

THE ROYAL NAVY AND THE ROYAL AIR FORCE IN ANTI-SUBMARINE
WARFARE POLICY, 1918-1945.

By

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ABSTRACT

This thesis examines the roles played by the Royal Navy and the Royal Air Force in the formulation of Anti-Submarine Warfare (ASW) policy from 1918 to 1945. Its focus is on policy relating to the use of air power, specifically fixed-wing shore-based aircraft, against submarines. After a period of neglect between the Wars, airborne ASW would be pragmatically prioritised during the Second World War, only to return to a lower priority as the debates which had stymied its earlier development continued. Although the intense rivalry between the RAF and RN was the principal influence on ASW policy, other factors besides Service culture also had significant impacts. These included the interface between the military and political spheres and the impact of key individuals on policy setting. Within the RAF, intra-Service debates on the appropriate use of air power influenced policy direction, as did the exploitation of the new technologies so fundamental to ASW, which both shaped and were shaped by policy. By examining these factors this thesis will show the varying influence exerted by the RN and RAF in policy setting for the use of air power in ASW.

DEDICATION

This thesis is dedicated to the memory of all those who served in the anti-submarine campaign from 1939 to 1945.

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ABBREVIATIONS

AHB	Air Historic Branch
AOC-in-C	Air Officer Commanding in Chief
ASDIC	Allied submarine Detection Investigation Committee; the original term for sonar though there is some debate as to whether this was in fact an acronym. ¹
ASW	Anti-Submarine Warfare
CID	Committee of Imperial Defence
FAA	Fleet Air Arm
ORS	Operational research Section
RAF	Royal Air Force
RN	Royal Navy
RNAS	Royal Naval Air Service
SLOCs	Sea Lines of Communications

¹ See G. Franklin, *Britain's Anti-Submarine Capability, 1919-1939* (London, 2003) pp. 57

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CHAPTER ONE

Introduction

As submarines emerged as a significant weapon in the First World War, aircraft established their ability in countering this new threat. The formation of the Royal Air Force (RAF) in 1918 meant that maritime air power was no longer the natural preserve of the Royal Navy (RN). This left airborne Anti-Submarine Warfare (ASW) as a capability placed between these two Services, which were competing for position in an austere post-war economic climate.¹ This thesis will aim to examine the roles of the RN and the RAF in the formulation of airborne ASW Policy through to the end of the Second World War, and the impact this had on the evolution of the use of air power to counter subsurface threats.

Examination will show the history of airborne ASW to be one of subjugation to other platforms. The RN promoted the use of naval vessels rather than aircraft in ASW, whilst the RAF would often promote other roles for aircraft, most notably bombing. The Second World War proved the inadequacies of this policy approach, which had stifled the development of airborne ASW in the interwar period, as the losses inflicted by German U-boats threatened Britain's ability to continue in the War. This pressure brought about a pragmatic policy reversal to place more emphasis on the use of air power in ASW, leading ultimately to victory in the trade defence war. The underlying factors which had retarded the earlier development of airborne ASW remained, however, and came to prominence once again in the closing period of the War and after.

¹Anti-Submarine was originally abbreviated to A/S, for the purposes of consistency the abbreviation ASW will be used throughout this work unless in direct quotation. This thesis will consider ASW as part of a strategic model of defence, rather than in relation to the self-defence of naval units.

Airborne ASW formed a natural convergence of interest between the RAF and the RN and as such formed a natural battleground for the rivalries between the two Services. There are, however, several other aspects to the roles played by the RN and RAF in this policy area beyond this rivalry. These include the wider structure of defence and its interface with its political masters via the various ministries and committees prior to the formation of a Ministry of Defence. Also of relevance were the structures and cultures present in the Services largely as a result of the RAF's battle for continued existence in the interwar period and intra-Service rivalries within the RAF centred on the most appropriate use of air power. Within these factors other elements such as the disproportionate impact of key individuals and the role of new technologies served to further colour the dysfunctional relationships within in the defence organisation between the RN and the RAF as well as between the Services and their political leaders.

