at odds over strategic planning because both parties held different views of the level of threat. The Army formulated its mobilisations plans and training objectives on the assumption that an enemy, uniformly considered to be Japan, would invade.<sup>29</sup> In contrast to this, successive governments 'developed an illusory sense of security' and based their strategic assessments on reports published by the Committee of Imperial Defence (CID), which maintained that Australian security relied on the Royal Navy and Britain's Singapore naval base.<sup>30</sup> Under the rubric of the Singapore Strategy, the Army was

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<sup>27</sup> See Ian Hamill, *The Strategic Illusion: The Singapore Strategy and the Defence of Australia and New Zealand 1919-1942*, Singapore University Press, Singapore, 1981; John McCarthy, *Australia and Imperial Defence*, University of Queensland Press, St Lucia, 1976; and David Horner, 'Australian Army Strategic Planning Between the Wars', in Peter Dennis and Jeffrey Grey (eds), *Serving Vital Interests: Australia's Strategic Planning in Peace and War*, Australian Defence Force Academy, Canberra, 1996, pp. 75–101.

<sup>28</sup> McCarthy, *Australia and Imperial Defence*, p. 148.

<sup>29</sup> Albert Palazzo, 'Failure to Obey: The Australian Army and the First Line Component Deception', *Australian Army Journal*, vol. 1, no. 1, June 2003, p. 82. See also 'Report on the Military Defence of Australia'.

<sup>30</sup> Paul Burns, *The Brisbane Line Controversy: Political Opportunism Versus National Security 1942-45*, Allen & Unwin, St Leonards, 1998, p. 5. For

relegated to a position of secondary importance and was seen as necessary only to prevent raids. These conflicting interpretations on the part of the Army and the Government, as Palazzo explains, ‘masked a broader conflict regarding whether the basis of Australian security should be external, and rest upon the Empire, or if it should be internal, and rest upon self-reliance’.<sup>31</sup> The effect of government strategic planning between the wars was to nullify any ambitious programs for mechanisation and the possibility of an increase in funding for the Army. While it could be argued that Australian politicians blindly ‘accepted Imperial platitudes’ because these obviated the need for extra expenditure, it must also be considered that the Army demonstrated a ‘consistent determination’ to undermine the policies of its political masters.<sup>32</sup> In doing so it undermined the trust between the two institutions and distorted a realistic appreciation of the strategic environment. As a consequence, the Army was unable to develop a force structure that could reconcile its strategic assumptions with the Government’s financial imperatives.

### **British developments**

The Australian Army lacked the funds and vehicles to develop its own conceptions of mechanisation, and therefore modelled its policy on British developments. In periodic letters, the Chief of the Imperial General Staff (CIGS) would inform the Australian CGS of developments in the United Kingdom and provide feedback on Australian programs.<sup>33</sup> Although these letters provided a conduit for

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an example of anti-raid policy see ‘CID Report 372-C’, August 1932, CRS AWM 113, MH1/43. See also Letter, Australian Prime Minister to First Sea Lord of the Admiralty, ‘Local Defence of Australia’, 18 July 1921, PRO CO537/1157.

<sup>31</sup> Palazzo, *The Australian Army*, p. 131.

<sup>32</sup> Palazzo, ‘Failure to Obey’, p. 25.

<sup>33</sup> CGS Periodical Letters from January 1934 to February 1940 are at CRS A6828. With the exception of two, there are no CIGS letters in the Australian Archives. The CIGS Letters from January 1926 to December 1934 are located from PRO W0322371 to W0322400B. Additional CIGS Letters from April 1937 to June 1938 are between PRO

the exchange of ideas on mechanisation, the absence of an automobile industry and debilitating funding shortages meant that Australia fell well behind mechanisation in Britain. The British Army, however, had its own problems. It too struggled with funding shortages and strategic imperatives that favoured using the Royal Navy and Royal Air Force (RAF) to maintain Imperial stability and deter a continental adversary.<sup>34</sup> The notion that the British Army's failure to mechanise between the wars was because a bulwark of reactionary cavalry officers favoured the retention of their horses is a popular myth.<sup>35</sup> More contemporary analysis suggests that the explanation for Britain's failure from 1930 onwards to retain its pre-eminent position as the pioneer of mechanisation must be examined in the context of domestic politics, strategic assumptions, and an absence of doctrinal development.<sup>36</sup> Despite achieving only modest success, the British Army actively pursued the production and employment of AFVs during the First World War.<sup>37</sup> After the war, it was reluctant to totally disband horsed units because most vehicles could not provide the same level of cross-country

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W032/4118 and W032/4120. Copies of the respective CGS letters are not in these files.

<sup>34</sup> See Michael Howard, *The Continental Commitment: The Dilemma of British Defence Policy in The Era of The Two World Wars*, The Ashfield Press, London, 1989; Brian Bond, *British Military Policy Between the Two World Wars*, Oxford University Press, London, 1980.

<sup>35</sup> See Norman Dixon, *On the Psychology of Military Incompetence*, Pimlico, Sydney, 1994, pp. 110–23; B. H. Liddell Hart, *Memoirs*, vol. 1, Cassell, London, 1967, p. 77; and Kenneth Macksey, *Armoured Crusader: A Biography of Major-General Sir Percy Hobart*, Hutchinson, London, 1967, p. 71.

<sup>36</sup> The best contemporary accounts include: Bond, *British Military Policy Between the Two World Wars*, pp. 127–90; Robert H. Larson, *The British Army and the Theory of Armoured Warfare 1918–1940*, University of Delaware Press, Newark, 1984; and J. P. Harris, *Men, Ideas and Tanks: British Military Thought and Armoured Forces, 1903–1939*, Manchester University Press, Manchester, 1995.

<sup>37</sup> David Childs, *A Peripheral Weapon? The Production and Employment of British Tanks in the First World War*, Greenwood Press, London, 1999, pp. 139–96.

mobility. Radical proposals espoused by J. F. C. Fuller and Basil Liddell Hart failed to comprehend the technical limitations of British vehicles. Their perception—that cavalry-blinkered officers inhibited mechanisation—was incorrect, revealing their own inability to formulate realistic doctrine. The overwhelming attitude expressed by most officers in the British Army was one of cautious progressiveness.<sup>38</sup>

In the period immediately following the First World War, Britain pioneered mechanisation and the development of AFVs. The Royal Tank Corps (RTC) was formed in 1923 and became the first independent armoured formation. The RTC enabled the British Army to conduct comparatively complex manoeuvres from 1925 onwards. While these exercises were often unsuccessful because of poor cooperation between different sub-units, they prefigured the formation of the Experimental Mechanised Force in May 1927. The British Army was slow to adapt its doctrine and training to incorporate the changes brought about by mechanisation.<sup>39</sup> Arguably the most significant hangover the Australian Army inherited from Britain was doctrinal immaturity.<sup>40</sup> While both armies possessed an ethos that welcomed technological innovation, the absence of a formal approach to creating doctrine stifled any meaningful debate about mechanisation because there was no established framework to regulate debate and blend ideas. Without an established set of principles, the Australian Army, in particular, failed to reconcile conflicting interpretations of mechanisation.

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<sup>38</sup> In a survey of the military journals, Barton Hacker has concluded that the number of articles in favour of mechanisation was double those against: Barton C. Hacker, *The Military and the Machine: An Analysis of the Controversy over Mechanisation in the British Army, 1919–1939*, PhD Thesis, Department of History, University of Chicago, 1968, p. 25.

<sup>39</sup> See Larson, *British Army*, p. 38, and Brian Bond & Williamson Murray, 'The British Armed Forces 1918–39', in Allan R. Millet and Williamson Murray (eds), *Military Effectiveness, vol. II, The Interwar Period*, Mien & Unwin, Sydney, 1988, p. 121. See also David French, *Raising Churchill's Army: The British Army and the War Against Germany 1919–1945*, Oxford University Press, New York, 2000, p. 12.

<sup>40</sup> Grey, *Australian Brass*, p. 61.

The British Army's first expression of mechanised doctrine came in 1929 with the publication of Colonel Charles Broad's booklet *Mechanised and Armoured Formations* ('The Purple Primer'). Broad argued that tanks should be used to exploit their firepower and shock action and be deployed in an attack either independently or in cooperation with infantry and cavalry formations.<sup>41</sup> He also noted that tanks could be used against an 'elaborately entrenched and prepared position' as well as in the pursuit. The types of operations conducted by the tank would depend on terrain and the availability of supporting arms. In 1931, Britain formed an independent tank brigade comprised entirely of tracked vehicles, and by 1931 had established itself as the leader in mechanisation. This position, however, was steadily undermined by a parsimonious Treasury and the strategic policy of 'limited liability', which favoured the re-armament of the Navy and RAF.<sup>42</sup> These conditions were equally manifest in Australia and added additional complexity to the formulation of mechanisation policy.

### **Mechanisation: AASC**

The Army always believed that mechanising the Service Corps was important because it would allow soldiers to be readily transported across the country during mobilisation. The Army also recognised that transport vehicles, unlike AFVs, could be adapted from commercial industry. Although the process of mechanising the AASC would be relatively easy when compared to the creation of armoured units, it was a process the Army could ill-afford, and the AASC suffered more than any other Corps as result of reductions in funding between the wars. At the end of the First World War, the Army failed to re-acquire the 500 vehicles it had purchased for service on the Western Front and the AASC was forced to revert to horsed transport.<sup>43</sup> Aware of this, the mechanisation of the AASC received considerable attention in Chauvel's Inspector General Reports from as early as 1921. In order to provide a sufficient reserve of vehicles to cope with the demands of

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<sup>41</sup> Charles Broad, *Mechanised and Armoured Formations 1929*, Army Council, War Office, London, 1929, pp. 19–36.

<sup>42</sup> Howard, *The Continental Commitment*, p. 79.

<sup>43</sup> Lindsay, *Equal to the Task*, p. 37.

mobilisation and reduce the strain on limited resources, Chauvel recommended that all the vehicles in government departments be standardised. During the 1920s the Army relied heavily on acquiring commercial vehicles in the event of war, but by 1922 there were only 2000 vehicles across all government departments, with most being unsuited to military work.<sup>44</sup> Conscious that the Army lacked a sufficient number of vehicles, Chauvel emphasised the need for 'early action to replace horsed transport with mechanical transport' in order to 'extend the sphere of usefulness of the Australian Service Corps'.<sup>45</sup>

The gap between the Australian and British Service Corps steadily increased during the 1920s. By 1924 the British Army had mechanised all of its Divisional Trains and only retained horses in the event of an emergency. In comparison, by 1925 Chauvel could only report that 'the mechanisation of the Divisional Trains received consideration during the year but could not, owing to financial stringency, be put into effect'.<sup>46</sup> Although the AASC was supposed to use mechanical vehicles on mobilisation, according to planning estimates, the Corps did not possess any vehicles or conduct any training in the use of motorised transport. Conscious of this problem, the Army ordered several vehicles for use by the AASC and artillery in 1926, with the first vehicles arriving later that year.<sup>47</sup> To provide a training nucleus of personnel capable of handling mechanical vehicles, the AASC was tasked with the establishment of a Central Training Depot and received an increase in permanent men in order to conduct its supply tasks and to train drivers.<sup>48</sup> These men, however, were seconded from the RAA and Royal Australian Engineers (RAE) in a temporary expedient that created numerous problems. Those members of the RAA and RAE

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<sup>44</sup> 'Report of the Inspector-General', 31 May 1922, p. 18.

<sup>45</sup> 'Report of the Inspector-General', 31 May 1923, p. 22.

<sup>46</sup> 'Report of the Inspector-General', 31 May 1925, p. 14.

<sup>47</sup> 'Report of the Inspector-General', 30 June 1927, p. 20. Lindsay asserts that these vehicles arrived in 1925 but he mistakenly quotes the 1927 Inspector General's Report as the 1925 Report: Lindsay, *Equal to the Task*, pp. 38–9.

<sup>48</sup> 'Report of the Inspector-General', 31 May 1926, p. 21

who served in AASC units were deprived of opportunities for promotion and had to complete theoretical examinations in two Corps. In addition, the decision to allocate mechanical vehicles to artillery units deprived the AASC of vehicles and funding at a time when it faced increasing responsibilities. By attempting to mechanise units beyond the capability of finances, the Army created a situation where both Corps were reliant on horsed and motorised transport. This was uneconomical and created the awkward position where neither Corps could adopt modern tactical procedures. The situation improved as more vehicles became available, but the AASC was still grossly ill-equipped throughout the Interwar Period.

### **Imperial Subsidy Scheme**

The British Army was aware that the British Dominions would struggle to keep abreast with its mechanisation programs. To allay Antipodean concerns, in April 1927 the CIGS, Field Marshal Sir George Milne, proposed the establishment of an imperial subsidy scheme. This would cheapen British production and provide the British Army with a ready supply of mechanical vehicles to draw upon throughout the Empire. As Milne remarked:

It is not altogether inconceivable that the War Department itself might actively collaborate with the Dominion governments towards the attainment of the desired object, since a nucleus of military transport fleets of the right class, available in various parts of the Empire, would undoubtedly be an important asset to the Imperial government.<sup>49</sup>

Milne envisaged that the Dominion armies would provide subsidies to British automotive companies to make commercial chassis that could easily be modified for military tasks. The Australian Army, however, was unable to adopt this proposal because, in the first place, it did not require enough vehicles to make the subsidy economical, and in the second place, it could not pay for the chassis anyway, even with a subsidy.<sup>50</sup> Mechanising the AASC, and indeed mechanisation more generally, could only proceed very slowly and within the limits of

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<sup>49</sup> 'Periodical Letter, 3/1927', 15 July 1927, PRO W032/2376.

<sup>50</sup> 'Periodical Letter 4/1929', 18 October 1929, PRO W032/2385.

financial resources. Often this meant that the Army had to use its scarce vehicles until they broke down completely. The over-use of vehicles was emphasised in 1929 by the Quartermaster General, Major General J. H. Bruche, who noted that mechanised training could only be conducted at 'the abnormal depreciation of the vehicles engaged' which were returned in a 'deplorable mechanical state'.<sup>51</sup> The Army soon recognised that understanding the importance of mechanisation was one thing, implementing it was another.

### **The Remount Service**

The Remount Service was formed in 1910 with the purpose of providing horses for all the mounted branches of the Army except the Light Horse. The Remounts were subject to significant reductions in spending and personnel during the Interwar Period, and their reduced efficiency placed greater pressure on the AASC to mechanise. Although the Army continued to believe in the utility of using horses, Chauvel and successive Chiefs of the General Staff did not favour the Remounts in lieu of mechanisation. Lacking the funds to acquire the necessary vehicles, the Army was forced to rely on the Remount Service to perform tasks that it otherwise preferred to mechanise. In 1921, Chauvel reported that a serious shortage of men and suitable horses was dramatically effecting the efficiency of the Remounts. To remedy this, he introduced several breeding initiatives and urged the Government to curtail overseas exports. These recommendations, however, achieved little; the Remount Service deteriorated to such an extent that, by 1923, it had 'suffered from reductions, perhaps more in proportion than any other branch of the Defence Department'.<sup>52</sup> The Inspector General warned against the tendency to sacrifice funds allocated to the Remounts, observing that:

Although in the commercial world the motor car, bus, and lorry are first replacing the horse drawn vehicle, the fact that the Army will for

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<sup>51</sup> 'Military Board Agenda 99/1929', 13 December 1929, CRS A2653, 1930, vol. 1.

<sup>52</sup> 'Report of the Inspector-General', 31 May 1923, p. 23.

many years to come require horses for units of Light Horse, Artillery, and transportation services must not be lost sight of.<sup>53</sup>

In order to alleviate some of the difficulties affecting the Remounts and ease problems associated with acquiring new horses, Chauvel recommended that a fixed amount of money be allocated to the Remounts at the beginning of each financial year. This would allow them to buy horses when the best breeds were available without having to wait for financial arrangements to be finalised. Notwithstanding, the Remounts continued to deteriorate as a result of the declining number and quality of horses in Australia. In 1928, Chauvel stressed that ‘suitable horses of the types required for Army purposes are becoming more and more difficult to obtain’.<sup>54</sup> By 1930, the number of horses in Australia had significantly decreased since 1914 and the country faced the possibility of losing its horse industry.<sup>55</sup> The Army was caught in an increasingly difficult position because it lacked sufficient numbers of vehicles to replace the use of horses at a time when the cost of maintaining the Remounts was becoming increasingly expensive.

### **Forming the 1st Australian Tank Section**

The tedious process of acquiring four obsolete tanks is a good example of the difficulties associated with mechanisation. Mechanising the AASC and RAA was relatively easy because the Army could rely on the impressment of commercial vehicles to suit military demands; however, the struggle to develop an autonomous armoured capability was fraught with unforeseen difficulties. In October 1924 the Army was informed by the Australian Military Representative on the Imperial General Staff that one Mark II Medium Tank with spare parts would cost £11 650.<sup>56</sup> This price was accepted by the Quartermaster General, Major General W. A. Coxen, who agreed to buy four tanks

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<sup>53</sup> ‘Report of the Inspector-General’, 31 May 1925, p. 22.

<sup>54</sup> ‘Report of the Inspector-General’, 31 May 1928, p. 19.

<sup>55</sup> ‘Report of the Inspector-General’, 15 April 1930, p. 30.

<sup>56</sup> Letter, Australian Military Representative to Military Board Secretary, 24 October 1924, CRS B1535, 919/1/11.

‘in anticipation of funds becoming available’.<sup>57</sup> The Army, however, was caught in a predicament where the Mark II Medium Tanks were becoming increasingly obsolete and the British Army was not planning to produce a replacement. The Military Representative cabled Chauvel in July 1926 that ‘no new design of light tank can yet be definitely forecasted [*sic*] and production to a new design is not likely for at least three years’.<sup>58</sup> Another problem was that the turret was badly designed and the Hotchkiss gun mounted to the front of the vehicle could not completely traverse to provide protection to the front of the vehicle. The Australians, who requested that the turret be modified to allow the gun to traverse fully, identified this blind spot. As a consequence the turret was modified to include a flat top and the height of the tank was also increased, jeopardising its ability to be transported by rail. After lengthy deliberation it was discovered that the additional height would not effect rail movement in Australia while it could be mitigated in Britain by the use of a lower carriage.<sup>59</sup> The four Mark II Medium Tanks finally arrived in Sydney on 7 October 1927, and initial testing and performance trials began shortly afterwards.<sup>60</sup>

Prior to the arrival of the tanks, the Military Board submitted a proposal for the formation of a permanent tank section and the exchange posting of one officer and warrant officer to the United Kingdom.<sup>61</sup> The same proposal authorised the establishment of the Australian Tanks Corps in the financial year 1926–27 and the creation of a Tank Section located at Liverpool. The Section comprised one officer, one warrant officer and six other ranks; it became the Central Training School for training instructors in AFVs and formed the

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<sup>57</sup> Letter, QMG to CGS, 4 December 1925.

