

Policy, prophecy and practice: air power between the wars

1. Strategic air power



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Between the Great War and World War II, air power theory and practice evolved as did aviation technology. This paper reviews the context for these developments and the resulting changes in the employment of air power strategically during the inter-war period.

Key words: air power; 1919 – 1939; funding; strategic threats; national strategies; aviation technology; influential leaders; Great War; inter-service rivalry; operational experience; strategic bombing; target selection.

Studying military aviation in the inter-war decades sheds light on the extent to which air power developed during the Great War and helps to contextualise what then happened in the air between 1939 and 1945. In the inter-war period, services grappled with the challenge of integrating new technologies and developing capabilities, while facing political and fiscal pressures and commitments to the small-scale and low-intensity conflicts that charted the deterioration of international relations during the period. It is a period to which defence professionals should devote serious study and thought.

This paper will identify the contextual factors that influenced air forces and air power thinking in the inter-war decades. It will then consider one of three significant applications of air power in the inter-war period, namely, strategic bombing. The remaining two – the use of air power in an operational (or combined arms) context in conventional warfare; and the employment of aircraft in what we now describe as asymmetric warfare – will be addressed in Part 2, along with identification of some of the lessons that air forces of the period learned. While not providing comprehensive coverage of the topic, I hope the paper will introduce some useful insights and suggest directions for further reading.

Context

Boyne (2003) identified five factors that shaped air power between the world wars: the level of funding that governments allocated to defence and, in particular, aviation; the strategic threats that governments perceived between the wars; the national strategies that governments devised to address these threats; aviation technology; and influential leaders in air services and governments. To Boyne's five factors, I add three others:

the influence of the Great War; inter-service rivalry; and operational experience.

Funding

Generally speaking, the liberal democracies of Britain, France and the United States sharply curtailed military spending after the Great War and kept defence budgets lean until the mid-1930s, severely limiting their aviators from putting ideas into practice and developing the technical and tactical capabilities to support their doctrines. Authoritarian regimes such as Italy, Germany and the Soviet Union invested earlier and more generously in their militaries. In many respects, they were better equipped, both technologically and doctrinally, for World War II.

Strategic Threats and National Strategies

The strategic threats that governments perceived and the national strategies they devised to address these threats led to contrasting approaches to air power. British policymakers, surrounded by sea (but within range of air attack from the continent) and with a vast empire, hoped to avoid another European war altogether and, if one came, planned to use sea and air power to exert strategic pressure. Hence, the Royal Air Force (RAF) provided squadrons to garrison the fringes of the empire while developing fighter and bomber commands to defend the British Isles.

Germany, meanwhile, accepted the prospect of a future war with its continental neighbours and pinned its hopes on avoiding another protracted trench stalemate. Impressed by the mobility of allied forces in 1918, it emphasised the development of operational air power to assist the army in achieving rapid and decisive success on the battlefield.

In contrast, for reasons germane to their own geo-strategic circumstances, the Japanese and United States (US) services focused on developing carrier-borne aviation to operate in the Pacific.

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Aviation Technology

Aviation technology evolved rapidly, especially during the 1930s, providing air forces with enhanced speed, endurance, ordnance carrying capabilities and communications. Technological limitations, however, tempered the predictions of some air power theorists, such as Italian Giulio Douhet, who had predicted that air power could achieve strategic victory on its own. Some historians contend that air forces failed to keep up doctrinally, tactically and organisationally as technology evolved – and did not catch up until mid-way through World War II. In short, air forces of the period had brand new toys but, as yet, lacked the instructions to use them most effectively.

Influential Leaders

The work of influential leaders in air services and governments also was significant, though a lack of funding, technology and incongruence with national strategic priorities relegated the famous air power prophets, such as Douhet, the American Billy Mitchell and the RAF's Hugh Trenchard, to having much less of an impact on reality than their prominence in the historical literature might suggest.