Policy and Structures

Prior to further examination it is necessary to review and define the meaning of the term 'policy'. Policy is extant at a variety of levels throughout an organisation as large and cumbersome as the British military and the level at which it is being viewed serves to colour the definition of the term. Looking at the interplay at the senior levels of decision making is the most useful approach to understanding the interaction between the RN and RAF. It must be noted however that the organisational structure at play is not consistent through the period under discussion. Whilst the grand strategic level of policy making remains the preserve of politicians, the relative control exercised at the strategic level shifts over time. During the Second World War there is considerable direct involvement by the cabinet and ministries,

especially Churchill as Prime Minister, in military decision making. This contrasted to peacetime when the strategic management of military affairs is more directly controlled by senior military officers and officials. This shift in structure is reflected in the setting and enacting of policy, hence a relatively wide reaching definition of this term must be used. For the purpose of this thesis therefore, policy will be taken to cover the attitudes, actions and intended plans of the government, at Prime-ministerial, Cabinet and Ministry level as well as the senior military apparatus reaching down to RAF command level and its RN equivalent. This approach is consistent with that taken in the standard works on interwar policy for both the RAF by H. Montgomery-Hyde and the RN by S. Roskill; whilst these works were produced some time ago they are still the most useful in examining this area.²

The Literature

ASW has been widely written on, though usually from a tactical rather than a policy perspective. The largest body of relevant literature is historical, which is naturally skewed to texts covering the two World Wars. It is useful to categorise these into official histories, academic texts, biographical works and popular narrative-type histories in order to understand what each can offer in the investigation of this subject.

Official histories which include ASW cover a variety of subjects from entire conflicts to specific battles. Whilst often based on detailed official records, they hold the inherent

²See H. Montgomery Hyde, *British Air Policy Between the Wars*. (London: Heinemann, 1976), p. xiii, S. W. Roskill, *Naval Policy Between the Wars Vol.1* (London: Collins, 1968) and S. W. Roskill, *Naval Policy Between the Wars Vol.2*, (London: Collins, 1976), whilst Roskill does not provide a definition as succinct Montgomery-Hyde's the subject is approached in the same manner.

disadvantage of potentially including the agenda of the organisation sponsoring the work.³ A potential benefit of this is that, providing this natural bias is taken into consideration, they can be used to understand the view of events at an organisational level. The overarching texts of this type include the *Grand Strategy* series, dealing with the 1930s and the entire Second World War period.⁴ At a policy level, *Grand Strategy* provides details of the various expansion schemes for the RAF.⁵ Analysis of the subsurface threat and the lack of aircraft to counter it are included in the naval strategy sections, in line with the contemporary prevailing view of the RN as having prime responsibility for ASW.⁶ Likewise, within the conflict itself, the focus is on the convoy system and the role of escorting surface ships.⁷ The interactions between the RN and RAF in policy setting are alluded to as showing the ‘heights of inter-service bitterness’, though this is not examined in detail.⁸ The nature of variations between official histories of differing organisations can be seen by an opposing claim in the RN text, *The War at Sea*, that there was never any ‘ill-feeling between the two services’.⁹ This disagreement as to the extent of inter-Service discord will be seen again at the peak of ASW policy setting with the divergence of opinion over the motivating factors for the formation of the Anti-U-boat Warfare Committee in 1942. The Air and Naval Historic Branch narratives form another strand of official histories which must be treated with caution as, despite being

³For example of this see CAB 42/1/18 and CAB 103/97 for the standing orders of the Committee of Imperial Defence (CID) Histories section. For more on official histories see C. Goulter, ‘British Official Histories of the Air War’ in J. Grey (Ed.), *The Last Word?*, (London: Praeger, 2003).

⁴B. Collier, *The Defence of the United Kingdom*, (London: HMSO, 1957), also aspires to a neutral Inter-Service stance though in effect it defers to the RN viewpoint explicitly stating that the RN official history has suitably covered the U-boat conflict.

⁵N. H. Gibbs, *Grand Strategy: Vol.1*, (London: HMSO, 1976), pp. 531-601

⁶Gibbs, *Grand Strategy: Vol.1*, pp. 367-368, 433-434

⁷J. R. M. Butler, *Grand Strategy Vol.2*, (London: HMSO, 1957)

⁸*Ibid.*, p. 24

⁹S. W. Roskill, *The War at Sea Vol.2*, (London: HMSO, 1956), p. 90

based on often classified primary sources, they must still be considered as secondary sources due to their authors' selectivity and the sponsoring Service's input.¹⁰

There are academic texts covering the entire time period of this thesis, several of which are relevant to the use of air power in ASW. Standard texts on inter-war policy exist for both the RN and the RAF, though these do not focus specifically on ASW.¹¹ They provide an overview of the formation of the RAF and the various challenges it faced, including rivalry with the other Services; ASW and inter-Service relations in this area are not covered in detail.