<sup>58</sup> Letter, Australian Military Representative to Military Board Secretary, 15 July 1926.

<sup>59</sup> Letter, Military Board Secretary to Under-Secretary of State of War, 29 November 1926.

<sup>60</sup> Memoranda to Secretary of the Department of Defence, 8 October 1927. Hopkins states that the tanks arrived in September 1929 but no evidence can be found for this: Hopkins, *Australian Armour*, p. 14.

<sup>61</sup> ‘Military Board Agenda 19/1926’, 11 August 1926, CRS A2653, 1926, vol. 2.

training nucleus for the CMF. The Army recognised the importance of having technically qualified men and the Military Board made provision for the training of one officer and one warrant officer in gunnery, driving and tactics. In addition, the Board also allocated funds for the training of a further two warrant officers in the United Kingdom to form a pool of instructors in Australia. While none of these moves were particularly striking, they represented a genuine desire to mechanise. However, many of these endeavours would be overshadowed by technical difficulties, and despite making several bids for modifications to tanks, many of the stipulated modifications were not completed. In a letter to the Australian Representative on the Imperial General Staff, the Quartermaster General indicated that only 16 of the 25 requests for modification were completed.<sup>62</sup> Although these problems were not drastic, they reflect the lack of consultation that existed between Australian and British authorities and the general difficulties the Army faced in acquiring a small number of vehicles.

Despite being under control of the Small Arms School in Randwick, the Tank Section was originally located in Liverpool because of its close proximity to civil engineering works for repair and an artillery range for conducting gunnery tests.<sup>63</sup> In 1929, the Section moved to Randwick so that the maintenance functions could be centralised and more thorough experimentation could be conducted.<sup>64</sup> Major H. C. H. Robertson, an energetic commander who sought to maximise the potential of the Tank Section, headed the Small Arms School. He was responsible for salvaging the School from the deplorable condition in which he found it and oversaw the subsequent incorporation of CMF personnel.<sup>65</sup> The decision to include personnel from the Militia was originally deferred in 1926 because of manpower shortages, but by 1930 these had been resolved and there were enough trained men

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<sup>62</sup> These are listed in B1535, 919/1/11.

<sup>63</sup> 'Formation of Australian Tank Corps', 20 July 1926, CRS A2653, 1926, vol. 2. See also 'Tank Section A/22', CRS, A2653, 1928, Vol 2.

<sup>64</sup> 'Tank Wing: Small Arms School', 4 March 1929, CRS B1535, 919/1/11.

<sup>65</sup> 'Military Board Agendum 84/18', CRS A2653, 1927, vol. 1.

within the permanent force to provide for expansion. On 13 January 1930, the 1st Australian Tank Section was established with both permanent and CMF personnel. The unit consisted of 36 CMF members, while the number of permanent personnel remained at 10.<sup>66</sup>

### **Mechanisation policy: 1928**

By 1928 an increased number of civilian vehicles in the community made it possible to introduce more ambitious programs of mechanisation. Adding to this, the Army recognised that the gap between it and the British Army had increased, forcing Chauvel to concede that the Army was ‘very backward with regard to mechanisation’. In presenting his report, Chauvel noted that mechanisation had ‘necessitated far-reaching changes in all armies, not only in organisation and equipment, but also in the application of modern tactics’.<sup>67</sup> The British Army had completely mechanised its Divisional Trains and was conducting comparatively advanced combined arms trials with the Experimental Mechanised Force.<sup>68</sup> Meanwhile, the Australian Army was still heavily reliant on horses and was experiencing numerous difficulties in maintaining four tanks. In the 1928 Inspector General’s Report, Chauvel wrote that:

Progress in mechanisation in Australia on the lines being developed in the British Army must necessarily be slow on account of the expense involved in the purchase and maintenance of armoured fighting vehicles and technical vehicles [and Australia’s] dependence upon importation of fuel and transport vehicles.<sup>69</sup>

To assist in the formulation of mechanisation policy, the Army appointed a committee of review chaired by Brigadier H. C. Brand and including Lieutenant Colonel E. K. Smart and Majors Victor Stantke and John Northcott (later GOC—General Officer Commanding—of the 1st Australian Armoured Division). The Committee delivered a

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<sup>66</sup> ‘Military Board Memorandum no. 18/1930’, 3 January 1930, CRS B1535, 919/1/11.

<sup>67</sup> ‘Report of the Inspector-General’, 31 May 1928, p. 7.

<sup>68</sup> ‘Periodical Letter 4/1926’, 14 October 1926, PRO W032/2373.

<sup>69</sup> ‘Report of the Inspector-General’, 31 May 1928, p. 7.

report in July 1928 establishing a framework for developments over the next four years.<sup>70</sup> Immediately, the impact of British changes influenced the decisions made by the Committee. The Committee noted that the British Army initiated mechanisation with the conversion of first-line transport units followed by the introduction of AFVs. The Committee also acknowledged that future developments in the British Army would include the mechanisation of signals, engineers, artillery, infantry, the formation of a tank unit and the conversion of the cavalry to armoured car units. These developments formed the basis of their recommendations and provided the blueprint for Australian policy.

The establishment of an independent armoured unit was the most pressing concern of the Committee. Even though a tank unit would require specialist training, the Committee believed that the construction and maintenance of AFVs was within the capabilities of Australian industry. To increase the Army's meagre armoured capability, the Committee recommended the expansion of the permanent tank nucleus to include one company and a section of armoured cars. Conscious that their proposals were ambitious, and were likely to be rejected, the Committee stressed that fulfilling its recommendations was a problem 'the Government must face sooner or later'.<sup>71</sup> In an attempt to rationalise training and to avoid overlapping responsibilities, the report also recommended the creation of a Central Training School and Depot. The Central Training School would be controlled by the AASC and be responsible for training all branches using mechanical transport, while the Depot would store vehicles in a central location to allow units access to more vehicles during camp training. Located in the 2nd Military District, both the School and Depot would provide the basis for the expansion of mechanisation and a nucleus of trained personnel who could instruct the CMF. In order to alleviate personnel and financial demands, the School was to be established over a two-year period and accompanied by consequent reductions in the Remounts. The Committee estimated that an annual saving of £5188

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<sup>70</sup> 'Report of the Committee Appointed to Investigate Mechanisation of the AMF', 11 July 1928, CRS A2653, 1928, vol. 1.

<sup>71</sup> *ibid.*

through reductions in the Remounts could be allocated to the acquisition of vehicles, priced at £12 000.<sup>72</sup>

Arguably the biggest loser from the report was the AASC. The Committee believed that first-line transport units could not be mechanised because of the shortages of fuel in Australia. Although it made provision for the AASC to hire vehicles for camp training, it favoured mechanising one field battery per artillery brigade instead. The Committee erroneously believed that this would allow the Artillery to become familiar with modern tactics. While the Committee maintained that the costs involved in the acquisition of vehicles could be offset by reducing the Remounts, it ignored the fact that the AASC would continue to rely on horses at the expense of the partial mechanisation of the RAA. Although the mechanisation of the artillery required fewer vehicles, it exacerbated the problem whereby both Corps were using a combination of horsed and motorised transport.

### **Mechanisation: RAA**

The problems caused by partially mechanising the RAA were recognised in April 1930 by an artillery officer who argued that the organisation of artillery was ‘unsound and uneconomical both for mobilisation purposes and for peace training’.<sup>73</sup> The partial mechanisation of artillery divided the basic tactical artillery unit, the brigade, into a composite unit of horse-drawn and mechanised sub-units. This meant that each brigade had batteries with different speed, range, and War Establishments, which complicated supply and training. To remedy this problem, the Military Board could have concentrated all the mechanised units in one brigade and one division in order to rationalise training and supply. However, this idea was rejected by the Adjutant General, Brigadier T. H. Dodds, who favoured the existing organisation and further mechanisation of artillery units

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<sup>72</sup> *ibid.*

<sup>73</sup> ‘Organisation and Training of Artillery Mechanised Units’, 29 April 1930, CRS B1535, 849/3/78. The mechanisation of the British artillery is covered in Philip Ventham and David Fletcher, *Moving the Guns: The Mechanisation of the Royal Artillery 1854–1939*, HMSO, London, 1990.

attached to cavalry divisions.<sup>74</sup> The organisation of mechanised artillery units prompted the Quartermaster General to review the progress that had been made since the proclamation of the Board's directive in 1928. He stated:

In regard to vehicles this position still remains acute. Owing to financial stringency it has not been possible to keep up to the purchase program with the result that there is still a shortage of vehicles.<sup>75</sup>

In order to remedy the deteriorating condition of the AASC, which had the most severe shortages, the Military Board re-prioritised the mechanisation of artillery units in May 1930. Those artillery units attached to cavalry formations would be 'gradually mechanised as far as the resources [would] allow' and certain field batteries in the 2nd and 3rd Military District would also be mechanised.<sup>76</sup> The Motorised Transport School and Vehicle Depots would be upgraded while the remaining artillery units would be horsed. This re-organisation still did not circumvent the problem of having composite horsed and motorised batteries in the same brigade, but rather served to exacerbate it. The decision to mechanise units attached to cavalry formations was made without any increase in the number of vehicles and at the expense of the AASC, which was only to be mechanised 'to a partial extent'.<sup>77</sup> The Army attempted to stretch its scarce resources so far that mechanisation policy became uneconomical.

## **Conclusion**

In 1929, Chauvel summarised the Army's initial steps toward mechanisation when he remarked that 'the principle of mechanisation of the Army has been accepted, and progress is being made within the limits of financial resources'.<sup>78</sup> The Army attempted to mechanise at a time when it faced severe deficiencies in funding, personnel, and

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<sup>74</sup> *ibid.*

<sup>75</sup> 'Organisation and Training of Divisional Artillery Mechanised Units', 6 May 1930.

<sup>76</sup> 'Military Board Agenda 57/1930', 27 May 1930.

<sup>77</sup> 'Mechanisation Policy: Military Board Agenda 57/1930', 18 July 1930.

<sup>78</sup> 'Report of the Inspector-General', 31 May 1929, p. 7.

equipment. Although the First World War fostered a degree of scepticism about AFVs, most senior officers had recognised from as early as 1920 that mechanisation was essential, despite having only vague concepts on how to use mechanised forces. The Australian Army adapted British policy to suit local financial and industrial conditions. As Chauvel remarked, ‘the policy adopted has been to follow as closely as possible the methods of the British Army, since Army funds do not permit research and experiment in Australia to any appreciable extent’.<sup>79</sup>

For much of the Interwar Period, and in particular during the 1920s, the Army was caught in a difficult position. Successive governments were not willing to provide adequate funds to cover the cost of acquiring new vehicles, forcing the Army to maintain the Remounts at a time when quality horses were rare and increasingly expensive. The combination of both mechanised and horsed transport in artillery and AASC units was both uneconomical and tactically unsound. Only when mechanisation programs were intensified during the 1930s would the Army become more aware of these problems and develop more sophisticated policy.

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<sup>79</sup> Ibid, p. 7.

## CHAPTER 2:

### ARMY MECHANISATION POLICY 1931–1939

#### Problems affecting the 1st Australian Tank Section

From its inception, the 1st Australian Tank Section was hamstrung by prohibitions in the *Defence Act* that prevented defence personnel from serving in a permanent tank unit.<sup>80</sup> As a temporary expedient, the Army acquired men from the RAA and RAE in order to fill vacant positions, but as was the case with the AASC, this created several problems.<sup>81</sup> This decision limited the number of personnel suitable for tank training, forced members to pass examinations in two Corps, and affected the seniority of members in the unit. These problems were recognised by the Adjutant General, Brigadier T. H. Dodds, who noted the ‘prejudicial effect of this system on the individual’s prospects of promotion’ and the time wasted in training fresh pupils at the expense of maintaining the vehicles.<sup>82</sup> In order to rectify the problem, Dodds recommended that the personnel attached to the section transfer to the AASC (Permanent) so that they could focus on mechanised training. Although the Army was able to circumvent bureaucratic obstacles by transferring men to the AASC, it was unable to increase the number of permanent personnel to maintain the vehicles.

Most of the Army’s experience with mechanised warfare came from monitoring developments in Britain and from exercises conducted by the 1st Australian Tank Section. During the 1930s, the section participated in regular field exercises in the Greenhills–Glenfield

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<sup>80</sup> The *Defence Act* stipulated that ‘except in time of war, no Permanent Military Force shall be raised or organised or maintained except for administrative and instructional staffs, including Staff Corps, Survey, Army Service, Medical, Veterinary, Ordnance Corps, Artillery, Fortress Engineers, and Submarine Mining Engineers’: *Defence Act 1903-1941*, Part III, para 31, sub-para 2.

<sup>81</sup> ‘Military Board Agendum 2/1932’, 21 January 1932, CRS A2653, 1932, vol. 1.

<sup>82</sup> *ibid.*

training area near Liverpool where it practiced ‘infantry and tank cooperation training [with] air support from the RAAF’.<sup>83</sup> The section was also active in its efforts to harness public support, and from 1931 it held an annual Cambrai Parade on 20 November in celebration of the success of tanks in the First World War. The Section, however, was continually plagued with mechanical problems caused by over-use. A report completed in April 1932 indicated that the tanks had been travelling 50% in excess of their prescribed mileage and listed numerous mechanical problems as a result.<sup>84</sup> Recognising this, in May 1933 the Military Board issued instructions for the repair of tanks and placed restrictions on the distances that they could travel.<sup>85</sup> Although the difficulties in repairing and maintaining the Tank Section were overcome, it took an inordinate amount of time that could otherwise have been used to develop doctrine on the use of tanks.

### **Mechanisation and Strategic Policy**

In August 1932 the Committee of Imperial Defence (CID) met with senior Australian officers to discuss the Army’s preparedness for war and mobilisation plans. The Committee immediately recognised the parlous state of the Australian forces and the need to import equipment and munitions from Britain. Aware of Australia’s inability to maintain a sizable permanent force, it stressed the importance of ‘efficient protection against raids rather than inefficient measures against invasion’.<sup>86</sup> The Committee identified the Army’s serious technological deficiencies, noting that:

When mobilised, trained and concentrated the present Australian forces will have no means of resisting a modern force equipped with

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<sup>83</sup> Paul Handel, *Dust, Sand and Jungle: A History of Australian Armour During Training and Operations, 1927–1948*, RAAC Memorial and Army Tank Museum, Puckapunyal, 2003, p. 5.

<sup>84</sup> A list of mechanical problems with the tanks from 1929 to 1933 is compiled in CRS B1535, 919/1/90.

<sup>85</sup> ‘Tanks: Medium Mk II—Maintenance and Future Policy’, 31 May 1933.

<sup>86</sup> ‘CID Paper 372-C’.

tanks. There are no tanks, no anti-tank weapons, and no armour piercing small arms ammunition in Australia.<sup>87</sup>

Although the Army lacked modern equipment, it nevertheless recognised that its structure needed to be able to incorporate emerging technologies. Throughout the Interwar Period, planning estimates for the dispatch of an expeditionary force included mechanised units, even though the Army lacked the funds and vehicles for this. The chasm between strategic estimates and force structure was clearly expressed in Plan 401, which proposed the employment of a cavalry brigade supported by a fully manned tank battalion as part of an expeditionary force.<sup>88</sup> Aware of the severe equipment shortages that plagued the Army, Bruche informed the Minister for Defence, George Pearce, that:

Australia still has a pre-war Army, incapable of attacking successfully an enemy armed with machine-guns, and completely helpless, even for passive defence, in the presence of hostile tanks, armoured cars, and low-flying aircraft.<sup>89</sup>

Moving away from previous strategic policy that favoured large formations of infantry and cavalry as a gauge of combat power, Bruche (who was appointed CGS in 1930) proposed to establish smaller and better-equipped formations. Accordingly, ‘it is not the question of numbers which is now being discussed, but that of materiel’.<sup>90</sup> Bruche argued that smaller formations equipped with modern vehicles and weapons would provide better defence than larger, more cumbersome units. As a means of securing funds for purchasing new equipment, Bruche recommended that one quarter of all Army funding be allocated to the acquisition of modern equipment. These suggestions, however, fell largely on deaf ears. While the Government agreed that ‘tanks conserve the use of manpower’, it did not perceive that the strategic environment, or the parlous condition of the Army, warranted

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<sup>87</sup> *ibid.*

<sup>88</sup> ‘CGS Periodical Letter no. 4/1931’, CRS B197, 1987/2/104.

<sup>89</sup> Letter, CGS to the Minister for Defence, 1 February 1933, CRS AWM113, MH1/43.

<sup>90</sup> *ibid.*

either a change or an increase in funding. Instead, it argued that there was a ‘financial risk and a military risk’, and that the financial risk was ‘more pressing’ while the military risk was ‘negligible’.<sup>91</sup>

Notwithstanding financial limitations, Bruche remained a strong advocate of mechanisation and wanted the Army to take a more proactive role in developing policy. He saw mechanisation as essential to modernising the Army and providing adequate defence. His convictions were emphasised in a letter, noting that:

The whole policy of mechanisation in our Army is badly in need of revision and clear definition...It is unnecessary to await the decision of the Government regarding the future organisation of the military forces before proceeding to consider the general principles on which the provision of motor vehicles should be undertaken as and when finances can be made available.<sup>92</sup>

The CGS believed that mechanisation policy should segregate vehicles into separate categories in order to accommodate the varying complexities involved in acquisition, maintenance and training. These categories included armoured and unarmoured fighting vehicles, motorised vehicles for artillery traction, motorised transport for stores and personnel, and technical vehicles.<sup>93</sup> Bruche recognised the difficulty of obtaining suitable vehicles from Britain, especially in time of war, and favoured using local industry and standardising the vehicles used by different artillery units. The priorities for mechanisation were to be the construction of armoured cars and the impressment of civilian vehicles for the field artillery, AASC, medium artillery and technical units. In addition, the deteriorating condition of the four Mark II Medium Tanks forced the CGS to limit their use in

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<sup>91</sup> The idea that mechanisation could conserve manpower was expressed at the League of Nations Disarmament Conference in 1932. See ‘Statement Made by the Australian Delegation’, 12–23 June 1932, CRS A5954, 895/8. For detail on the Government’s spending priorities see, ‘The Defence of Australia’, 23 March 1933, CRS AWM113, MHI/43.