Influence of the Great War

With few exceptions, the 1914-18 air war was one waged in support of surface operations; in 1914 all the belligerents' air services were part of their armies and navies and only in April 1918 did the British form the world's first independent air service, the RAF. The Great War also marked the beginnings of strategic air power. Germany's bombing of Britain, first with Zeppelins and later multi-engined bombers, played a significant role in the British government's decision to establish a separate air service capable of projecting force independently of sea and land operations.

The experiences of 1914-18 cast a long shadow over the air forces of the inter-war decades. Overy (1987: 5) contends that air power's evolution was fixed firmly in an understanding of what aviation had demonstrated itself capable of in the Great War. In many ways, the air forces of the inter-war decades prepared to fight the last war over again.

Inter-service Rivalry

RAF leaders cherry-picked lessons from the recent past that best suited their present aspirations to keep control of air assets away from the army and navy, arguing that the campaigns of 1918 had demonstrated the need for air assets to be centralised and to remain under air force command and control. At the same time, they relegated army co-operation to a low priority, despite having excelled at it in 1918.

Following the British lead, the Italians and Germans established independent air forces, but whereas Germany's Luftwaffe enjoyed a productive working relationship with the army, developing effective doctrine for joint operations, the RAF's bitter rivalry with its sister services hindered its development of operational air power.

In other parts of the world, the army and navy maintained their own aviation arms, although this did not guarantee effective co-operation between air and ground forces either. The US Army Air Corps (USAAC) developed strategic bombing and relegated air support to the fringes. Any air support thinking was in the context of the need to repel a seaborne invasion of the US, not in supporting an expeditionary force. This is an example of national strategy – isolationism in this instance – exerting a stronger influence on the development of an air force than theory or even the service's integration with the army.

Operational Experience

Between 1919 and 1939, air forces were involved in asymmetric wars and conventional conflicts. The most important asymmetric wars were the RAF's experiences in the Middle East and Iraq, where it used 'air control' methods to suppress rebellion; the Spanish and French campaigns against the Moroccan Berbers in the mountainous Rif region; and the US Marine Corps' effective use of air power in Nicaragua.

European and Japanese air services also participated in conventional warfare, most notably through the Italian conquest of Ethiopia in 1935; the Spanish Civil War between 1936 and 1939, to which the German, Italian, Soviet and French governments contributed aviation units; and the Japanese invasion of China, which began in 1937. Finally, beginning shortly after Nazi Germany attacked Poland in 1939 and lasting three months was the Soviet Union's 'Winter War', in which it unsuccessfully attempted to annex Finland.

Air Power's Roles

By 1939, it had been established in both theory and practice that air power could play a decisive role strategically and operationally in conventional warfare and also in asymmetric conflict. We will now consider strategic air power – essentially long-range strategic bombing.

Strategic Bombing

As an idea, strategic bombing predated the Great War and, indeed, even the invention of powered flight. In the late 19th and early 20th centuries, writers of speculative science fiction such as Jules Verne and H. G. Wells imagined aircraft devastating civilian populations and bringing down governments without the intervention of armies and navies. With slightly more restrained imaginations, military theorists of the day predicted the significant impact aeroplanes would have on warfare and acknowledged the strategic role they might play. Notably in Britain, the government's decision to invest in military aviation before 1914 stemmed from the threat Germany's Zeppelin fleet posed to the British homeland.

In some respects, the Great War validated these forecasts of strategic air power. As the British had anticipated, German airships attacked targets in the United Kingdom in a campaign that began in early 1915 and extended into the war's final year. Zeppelins shouldered the burden of raids in 1915 and 1916,

but the Germans switched to twin-engined bombers in 1917. The Allies were slower to engage in a concerted strategic bombing campaign, only establishing an independent air force in late 1917 to attack industrial targets in Germany. It was only really just getting started when the war ended.