The body of literature relating to the Second World War is naturally far larger though, again, general texts yield little of use to this research area.¹² Specialist texts on the anti-U-boat campaign provide detailed narratives which, while they make mention of the various policy debates, do not analyse them in detail or give significant weight to air power's contribution to this battle.¹³ Unsurprisingly, those focused on Coastal Command are of most use in examining airborne ASW, though again these must be assessed on individual merit. *The Cinderella Service*, which provides an in-depth analysis of Coastal Command's operations though the author's experiences as a front-line maritime aviator, heavily influences

¹⁰See AIR 41/45, 41/73, 41/47 41/48, 41/74 Air Historic Branch Narrative, The RAF in Maritime War Vol. 1-4, ADM 199/2377-2380 Royal Naval Historic Branch, Preliminary narrative for official history The War at Sea Vol. 1-4.

¹¹Montgomery Hyde, *British Air Policy* and Roskill, *Naval Policy Vol.1 and 2*, the latter must be viewed in light of the fact that Roskill also authored the RN official history of the Second World War, *The War at Sea Series*. One of the most useful accounts is J. Terraine, *The Right of the Line*, (London: Hodder & Stoughton, 1985), pp. 223-250, 401-458, which includes information on airborne ASW for the duration of the period, J. Terraine, *Business in Great Waters*, 2nd ed., (London: Mandarin, 1990), takes ASW as its topic and includes the inter-war period though it is not focused on the policy dimension.

¹² For example R. J. Overy, *The Air War 1939-1945*, (London: Europe Publications, 1980), pp. 70-73, mentions but fails to examine policy debates, see also N. Macmillan, *The Royal Air Force in the World War Vol.1*, (London: Harrap, 1942), pp. 122-142 N. Macmillan, *The Royal Air Force in the World War Vol.4*, (London: Harrap, 1950), pp. 52-72 which focuses on providing a narrative tactical history of the use of air power in the conflict. For equivalent journal articles see G. C. Barrett 'Coastal Command' *Royal United Services Institute Journal* 87 (1942) and A. B. Ellwood, 'Coastal Command' *Royal United Services Institute Journal* 89 (1944).

¹³ See P. Padfield, *War Beneath the Sea*, (London: Pimlico, 1995) and Terraine, *Business in Great Waters*.

this work.¹⁴ The same can be said of *Aircraft vs. Submarine*; however, the author's background in air electronic warfare makes this text exceptionally useful in understanding the technical aspects of this topic.¹⁵ Naturally, more narrowly-focused texts provide more depth, such as *The Forgotten Offensive*, giving considerable detail on the anti-shipping campaign.¹⁶ An equivalent for the sub-surface conflict is *The RAF and Trade Defence 1919-1945*, which, though not specifically focused on policy, is absolutely key to its examination.¹⁷

The drawback of specialisation in the literature is that it can lead to a one-dimensional outlook. A common thread among texts on Coastal Command is the view that it was Bomber Command's poor relation in terms of resource allocation. However, the literature for Bomber Command takes an opposing view: that a large part of the bomber force's 'effort... [was]... devoted to the war at sea'.¹⁸ This is echoed in the despatches of the one wartime Air Officer Commanding in Chief (AOC-in-C), Arthur Harris recording 'handicaps... [and]...lack of suitable aircraft in sufficient number'.¹⁹ Other texts expand this theme, arguing that Bomber Command was equally short of the aircraft and crews it needed to successfully perform its role in the War.²⁰ Thus, specialist secondary literature must be viewed in the context of the wider body to account for its potential bias.

¹⁴ A. Hendrie, *The Cinderella Service*, (Barnsley: Pen and Sword, 2010)

¹⁵ A. Price, *Aircraft vs. Submarine*, (Barnsley: Pen and Sword, 2004)

¹⁶ C. Goulter, *A Forgotten Offensive*, (London: Frank Cass, 1995)

¹⁷ J. Buckley, *The RAF and Trade Defence 1919-1945* (Keele: Ryburn, 1995)

¹⁸ D. Richards and H. St George Saunders, *The Royal Air Force, 1939-1945 Vol.2 The Fight Avails*, (London: HMSO, 1954), p. 113.

¹⁹ A.T. Harris, *Despatch on War Operations*, (London: Frank Cass, 1995), p. 8 paragraph 8.