<sup>92</sup> ‘Mechanisation in the Army’, 8 April 1933, CRS B1535, 919/1/90.

<sup>93</sup> *ibid.*

training exercises in anticipation of more tanks arriving from Britain. These recommendations, aimed at curbing the deterioration of existing capabilities, allowed the Army to segregate vehicles into distinct groups, allowing policy to be based on the specific requirements of individual vehicle types and forcing a major reassessment of mechanisation policy.

### **Pearce's Rearmament Proposal**

In recognition of the deteriorating condition of the three Services, the Lyons Government re-appointed George Pearce as Minister for Defence in 1932. Pearce was a highly respected politician who had earned his esteem in his tenure as Minister for Defence during the First World War. As C. E. W. Bean remarked, Pearce was 'an excellent administrator and a loyal and honourable chief'.<sup>94</sup> Pearce became immediately aware that 'the reduction in defence votes' had caused a 'rapid and continuous deterioration in defence resources, both in men and material'.<sup>95</sup> He noted that the three Services were unable to maintain their nucleus forces and that this problem was being further complicated by technical developments that required expenditure. As Minister, Pearce advocated mechanisation to enhance the combat power of a small army through a program of modernisation. He shrewdly noted that:

An invading Army would, without doubt, be fully equipped with modern equipment...I consider it vital in Australia's interest that the most effective use be made of our relatively small enlisted numbers, and this can only be done by ensuring that our Army is as well equipped as that of an invader.<sup>96</sup>

To modernise all three Services, Pearce proposed an ambitious five-year rearmament program at a cost of £5 000 000 in which the Army

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<sup>94</sup> C. E. W. Bean, *Official History of the War of 1914–1918, The Australian Imperial Forces in France 1916*, vol. 3, Angus & Robertson, Sydney, 1929, p. 186.

<sup>95</sup> Letter, Pearce to Lyons, 28 April 1933, NLA MS 1009, 1009/52, 435–40.

<sup>96</sup> *ibid.*

would receive £907 100.<sup>97</sup> Although he wanted to mechanise, it was a low priority compared to replenishing stocks of ammunition and the acquisition of small arms. Such sentiments were shared by most senior Army officers who, despite recognising the importance of mechanisation, favoured the rejuvenation of critically low supplies of ammunition and the procurement of basic weaponry. Pearce's proposal failed to win political support and was largely ignored as a result of fiscal stringency, while mechanisation programs were increasingly hampered by the dilapidated condition of the Army, which forced its senior officers to devote all available funds to projects aimed at sustaining basic requirements.

### **Mechanisation Policy: 1933**

In May 1933, the Military Board produced a second mechanisation policy directive that aimed to curb the growing dichotomy between acquisitions and policy. Formulated in recognition of the difficulties the Army faced in maintaining its small armoured capability, it was a direct consequence of Bruche's efforts to adopt a more systematic policy. Mechanisation would enable the Army's 'scattered forces to be concentrated at threatened points' and work in conjunction with the British Army.<sup>98</sup> Adding to Bruche's comments, the Board insisted that the Army could not rely on procuring British vehicles in the event of war and that mechanisation 'must be based on the types of vehicles available in the country'.<sup>99</sup> Although the Military Board was cautious about the acquisition of AFVs—because trials were still being conducted in Britain—it recommended the acquisition of light tanks as part of a five-stage process of development.<sup>100</sup> Stage one, already completed, provided for the establishment of a Mechanical Warfare Committee to conduct tests and assist in the design and production of vehicles.<sup>101</sup> The second stage would involve selecting vehicles for the

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<sup>97</sup> *ibid.*

<sup>98</sup> 'Military Board Agendum 46/6', 10 May 1933, CRS A2653, 1933, vol. 1.

<sup>99</sup> *ibid.*

<sup>100</sup> *ibid.*

<sup>101</sup> The Mechanical Warfare Committee was established in August 1931 and examined technical problems associated with vehicles. The Committee met at the Military Board's discretion: see 'Military Board

AASC, an armoured car unit, artillery and ancillary units, as well as machine-gun carriers for the infantry. In stage three, cadres of selected vehicles would be allocated to specific units, which would provide a pool of qualified personnel to further expand mechanisation. Stage four involved the incorporation of vehicle acquisitions and maintenance into mobilisation plans, while in the fifth stage the Army would procure AFVs and other technical vehicles that could not be readily produced in Australia. While these recommendations did not prefigure a radical departure from existing policy, they permitted greater control over policy and balancing of competing interests. The directive was warmly received by the CIGS, who noted ‘with satisfaction’ the Army’s intention to ‘organise, train, and equip in a similar line’ to the British Army.<sup>102</sup>

### **The Army Mechanisation Board 1934–36**

In 1934, the Army replaced the Mechanical Warfare Committee with the Army Mechanisation Board.<sup>103</sup> Designed to absorb the functions of its predecessor, it was primarily concerned with examining the technical aspects of vehicle construction and not broader issues affecting mechanisation. The Mechanisation Board was active in conducting field tests and making modifications to experimental armoured car designs. Throughout its existence, it made numerous modifications to ‘obvious defects’ associated with armour plating, the welded construction of vehicles, signals facilities and tyres.<sup>104</sup> As part

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Agenda 80/1931’, 12 August 1931, CRS A2653, 1931, vol. 1. The Committee was modelled on the British Army’s Mechanical Warfare Board, which first met in 1929 and reported annually until 1933. The Committee’s reports are located in PRO WO33/1217, WO33/1243, WO33/1288, WO33/1307 and WO33/1338.

<sup>102</sup> ‘Periodical Letter 4/1933’, 31 October 1933, PRO WO32/2400B.

<sup>103</sup> The Board met five times between November 1934 and May 1936. Its minutes are located in CRS MP729/6, 8/401/1. The Board was a copy of the British Army’s Mechanisation Board, which reported annually from 1934 to 1938. Its reports can be found in PRO WO33/1367, WO33/1404, WO33/1459, WO33/1505 and WO33/1642.

<sup>104</sup> ‘Mechanisation Board—Minutes of the Third Meeting’, 24 May 1935,

of efforts to gain a greater understanding of the tactical employment of the armoured cars, the Mechanisation Board produced questionnaires about their use and made recommendations to the Military Board based on its findings. In addition, the Mechanisation Board also replaced the tractors used by the artillery and conducted numerous tests on commercial chassis to determine their suitability for military activities. For all its efforts, however, the Mechanisation Board failed to examine mechanisation in a broader perspective and barely concerned itself with the important issues of training and doctrine, which were largely absent throughout the Interwar Period.

### **British Developments and the Director of Mechanisation**

The appointment of a Director of Mechanisation, beginning in January 1934, aided the Army in analysing the technical aspects of mechanisation. The Quartermaster General, Brigadier C. H. Brand, insisted that it was ‘essential that an officer be appointed as Director of Mechanisation’ because the Army was ‘very backward in regards to mechanical warfare’.<sup>105</sup> The creation of a specific position to oversee mechanisation was in response to a report produced by the Mechanical Warfare Committee recommending the construction of two experimental armoured cars by munitions factories using commercial chassis.<sup>106</sup> While the Committee recognised the need to mechanise, it was equally aware that it lacked the technical knowledge of vehicle design to ensure the construction of the most appropriate vehicles. In January 1934, Lieutenant Colonel T. R. Williams, who was charged with researching mechanical warfare problems and designing vehicles to distribute across the Army, assumed the appointment. Williams was also responsible for liaising with Army Headquarters and commercial firms in relation to vehicle requirements, as well as developing plans for the acquisition of vehicles during mobilisation. The establishment of a permanent position to advise on the technical aspects of

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CRS MP729/6, 8/401/1.

<sup>105</sup> ‘Military Board Agendum 42/1933’, 21 January 1933, CRS A2653, 1933, vol. 1. See also CRS B1535, 859/14/525.

<sup>106</sup> *ibid.*

mechanisation, coupled with the formation of the Army Mechanisation Board, was an important step in developing mechanisation policy.

As Director of Mechanisation, Williams reported each quarter to the CGS and the Military Board on issues affecting mechanisation.<sup>107</sup> These issues included the distribution of vehicles, vehicle experiments, and progress reports on the local manufacture of AFVs and other vehicles. As a consequence, Williams' position was highly influential in shaping policy. In his report of August 1935, he discussed the progress being made with the mechanisation of artillery and the AASC and detailed some of the experiments that were being conducted in Britain. While the Australian Army attempted to mirror the mechanisation of the British Army, many of these developments were beyond its capability. This problem was made manifest in 1931 when the British Army produced a pamphlet entitled 'Modern Formations', which provided information on the conduct of mechanised operations using a tank brigade in attack, pursuit and defence.<sup>108</sup> The document, however, mainly focused on brigade-level operations, which had very little application to the Australian Army. Responding to the document, Bruce sombrely noted that 'unfortunately in Australia we are much less favourably situated in regards to the provision of armoured forces' and that it was 'extremely unlikely that medium tanks, light tanks, and many other such equipment will be available from any source in the early stages of war'.<sup>109</sup> He emphasised that the Army would have to rely on a mixture of motorised and horsed transport in the absence of vehicles. This unfavourable situation created an awkward doctrinal gap between pre-existing methods and British mechanised procedures that was not bridged until the Army was fully mechanised during the Second World War.

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<sup>107</sup> Only one report is in the Australian Archives. See CRS B1535, 929/21/90.

<sup>108</sup> *Modern Formations 1931*, Army War Council, War Office, London, 1931, pp. 29–49.

<sup>109</sup> 'Memo: Modern Formations 1931', 5 February 1932, CRS B197, 1954/1/157.

The debates over mechanisation in the British Army inhibited doctrinal development in the Australian Army, which received mixed messages on the employment of mechanised formations. Brian Bond suggests that the British Army had five different schools of thought on mechanisation.<sup>110</sup> The first category were ‘revolutionaries’, such as Fuller and Liddell Hart, who maintained that the tank would dominate future land warfare and supersede other arms, who would become mere auxiliaries. The second category consisted of ‘styled reformers’ who supported a thorough revision of tactical doctrine and a strong desire to implement basic change. The third were the ‘progressives’, who recognised the tactical shortcomings of First World War doctrine but remained content to see further advances within their own area of expertise. The fourth category, the ‘conservatives’, were not ‘opposed to mechanisation *per se* but disapproved of the concept of independent armoured formations’.<sup>111</sup> Finally, Bond argues, there were the ‘reactionaries’ who were opposed to mechanisation generally. This category, however, was not indicative of the broader Army ‘ethos’, and has received a disproportionate amount of analysis from the early advocates of mechanisation and historians alike.<sup>112</sup> Although mechanisation was never as controversial in the Australian Army as it was in Britain, there were similar groups of officers whose perceptions were analogous to their British counterparts.

An example of when British practices inhibited Australian developments occurred in 1935, when Williams commented that ‘some exercises [in Britain] attempted too much, or at least gave the wrong impression of the powers of a tank brigade’. Williams cited an example where a single tank brigade was given the impossible task of destroying 51

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<sup>110</sup> Bond, *British Military Policy Between the Two World Wars*, p. 130–32.

<sup>111</sup> *ibid.*, p. 131–32.

<sup>112</sup> An ethos is the ‘prevalent sentiment or opinion of a people, institution, or system’ that provides a continuity of thought and promotes innovation and doctrine: Albert Palazzo, *Seeking Victory on the Western Front: The British Army and Chemical Warfare in World War I*, University of Nebraska Press, London, 2000, pp. 8–27.

artillery batteries.<sup>113</sup> Although Williams was a strong advocate of mechanisation, he did not attempt to introduce any doctrinal procedures that could reconcile the Army's understanding of mechanisation with its existing capabilities. His main priority was fixing organisational problems such as duplications in maintenance procedures between the Tank Section, the Ordnance Corps and the AASC. To rationalise manpower, Williams suggested creating a unit solely responsible for the maintenance of mechanical vehicles.<sup>114</sup> This proposal was rejected (probably because of manpower shortages) and the Army continued to duplicate maintenance procedures until 1942. Despite this setback, Williams was instrumental in shaping Army mechanisation policy. While he failed to introduce any doctrinal concepts, his efforts were nonetheless important in acquiring vehicles and training personnel in an environment where finances determined the utility of military assets.

### **Mechanisation: AASC**

Throughout the Interwar Period, the Military Board attempted to mechanise too many disparate units, with the result that it constantly deviated from stated policy in the allocation of resources.<sup>115</sup> On successive occasions in 1926 and 1930, the Board stripped the AASC of vehicles, allocating them to artillery and signals units while continuing to expand the list of units that were to be mechanised. As a result of over-using its vehicles, the AASC struggled to provide basic services and was forced to devote additional time to maintenance instead of training drivers. Lindsay notes that 'equipped to pre-1915 standards, it was worse off than the combat units which had at least had equipment up to the best of 1918 levels'.<sup>116</sup> During the Interwar

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<sup>113</sup> 'Quarterly Report', 18 October, CRS B1535, 929/21/90.

<sup>114</sup> *ibid.* The Army formed the Australian Electrical and Mechanical Engineers (AEME, later the RAEME) on 1 December 1942. See Theo Barker, *Craftsmen of the Australian Army: The Story of RAEME*, Crawford House Press, Bathurst, 1992.

<sup>115</sup> 'Brief Summary of Mechanisation Policy', July 1933, CRS MP729/9, 52/402/11.

<sup>116</sup> Lindsay, *Equal to the Task*, p. 40.

Period, the Corps had a disproportionately low number of personnel to accomplish its tasks.<sup>117</sup> Although the Board continually stripped the AASC in order to broaden the number of units to be mechanised, the Board's policy directive of 1933 nonetheless gave some impetus to mechanising the AASC. The decline in the number of horses within the civilian community, combined with the growing number of soldiers who owned their own vehicles, made the process of mechanisation inevitable.

To draw upon these vehicles the Board introduced incentives for members to use privately owned vehicles.<sup>118</sup> Often, however, endeavours to mechanise the AASC were notional. In 1934, the Military Board redesignated Horsed Transport Companies as Motorised Transport Companies, 'though there was not the equipment to give reality to this'.<sup>119</sup> Those vehicles that were allocated to the Corps, or acquired through private ownership, were praised by both commanders and personnel who welcomed mechanisation. As one such noted, 'the general feeling among the Militia AASC as to the eventual change over from a horse to mechanical basis is favourable, as it is agreed mechanisation cannot safely be long delayed'.<sup>120</sup> The arrival of vehicles greatly eased the strain on the AASC and one officer observed that 'there is no doubt that the mechanisation has greatly increased the efficiency of the transport services'.<sup>121</sup> Despite lacking sufficient quantities of vehicles and trained personnel, the AASC responded positively to mechanisation throughout the latter 1930s.

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<sup>117</sup> Ibid, p. 46.

<sup>118</sup> 'Use of Privately Owned Motor Vehicles', 20 September 1933, CRS A2653, 1933, vol. 1.

<sup>119</sup> Lindsay, *Equal to the Task*, p. 41.

<sup>120</sup> 'Mechanisation Policy AASC', 12 January 1935, CRS B1535, 849/3/442.

<sup>121</sup> 'Mechanisation Policy', 12 March 1935.

## **Formation of the Tank Corps: 1937**

By 1937, the worsening international situation, highlighted by the Japanese invasion of China and the German occupation of the Rhineland a year earlier, renewed interest in both defence matters and the Army's preparedness for a possible conflict. Aware that it lacked armoured assets capable of defeating a modern army, the Military Board drafted a proposal for the formation of two tank battalions and a tank corps in May 1937. These tank battalions were to work in conjunction with the coastal defences in order to deny an enemy landing during mobilisation. The CGS, Major General J. D. Lavarack, wanted to maintain a permanent mechanised force because he estimated that it would take at least six months to mobilise the CMF. Accordingly, this permanent force would have to be sufficient to ensure 'the complete manning of a sub-unit to enable a proportion of tanks to be used without mobilising citizen force personnel' and 'the rapid mobilisation of the complete tank corps'.<sup>122</sup> To accomplish this, Lavarack reasoned that each battalion would have to include a permanent company, consisting of a headquarters and two sections, with the ability to expand into a complete unit during mobilisation. The main considerations determining the formation of additional armoured units were finances and manpower. Marginal increases in defence spending had done little to alleviate the chronic shortages of basic materials, while bureaucratic obstacles continued to prevent the organisational reforms that would be necessary to accommodate an increased proportion of permanent troops. Lavarack highlighted the need for more permanent personnel when he noted that the 'vehicles of mechanised units require constant supervision' and that 'spasmodic maintenance is not sufficient to keep vehicles constantly in use for training'.<sup>123</sup> To make the unit more responsive and prevent the vehicles from deteriorating, Lavarack added two permanent officers and two permanent warrant officers to the organisation of the Tank Section. This would form part of a three-year rearmament program that made

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<sup>122</sup> 'Military Board Agenda 29/1937', 5 May 1937, CRS B1535, 849/3/1253.

<sup>123</sup> *ibid.*

provision for the acquisition of 24 light tanks and the formation of two tank companies.