Strategic bombing had not produced the cataclysmic results forecast before the war. Losses to both German and Allied bomber forces had been heavy and the technical difficulties manifest; finding long range targets proved hard enough, while reliably and accurately hitting them outstripped the technical capabilities of the day. In four years, the Germans only managed to drop 300 tons of bombs on Britain. This killed 1400 people and caused less damage, in pounds sterling, than rats inflicted on public buildings during the war years (indeed one wonders if the War Office might have been better to invest in cats than anti-aircraft guns). A post-war British survey of targets in Germany likewise revealed disappointing results. The best that could be said was that bombing had affected morale though this, of course, was difficult to quantify.

Nevertheless, all major powers' air forces came to develop a doctrine for long-range bombing and most entered World War II with some capability to attack strategic targets by air. The idea, however, had the greatest impact on the RAF and USAAC – a result of Britain's and the US's geographic isolation, their isolationist and deterrence-focused strategies, and the pressure aviation leaders felt to emphasise a distinct role for air power in the face of inter-service rivalry. The RAF and USAAC would start World War II poised to fight a strategic air offensive that would involve first achieving air superiority and then bombing targets believed crucial to the enemy state's capacity to wage war: its economy, industry and the morale of its civilian population. That is not to say British and American airmen neglected other air power roles entirely – or indeed, that they were even well equipped for strategic bombing (they were not). It is just that they focused on strategic air power and expected to employ their forces that way.

Target: Precision Bombing of Critical Nodes

Despite their shared emphasis on strategic bombing, American and British air leaders did diverge on the question of which targets to prioritise. In the USAAC, the idea of precision bombing predominated, underwritten by the remarkably accurate Norden bombsight introduced in 1931 and the 'industrial web' theory. The latter posited that highly complex modern industrial states had weak points, or nodes, that, if destroyed, could precipitate an economic collapse that would render an enemy nation incapable of sustaining further military operations. When the US went to war in 1941, Army Air Corps doctrine identified Germany's rail system and power grid as the critical nodes on which the Nazi state's war industry and, to a large extent, the comfort of its citizens, depended.

Target: Enemy Morale

In contrast, RAF thinking reflected a traditional British Army emphasis on the importance of morale. Throughout

the Great War, British air policy, based on the notion that aircraft were inherently offensive weapons, had been underpinned by the notion that air power posed a far greater threat to morale than it did to matériel. Indeed, by 1921, the RAF's chief, Sir Hugh Trenchard, declared the psychological impact of bombing to be 20 times that of what it could achieve against buildings and infrastructure. By implication, this meant that strategic bombing represented a means by which Britain could deter continental adversaries and, if necessary, employ force against them. At the same time, however, it presented Britain with a new and dangerous threat – enemy strategic bombing of British cities:

“Unless we can put up an adequate air defence we must be prepared for the dislocation of national life to a degree unthought of in the past ... The Navy and the Army cannot materially assist us to face this attack, and no improvements in guns or other passive defences will assist our security. In attack is our best defence, and we must have powerful air squadrons to carry the war into the enemy's country, to attack his forces in the air and his personnel and establishments on the ground, and thus establish our aerial superiority.” (Trenchard, quoted by Harvey 2008: 470)

It was on this appreciation of the importance of offensive strategic air power that the RAF justified its existence independent of the army and navy in the 1920s. The perceived psychological benefits of bombing, along with the RAF's lack of a precision targeting capability, provided the foundations of Bomber Command's controversial area bombing policy, in which workers and not their workplaces were the primary targets. British plans to target German civilian morale pre-dated the invasion of France in 1940. By March 1942, this had evolved into a target list of 58 German cities with populations over 100,000, whom the RAF hoped to de-house and terrorise over the following six months.

In spite of Trenchard's rather traditionally British axiom that 'attack represents the best defence', and his scepticism that fighters could stop bombers from getting through to their targets, the RAF did anticipate the need to defend British skies from an enemy bombing offensive. Some on Trenchard's staff asserted that fighters, assisted by radio and sound locators, could inflict losses of a serious enough nature on a bomber force to, over time, dissuade an enemy from using them to attack Britain. From 1923, the RAF was to have a home defence air force – later re-organised as Fighter Command – comprising a third of the RAF's fighting strength. This target was not met during the inter-war years but, nevertheless, between 1926 and 1939, home defence fighter units made up 20 per cent of the RAF's strength and represented its second largest component. Fortunately for the British people, in the 15 years leading up to 1940, the Air Ministry treated home defence seriously and invested in it relatively generously.