²⁰ AIR 41/42 RAF Narrative (first draft) *The RAF in Bomber Offensive against Germany: Vol. 4 A Period of Expansion and Experiment Mar 1942 - Jan 1943*, pp. 1-22 recounts Bomber Commands equipment challenges citing the diversion of machines and crews to other commands as one of the major causes of shortfalls. The Bomber command perspective on their battle for resources specifically against Coastal Command is also covered in C. Webster and N. Frankland, *The Strategic Air Offensive Against Germany 1939-1945; Vol. 1*, (Uckfield: The Navy and Military Press, 2006), pp. 310, 318, 325-6, 447, 452, for more on the context of this official history see S. Cox 'Setting the Historical Agenda; Webster and Frankland and the debate over the Strategic Bombing Offensive against Germany 1939-1945' in Grey (Ed.), *Last Word*. Other secondary literature supports these views on Bomber Command's difficulties, see R. Neillands, *The Bomber War: Arthur Harris and the Allied bomber offensive, 1939-1945*, (London: John Murray, 2001), pp. 183-186, H. Probert,

Biographical works concerning the main players in policymaking are important to understanding this process.²¹ These must however be treated with caution as, although they provide potential first-hand accounts, they are not necessarily primary sources. By their nature, they tend to offer a single viewpoint, often influenced by the author's concern over their subject's historical status. Although not strictly biographical, historical texts authored by the protagonists of events such as Churchill's *The Second World War* series must be viewed in the same way.²²

Popular-type histories often cover specific aircraft types, squadrons or units in considerable detail.²³ These can be problematic however as if they do contain comments on policy it can be tainted by their fundamentally parochial nature and the fact that they are not always fully referenced.

Moving away from historical texts, airborne ASW is also represented within military theory literature, though it is absent from many air power texts.²⁴ Naval theory texts tend to deal with the topic at a tactical rather than a policy level, though specialist works on ASW are

Bomber Harris: His Life and Times, (London, Greenhill, 2001), pp. 146, 219-226. Obtaining aircraft and crews of sufficient type and number from the American entry into the war was also of concern; see D. Richards, *Portal of Hungerford*, (London: Heinemann, 1977), p. 310. It should be noted that Bomber Command was not just competing with Coastal Command for aircraft but also with other theatres of operation such as the Middle East, see A. W. Tedder, *With Prejudice; The War Memoirs of Marshal of the Royal Air Force, Lord Tedder*, (London: Cassell, 1966), pp. 253-255.

²¹ Some of these deliberately avoid discussion of policy; A. Boyle, *Trenchard: Man of Vision*, (London; Collins, 1962), S. Douglas, *Years of Command*, (London 1966), pp. 245-273 contrastingly J. Slessor, *The Central Blue*, (London: Cassell and Company, 1956), pp. 483-488, 464-539 gives a good account of events in the management of ASW though this is in an explicitly stated context of championing the crews of Coastal Command.

²² W. S. Churchill, *The Second World War Vol. One - Six*, (London: Cassell, 1948-54), for more on Churchill's historical works see D. Reynolds, *In Command of History: Churchill Fighting and Writing the Second World War*, (London: Penguin, 2005). This category is also includes P. Joubert de la Ferte, *Birds and Fishes*, (London: Hutchinson, 1960), with the author having commanded Coastal Command on two separate occasions; this text covers the history of the Command from formation through to the post-Second World War era.

²³ See for example C. Ashworth, *RAF Coastal Command 1936-1939*, (Sparkford: Haynes, 1992), D. Lake, *Growling Over The Oceans: The Royal Air Force Avro Shackleton, the Men, the Missions 1951-1991* (London: Souvenir Press, 2010), J. Nash, *On the Step: A History of 201 Squadron*, (Kinloss, 1990)

²⁴ See for example J. Gooch (Ed.), *Airpower, Theory and Practice*, (London: Frank Cass, 1995) and P. Meilinger, *Airwar: Theory and Practice*, (London: Frank Cass, 2003).

of more use.²⁵ Unfortunately, this topic has not yet attracted significant attention from equivalent air power theorists. The submariner's perspective is of use in giving depth of understanding to the study of ASW though there is no secondary literature devoted to policy for the use of air power.²⁶

The secondary literature reaffirms the significance of ASW, though it is often given insufficient weight in relevant texts. From a policy perspective, where ASW is covered, the polarised nature of the debates of the time is often echoed in the historiography. This is especially true with the official history's dispute over the level of harmonious co-operation between the RN and the RAF and, more significantly, in the discrepancies between the bodies of literature associated individually with Coastal and Bomber Commands. While this thesis does not aim to provide a comparative study of these two Commands, it is important to appreciate that their fortunes were inextricably linked by the competition for resources and the resultant policy implications. Unfortunately, none of the texts mentioned seek to specifically unite the RN and the RAF perspectives. Much like the discipline of airborne ASW itself, which sits between two spheres of operations, the study of the impact of the RN and the RAF on policy setting falls between natural areas of study. This goes some way to