The existing tank unit, the 1st Australian Tank Section, was to be renamed the 1st Tank Company while a second company, the 4th Tank Company, would be formed in Melbourne. These units would provide the nucleus of an eventual tank battalion that would be gradually formed as finances, vehicles and personnel became available, with an estimated cost of £375 000 to establish the units and £48 000 a year to maintain them.<sup>124</sup> The Tank Companies would each receive an increased allotment of 10 permanent personnel so that training could commence once the tanks arrived. Lavarack conceded that this would ‘not allow a reasonable tactical standard to be reached’, but it was the ‘bare minimum required for effective maintenance’.<sup>125</sup> Each unit was to be organised on a composite basis with a hierarchical structure similar to the coastal defences. Lavarack wanted one-third of all the personnel to be permanent in order to maintain the vehicles and provide the Army with a responsive capability that could be employed during mobilisation. The limitations of the *Defence Act* forced the Military Board to adapt, and men working in the units were assigned to the RAA (Tanks). In addition, the Board made provision for an increase in the number of both permanent and CMF personnel once each unit had more than 18 tanks. These ambitious proposals, however, were soon curtailed by strained finances and manpower shortages. The Military Board, in revising its original estimates, reduced the proportion of permanent personnel from 60 to 46, observing that:

Any smaller number of members of the Permanent Force would necessitate the reduction of the organisation to one company, which would be a very meagre contribution to the modernisation of the AMF and most undesirable in view of the publicity given to the Government’s policy of proceeding with mechanisation.<sup>126</sup>

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<sup>124</sup> ‘Formation of Australian Tank Corps’, 5 May 1937, CRS B1535, 849/3/1253.

<sup>125</sup> *ibid.*

<sup>126</sup> ‘Minute: Military Board Agendum 29/1937’, 1 July 1937, CRS A2653,

A lack of finances also forced the Board to reduce the original order of 24 tanks to 10. Upon resuming his appointment as Director of Mechanisation, Williams angrily noted that ‘the Government’s policy with regards to mechanisation has changed’, and that ‘the existing ten [tanks] are all that are likely to be seen in Australia for some time’.<sup>127</sup> This prompted suggestions that training and maintenance be rationalised by disbanding the unit located in Melbourne. The CGS, however, disagreed, favouring the retention of a unit in the 3rd Military District to ‘maintain an interest in the Militia forces’ and enable the Army draw upon more men during mobilisation.<sup>128</sup> The tanks arrived in August 1937 and represented a major advance in mechanisation for the Army: ‘the Light Tanks were a revolution for the Australian Tank Corps, as they revitalised training and created much interest with their turn of speed and obvious manoeuvrability’.<sup>129</sup> Although the vehicles lacked the firepower of their medium-sized predecessors, they were extremely mobile and used extensively on Militia training exercises throughout 1938 and 1939, giving the CMF invaluable training.

### **Training abroad: the impact of British developments**

The Army was conscious of its shortcomings and continually sought to gain experience in mechanisation through the exchange of personnel with the British Army. As early as 1926, coinciding with proposals for the formation of the Tank Section, the Army had sent one officer and a warrant officer to Britain in order to take driving, gunnery, and maintenance courses with the RTC.<sup>130</sup> In 1937, the Military Board also drafted a proposal to acquire one officer and one warrant officer from Britain to assist in the formation of the newly formed Tank Corps. Aware that the Army lacked men with ‘necessary experience’, the Board wanted to utilise ‘the services of experienced personnel from the

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1937, vol. 1.

<sup>127</sup> ‘Future Policy as Regards Australian Tank Corps’, 27 April 1938, CRS A2653, 1937, vol. 1.

<sup>128</sup> ‘Light Tank Distribution—2/3 MDs’, 24 May 1938.

<sup>129</sup> Handel, *Dust, Sand and Jungle*, p. 5.

<sup>130</sup> Hopkins, *Australian Armour*, p. 15, and ‘Military Board Agenda 19/1926’, CRS A2653, 1926, vol. 2.

British Army'.<sup>131</sup> These best intentions, however, were thwarted by poor communication between Australia and the War Office, which sent an officer, Major F. K. Brooke, who lacked the appropriate technical skills and 'did not possess the knowledge and experience that might reasonably have been expected by the Military Board'.<sup>132</sup> Despite lacking a profound knowledge of the technical aspects of mechanisation, Brooke was able to standardise the Australian tank company with British Army practice and introduce a training syllabus for personnel working with AFVs.<sup>133</sup> Privates would receive instruction on driving maintenance and the handling of the Vickers and Hotchkiss machine-guns, in addition to lessons on vehicle drills; NCOs and officers would also learn elementary tactics. The program evolved as funds, facilities, and extended training periods became available, and it eventually provided the foundations for the curriculum of the AFV School formed in 1941.<sup>134</sup>

In early 1937, Major R. N. L. Hopkins and Warrant Officer K. A. Watts were sent to Britain to undertake training with the RTC.<sup>135</sup> To gain further experience during their absence, the Military Board acquired an instructor from the British Army, Warrant Officer C. Ives.

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<sup>131</sup> 'Military Board Agenda 1/1937', 21 January 1937, CRS A2653, 1937, vol. 1.

<sup>132</sup> 'Minute: Major F. K. Brooke RTC', 9 September 1938, CRS A2653, 1937, vol. 1.

<sup>133</sup> 'Notes on Australian Tank Corps', 30 November 1937, CRS B1535, 929/21/190.

<sup>134</sup> For detail on the AFV School see 'Military Board Agendum 14/1940', 17 January 1940, A2653, 1940, vol. 1, and Hopkins, *Australian Armour*, pp. 39–47.

<sup>135</sup> Hopkins served with the 6th Australian Light Horse in Palestine during the First World War and was an active proponent of mechanisation throughout the interwar period. He was instrumental in the formation of the first Australian armoured car squadron in 1931 and was later appointed GSO1 of the 1st Australian Armoured Division. Following the war, Hopkins commanded the 34th Infantry Brigade in Japan as part of the British Commonwealth Occupation Force and was Deputy CGS as well as Commandant of Duntroon: see Handel, *Dust, Sand and Jungle*, p. 132.

Throughout their period of attachment, both Hopkins and Watts wrote periodical reports on their training and made suggestions for developing mechanised procedures in Australia.<sup>136</sup> Watts reported on maintenance and recovery of tanks and methods of supplying them in the field, while Hopkins detailed information on mechanised patrols, defensive exercises, night operations, reconnaissance, and company drills. Hopkins also provided details of repair procedures and types of armoured plating in his reports, but encountered great opposition to his recommendations for the employment and training of Tank Corps personnel.<sup>137</sup> He argued that the Australian Army lacked the capability to repel an armoured attack and proposed that one-third of the Australian Tank Corps consist of permanent personnel; he also criticised the use of commercial vehicles as a substitute for AFVs in training.<sup>138</sup> His remarks generated a brusque response from Lavarack:

I think Hopkins should be told that we are perfectly aware of the considerations he advances, but that the decision to defer tank provision is based on scale of attack and the financial provisions.<sup>139</sup>

Although Hopkins' ideas reflected an understanding of the tactical employment of mechanised units, he failed to recognise that the Army lacked basic equipment and the funds to support the ambitious program he suggested. While it was agreed that the Army should maintain a nucleus of tanks (which could be expanded upon if mobilised), it was nonetheless 'impracticable to consider the very large financial requirements, both in capital and maintenance, involved in [Hopkins'] suggestion'.<sup>140</sup> The Army recognised the importance of mechanisation, but was hamstrung by years of neglect and under-

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<sup>136</sup> Not all their reports are located in the archives. For Watts' reports, see CRS B1535, 929/21/185. Hopkins' reports are located in two files: CRS B1535, 929/21/264 and CRS MP729/6, 50/401/46.

<sup>137</sup> 'Light Tank Penetration Trials', 6 December 1938, CRS BI535, 929/21/264.

<sup>138</sup> 'Considerations Affecting the Employment and Training of the Australian Tank Corps', 17 November 1937, CRS MP729/6, 50/401/46.

<sup>139</sup> Covering Minute to 'Considerations Affecting the Employment', 23 January 1938.

<sup>140</sup> *ibid.*

funding, which forced it to devote available time and resources to maintaining basic requirements. Lacking funds and a strategic justification for mechanisation, Lavarack summarised the Army's predicament:

Hopkins ignores Government Policy and the CID, and assumes that the scale of attack will be invasion. He must also have forgotten costs and what our coastal country is like.<sup>141</sup>

### **The Formation of a Permanent Mechanised Brigade**

The formation of a permanent mechanised brigade was initiated by the Minister for the Army, Harold Thorby, who instructed the Board in August 1938 to draft a proposal for such a formation with estimated costs.<sup>142</sup> The suggestion, however, received only a lukewarm response from Lavarack, who favoured replenishing stocks of ammunition and questioned the strategic utility of a mechanised brigade for defence against raids:

It has not been essential to establish and maintain a permanent mechanised brigade for defence against raids. It would be desirable, in the latter stages of preparation for defence against more serious forms of attack, to establish and maintain a force of nature under reference; but other more urgent Army requirements ... should be met before funds are devoted to a permanent mechanised brigade.<sup>143</sup>

Although the Military Board preferred to re-arm, it reasoned that any mechanised formation would mainly be used for operations within Australia to defeat, or at least delay, an invading force. The Board also insisted that a mechanised brigade would have to maintain independent offensive activities 'in any practicable nature of country' and be ready for 'immediate employment'.<sup>144</sup> To meet these requirements the brigade would consist of one armoured car squadron, one mixed tank

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<sup>141</sup> 'The Employment, Organisation and Training of Light Tank Units in Australia', 22 January 1938.

<sup>142</sup> 'Formation of a Permanent Mechanised Brigade', 5 August 1938, CRS A2653, 1938, vol. 2.

<sup>143</sup> 'Military Board Agenda 123/1938', 11 August 1938, CRS A2653, 1938, vol. 2.

<sup>144</sup> *ibid.*

battalion, two infantry battalions, one machine-gun battalion, one field artillery brigade, one squadron of engineers, and a medium tank company.

Lavarack believed that the brigade should be fully manned with permanent troops so that it could be used while the CMF was being mobilised. This would require 240 officers and 5215 other ranks at a cost of £4 700 000, with an additional £1 700 000 required for maintenance.<sup>145</sup> The full complement of AFVs would not arrive until 1940–41, and the unit could not be fully effective until 1942–43. Recognising the enormous strain this would place on finances and personnel, Lavarack suggested that the number of vehicles could be halved and that reducing the number of personnel to 37 officers and 916 other ranks could reduce the total cost by £525 000.<sup>146</sup> The unit would be similar to the mechanised formations in the British Army, but would have a faster response time. The Army, however, was reluctant to adopt a proposal that would create further shortages in other corps; even if it could immediately respond to an attack, it could not sustain any prolonged engagements. The proposal forwarded to the Minister cautiously noted:

The establishment and maintenance of a permanent mechanised force is not a matter of first priority for defence against raids, but such a force might be desirable for defence against more serious forms of attack.<sup>147</sup>

The Army's reluctance to establish an independent mechanised force was understandable given the parlous condition of its forces. The proposal forwarded by Lavarack and his colleagues demonstrated that they were aware of the organisational requirements of a modern formation, even if they lacked an understanding of how to employ it. The Army's inability to establish a large mechanised formation was because of a severe lack of funding that created acute shortages in basic requirements, not because of an innate disbelief in the utility of mechanised formations. Moreover, the cost of establishing a

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<sup>145</sup> *ibid.*

<sup>146</sup> *ibid.*

<sup>147</sup> 'Minute: Military Board Agendum 123/1938', 15 August 1938, CRS A2653, 1938, vol. 2.

mechanised brigade to act as a strategic deterrent was well beyond fiscal priorities enunciated by the Government. As Grey emphasises, ‘the hurried rearmament measures adopted after 1937 in no way made up for the years of neglect’.<sup>148</sup>

### **Mechanisation Policy: 1938**

In 1938 the Military Board produced its most comprehensive policy directive.<sup>149</sup> For the first time mechanisation was considered in direct relation to mobilisation plans, the capabilities of Australian industry, and fuel reserves. The purpose of the document was to identify the priorities for mechanisation, and the types of vehicles to be either procured or modified from commercial chassis.

The Board was conscious of the limitations of existing policy directives in relation to mobilisation plans and it used this directive to remedy deficiencies in war materials and to reorganise War Establishments as new materials became available.<sup>150</sup> The Military Board recognised that ‘the low proportion of civilian horse transport’ that had arisen in the wake of the proliferation of motorised transport provided further impetus for a greater degree of mechanisation.<sup>151</sup> Between 1930 and 1938 the number of vehicles per 1000 people had increased from 92.6 to 129.2.<sup>152</sup> Policy was founded on the assumption that in the event of war, Australia would suffer severe shortages of petrol, oil, and other lubricants, as well as vehicles and spare parts. The Board reasoned that mechanisation should be based on the amount of local stocks, which varied from 50 to 100 million gallons.<sup>153</sup> To conserve fuel ‘by every possible means’, the Board recommended moving supplies inland to prevent destruction through naval and aerial bombardment and encouraged the local production of petrol substitutes.

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<sup>148</sup> Grey, *A Military History of Australia*, p. 139.

<sup>149</sup> ‘General Staff Memorandum: Mechanisation Policy’, December 1938, CRS AWM113, MH1/61.

<sup>150</sup> *ibid.*

<sup>151</sup> *ibid.*

<sup>152</sup> *Year Book Australia*, Australian Bureau of Statistics, Canberra, 1934 and 1939.

<sup>153</sup> ‘Mechanisation Policy’, December 1938 CRS AWM113, MH1/61, p. 4.

Conforming to British practice, the Army recognised that mechanised formations would have to be supported by units with an equal level of mobility. To accomplish this, the Army required two types of vehicles: general service vehicles for use on roads and tracks, and ‘specific’ vehicles for cross-country operations. While general service vehicles could be obtained through modifying commercial vehicles, the ‘special’ vehicles (AFVs) would have to be purchased during peacetime so that they could be produced by local industry during war.<sup>154</sup> The Board, however, did not discount the possibility of reverting to horsed transport in the event of war, observing that ‘the limitations imposed by restricted petrol and the difficulty of obtaining special types of vehicles’ made it likely that certain units might revert to horsed transport.<sup>155</sup> The Board estimated that they would need approximately 47 800 horses upon general mobilisation, a figure that reflected the Army’s meagre mechanised capabilities even during time of war.

The Board was aware that mechanisation had broader implications and it recognised the need to re-assess war plans, ordnance requirements and mobilisation schedules. Also tentatively suggested was that the Army should focus on defeating an invasion rather than a raid. The Board observed that:

Since the recent international crisis it is evident that the threat of a more serious scale of attack or even invasion of some important area is a possibility which can no longer be disregarded.<sup>156</sup>

Although mechanisation was to be pursued ‘over a number of years’, certain units were to be mechanised as soon as funds became available. This would include the mechanisation of the first-line transport of cavalry formations, anti-aircraft artillery batteries, armoured car regiments, medium artillery brigades and support units.<sup>157</sup> The Board also recommended equipping infantry battalions with mechanical

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<sup>154</sup> *ibid.*, p. 5.

<sup>155</sup> *ibid.*, p. 7.

<sup>156</sup> *ibid.*, p. 8.

<sup>157</sup> ‘Recommendations of the Mechanisation Committee’, 6 June 1939, CRS AWM113, MH1/61.

transport and a limited number of machine-gun carriers. As an alternative means of providing strategic mobility, the Board considered establishing six motorised transport companies and three bus companies to transport approximately 2500 personnel. These units, however, lacked tactical mobility and a means of moving weapons, ammunition and equipment when the troops were debussed. A shortage of vehicles meant that most infantry units could only be supported by mechanical vehicles rather than being completely mechanised. The requirements for mechanising the infantry, which would have required 2520 vehicles and lorries upon full mobilisation, were still beyond the capacity of the Army.<sup>158</sup>

The Board was conscious of the impact that mechanisation would have on mobilising the CMF. Drawing on ideas raised in the proposal to form a permanent mechanised brigade, the Board recommended the establishment of several new permanent units in order ‘to provide a force immediately available at all times’.<sup>159</sup> These units could be used during the initial stages of war and also assist in training the Militia. The new units would include two infantry and artillery brigades, two anti-tank batteries, two engineer companies, and four signals sections with ancillary services.<sup>160</sup> The new units were to be created in coordination with other defence expenditure programs and formed across various Military Districts. Prior to this, the Army was reluctant to form any substantial permanent force because it favoured maintaining a large Militia formation, and it feared that any reduction of the Militia would deprive it of funds during a war. This was evident in 1935 when Defence Minister George Pearce suggested forming a regular infantry battalion, but the suggestion was rejected by Bruce because it would ‘cost a lot of money which [Bruce wanted] for

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<sup>158</sup> ‘Mechanisation Policy’, December 1938 CRS AWM113, MH1/61, p. 6.

<sup>159</sup> *ibid.*, p. 8.

<sup>160</sup> In order to circumvent the *Defence Act* the Board designated the infantry formations RAA. This occurred in October 1938 with the formation of the Darwin Mobile Force (DMF), which contained a rifle company that was assigned RAA. See June Collins, *Bandy’s Boys: The Darwin Mobile Force*, June Collins Publishers, Melbourne, 1989.

providing material for his divisions'.<sup>161</sup> By 1938, the Army realised that mechanisation would require a significant proportion of permanent personnel in order to maintain the vehicles and assist in mobilisation. Most of its recommendations were implemented during the coming war.

### **Mechanisation: RAA**

Although the Military Board had always favoured mechanising the RAA at the expense of the AASC, most artillery units suffered significant shortages of vehicles and continued to use obsolete equipment throughout the Interwar Period. Indicative of this was the Military Board's preference to spend £12 400 on uniforms instead of fitting rubber pads to the wheels of artillery carriages, a very simple modification that would have greatly extended their life.<sup>162</sup> Most artillery units procured vehicles through private correspondence and by providing incentives for personnel to use their own vehicles. This, however, was not particularly successful and most units suffered from numerous shortfalls because of the 'great difficulty experienced in getting owner drivers to come forward'.<sup>163</sup> For all these problems, the Board could at least report by 1938 that the artillery units in cavalry divisions and medium brigades had been completely mechanised, while experiments were being conducted to identify suitable tyres for new carriages. This project did not begin in earnest until June 1939, when the Board issued an instruction for the conversion of all carriages.<sup>164</sup> Each Field Brigade was to comprise 10 motorcycles, one car, 28 light vans, 24 tractors, and two lorries. These measures were further accelerated upon the outbreak of the war, when the Board shifted its priorities to those units attached to the 6th Division and those that trained the CMF.