A legitimate criticism, however, can be made of the lack of attention that both US and British air leaders gave to the technical and tactical aspects that their respective doctrines required. By 1939, the grand concepts of strategic bombing stood on foundations sparse with

detail; the goal was clear but the means of achieving it was not. In the RAF, thinking about strategic bombing characteristically rested on the assumption that the ability to drop bombs on long distance targets was enough to deter war, or, if that failed, to secure decisive victory with minimal commitment of land forces. As Ferris (Gray and Cox 2002: 25) puts it: "The need for detailed planning was sapped by the concept that bombing would win quickly and through metaphysical means, by wrecking the 'morale' of a 'nation'". Tight defence budgets, small, insular air services that encouraged group-think, and short-sighted national strategies all contributed to this failing. Less explicable is the American and British air leaders' failure to learn from the examples of strategic bombing that occurred in the 1920s and 30s.

Target: Morale – Experience in Conflicts between the Wars

European air forces targeted civilians during the asymmetric wars that they fought in Africa and the Middle East between 1919 and 1939. These were campaigns that saw force employed against native populations with little restraint, and in which European airmen had undisputed air supremacy. Despite these ostensibly ideal conditions for strategic bombing to demonstrate its potential, the results typically failed to live up to expectations. The Spanish, in 1924 during their conquest of Morocco, in five months their airmen dropped 24,000 gas and fragmentation bombs, deliberately targeting villages, crops and marketplaces. Contemporary observers noted with awe the ability of the native population to emerge from these raids with the will to continue resisting Spanish occupation. It took 300,000 Spanish troops to defeat the 20,000 Moroccan insurgents. Likewise, in 1926, the RAF bombarded the city of Slemani, centre of a Kurdish nationalist insurgency, for seven months without any discernible impact. The British only restored order with the intervention of land forces.

Larger conflicts too, during the late 1930s, called into question the faith that US and British air staff had in strategic air power. The Spanish Civil War, the Second-Sino Japanese War and the Soviet invasion of Finland all featured strategic bombing to an historically unprecedented extent. In all cases – including the infamous devastation of Guernica (Basque region of Spain) by 100 German and Italian bombers in April 1937 – attacking civilians contributed little, if anything, to a conflict's outcome. Rather, operational success on the battlefield exerted the greatest influence. Indeed, some observers even pointed to the manner in which the Japanese bombing of cities such as Nanjing increased the resolve of enemy civilians.

The Soviets probably started World War II with the clearest indication that strategic bombing could not, in itself, prove decisive. During their 1939 invasion of Finland – the 'Winter War' – the Soviet air force's 2000 aircraft faced just 200 Finnish aircraft. With impunity, the Soviets attacked some 2075 civilian targets in three months, destroying 2000 buildings and damaging 5000 others, but only killing 650 civilians – that is, six per day

throughout the campaign. Finnish industry lost only 5 per cent of man-hours – hardly the 'dislocation of national life' that Trenchard had forecast in the early 1920s.

Conclusion

Between the wars, air power theory and practice were greatly influenced by Great War and subsequent operational experiences and evolved differentially among nation-states within constraints of funding, perceived strategic threats, consequent national strategies, technological advances and limitations, leadership both military and political, and inter-service rivalry.

British and the United States theorists, in particular, championed long-range strategic bombing, either by precision bombing of critical nodes (US) or targeting enemy morale (Britain). Strategic bombing of enemy populations was employed in colonial conflicts by Britain and Spain and by various European and Asian powers in limited conventional wars. German, Soviet, Italian and French air leaders emerged from these wars of the late 1930s resolved to focus on the development of air power's army support role. Meanwhile the Americans and British largely disregarded strategic bombing's apparent limitations and continued to prepare to fight a strategic air offensive.

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