²⁵ See G. Till, *Airpower and the Royal Navy* (London: Macdonald and Jane's, 1979), M. Llewellyn-Jones, *The Royal Navy and Anti-Submarine Warfare, 1917-49*, (London: Routledge, 2006) and S. W. Roskill, *The Strategy of Sea Power*, (London: Collins, 1962), Roskill's text tends to mirror the views of the official history he authored. G. Franklin, *British Anti-Submarine Capability 1919-1939* (London: Frank Cass, 2003), pp. 80-85, 101-109 gives useful information of the evolution of air power in the ASW role. Numerous journal articles also tackle this subject see for example D. Arnold-Forster, 'The Organisation of the Anti-Submarine Service', *Royal United Services Institute Journal* 77 (1932), C. Dennistoun-Burney, 'The Influence of Aircraft on Sea Power' *Royal United Service Institute Journal* 75 (1930) and A. Pallisera, 'The Effect of Air Power on Naval Strategy' *Royal United Service Institute Journal* 72 (1927), D. Arnold-Forster, 'Our Anti-Submarine Requirements of the Future' *Royal United Services Institute Journal* 74 (1929), E. Robertson 'The Value of Aircraft for Protecting Seaborne Trade' *Royal United Service Institution Journal* 78 (1933). Such journal articles though secondary sources have a use in indicating contemporary views within the Services their use in assessing policy setting being determined by the seniority of their authorship.

²⁶ See J. E. Moore and R. Compton-Hall, *Submarine Warfare Today and Tomorrow*, (London: Michael Joseph, 1986), pp. 23, 156-160, and N. Whitestone, *Submarine: The Ultimate Weapon*, (London: Davis-Poynter, 1973), P. Gretton, 'Anti-Submarine Warfare' *Royal United Services Institute for Defence Studies Journal* 118 (1973) and M. Wemyss, 'Submarines and Anti-Submarine Operations for the Uninitiated' *Royal United Services Institute for Defence Studies* 126 (1981)

explain its lack of exploration, along with the fact that the inter-Service rivalry makes it an unpopular topic for official studies in the same way that the lack of significant popular controversy makes it less attractive for other historians. This thesis will therefore aim to enhance this area of study by moving beyond a single Service viewpoint, to include both Services and the interaction between them with the goal of providing a more objective analysis.

Thesis Content

Controlling sea lines of communication (SLOCs) has always been of vital significance to Britain's military and economic security. The exploitation of the surface and subsurface operating environment to deliver military effect in the First World War, and the threat it posed to that control, created new and unique challenges. The near impossibility of gaining subsurface supremacy other than in very limited areas required a shift from traditional military thinking; effective anti-submarine operations developed the use of several platform types, including other submarines, surface ships and aircraft. The experience of battle would demonstrate that the inherent characteristics of air power in terms of range and endurance made it a highly capable ASW asset and hence a useful conduit to the examination of ASW.

As ASW policy is symbiotic with the development and utilisation of the submarine. The peace treaties and post-war austerity immediately after the First World War effectively re-set the clock for the development of submarines and, consequently, ASW.²⁷ Thus

²⁷ For further detail on the evolution air power in ASW in World War One see H. A. Jones, *The War in the Air, Vol. 1*, (London: Imperial War Museum, 1999 [original 1922]), pp. 339-345, 369-370, H. A. Jones, *The War in the Air, Vol. 4*, (London: Imperial War Museum, 1998 [original 1934]), pp. 45-77, 408.

although ASW policy existed, prior to the end of the war, 1918 is an appropriate start point for this thesis, especially to examine the inter-Service dimension of this topic brought about by the involvement of both the RN and the RAF. The next break of this magnitude in the history of ASW came with the paradigm shifts associated with the advent of the nuclear age after the Second World War. The changes in the landscape of defence brought about by this were so significant that this forms a logical endpoint to this examination. Furthermore, in dealing with topics connected with the nuclear deterrent, primary source availability can become prohibitively restricted.²⁸

The period under examination saw a gradual shift of Britain's position away from that of an imperial power. Consequently, defence priorities also altered, firstly with the varying demands of policing an empire and then in line with Britain's changing global position. Therefore, to assess the actions and influences of the agencies involved in the evolution of ASW policy, discussion will be limited to home waters, in this context defined as including the Atlantic Ocean, as these provide a consistently significant region to allow the study of policy evolution.