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<sup>161</sup> Letter, Maurice Hankey to CIGS, 31 January 1935, PRO CAB 21/397.

<sup>162</sup> 'Military Board Agenda 44/7: 1931', 14 April 1931, CRS A2653, 1933, vol. 1. See also Horner, *The Gunners*, p. 201.

<sup>163</sup> 'Report on Mechanisation', 3 September 1934, CRS AWM61, 507/2/275.

<sup>164</sup> 'Mechanisation of Field Army Artillery', 30 June 1939, CRS B1535, 931/2/821.

## Conclusion

The Army was grossly unprepared for the Second World War. Only 169 trained drivers were available in the AASC to meet the needs of seven divisions, each of which required 8000 vehicles, while the Tank Corps manned 14 obsolete tanks.<sup>165</sup> Although the Army was receptive to mechanisation, it was unable to mechanise to any great extent because it was deprived of funding and a strategic justification. The Army was also hampered by clauses in the *Defence Act* that prevented the Board from reorganising existing corps to meet the demands of mechanisation. While the implementation of mechanisation policy often diverged from stated objectives, usually to the detriment of the AASC, the Army was able to adopt more sophisticated approaches in the late 1930s. By 1938, it recognised that mechanisation required a substantial portion of permanent personnel to conduct more extensive training, maintain vehicles, and repel a possible attack prior to mobilisation. In this sense it could be said that mechanisation, in combination with the increased operational commitments after the war, prefigured a move away from a militia-based Army to a professional standing Army.<sup>166</sup> The inability of the Army to mechanise, coupled with its lack of doctrinal processes, meant that it entered the war without a coherent understanding of mechanisation. Its focus on the technical aspects of vehicle acquisition obscured its inability to grapple with the tactical innovation brought about by mechanisation. As the Army was only partially mechanised it could not adopt pre-existing mechanised practices, resulting in a bastardised knowledge of modern warfare which was only rectified during the Second World War.

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<sup>165</sup> Lindsay, *Equal to the Task*, p. 41.

<sup>166</sup> Graeme Sligo, 'The Development of the Australian Regular Army, 1944-1952', in Peter Dennis & Jeffrey Grey (eds), *The Second Fifty Years: The Australian Army, 1947-1997*, Australian Defence Force Academy, Canberra, 1997, pp. 22-47.

## CHAPTER 3:

### MECHANISATION AND THE LIGHT HORSE, 1920–1943

#### **The Australian Light Horse**

The Light Horse holds a special place in the annals of Australian military history.<sup>167</sup> Formed in the nineteenth century with the colonial militias, the Light Horse first came to prominence during the Boer War. After Federation it was organised into brigades on a state basis, and their role as mounted infantry rather than cavalry (though the term persisted) was confirmed during a period of re-organisation and standardisation introduced in 1902 by Major General E. T. H. Hutton. The Light Horse fought on foot but still retained the capability for limited engagements on horseback. This period of reform was influential in shaping the ethos of the Light Horse because it dissolved the link between service in the Light Horse and social standing within broader society, an important distinction between the Australian and British armies. The greatest achievements of the Light Horse occurred in the Middle East during the First World War.<sup>168</sup> Under the gallant leadership of Lieutenant General H. G. Chauvel, the Light Horse was organised into the Desert Mountain Corps, which played a decisive role in defeating the Turkish armies in Palestine and Syria. The famous

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<sup>167</sup> There is no comprehensive work on the Light Horse as a whole. For a brief analysis see R. J. Hall, *The Australian Light Horse*, W. D. Joint & Company, Melbourne, 1968; and Elyne Mitchell, *Light Horse: The Story of Australia's Mounted Troops*, Macmillan, Melbourne, 1978. For a study of a single unit see P. V. Vernon, *The Royal New South Wales Lancers, 1885-1960*, Halstead Press, Sydney, 1961.

<sup>168</sup> For an account of the Light Horse in the Middle East see H. B. Gullet, *Official History of Australia in the War of 1914–1918: The Australian Imperial Force in Sinai and Palestine, 1914–1918*, Angus & Robertson, Sydney, 1923. In comparison to the desert campaign, little has been written about the Light Horse on the Western Front except unit histories. See Douglas J. Hunter, *My Corps Cavalry: A History of the 13th Light Horse Regiment*, Slouch Hat Publications, Melbourne, 1999.

charge at Beersheba inculcated a strong popular belief in the value of mounted action. Following the war, the Light Horse retained a strong sense of identity and *esprit de corps* unsurpassed by any other corps. Any change to the methods of fighting that had won success on the battlefields of the Great War would inevitably be slow.

### **The British Connection and Cavalry in the 1920s**

Despite the stunning successes of the Light Horse during the First World War, it was not immune to post-war reductions. To accommodate this, and organisational trends in the British Army, the Australian Light Horse was reorganised in the late 1920s. In 1927, Chauvel noted that ‘the present organisation of Australian cavalry units is not well adapted to the employment of modern group tactics’.<sup>169</sup> As part of efforts to modernise the cavalry and bring its structure into line with that of the British Army, the Military Board reorganised cavalry regiments so as to comprise one machine-gun squadron and a sabre squadron with four troops, placing greater emphasis on junior initiative.<sup>170</sup> The cavalry training manual, *Yeomanry and Mounted Rifle Training*, was to be replaced with more modern doctrine, and training exercises were to reinforce the importance of teamwork.<sup>171</sup> The changes were aided by a slight increase in the number of horses that were allocated to a majority of units. Other than these minor alterations, however, little else was done to modernise, let alone mechanise, the Light Horse. Acute shortages of funds and vehicles resulted in the organisation and training of the Light Horse stagnating.

The popular belief that the British Army was dominated by a phalanx of reactionary cavalry officers who were opposed to mechanising is misleading.<sup>172</sup> Throughout the 1920s, the British Army was active in

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<sup>169</sup> ‘Report of the Inspector-General’, 30 June 1927, p. 12.

<sup>170</sup> In 1927 Chauvel organised regiments into two squadrons of two troops. This was changed in 1929 to one sabre squadron of four troops: ‘Report of the Inspector-General’, 31 May 1929, p. 11.

<sup>171</sup> Light Horse units used the manual *Cavalry Training* from 1 July 1928 onwards: ‘Report of the Inspector-General’, 30 June 1928, p. 12.

<sup>172</sup> For a contemporary account on the mechanisation of British cavalry see David French, ‘The Mechanisation of the British Cavalry Between the

examining the future of its cavalry organisation. In 1926, the War Office published an interim report that attempted to review cavalry organisation, the Army's requirements for mounted troops, and the costs of retaining cavalry units. The committee recognised that British cavalry possessed 'neither sufficient mobility nor sufficient firepower to enable it to carry out its duties in modern war'.<sup>173</sup> To increase the strategic mobility of cavalry units the committee recommended mechanising the first-line transport units attached to cavalry formations, the partial mechanisation of mounted troops, and an increase in the number of machine-guns in each regiment. Sabre squadrons, the main offensive asset in a regiment, were to remain horsed. This decision reflected the poor performance of mechanical vehicles and the Army's uncertainty about the future nature of war. As the CIGS, Field Marshal Sir George Milne, remarked, 'it is premature to say that independent cavalry in the future will be replaced in continental warfare by mechanised forces and that cavalry as such will be employed only on protective duties with infantry divisions'.<sup>174</sup> This point is too easily de-contextualised and carries with it a certain degree of truth. In 1928, the British Army did not possess a vehicle with the comparable cross-country mobility to that provided by horses, a consideration that was widely recognised by most Corps and not just the cavalry.<sup>175</sup> The Army was not against mechanisation—it simply remained sceptical about introducing equipment that could not surpass its existing capabilities. The Salisbury Committee report encapsulated this belief, and the propensity for change, when it remarked that:

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World Wars', *War in History*, vol. 10, no. 3, 2003, pp. 296–320. French suggests that mechanisation was constrained by a lack of funds and suitable vehicles, not by conservative officers. For a revisionist account of cavalry on the Western Front see Stephen Badsey, 'Cavalry and the Development of Breakthrough Doctrine', in Paddy Griffith (ed.), *British Fighting Methods in the Great War*, Frank Cass, London, 1996, pp. 138–74.

<sup>173</sup> 'Interim Report of the Cavalry Committee', 23 November 1926, PRO W032/2841.

<sup>174</sup> 'CIGS Periodical Letter 4/1928', 15 October 1928, PRO W032/2381.

<sup>175</sup> The Marquess of Anglesey, *A History of the British Cavalry 1816 to 1919*, vol. 8, Leo Cooper, London, 1997, p. 320.

There is every reason to believe that cavalry officers, and the class which provides them, are ready to look facts in the face.<sup>176</sup>

As part of a program of mechanisation, the British Army established two armoured car regiments—by converting existing cavalry regiments—and decided to convert further units as funds became available.<sup>177</sup> Mechanisation, however, was often a secondary consideration for both the British and Australian armies during the 1920s. More importantly, they tried to prevent further reductions in the existing number of cavalry units.<sup>178</sup> Although both armies saw utility in horsed troops, the overriding consideration that influenced the conversion of any horsed units was funding, a factor of which both armies were only too aware. With the onset of the Depression in 1929, the Australian Military Board was forced to reduce the number of Light Horse units. In the 3rd Military District, the 19th and 17th Light Horse Regiments were linked, while in the 2nd Military District the 1st and 21st Regiments were amalgamated to save approximately £4 700 per year.<sup>179</sup>

### **The Formation of an Armoured Car Squadron**

In 1931, Major R. N. L. Hopkins proposed the establishment of a CMF armoured car regiment.<sup>180</sup> Keen to mechanise, Hopkins knew that the Army did not have a suitable reconnaissance vehicle—but remained confident that appropriate vehicles could be acquired—and warned

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<sup>176</sup> ‘CID-872B: Sub-committee on the Strength and Organisation of the Cavalry’, May 1928, PRO W032/2845.

<sup>177</sup> ‘CIGS Periodical Letter, 2/1928’, 19 August 1928, PRO W032/2379. Each regiment was to consist of three squadrons with two troops, with a total of 38 vehicles.

<sup>178</sup> By 1927 the British Army had abolished nine cavalry regiments—a total of 6373 personnel. In 1927 the War Office published a report that recommended the retention of 11 cavalry regiments in order to provide the Army with an expeditionary capability: ‘Memorandum on the Reorganisation of Cavalry’, 30 June 1927, PRO W032/2846.

<sup>179</sup> Military Board Agendum 49/1929, 17 July 1929, CRS A2653, 1929, vol. 1.

<sup>180</sup> ‘Organisation of Militia Armoured Car Regiments’, 7 April 1931, CRS B1535, 778/2/51.

against a lack of trained personnel in the eventuality of war. To reduce the strain on existing units, personnel were to be obtained from a disbanded Light Horse regiment and would conduct training in tactics and manoeuvre, machine-gunnery, and maintenance. Those members who provided their own vehicles would be compensated with an allowance, and the unit would also modify existing commercial chassis to mount machine-guns and communications equipment. Hopkins estimated that the annual cost of maintaining an armoured car regiment would be cheaper than a Light Horse unit by £386, and that these funds could be used to acquire more vehicles.<sup>181</sup> His proposal was met with immediate enthusiasm by both the Board and Lavarack, who commented that ‘the inclusion of armoured car units in the Australian Army in time of war has been accepted as advisable for some considerable time’.<sup>182</sup> Prior to this, the main obstacle to the formation of an armoured car unit was a shortage of vehicles suitable for military activities. By 1932, the Board opined that ‘the production of armoured cars in Australia [was] clearly in sight’ and was confident that it could form a mechanised cavalry unit.<sup>183</sup>

The Military Board met to discuss the details of forming an armoured car regiment in May 1933.<sup>184</sup> A central issue was whether the unit should be formed in a rural area, where there was a history of ‘cavalry traditions’ and where the Board could best use the intrinsic ‘eye for ground’ of country people, or in an urban area where there were greater numbers of vehicles and technical expertise.<sup>185</sup> To harness the enthusiasm of the Light Horse, and to conform to British practice, the Board agreed to form the unit from a pre-existing cavalry regiment. In addition, the unit would have to be located in Victoria so that Army Headquarters could closely monitor its development. The 19th Light

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<sup>181</sup> *ibid.*

<sup>182</sup> ‘Armoured Car Regiments’, 3 February 1932.

<sup>183</sup> *ibid.* For more detail on the production of armoured cars in Australia see Handel, *Dust, Sand and Jungle*, pp. 10–14.

<sup>184</sup> ‘Formation of Cavalry Armoured Car Regiments’, 3 May 1933, CRS A2653, 1933, vol. 2. See also CRS AWM61, 507/4/286.

<sup>185</sup> ‘Armoured Car Regiments’, 3 February 1932, CRS B1535, 778/2/51.

Horse Regiment, located in the Wimmera region, satisfied all these criteria and was resurrected in the 1933–34 training year. Although the peacetime establishment of the unit was to consist of a headquarters and three squadrons (comprised of three troops each), this figure was later reduced as a result of vehicle shortages to two squadrons with two troops each. To limit financial costs the Board provided incentives for regiment members to use their own vehicles, estimating that the annual cost of £2387 for maintaining an armoured car regiment would be marginally more expensive than the £2214 required for a Light Horse regiment.<sup>186</sup>

The Board's proposal was strongly endorsed by Bruche, who recognised 'serious deficiencies' in the Army's organisation. An armoured car regiment also had broader implications, and Bruche recognised that it was essential to provide incentives for recruiting:

The provision of mechanised units at the present time will indicate that modernisation of our force is receiving attention and should increase the interest both of the public and Militia personnel in the AMF.<sup>187</sup>

There was little opposition to the formation of an armoured car squadron. Aside from having to allay the concerns of a disgruntled Horse Association of New South Wales, there was little discontent at the conversion of the Light Horse.<sup>188</sup> The Army envisioned that armoured car regiments would work in conjunction with horsed cavalry to conduct reconnaissance—they would not replace the offensive capability provided by horsed formations. This important distinction, however, was at odds with existing perceptions and cavalry practices. Traditionally, cavalry was used for reconnaissance *and* offensive action. While the British Army used cavalry for reconnaissance and minor raids, the Australian Army saw cavalry as an offensive asset. Because the Army did not have a complete

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<sup>186</sup> 'Formation of Cavalry Armoured Car Regiments', 3 May 1933, CRS A2653, 1933, vol. 2.

<sup>187</sup> 'CGS Response', 21 June 1933, CRS A2653, 1933, vol. 2.

<sup>188</sup> Letter, Minister for Defence to Horse Association of NSW, 31 July, CRS B1535, 799/6/16.

understanding of mechanisation, it adopted the illogical concept of having an armoured car regiment for reconnaissance and horsed cavalry for a broad range of offensive tasks. This awkward arrangement led to the emergence of differing interpretations of the role of 'cavalry' that would only become apparent during the Second World War when the conversion of all Light Horse units could be realistically contemplated.

### **Cavalry in the 1930s**

The organisation of Australian Light Horse units continued to change in the 1930s as a result of British innovation.<sup>189</sup> Unable to mechanise the Light Horse because of a lack of funds and vehicles, the Army sought to increase the firepower of cavalry within the existing framework of doctrine through the provision of machine-guns. However, perceptions varied as to the best way to incorporate such weapons, and numerous changes were implemented at the sub-unit level. The most notable change to Australian cavalry occurred in 1932 when the Board introduced a headquarters squadron, replaced the existing machine-gun with Vickers machine-guns, and added an additional signals troop.

Although these changes appear semantic, they had broader implications for training and recruitment. Most regiments were spread out over vast areas; personnel were constantly re-assigned tasks, often without the necessary equipment; and few regiments were able to train as a complete unit. Despite these problems the Light Horse continued to attract large numbers of young and enthusiastic volunteers, particularly in rural districts where there were 'not the distractions that mitigate against [*sic*] recruiting in urban centres'.<sup>190</sup> To cope with this influx of personnel, several units added another sabre squadron, officially endorsed by the Board in 1937, to negate the need for raising

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<sup>189</sup> Between 1929 and 1937, and excluding the formation of armoured car regiments, the British reorganised their cavalry forces six times. See PRO WO/2382, WO32/2386, WO32/2394, WO32/2400A, WO32/4118.

<sup>190</sup> 'Memorandum to Military Board', 17 May 1933, CRS B1535, 849/3/502.

additional units. Mechanisation was so popular that the Board had to put a cap on the number of personnel in the 19th Light Horse Regiment (now the 1st Armoured Car Regiment) in order to distribute them more evenly across the Army.<sup>191</sup> The changes in the organisation of Light Horse units at the regimental level were mirrored at the brigade and divisional level. In 1936, the Military Board further rationalised the organisation of higher cavalry formations to allow divisional cavalry units to be sent overseas as part of an expeditionary force, and converted four regiments into machine-gun regiments to increase the firepower of cavalry brigades.<sup>192</sup> These changes came into effect in 1937 and were accompanied by the incorporation of light car troops.

### **Raising Light Car Troops: 1936–39**

The gradual mechanisation of some Light Horse regiments from 1936 onwards was the consequence of individual commanders requesting permission from the Board to incorporate light car troops, and not the result of centrally directed policy. In January 1936, the GOC of the 2nd Cavalry Division asked the Military Board for approval to establish a light car troop in a cavalry regiment to ‘provide an added interest in militia training’, to assist in determining the appropriate tactical employment of mechanised sub-units, and to provide information on the organisation and training of mechanised assets.<sup>193</sup> Not only were these efforts to mechanise driven by a desire to modernise, but problems in obtaining horses and recruiting personnel, particularly from urban areas, provided further impetus for change. Mechanisation was seen as a way to ‘tap a supply of excellent recruits that apparently cannot be reached otherwise’.<sup>194</sup> Light car troops would be established in a regiment and contain nine cars and 18 personnel.

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<sup>191</sup> ‘Memorandum to Secretary Military Board’, 5 June 1936, CRS AWM61, 507/2/275. See also CRS AWM62, 63/1/476.

<sup>192</sup> ‘Cavalry Organisation—War and Peace’, 22 July 1936, CRS MP729/6, 37/401/12.

<sup>193</sup> ‘Light Car Troops of Light Horse Regiments’, 9 January 1936, CRS B1535, 849/3/898.