Examination of the impact of the RN and RAF on ASW policy naturally includes the political dimension, and must also cover to a minor extent the influence of the British aerospace industry. The economic and political pressures of the aerospace industry did have some influence on the choice and procurement of capabilities, thus placing industry within the policy setting dimension. The level of influence would not however match that seen in

²⁸The normal 30 year restriction for the release of files (For further detail on the release of documentation see 'Review of the 30 Year Rule' <http://www2.nationalarchives.gov.uk/30yrr/30-year-rule-report.pdf> accessed 1005, 03/01/2012) can be increased by higher security classifications associated with this subject.

later times; hence, greater focus on this area would be inappropriate and dilute the examination of the main factors influencing policy.²⁹

There are some problems inherent in attempting to tackle this subject area. Firstly, the nature of the subject necessitates the use of primary sources from both Services, as well as governmental sources. Given the inconsistency of the filing methodology employed, this has the potential to skew the analysis by virtue of which papers are locatable. This problem is further compounded by the loss of various files, both accidentally and through deliberate weeding programs. Studying policy in the interwar period also presents specific difficulties, as for ASW it will be seen there was in fact a distinct lack of policy. Substantiating this is however problematic as proving the absence of policy in an era predating an overall controlling ministry for the armed forces depends on the records of numerous subsidiary committees and organisations, which, whilst offering the advantage of multiple sources to support the argument, can be far from comprehensive.

The interaction of the RN and RAF in formulating airborne ASW policy can be seen as symptomatic of their overall relationship. The impact of the two Services on ASW policy must therefore be understood in the broadest context. In addition to the organisational interaction discussed the impact of personality on decision making must also be considered. Significance must also be attached to the relationship between technology and military capability and the influence this can exert on policy setting. By drawing on all these strands this thesis will show the failings of the RN and RAF to co-operate in the formulation of a robust and effective policy for the use of air power in ASW.

²⁹ The relationship between the aircraft industry, government and the armed forces would grow in complexity after the Second World War, with industry exerting considerable influence on aircraft procurement, see for example K. Hartley, 'The United Kingdom Military Aircraft Market' in *Yorkshire Bulletin of Economic and Social Research*, Vol. 19, (1967).

CHAPTER TWO

The Advent of ASW

The impact of the industrialisation and mechanisation of conflict in the First World War was evident in every operational environment.³⁰ In the maritime sphere, the grand fleet action proved to be anti-climactic and signposted the beginning of the end for the primacy of capital ships in the projection of sea power.³¹ The decline of the leviathan battleship was mirrored by the gradual ascent of the submarine as a weapon. German use of U-boats grew exponentially from a small defensive cadre at the outbreak of hostilities to a large and still rapidly expanding force conducting unrestricted attacks on merchant shipping by the time of the armistice.³² Although the U-boat threat was ultimately defeated, by the end of the war they had proved capable of sinking several hundred large ships a month costing numerous lives and thousands of tons of cargo.³³

The often quoted statement of submarines as being an ‘unethical, underhand weapon, therefore...quite un-English’ serves to encapsulate the opinion still prevalent amongst the senior Royal Naval officers at the outbreak of war.³⁴ Despite some vocal dissenters this attitude led to a relative lack of investment in submarines, with their crews forming a virtual underclass within the Royal Navy (RN).³⁵ This approach was echoed in Anti-Submarine Warfare (ASW), thus Britain started the war able to conduct ‘little or no anti-submarine...activity’.³⁶ The challenge presented by the U-boat heralded a new kind of

³⁰ J. Bailey, ‘The First World War and the birth of modern warfare’ in M. Knox and W. Murray (eds.) *The Dynamics of Military Revolution 1300-2050*, (Cambridge: Cambridge University Press, 2001), pp. 132-153

³¹ G. Bennett, *Naval Battles of the First World War*, (London: B. T. Batsford, 1968), pp. 194-262 and A. Gordon, *The Rules of the Game: Jutland and British Naval Command*, (London, John Murray: 2005).

³² R. Compton-Hall, *Submarines and the War at Sea 1914-1918*, (London: Macmillan, 1991)

³³ AIR 41/45 AHB, Narrative The RAF in Maritime War Vol. 1, Appendix 1

³⁴ A. Marder, *Fear God and Dread Nought Vol.1*, (London, 1952), p. 281

³⁵ Compton-Hall, *Submarines and the War*, p. 7-10,

³⁶ *Ibid*, p.89

warfare as both its detection and attack required a different approach to that used against surface units. In the business of detection a variety of methods were investigated by the RN, in some lay the future of modern day techniques such as sonar.³⁷ Tactical innovations included the birth of the convoy system as well as the Q-ship decoys, to respectively deter and lure the predatory U-boats.³⁸ ASW used several platform types including submarines, surface ships and aircraft. These used a variety of attack methods including gunfire, ramming, mines, depth-charges and torpedoes. The concept of using aircraft to counter submarines had been mooted in military circles prior to the War.³⁹ The military aircraft itself was a relatively new technology, and their use in ASW experienced an exponential development through to the end of the war. As aircraft usage grew, landplanes, seaplanes, ship launched aeroplanes, kite balloons and airships, all found ASW roles, coming initially from both the Royal Flying Corps and the Royal Naval Air Service (RNAS) and later the Royal Air Force (RAF).⁴⁰

The early use of air power in ASW was in a purely observational role, as shown by the initial tasking priorities for the RNAS, which only mention U-boats as a target for scouting activity.⁴¹ The intense rate of tactical and technological development soon focused on developing more effective attack methods along with appropriate anti-submarine bombs. ASW was to become the main focus of RNAS operations and this continued under the

³⁷ Llewellyn-Jones *The Royal Navy*, p. 9

³⁸ Q-Ships were merchant vessels with hidden armaments designed to trick a U-boat into attacking what appeared to be an unarmed vessel to allow them to in turn attack and sink the U-Boat, for further detail see J. Corbett, *History of the Great War, Naval Operations Vol. 3*, (London: Longmans, Green & Co., 1923), pp. 50-53, their success was however relatively short lived see H. Newbolt, *History of the Great War, Naval Operations Vol. 5*, (London: Longmans, Green and Co., 1931), pp. 110-112

³⁹ Price, *Aircraft vs. Submarine*, pp. 3-6

⁴⁰ See H. A. Jones, *The War in the Air, Vol. 6*, and (London: Imperial War Museum, 2003[original 1922]) pp.334-340 for a synopsis of the various air vehicles in use for ASW in 1918.

⁴¹ As stated in a Commander in Chief's memorandum on the functions of a naval air service quoted in the RAF official history H. A. Jones, *The War in the Air Vol. 2*, (London: Imperial War Museum, 2002[original 1928]), pp. 354-356

RAF.⁴² There was only one confirmed kill solely by an aircraft during the War, many tactics focused instead on deterring U-boat attacks.⁴³ Hence it is inappropriate to measure success in this campaign purely in terms of destroyed submarines. By the end of the war, the aircraft had proved its potential effectiveness as a weapon to counter the emergent submarine threat and the operations undertaken had signposted the need to develop both specialist munitions and airframes to maximise its effect. The RAF ended the conflict with some 37 ASW squadrons in Britain, supplemented by 103 RN airships allocated to the same duty.⁴⁴ There was also a foundation of operational experience on which to develop a joint ASW doctrine, though this potential was not to be realised in the inter-war period.

Countermeasure Through Containment

Whilst the Great War had only allowed the exploration of the rudiments of ASW it had given a clear indication of the level of threat posed by this new technology to an island nation so dependent at this time on its SLOCs. The armistice saw most of the German submarine fleet surrendered to the RN and the fate of those vessels as well as the potential for the future regeneration of a submarine capability were dealt with in the post-war peace treaty negotiations.⁴⁵

The military view on the dangers of submarines was echoed at the political level, with Lloyd George considering their defeat the ‘crucial triumph’ of the war.⁴⁶ The peace treaties eventually signed therefore made several provisions to address the threat, affecting all the

⁴² AIR 41/45 AHB Narrative The RAF in Maritime War Vol. 1, pp. 26-31, 40- 45

⁴³ J. Abbatiello, *Anti-Submarine Warfare in World War I*, (London: Routledge, 2006), p. 1

⁴⁴ AIR 41/45 AHB Narrative The RAF in Maritime War Vol. 1, Appendices IV and V

⁴⁵ S. Roskill, *Naval Policy Between the Wars Vol. 1*, p. 75

⁴⁶ D. Lloyd George, *War Memoires*, (London: Nicholson & Watson, 1934), p. 1194

defeated powers. These required the surrender of all submarines and related vessels to the Allies, as well as a ban on future building or acquisition of such vessels.⁴⁷

Having dealt with the threat in home waters the British sought to continue the policy of countering the submarine by preventing its existence.⁴⁸ The main effort to achieve this was during the Washington Naval Conference in 1921-2.⁴⁹ The British argument rested on the premise that the First World War had shown the submarine to be ineffective both in a defensive role and against warships. Its only use therefore was to attack merchant targets, a universally condemned tactic, thus as a weapon it was 'inconsistent with the laws of war' and should be outlawed.⁵⁰ This view found little favour amongst the other conference participants and the end result was the Root Resolutions; a set of rules on the future use of submarines, as well as a brief ban on the construction of new vessels and limits on the size of future fleets.⁵¹ Despite the widespread agreement to the new rules the Admiralty had little faith in their enforcement taking a view that they 'cannot be relied on when formulating war plans'.⁵² This did not detract from the attraction of this policy for politicians and attempts at limiting the possession of submarines by other nations would form a continuing thread of British policy in the interwar period.⁵³