<sup>194</sup> *ibid.*

Lavarack welcomed these changes, and allocated each prospective regiment £600 to acquire vehicles and supplies.<sup>195</sup> Aside from passive acquiescence, however, the Military Board never issued any formal policy on the creation of light car troops, and in some instances troops were raised as a consequence of personal associations between officers and civilian automotive clubs.<sup>196</sup> The vehicles were not designed to replace the offensive capability of the sabre squadrons but only to aid in communication and reconnaissance, a point emphasised by the Board. Accordingly, the ‘tactical employment of light car troops should not go beyond that adopted in the British Army’ and ‘should be devoted to a study of the roles of inter-communication and of such reconnaissance as can be carried out without offensive action’.<sup>197</sup> Most units located in urban areas were able to raise the new troops with ease and sought approval to create several mechanised troops. These proposals were rejected by the Board, which favoured the even distribution of vehicles so that a light car troop could be raised in every cavalry regiment as the necessary funds became available.<sup>198</sup> By April 1938, the first-line transport of all cavalry regiments had been mechanised and four regiments possessed light car troops, with the Board issuing instructions in May for the establishment of a further six.<sup>199</sup> The Board also gave permission for the formation of a second armoured car regiment in the 2nd Military district, formed in 1939.

The purpose of the initial introduction of mechanical vehicles into cavalry formations was to supplement the tasks of horsed sub-units, and eventually replace them. Most perceptions of the use of mechanised cavalry were adapted from the British Army training

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<sup>195</sup> ‘Training Establishments’, 12 March 1936, CRS B1535, 849/3/898.

<sup>196</sup> ‘Formation of Light Car Troop 1st Military District’, 23 April 1936, CRS B1535, 849/3/898.

<sup>197</sup> ‘Formation of Light Car Troops of Light Horse Regiments’, 2 June 1936.

<sup>198</sup> The Board rejected the creation of a second light car troop in the 7th Light Horse regiment: ‘Raising of Light Car troop in 4 Cavalry Brigade’, 4 April 1938.

<sup>199</sup> ‘Raising Light Car Troops’, 22 April 1938; ‘Raising Light Car Troops’, 6 May 1938.

pamphlet *Cavalry Training 1937*. Prior to this, there had been little doctrine specifically concerned with the employment of mechanised cavalry regiments. The document provided comprehensive detail on mounted and dismounted drills, formations, and signals practices. While it stipulated several tasks for a regiment, it stressed that ‘the principal role of armoured cars is reconnaissance’.<sup>200</sup> As secondary functions, armoured car regiments could also be used for covering a withdrawal, for raiding, and for escorting supply columns. In short, the idea was that cavalry were to augment the offensive capability of tanks and other arms. However, this was an idea with greater resonance in the British Army, which possessed a far greater number of tanks than Australia. Unlike Britain, Australia lacked any substantial number of tanks and still envisaged using cavalry in an offensive capacity.<sup>201</sup> Although this would not necessarily involve sweeping sabre charges, it still went far beyond what was envisaged in the British Army. Lacking modern equipment, the Army simply had to make do, and therefore adapted British doctrine to local conditions. This created a gap whereby some officers used British ideas about cavalry as a supplementary arm, whose sole responsibility was reconnaissance, whereas others conceived cavalry in a broader role. While this gap slowly closed, and eventually disappeared during the Second World War, it remained indicative of the Army’s lack of process in formulating doctrine.

## **The Second World War**

The Army was unprepared and ill-equipped for war when it came in September 1939. Years of neglect and under-funding had taken their toll. To compound this, rearmament initially proceeded with caution as

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<sup>200</sup> *Cavalry Training (Mechanised)*, Pamphlet no. 1, 1937, War Office, Army Council, London, 1937, p. 17. From mid-1937, the British Army began replacing armoured cars with light tanks, providing greater mobility, firepower and protection: ‘Periodical Letter 3/1937’, 28 July 1937, PRO WO32/4118.

<sup>201</sup> Efforts to increase the firepower of light car troops were rejected because of a shortage of weapons. ‘Memorandum—Light Car Troops’, 27 July 1939, CRS B1535, 849/3/1586.

the Government adopted a ‘business as usual’ attitude.<sup>202</sup> Despite an initial lull in recruiting for the 2nd AIF, the task of raising an expeditionary force was relatively easy when compared to equipping it. The Army had to outfit three divisional cavalry regiments for service overseas as well as modernise the remaining CMF units, a task made even more difficult because Australia lacked an automobile industry. A fundamental problem in the Army’s attitude was that it saw rearmament as a panacea for its mechanisation problems. Although the progress made between the wars aided the addition of units to their War Establishments, the Army still lacked an understanding of how to employ mechanised forces and held different, and often contradictory, interpretations of the role of cavalry. The inability of the Army to mechanise between the wars, combined with doctrinal immaturity, meant that it lacked any appreciation of the conditions of modern battle. It wanted to mechanise, but did not know how to use mechanised units. This problem was manifest in a cable, sent to London in early 1940, which inquired whether ‘horsed cavalry [should] be in any additional part of the 2nd AIF that may be raised and despatched’.<sup>203</sup> This query was met with confusion at the War Office. Not only had all British cavalry units been mechanised, but the War Office could not comprehend using horses as part of an expeditionary force. After rejecting the idea to send a horsed unit, the War Cabinet agreed that each AIF division, with the exception of the 8th, would be accompanied by a fully mechanised divisional cavalry regiment.

### **Divisional Cavalry Regiments**

A divisional cavalry regiment consisted of roughly 450 personnel organised into a headquarters, a headquarters squadron, and three sabre squadrons.<sup>204</sup> Although they were supposed to be fully mechanised, they

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<sup>202</sup> Grey, *The Australian Army*, p. 107; Long, *Australia in the War of 1939–1945 Series I (Army), To Benghazi*, p. 41.

<sup>203</sup> ‘PM Cable to Dominions Office’, 5 March 1940, CRS A5954, 361/9.

<sup>204</sup> ‘Divisional Cavalry Organisation’, CRS AWM54, 327/7/5. For a detailed history of the divisional cavalry regiments see Handel, *Dust, Sand and Jungle*, pp. 15–28; Hopkins, *Australian Armour*; pp. 33–8, Long, *Australia*

were raised using a combination of armoured cars, armoured personnel carriers, and commercial vehicles due to insufficient numbers of vehicles. The tasks of a regiment were to conduct reconnaissance and provide early warning for its respective division. The 6th Divisional Cavalry Regiment was the first to be raised. It commenced enlistment in November 1939 and was deployed to Palestine in February 1940. Only partially equipped with AFVs, the unit fought numerous engagements against Italian forces with ‘machine-guns carried in unarmoured trucks’.<sup>205</sup> The unit was progressively mechanised and saw extensive service throughout the Western Desert, fighting most notably at Bardia and Tobruk. The 7th Australian Divisional Cavalry Regiment was formed in May 1940 and was briefly commanded by Major Hopkins. It was sent to Cyprus in May 1941 and relieved the 6th Divisional Cavalry Regiment in Syria in July. Active in a number of operations, the unit used a variety of armoured personnel carriers, light tanks, and 2-pounder anti-tank guns. It eventually returned to Australia in March 1942 and was sent to New Guinea in September, where it was employed as a regular infantry battalion owing to personnel shortages. The 9th Divisional Cavalry Regiment saw extensive service in Syria and was the first Australian unit to be equipped with the modern Mark II Crusader and Mark 3 Stuart light tanks. This equipment was later returned to the British Army and the unit returned to Australia in January 1943. The fact that the Army was able to raise these units, albeit without the appropriate vehicles, was testament to its endeavours to engage in mechanised warfighting. The Army had learnt a great deal about the employment of mechanised formations, and the success gained by the divisional cavalry regiments in conducting reconnaissance and small-scale offensive action prompted a reassessment of the role of cavalry.

### **Organisation and Tactical Training: 1940**

In February 1940 the Military Board produced a discussion paper entitled ‘Organisation and Tactical Training of the Australian Light

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*in the War of 1939–1945 Series I (Army), To Benghazi*, pp. 163–240. For a unit history, see Colin Kerr, *Tanks in the East: The Story of an Australian Cavalry Regiment*, Oxford University Press, Melbourne, 1945.

<sup>205</sup> Hopkins, *Australian Armour*, p. 34.

Horse'.<sup>206</sup> Circulated among senior officers within the Army, it was designed to stimulate thought on the training, doctrine and employment of the Light Horse. The document was the first serious attempt to evaluate the utility of the Light Horse and revealed the Army's different interpretations of the role of cavalry. Although long overdue, it was a vital step towards developing a greater understanding of mechanised warfare and was instrumental in the decision to finally mechanise the Light Horse. The document began with a scathing attack on the training and doctrine of the cavalry, noting that:

The tactical training of the Light Horse since the last war has been based almost entirely on conditions similar to those which existed in Palestine in 1918.<sup>207</sup>

While most tactical exercises mentioned the effects of AFVs, they ignored the superior firepower, mobility, and protection of these vehicles when working in open country. The training of the Light Horse during the Interwar Period and early stages of the Second World War was based on the film *Divisional Cavalry Action Covering an Advance*. The film depicted Light Horse units moving unabated across open country to cover the advance of a moving infantry column. This film was strongly criticised by the Board because it portrayed tactical bounds that could not be defended against an AFV attack and avenues of approach that could not provide any cover against small-arms fire. The film also depicted a system of movement that was too slow and concentrated, making advancing formations vulnerable to fast-moving AFVs. In reviewing the tactical doctrine of the Light Horse, the Board identified four misconceptions. It criticised the notions that mounted troops could defend themselves against AFVs in open country and that horses possessed the same degree of relative mobility as AFVs. The Board also noted that the Light Horse lacked any substantial firepower, despite increases in armour and automatic weapons, and it questioned

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<sup>206</sup> 'Organisation and Tactical Training of Australian Light Horse Regiments', 15 February 1940, CRS MP729/6, 37/401/759. See also CRS MP70/3, 1940/28.

<sup>207</sup> *ibid.*

the use of the Light Horse in large formations. Aware of the need to reform, the Board observed:

The growth in mechanised formations in modern armies has been very rapid during the last few years and the evolution of our doctrine for the employment of the Light Horse may have lagged behind. It would appear that there is an urgent need for reconsidering our ideas and revision of the system of training.<sup>208</sup>

The Board was conscious that the Light Horse had ‘little or no fighting value’ against modern European armies. It decided that the training, organisation and equipment of cavalry should be focussed on their being employed in Australia using small formations (of squadron size or smaller) for reconnaissance, blocking communications routes, or delaying an enemy advance.<sup>209</sup> A Light Horse brigade would include motorcycles for communication between sub-units and an anti-tank unit to add greater firepower. These suggestions were largely an adaptation of British mechanised cavalry doctrine applied to Australian horsed formations. Although the Light Horse would no longer conduct the large-scale offensive operations once depicted in training exercises, it would remain horsed. The Board was keen to demonstrate that it could modernise horsed formations and dispel ideas about the employment of cavalry *en masse*. Indicative of this was its concluding recommendation that ‘the sword as a Light Horse weapon be abolished’.<sup>210</sup>

### **The Conversion Controversy**

The memorandum attracted a broad range of responses.<sup>211</sup> Although there was a ‘genuine desire for an improvement in the fighting power’ of the Light Horse amongst all of the respondents, there was a strong division between those officers who favoured retaining horsed cavalry in a modified role and with modern equipment, and those who insisted

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<sup>208</sup> *ibid.*

<sup>209</sup> *ibid.*

<sup>210</sup> *ibid.*

<sup>211</sup> The Board received 16 responses from various senior officers between February and October 1940: CRS MP729/6, 37/401/759.

on complete mechanisation.<sup>212</sup> A key element that influenced perceptions of how the Light Horse should be employed was the use of the term ‘cavalry’. The Commandant of Duntroon, Brigadier E. Plant, recognised this and noted that ‘the title “cavalry” in connection with Light Horse units [was] a misnomer’.<sup>213</sup> Several officers argued that the word ‘cavalry’ should be replaced with ‘mounted infantry’, a title more applicable to their tactical employment. As the GOC Eastern Command, Lieutenant General V. A. H. Sturdee (later CGS), stipulated:

The deletion of the term cavalry would eradicate the cavalry complex and enable us to concentrate on the fact that we are or should be dealing with Mounted Infantry.<sup>214</sup>

Those officers who favoured the retention of horses emphasised the ability of mounted troops to operate in terrain that would be impassable to mechanised forces. Some cavalry officers even argued that horsed transport was superior to mechanised transport in Australia because mechanical vehicles were reliant on petrol supplies that could not be readily transported across remote areas.<sup>215</sup> This however, was only a minority opinion. Most officers favoured a mixture of horsed cavalry with mechanised reconnaissance and support elements, failing to recognise the logistical problems caused by mixing horses with vehicles. Such an approach was also at odds with the idea that the Light Horse was supposed to operate in terrain that was impassable to vehicles. To compensate for this, several officers drew upon ideas propagated in the 1933 policy directive and suggested segregating vehicles into three categories: horsed cavalry, fully mechanised units, and motorised infantry units.<sup>216</sup> These formations would not be mixed

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<sup>212</sup> General Staff 1 Cavalry Division, ‘Organisation and Tactical Training of Light Horse’, 18 March 1940.

<sup>213</sup> Brigadier E. Plant, ‘Organisation and Tactical Training of Light Horse’, 28 February 1940.

<sup>214</sup> Lieutenant-General T. Sturdee, ‘Organisation and Tactical Training of Light Horse’, 3 May 1940.

<sup>215</sup> GOC 1 Cavalry Division, ‘Organisation and Tactical Training of Light Horse’, 19 March 1940.

<sup>216</sup> Commandant Command and Staff School, ‘Organisation and Tactical

below brigade level and would be employed according to tactical requirements. Although some cavalry officers favoured the retention of swords and bayonets to 'permit shock action', it was generally accepted that the Light Horse could not be used in any large-scale offensive capacity.<sup>217</sup> These sentiments were not the dying words of a reactionary Corps, but rather realistic ideas based on the assumption that the Army would not be able to acquire vehicles of comparable mobility in the immediate future.

In contrast to those officers who welcomed the Military Board's memorandum and modifications to the organisation and doctrine of horsed cavalry, there was an even stronger reaction against retaining horsed troops. Rather than just giving the Light Horse additional firepower and motorised support elements, several officers delivered scathing attacks on the use of horses altogether. One such was Colonel H. C. H. Robertson, who had been an active proponent of mechanisation since assuming command of the Tank Section in 1926 and wrote extensively on the subject. Robertson was passionate in his belief that 'horsed units belong to a past age and should not be preserved', and that if 'Australia has to abandon civilisation and go back to the methods of guerrilla warfare as her main defence, she will already be beaten'.<sup>218</sup> Many officers argued that mechanised forces were equally as effective at operating in Australian conditions as horses and could also be raised more quickly in the event of an invasion. Those in favour of mechanisation questioned the notion that an enemy would invade at a point that would *not* be suitable for AFVs if they did not possess any horses, observing that an 'enemy will possess the initiative and will select country most suitable to his own weapons'.<sup>219</sup>

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Training of Light Horse', 20 February 1940.

<sup>217</sup> Major-General I. Mackay, 'Organisation and Tactical Training of Light Horse', 30 March 1940.

<sup>218</sup> Colonel H. C. H. Robertson, 'Note on Paper: The Tactical Training of Light Horse', 11 March 1940.

<sup>219</sup> GOC 6 MD, 'Organisation and Tactical Training of Light Horse', 4 May 1940.

The notion that Australia possessed ‘unique’ environmental conditions different from Europe and North Africa was challenged by several officers. In justifying complete mechanisation, Robertson suggested that ‘Australian conditions are in general no more difficult than those of most areas of the world’.<sup>220</sup> Those who opposed the retention of horses also warned against partial mechanisation, suggesting that units that mixed horsed transport with mechanical transport would be hamstrung with logistical difficulties and differing operational requirements.<sup>221</sup> These opinions were highly influential and finally enabled the Army to develop policy in combination with tactical principles that recognised the different functions of cavalry brought about by mechanisation. The importance of this, however, was largely overshadowed by a lack of resources and the Army would have to wait until there was a greater possibility of invasion before it would receive the necessary funds and vehicles to convert the Light Horse.

### **Public perceptions and the Light Horse**

The mechanisation of the Light Horse, or lack thereof, received mixed responses in the media. Public perceptions of the Light Horse ranged from nostalgic admiration of the virtues of mounted soldiers to cynical condemnation of the Army for retaining horses at unnecessary expense. While some of this criticism was warranted, reflecting many of the beliefs of the Army’s senior leadership, some was naive and condemned the Army for factors beyond its control. One such instance occurred in mid-1940 when the Government issued a press release justifying the maintenance of horsed units. Responding to criticism, the Minister for the Army, Geoffrey Street, noted a ‘very great misconception as to the place of the Light Horse regiments in the Australian scheme of defence’.<sup>222</sup> Street used the example of a cavalry exercise conducted near Torquay in Victoria, where Light Horse regiments using light car troops were working in close support with the 1st Armoured Car Regiment and the 1st Armoured Regiment. Out of a total of 4200 troops, only 1850 were horsed, and horses were only

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<sup>220</sup> Robertson, ‘Note on Paper’.

<sup>221</sup> GOC 6 MD, ‘Organisation and Tactical Training’.

<sup>222</sup> ‘Press Release: The Light Horse in War’, 27 March 1940, CRS A5954, 261/9.

used ‘as a means of transport’ and not ‘shock action’.<sup>223</sup> Drawing on comments contained in the Board’s discussion paper, the Minister suggested that horsed troops were important in promoting an ‘eye for ground’ and could operate in uniquely Australian terrain that would be impassable to mechanical vehicles. Street was quick to dispel any notion that the Light Horse would be used for large-scale offensive operations and insisted that the future role of the cavalry would be to conduct reconnaissance, delaying operations and small-scale raids.

Prior to the Minister’s statement, *The Argus* had published a contemptuous article drawing a ‘tragic contrast’ between the Light Horse exercises in Torquay and ‘the greatest parade of mechanised might ever seen in Egypt’.<sup>224</sup> The article questioned the value of cavalry against an invading force, which would be equipped with modern AFVs, and maintained that horses were ‘as obsolete as the crossbow’. These strong sentiments, however, were largely dulled by Street’s press release. Brisbane’s *Courier Mail* published an article in April 1940 that endorsed the press release and praised the virtues of Light Horsemen.<sup>225</sup> A similar article also appeared in the *Christian Science Monitor* in May 1941, which voiced strong support for horsed cavalry, stressing that the tactical superiority of the Light Horse could only be achieved when ‘deployed as cavalry’.<sup>226</sup> In addition, several articles published in 1942 also supported horsed units. One such echoed the sentiments of a Russian Cossack leader in suggesting that Australia, like Russia, should retain large cavalry formations ‘equipped with modern arms’.<sup>227</sup> Another article quoted Chauvel and noted that ‘many competent military men [were] disturbed’ at the prospect of mechanisation.<sup>228</sup> Suggesting that cavalry possessed

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<sup>223</sup> *ibid.*

<sup>224</sup> Anon, ‘A tragic contrast: Cairo and Torquay’, *The Argus*, 14 February 1940.

<sup>225</sup> Anon, ‘Why Australia needs Light Horse’, *The Courier Mail*, 1 April 1940.

<sup>226</sup> Anon, ‘Light Horse divisions hold place in Australian defences’, *Christian Science Monitor*, 10 May 1940.

<sup>227</sup> Godfrey Blunden, ‘Horsemen can smash tanks: strike swift, sharp blows at infantry’, *Daily Telegraph*, 26 May 1942.

<sup>228</sup> Anon, ‘Cavalry is our lost legion’, *Daily Telegraph*, 27 May 1942.

greater mobility across remote areas of Australia, it noted their superiority in 'guerrilla warfare' and their ability to raid the rear echelon of advancing enemy columns. Although these articles reflected the earlier debates within the Army about the training and tactical employment of Light Horse, they bore little resemblance to military policy as it was in 1942.

### **Conversion of the Light Horse**

While the debate over the utility of cavalry was long overdue, any realistic contemplation of converting the Light Horse was impossible until 1942. The belated approach to rearmament was still evident in 1941, when the Board identified severe deficiencies in the number of vehicles available, noting that they were deficient 93% of cars and almost 50% of all forms of medium and heavy lorries.<sup>229</sup>

Although the Army lacked appropriate doctrine, it had accepted British tactical procedures and recognised that mechanisation had changed cavalry's role. This revelation was the consequence of the Board's discussion paper and the success of divisional cavalry regiments, and was further aided by the proposal in November 1941 to form an armoured division, which would constitute the offensive capability once offered by cavalry.<sup>230</sup> While the idea of retaining some horsed units was not totally abandoned, any remaining horsed units would only be used in small formations in terrain impassable to mechanical vehicles.<sup>231</sup> The use of horses, even in a very limited way, was impossible for most units, which began placing pressure on the Board to mechanise them. In one such instance, a Commanding Officer wrote to the Board requesting permission to mechanise because 'sufficient

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<sup>229</sup> 'Statement Showing Requirement of Initial Equipment', 30 November 1941, CRS A2671/1, 418/1941.

<sup>230</sup> The formation of an Armoured Division was raised in 'War Cabinet Agendum 150/1940', 26 June 1940. This idea was furthered to include an AFV School: 'Military Board Agendum 337/1940', 27 November 1940. For details see CRS A2653, 1940, vol. 1, CRS A5954, 505/1 and M4069/1.

<sup>231</sup> 'Mobility in Relation to Plans for the AMF', 10 April 1941, CRS MP729/6, 37/401/759.

Light Horse personnel and suitable horses [did] not exist in Tasmania'.<sup>232</sup> Acute shortages of horses and progressive occupational changes made the retention of horsed units increasingly difficult. The Army, however, lacked the number of vehicles necessary to fully mechanise the Light Horse. These would not be forthcoming until at least October 1942, when conversion would occur incrementally and in conjunction with the acquisition of the vehicles required for an armoured division.

In March 1942 the War Cabinet met to discuss the conversion of the Light Horse. Agreeing that horsed units had only limited utility, even in Australian conditions, the Cabinet made preparations for conversion of all Light Horse regiments. The main considerations that affected the decision to mechanise the cavalry were 'the ineffectiveness of horsed units under modern conditions', the 'unavailability of horses to replace losses', and the 'unconventional dispersion of cavalry formations'.<sup>233</sup> Commitments abroad and the requirements for the local defence of Australia meant that newly converted formations would have to be capable of working alongside the mechanised forces of the AIF in addition to local defences. Although a majority of the vehicles required to fully convert the Light Horse would not be available for at least 12 months, the Cabinet noted that organisational changes should begin immediately in order to clarify administrative concerns. The Cabinet provided two suggestions for the future organisation of the cavalry. In the first plan, the newly mechanised cavalry units would form independent armoured and motorised brigades, while in the second plan, the converted cavalry regiments would form part of an armoured division. Although the former proposal was significantly cheaper, as it did not include the funds and vehicles already allocated for the creation of an armoured division, both were far too labour intensive. They required personnel that could not be spared or simply did not

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<sup>232</sup> 'Mechanisation—22 Light Horse', 19 December 1940, CRS MP385/3, 106/8/31.

<sup>233</sup> 'War Cabinet Agendum 166/1942', 15 March 1942, CRS A571, 1942/1483.

exist, prompting the first plan to be revised by the Commander-in-Chief, Field Marshal Thomas Blamey.

In May, Blamey reviewed the proposal to convert the Light Horse and made several modifications. He was conscious that the 'organisation of the Army [had] not been reasonably balanced owing to the impossibility of obtaining necessary modern equipment', but equally recognised that steady numbers of vehicles continued to arrive from America and Britain.<sup>234</sup> The Cabinet's proposals were deemed unreasonable and the main consideration that affected the future organisation of the cavalry was manpower that, Palazzo maintains, became the main factor influencing the Army's organisation after 1942.<sup>235</sup> Over the previous two years, most cavalry regiments had undergone a piecemeal conversion to motorised formations but still retained the cavalry structure. This meant that the standard cavalry division had far fewer personnel and lacked all of the required ancillary services of its infantry counterpart. Blamey proposed to re-group and re-fit existing cavalry units to form one motorised division and two tank brigades equipped with British and American tanks. This proposal would result in a surplus of approximately 2600 Light Horse personnel who would be incorporated into the AASC. Although this plan demonstrated a more realistic appreciation of personnel requirements, it was too little too late. Two divisional cavalry units had returned from overseas, with the 7th Divisional Cavalry Regiment already being dismounted for service in New Guinea. It would be unfair to suggest that the Army was unwilling to mechanise, but it can be suggested that it failed to develop mechanisation policy in coordination with strategic assumptions and personnel considerations. This was in part the Army's fault but also the result of factors beyond its control. The failure to mechanise between the wars, the absence of doctrinal development, and the slow pace of rearmament meant that any conversion of the Light Horse would always be slow.

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<sup>234</sup> 'Revised Plan for Conversion by Commander-in-Chief', 15 June 1942.

<sup>235</sup> Palazzo, *The Australian Army*, p. 174.

## Disbanding mounted cavalry

Although the Army had decided to mechanise all of the Light Horse, it still retained a small number of horsed units. One such squadron operated north of Townsville in ‘large areas of heavily timbered ranges in which mechanised movement [was] not practicable’.<sup>236</sup> Another independent horsed formation was formed in April 1942 for service in New Guinea, consisting of 21 personnel who provided their own horses.<sup>237</sup> These units, however, were not indicative of the Army’s attitude to mechanisation and were formed spontaneously in response to local circumstances. Once the decision was made to convert the Light Horse they lost their regimental identities and became absorbed into broader Army formations. They were eventually reformed into armoured divisions, and by January 1943 the Army possessed three armoured divisions and an Army tank battalion.<sup>238</sup> This was short-lived: the increasing shortages of personnel led to their progressive disbandment throughout 1943 and 1944. Blamey wanted to create three divisions for offensives in New Guinea and three for the defence of Australian territories, a force that required nine divisions to maintain. To meet these demands the Army sought other, non-traditional, sources of manpower, such as the greater inclusion of women, and created jungle divisions that required 4000 fewer personnel than did the traditional division.<sup>239</sup> Jungle divisions contained only those personnel and equipment the Army perceived as suitable and necessary for jungle warfare. As a result of these reductions, by August 1944 the Army possessed only the 1st Armoured Brigade Group and the 4th Armoured Brigade, and only the latter survived to the end of the war.

## Conclusion

Despite achieving stunning battlefield success during the First World War, the Light Horse reached its nadir during the 1920s. In keeping

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<sup>236</sup> ‘Horsed Squadron’, 2 November 1942, CRS MP729/6, 37/401/1338.

<sup>237</sup> ‘New Guinea Force: Supplementary War Diaries’, 1 May 1942, CRS AWM52, 2/2/18.

<sup>238</sup> Hopkins, *Australian Armour*, pp. 325–30.

<sup>239</sup> Palazzo, *The Australian Army*, p. 184.

with broader trends affecting the Army, it was stripped of personnel, equipment and funding, and its doctrine stagnated. While the Army was aware of British developments, it lacked the resources to copy them. This led to differing interpretations of the role and employment of cavalry, which were revealed with the publication of the Military Board's 1940 discussion paper. Long overdue, this discussion paper saw the merger of these interpretations and provided further impetus to convert the Light Horse. In an Army that lacked a systematic method of formulating doctrine, this was probably the best result. The main factors, however, that determined whether the Light Horse would be mechanised were personnel and equipment, even during the Second World War. Years of neglect created severe shortages of all forms of equipment, and the slow pace of rearmament during the early stages of the war compounded the Army's dilemmas. By 1942, the Army had resolved the differing concepts for the employment of cavalry and possessed enough vehicles to embark on a program of mechanisation. These moves, however, came too late: manpower shortages, together with the belief that mounted cavalry were of no value in jungle terrain, led to the disbandment of mounted cavalry.

## CONCLUSION

*A mistake which is sometimes made is to regard mechanisation as merely the replacement of the horse.*

Lecture on Mechanisation (1937)<sup>240</sup>

The idea that military institutions are inherently reactionary and slow to adapt to technological innovation is inaccurate and detracts from the complex processes involved in military change. Armies have to deal with technological developments while operating in an environment of strategic uncertainty, and their ability to respond to change is often dictated by political and bureaucratic considerations beyond their immediate control. Moreover, technology can also effect aspects of organisation, training and doctrine in ways that are unforeseen and go against the trend of prevailing ideas and practices. The interplay of these demands demonstrates the complex nature of military change. As Harold Winton notes:

Just as the danger, chance, uncertainty, and privation of combat demand a genius, so also the ambiguities and complexities of peacetime military change demand a genius for adaptation.<sup>241</sup>

After the First World War, the Australian Army was assigned a position of secondary importance in the nation's concerns. The 'war to end all wars' had been won, the Army was stripped of personnel and funding and was forced to reduce training schedules. The effect of this was compounded by strategic policy that favoured using naval assets to deter Japanese aggression. Under the rubric of the Singapore Strategy, the Army could not justify the need to create sizable mechanised forces and was confined to defeating raids. To add a further complication, the Army's ability to mechanise was also inhibited by the bureaucratic constraints in the *Defence Act* that prohibited it from fundamentally reorganising. Those units that were

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<sup>240</sup> 'Lecture on Mechanisation 1937', attached to 'Periodical Letter 1/1938', 21 January 1938, PRO WO32/4120.

<sup>241</sup> Winton, 'On Military Change', p. xv.

partially mechanised required a greater number of permanent personnel and more extensive training than the CMF. In short, mechanisation was at odds with a financially strained, militia-based Army that was only supposed to defend against raids.

From as early as 1920 the Army was conscious of the importance of mechanisation. Despite the limited success of armour during the Great War, the Army's senior leadership welcomed mechanisation as a means of conserving manpower and enhancing firepower. Aside from general concepts, however, the Army had very little understanding of the employment and organisation of mechanised units. Keen to mechanise, the Army approached the task with understandable caution. Modelling its policy on British developments, the Army made appropriate modifications to suit local industry and strained budgets. Through periodic correspondence the CGS could keep abreast of mechanisation in the British Army, though the gap between the Australian and British armies steadily increased between the wars. The earliest forms of mechanisation policy were uneconomical and tactically unsound. Recognising the importance of mechanising the AASC, the Army nevertheless deprived it of the necessary vehicles in favour of partially mechanising the artillery. This divided basic tactical units between motorised and horsed transport and meant that the two corps could employ neither pre-existing nor developing tactics. The Army also experienced difficulties in acquiring and maintaining its meagre armoured capability. As part of efforts to remedy these problems and adopt more sophisticated policy, the Army produced a formal directive in 1928 that provided the basis for the expansion of the Tank Section and additional mechanisation across the service.

Throughout the 1930s the Army adopted a more coherent approach to mechanisation. Ironically, this was largely the result of a strategic reassessment of the Army's ability to defend against raids, the very assumption that detracted from mechanisation. As CGS from 1930–35, Bruce added greater sophistication to policy by segregating vehicles into distinct categories. This enabled the Army to develop policy based

on specific requirements, a process further aided by the creation of a formal position (the Director of Mechanisation) and organisation (the Army Mechanisation Board) to oversee its implementation. This allowed the Army to deal with the technical aspects of mechanisation, particularly in relation to the construction of vehicles by local industry. For all that, however, the main limiting factor was financial. Defence Minister George Pearce's attempted rearmament program not only highlighted the parlous condition of the Army, but also revealed the difficulties accompanying mechanisation even when the Army received a modicum of political support. The eventual formation of the Tank Corps in 1937 was testament to the energetic efforts to mechanise made by the Army's senior leadership amidst trying circumstances. When the Government finally expressed an interest in the formation of a mechanised brigade, as a result of the worsening international situation, the Army was faced with critical shortages in basic weaponry and ammunition that it could not ignore. The years of neglect curtailed any sizable mechanisation projects, and by 1938 the Army could only manage a limited program of expansion in coordination, while working under the constraints of petrol shortages and the limitations of Australian industry.

While the Army's efforts to mechanise between the wars were important in helping units to fully mechanise upon the outbreak of war, policy was predominantly focussed on the technical aspects of mechanisation at the expense of broader organisational and doctrinal themes. The factors influencing mechanisation and the shortfalls in Army policy were most apparent with the conversion of the Light Horse. Despite its privileged status within the Army, the Light Horse was equally effected by inadequate funding and personnel reductions, while its training and doctrine stagnated during the Interwar Period. Unable to emulate the conversion of cavalry being introduced in the British Army, views of the role of the Light Horse in the Australia became increasingly confused. While some officers adopted British tactical procedures and saw cavalry as a reconnaissance asset with the capability for limited offensive actions, others accepted the reality of Australian circumstances and continued to advocate a greater offensive

role for the Light Horse. The formation of an armoured car regiment and the introduction of light car troops saw the Army adopt the illogical position of having mechanised vehicles for reconnaissance and horses for offensive action. The absence of a conduit for the exchange of ideas about Light Horse doctrine and training meant that these ideas would continue to exist until the war.

The publication of *Organisation and Tactical Training of the Australian Light Horse* was a watershed in the history of Army mechanisation. It was the first serious attempt to reconcile the different interpretations of the role of cavalry with realistic battlefield assessments. The debate over the employment of horses revealed the contradictory thinking that was symptomatic of the Australian approach to mechanisation. While some officers maintained that horses could operate in terrain impassable to AFVs, others questioned whether an enemy would occupy an area in which it could not use its vehicles. These diametrically opposed assumptions were the consequences for an Army that lacked a systematic method of formulating doctrine that could govern the parameters for debate and promote the synthesis of ideas. Although the Army was slow to develop an understanding of mechanised cavalry, the eventual decision to convert the Light Horse was only made possible by the progressive increase in vehicles and funds that became available by 1942. The fact that the Army lacked a formal process to create doctrine explains why there were different interpretations of the role of cavalry and why there was debate over the use of horses even as late as 1940. But this doctrinal immaturity in no way prevented it from mechanising to any great extent beyond that permitted by budgets and resources, even during the war.

The study of Army mechanisation policy and the conversion of the Light Horse has many contemporary resonances. More than at any stage in its existence, the Army is now faced with an increasing range of technological developments that have fundamental implications for all aspects of doctrine, training and organisation. The move towards a 'Hardened and Networked Army' (HNA) has seen—and will continue to see—the acquisition of new weapons platforms, the re-writing of

doctrine and the reorganisation of units. Still faced with personnel shortages and budgetary constraints, the Army has to provide the most combat effective and efficient force capable of fulfilling its mandate to government. While the times may have changed, the fact the Army is constantly adapting its force structure and doctrine to cope with technological innovation is constant, and the ‘trinity’ of military change referred to by Winton continues. After all, *plus ça change, plus c’est la même chose*.

## BIBLIOGRAPHY

### Archival Sources

National Library of Australia

The Pearce Papers

### National Archives—Canberra

A458 Defence Correspondence Files, Multiple Number Series, 1922–1934.

A571 Defence Correspondence Files, Single Number Series, 1901–1976.

A981 Department of External Affairs Correspondence Files, 1927–1942.

A2653 Volumes of Military Board Proceedings, 1905–1976.

A2671 War Cabinet Agenda Files, 1939–1946.

A3300/7 Australian Legation, United States, Correspondence File, 1939–1948.

A5954 The Shedden Collection.

A816 Defence Correspondence Files, Multiple Number Series, 1935–1958.

A6828 Chief of the General Staff Periodical Letters, 1934–1940.

M4069 Papers of Lieutenant-General Sir John Northcott, 1939–1946.

### National Archives—Melbourne

B197 Army Headquarters Secret and Confidential Correspondence Files, Multiple Number Series, 1906–1936.

- B1535 Army Headquarters Correspondence Files, Multiple Number Series, 1930–1939.
- MP70/3 Headquarters, 3 District Base, AMF Security Classified Correspondence, 1939–1941.
- MP385/3 Headquarters 3 Military District Correspondence Files, 1919–1946.
- MP508/1 Army Headquarters General Correspondence Files, Multiple Number Series, 1939–1942.
- MP729/6 Army Headquarters Secret Correspondence Files, Multiple Number Series, 1936–1945.
- MP742/1 General and Civil Staff Correspondence Files and Army Personnel Files, Multiple Number Series, 1920–1956.

### **Australian War Memorial**

- AWM1 Pre-Federation and Commonwealth Records, 1850–1956.
- AWM51 AWM Security Classified Records, 1914–1957.
- AWM52 Second AIF and CMF Unit War Diaries, 1939–45.
- AWM54 Written Records, 1939–45 War.
- AWM61 Army Headquarters Secret and Classified Records, 1939–1946.
- AWM62 Department of Army, Southern Command Registry Files, 1920–1943.
- AWM113 Records of the Military History Section (Army), 1940–1961.

### **Public Record Office—London**

- CAB21 Cabinet Office and Predecessors: Registered Files, 1916–1965.

- W032 War Office and Successors: Registered Files, 1845–1995.
- W033 War Office: Reports, Memoranda and Papers, 1853–1969.
- W0106 War Office: Directorate of Military Operations and Military Intelligence, Correspondence, 1837–1962.
- WO287 War Office: Confidential Printed Papers, 1904–1949.
- CO537 Colonial Office and Predecessors: Confidential General and Confidential Original Correspondence, 1759–1955.

### **Primary Sources—Official Publications**

- Cavalry Training (Mechanised), Pamphlet no. 1, 1937*, Army Council, War Office, London, 1937.
- Chauvel H. G., *Report of the Inspector-General of the Australian Military Forces*, Albert J. Mullet, Melbourne, 1921.
- Chauvel H. G., *Report of the Inspector-General of the Australian Military Forces*, Albert J. Mullet, Melbourne, 1922.
- Chauvel H. G., *Report of the Inspector-General of the Australian Military Forces*, Albert J. Mullet, Melbourne, 1923.
- Chauvel H. G., *Report of the Inspector-General of the Australian Military Forces*, Albert J. Mullet, Melbourne, 1924.
- Chauvel H. G., *Report of the Inspector-General of the Australian Military Forces*, Albert J. Mullet, Melbourne, 1925.
- Chauvel H. G., *Report of the Inspector-General of the Australian Military Forces*, Albert J. Mullet, Melbourne, 1926.
- Chauvel H. G., *Report of the Inspector-General of the Australian Military Forces*, Albert J. Mullet, Melbourne, 1927.
- Chauvel H. G., *Report of the Inspector-General of the Australian Military Forces*, Albert J. Mullet, Melbourne, 1928.

Chauvel H. G., *Report of the Inspector-General of the Australian Military Forces*, Albert J. Mullet, Melbourne, 1929.

Chauvel H. G., *Report of the Inspector-General of the Australian Military Forces*, Albert J. Mullet, Melbourne, 1930.

*Mechanised and Armoured Formations 1929*, Army Council, War Office, London, 1929.

*Modern Formations 1931*, Army War Council, War Office, London, 1931.

*The Defence Act 1903–1941 and Regulation for the Australian Military Forces and Senior Cadets*, Commonwealth Printing, Melbourne, 1942.

*Year Book Australia*, Australian Bureau of Statistics, Canberra, 1934.

*Year Book Australia*, Australian Bureau of Statistics, Canberra, 1939.

## **Books**

Barker, Theo, *Craftsmen of the Australian Army: The Story of RAEME*, Crawford House Press, Bathurst, 1992.

Bean, C. E. W., *Official History of the War of 1914–1918, vol. 3, The Australian Imperial Forces in France 1916*, Angus & Robertson, Sydney, 1929.

Beaumont, Joan, *Australian Defence: Sources and Statistics*, Oxford University Press, Melbourne, 2001.

Bellamy, Christopher, *The Evolution of Modern Land Warfare: Theory and Practice*, Routledge, New York, 1990.

Bond, Brian, *British Military Policy Between the Two World Wars*, Oxford University Press, London, 1980.

- Burns, Paul, *The Brisbane Line Controversy: Political Opportunism Versus National Security 1942–45*, Allen & Unwin, St Leonards, 1998.
- Childs, David J., *A Peripheral Weapon? The Production and Employment of British Tanks in the First World War*, Greenwood Press, London, 1999.
- Collins, June, *Bandy's Boys: The Darwin Mobile Force*, June Collins Publishers, Melbourne, 1989.
- Coulthard-Clark, C. D., *No Australian Need Apply: The Troubled Career of Lieutenant-General Gordon Legge*, Allen & Unwin, Sydney, 1987.
- Dixon, Norman F., *On the Psychology of Military Incompetence*, Cape, London, 1976.
- Fletcher, David, and Ventham, Philip, *Moving the Guns: The Mechanisation of the Royal Artillery 1854–1939*, HMSO, London, 1990.
- French, David, *Raising Churchill's Army: The British Army and the War Against Germany 1919–1945*, Oxford University Press, New York, 2000.
- Germain, Victor Wallace, *The 'Mechanisation' of War*, Sifton Praed & Co, London, 1927.
- Grey, Jeffrey, *A Military History of Australia*, Cambridge University Press, Melbourne, 1999.
- Grey, Jeffrey, *Australian Brass: The Career of Lieutenant-General Sir Horace Robertson*, Cambridge University Press, Melbourne, 1992.
- Grey, Jeffrey, *The Australian Army*, Oxford University Press, Melbourne, 2001.

- Griffith, Paddy, *Battle Tactics of the Western Front: The British Army's Art of Attack 1916–18*, Yale University Press, New Haven, 1994.
- Gullet, H. B., *Official History of Australia in the War of 1914–1918: The Australian Imperial Force in Sinai and Palestine, 1914–1918*, Angus & Robertson, Sydney, 1923.
- Hamill, Ian, *The Strategic Illusion: The Singapore Strategy and the Defence of Australia and New Zealand 1919–1942*, Singapore University Press, 1981.
- Handel, Paul, *Dust, Sand and Jungle: A History of Australian Armour During Training and Operations, 1927–1948*, RAAC Memorial and Army Tank Museum, Puckapunyal, 2003.
- Hall, R. J., *The Australian Light Horse*, W. D. Joint & Company, Melbourne, 1968.
- Harris, J. P., *Men, Ideas and Tanks: British Military Thought and Armoured Forces, 1903–1939*, Manchester University Press, Manchester, 1995.
- Higham, Robin, *Armed Forces in Peacetime: Britain, 1918–1940, A Case Study*, G T. Foulis & Co, London, 1962.
- Hill, Alec, J., *Chauvel of the Light Horse*, Melbourne University Press, Melbourne, 1978.
- Hopkins, Ronald N. L., *Australian Armour: A History of the Royal Australian Armoured Corps 1927–1972*, Australian War Memorial and Australian Government Publishing Service, Canberra, 1978.
- Horner, David, *Inside the War Cabinet: Directing Australia's War Effort 1939–45*, Allen & Unwin, St Leonards, 1996.
- Horner, David, *The Gunners: A History of Australian Artillery*, Allen & Unwin, St Leonards, 1995.

- House, Jonathan M., *Combined Arms: Warfare in the Twentieth Century*, University Press of Kansas, Lawrence, 2001.
- Howard, Michael, *The Continental Commitment: The Dilemma of British Defence Policy in The Era of The Two World Wars*, The Ashfield Press, London, 1989.
- Hunter, Douglas J., *My Corps Cavalry: A History of the 13th Light Horse Regiment*, Slouch Hat Publications, Melbourne, 1999.
- Kerr, Colin, *Tanks in the East: The Story of an Australian Cavalry Regiment*, Oxford University Press, Melbourne, 1945.
- Larson, Robert H., *The British Army and the Theory of Armoured Warfare 1918–1940*, University of Delaware Press, Newark, 1984.
- Lindsay, Neville, *Equal to the Task, vol. 1, The Royal Australian Service Corps*, Historia Productions, Kenmore, 1992.
- Lodge, Brett, *Lavarack: Rival General*, Allen & Unwin, St Leonards, 1998.
- Long, Gavin, *Australia in the War of 1939–1945, Series I (Army), To Benghazi*, Australian War Memorial, Canberra, 1952.
- Macksey, Kenneth, *Armoured Crusader: A biography of Major-General Sir Percy Hobart*, Hutchinson, London, 1967.
- Marquess of Anglesey, *A History of the British Cavalry 1816 to 1919*, vol. 8, Leo Cooper, London, 1997.
- McCarthy, John, *Australia and Imperial Defence*, University of Queensland Press, St Lucia, 1976.
- Mellor, D. P., *Australia in the War of 1939–1945: Series 4 (Civil), The Role of Science and Industry*, Australian War Memorial, Canberra, 1958.

- Mitchell, Elyne, *Light Horse: The Story of Australia's Mounted Troops*, Macmillan, Melbourne, 1978.
- Moore, Darren, *Duntroon: A History of the Royal Military College of Australia 1911–2001*, Royal Military College of Australia, Canberra, 2001.
- Palazzo, Albert, *Seeking Victory on the Western Front: The British Army and Chemical Warfare in World War 1*, University of Nebraska Press, London, 2000.
- Palazzo, Albert, *The Australian Army: A History of its Organisation 1901–2001*, Oxford University Press, Melbourne, 2001.
- Perlmutter, Amos, *The Military and Politics in Modern Times: On Professionals, Praetorians, and Revolutionary Soldiers*, Yale University Press, New Haven, 1977.
- Strachan, Hew, *The Politics of the British Army*, Clarendon Press, Oxford, 1997.
- Stone, John, *The Tank Debate: Armour and the Anglo–American Military Tradition*, Hardwood Academic Publishers, Sydney, 2000.
- Vamplew, Wray (ed.), *Australian Historical Statistics*, Fairfax, Syme & Weldon Associates, Sydney, 1987.
- Van Creveld, Martin, *Technology and War: From 2000 B.C. to the Present*, The Free Press, London, 1989.
- Vernon, P. V., *The Royal New South Wales Lancers, 1885–1960*, Halstead Press, Sydney, 1961.
- Wilcox, Craig, *For Hearths and Homes: Citizen Soldiering in Australia 1854–1945*, Allen & Unwin, St Leonards, 1998.

## Chapters—Books

- Badsey, Stephen, 'Cavalry and the Development of Breakthrough Doctrine', in Paddy Griffith (ed.), *British Fighting Methods in the Great War*, Frank Cass, London, 1996, pp. 138–74.
- Bond, Brian and Murray, Williamson 'The British Armed Forces 1918–39', in Allan R. Millet and Williamson Murray (eds), *Military Effectiveness*, vol. II, *The Interwar Period*, Allen & Unwin, Sydney, 1988, pp. 98–130.
- Horner, David, 'Australian Army Strategic Planning Between the Wars', in Peter Dennis and Jeffrey Grey (eds), *Serving Vital Interests: Australia's Strategic Planning in Peace and War*, School of History, University of New South Wales, Australian Defence Force Academy, Canberra, 1996, pp. 75–101.
- Farrell, Theo and Terriff, Terry, 'The Sources of Military Change', in Theo Farrell and Terry Terriff (eds), *The Sources of Military Change: Culture, Politics, Technology*, Lynne Rienner, Boulder, Colorado, 2002, pp. 3–20.
- Gooch, John, 'Military Doctrine and Military History', in John Gooch (ed.), *The Origins of Contemporary Doctrine*, Strategic and Combat Studies Institute, London, 1997, pp. 5–7.
- Graham, Dominick, 'Observations on the Dialectics of British Tactics 1904–45', in Ronald Haycock and Keith Neilson (eds), *Men, Machines & War*, Wilfrid Laurier University Press, Ontario, 1988, pp. 49–74.
- Graham, Dominick, '*Sans Doctrine*: British Army Tactics in the First World War', in Timothy Travers and Christon Archer (eds), *Men at War: Politics, Technology and Innovation in the Twentieth Century*, Precedent, Chicago, 1982, pp. 69–92.
- Murray, Williamson, 'Armoured Warfare: The British, French, and German Experiences', in Williamson Murray and Allan R.

Millet (eds), *Military Innovation in the Interwar Period*, Cambridge University Press, London, 1996, pp. 6–49.

Sligo, Graeme, ‘The Development of the Australian Regular Army, 1944–1952’, in Peter Dennis and Jeffrey Grey (eds), *The Second Fifty Years: The Australian Army, 1947–1997*, School of History, University of New South Wales, Australian Defence Force Academy, Canberra, 1997, pp. 22–47.

Stone, John, ‘The British Army and the Tank’, in Theo Farrell and Terry Terriff (eds), *The Sources of Military Change: Culture, Politics, Technology*, Lynne Rienner, Boulder, Colorado, 2002, pp. 187–204.

Winton, Harold R, ‘On Military Change’, in David R. Mets and Harold R Winton (eds), *The Challenge of Change: Military Institutions and New Realities, 1918–1941*, University of Nebraska Press, Lincoln, 2000, pp. xi–xix.

Winton, Harold R., ‘Tanks, Votes and Budgets: The Politics of Mechanisation and Armoured Warfare in Britain, 1919–1939’, in David R. Mets and Harold R. Winton (eds), *The Challenge of Change: Military Institutions and New Realities, 1918–1941*, University of Nebraska Press, Lincoln, 2000, pp. 74–107.

### **Articles—Journals**

Croft, W. D., ‘The Influence of Tanks Upon Tactics’, *RUSI Journal*, vol. LXVII, no. 465, February 1922, pp. 39–53.

Hambro, Sir Percy, ‘The Horse and Machine in War’, *RUSI Journal*, vol. LXXII, no. 485, February 1927, pp. 85–100.

Eady, H. G., ‘The Tank: Full Circle Goes the Wheel’, *RUSI Journal*, vol. LXXI, no. 481, February 1926, pp. 81–93.

French, David, ‘The Mechanisation of the British Cavalry Between the World Wars’, *War in History*, vol. 10, no. 3, 2003, pp. 296–320.

- Pile, Sir Frederick, 'The Development of Armoured Fighting Vehicles', *RUSI Journal*, vol. LXXVI, no. 502, May 1931, pp. 377–95.
- MacLeod, Ross, G., 'The Utility of the Tank', *RUSI Journal*, vol. LXXVI, no. 504, November 1931, pp. 786–94.
- Palazzo, Albert, 'Failure to Obey: The Australian Army and the First Line Component Deception', *Australian Army Journal*, vol. 1, no. 1, June 2003, pp. 81–96.
- Tilly, J. C., 'Some Thoughts on Tanks', *RUSI Journal*, vol. LXXII, no. 487, August 1927, pp. 535–540.
- Twomey, Paul, 'Small Power Security Through Great Power Arms Control—Australian Perceptions of Disarmament, 1919–1930', *War & Society*, vol. 8, no. 1, May 1990, pp. 71–99.

## **Theses**

- Armstrong, George P., *The Controversy Over Tanks in the British Army 1919 to 1933*. PhD Thesis, King's College, University of London, 1976.
- Hacker, Barton C., *The Military and the Machine: An Analysis of the Controversy over Mechanisation in the British Army, 1919–1939*, PhD Thesis, Doctorate of Philosophy, Department of History, University of Chicago, 1968.
- McNarn, M. R., *Sir Robert Archdale Parkhill and Defence Policy 1934–1937*, BA (Hons) Thesis, Department of History, UNSW, 1979.
- Neumann, Claude, *Australia's Citizen Soldiers, 1919–1939: A Study of Organisation, Command, Recruiting, Training, and Equipment*, MA Thesis, Department of History, UNSW, 1978.
- Northey, Jasmin, *The Limitations of Office: The Role of the Chiefs of the General Staff During the Interwar Period*, BA (Hons) Thesis, Department of History, UNSW, 1993.

Ross, A. T., *The Arming of Australia: The Politics and Administration of Australia's Self Containment Strategy for Munitions Supply 1901–1945*, PhD Thesis, Doctorate of Philosophy, Department of History, UNSW, 1986.

Winton, Harold, R., *General Sir John Burnett-Stuart and British Military Reform 1927–1938*. PhD Thesis, Department of Modern History, Stanford University, 1977.

### **Newspaper Articles**

Anon, 'A Tragic Contrast: Cairo and Torquay', *The Argus*, 14 February 1940.

Anon, 'Cavalry is our lost legion', *Daily Telegraph*, 27 May 1942.

Anon, 'Light Horse Divisions Hold Place in Australian Defences', *Christian Science Monitor*, 10 May 1941.

Anon, 'Why Australia Needs Light Horse', *The Courier Mail*, 1 April 1940.

Blunden, Godfrey, 'Horseman Can Smash Tanks: Strike Swift, Sharp Blows at Infantry', *Daily Telegraph*, 26 May, 1942.

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## BOOKS

- Wahlert, Lieutenant Colonel G. (ed.), *Australian Army Amphibious Operations in the South-West Pacific: 1942–45*, Army Doctrine Centre, Department of Defence, Puckapunyal, Vic., 1995.
- Dennis, Peter and Grey, Jeffrey (eds), *From Past to Future: The Australian Experience of Land/Air Operations*, University of New South Wales, Australian Defence Force Academy, Canberra, 1995.
- Horner, David (ed.), *Armies and Nation Building: Past Experience—Future Prospects*, Australian National University, Canberra, 1995.
- Dennis, Peter and Grey, Jeffrey (eds), *Serving Vital Interests: Australia's Strategic Planning in Peace and War*, University of New South Wales, Australian Defence Force Academy, Canberra, 1996.
- Malik, Mohan (ed.), *The Future Battlefield*, Deakin University, Geelong, Vic., 1997.
- Smith, Hugh (ed.), *Preparing Future Leaders: Officer Education and Training for the Twenty-first Century*, University of New South Wales, Australian Defence Force Academy, Canberra, 1998.
- Evans, Michael (ed.), *Changing the Army: The Roles of Doctrine, Development and Training*, Land Warfare Studies Centre, Duntroon, ACT, 2000.
- Evans, Michael and Ryan, Alan (eds), *The Human Face of Warfare: Killing, Fear and Chaos in Battle*, Allen & Unwin, Sydney, 2000.
- Evans, Michael, Parkin, Russell, and Ryan, Alan (eds), *Future Armies, Future Challenges: Land Warfare in the Information Age*, Allen and Unwin, Sydney, 2004.
- Parkin, Russell (ed.), *Warfighting and Ethics: Selected papers from the 2003 and 2004 Rowell Seminars*, Land Warfare Studies Centre, July 2005