⁴⁷ M. Lawrence (Ed.), *The treaties of peace: 1919-1923. Vol.1, The Treaty of Versailles, the Treaty of St. Germainen-Laye and the Treaty of Trianon* (New York: Carnegie Endowment for International Peace, 1924), pp. 105, 107-108, 314-316, 505-50, M. Lawrence (Ed.), *The treaties of peace : 1919-1923. Vol.2, The Treaty of Versailles, the Treaty of St. Germainen-Laye and the Treaty of Trianon* (New York: Carnegie Endowment for International Peace, 1924), pp. 681-682, 847-848

⁴⁸ TNA: ADM 116/3165 Admiralty memorandum on The Washington Conference and its Effect Upon Empire Naval policy and Co-operation.

⁴⁹ For more detail see R. Buell, *The Washington Conference*, (London: Appleton, 1922), pp. 213-232, Y. Ichihashi, *The Washington Conference and After*, (Stanford: Stanford University Press, 1928), pp.72-82

⁵⁰ Buell, *Washington Conference*, pp. 218

⁵¹ Ichihashi, *Washington Conference*, pp. 81-82, 94,

⁵² ADM 116/3165 Washington conference and its effect on Empire Naval policy and co-operation considered by committee of Imperial Defence.

⁵³ More detail on British attempts to limit the possession of submarines can be found in R. Chaput, *Disarmament in British Foreign Policy*, (London: G. Allen & Unwin, 1935), pp. 17-247, 363-369, see also CAB 32/44 for discussion of the continuation of this policy by the Imperial Policy Sub-Committee paper on Reduction and Limitation of Armaments.

Whilst this thesis is focused on ASW in home waters, it is worthy of note that having largely neutralised the threat from the defeated powers in Europe, much of the attention at this time was on the potential threat from Japan, especially with the shift in Anglo-Japanese relations in the wake of the Washington Naval Treaty.⁵⁴ The Admiralty hoped that this would be countered by the United States developing more bases in the western Pacific; this desire however was left unfulfilled by the Washington Treaty arrangements. Whilst the use of submarines in this theatre was considered as being of the ‘upmost value’, defence policy against Japan rested on the principal of ‘adequate Naval Forces, capable of offensive action [emphasis in the original]’.⁵⁵ It was not anticipated that the Japanese would seek to attack merchant ships hence the submarine threat was seen as part of a potential attack on the main fleet to be countered accordingly by RN surface units.⁵⁶ The minimalist RAF structure proposed by Trenchard in 1919 did not include any specific provision for ASW aircraft overseas, indicating that the use of aircraft against submarines in this theatre was not being considered.⁵⁷

The experiences of the First World War had proved the potential threat posed by the submarine as a weapon. As part of the efforts to find effective counter measures both the RNAS and the RAF helped establish the utility of air power in ASW. Although this thesis is deliberately focused on the period after 1918, it must be acknowledged that the conceptual and practical work undertaken in ASW prior to this constituted a potential foundation for the future use of air power in this role.⁵⁸ The provisions of the peace treaties effectively reset the clock for the threat in home waters, providing a reasonably blank canvas for future ASW

⁵⁴ Franklin, *Britain's Anti-Submarine Capability*, pp. 9-19

⁵⁵ ADM 116/3165 Washington conference and its effect on Empire Naval policy and co-operation considered by committee of Imperial Defence.

⁵⁶ Franklin, *Britain's Anti-Submarine Capability*, pp. 14-19

⁵⁷ AIR 1/17/15/1/84 Memorandum The Formation of the Royal Air Force on a Peace Basis

⁵⁸ See Abbatiello, *Anti-Submarine Warfare* for more detail.

policy. The year 1918 thus represents a natural watershed in the evolution of ASW, and a logical point from which to begin its examination.

Policy by Poverty

Defence policy setting in the immediate post-war period was conducted in an austere climate of severe financial pressures coupled with optimism over the international security promised by the newly formed League of Nations.⁵⁹ Whilst the stability and security of the new world order remained to be seen, the poor financial situation and need for economies were stark realities. It was budgetary restriction therefore that formed the primary policy driver in this period. This combination of optimism over the unlikelihood of a new conflict and financial pressures led to the policy declaration in 1919 from the Cabinet, that 'It should be assumed...that the British Empire will not be engaged in any great war during the next ten years'.⁶⁰ This would become known as the Ten Year Rule and with several reaffirmations formed the basis for defence policy until its removal in 1932.⁶¹ Further pressure for savings was placed on the armed forces and the RN in particular by the Geddes committee, though the impact of its report was lessened by the treaties from the Washington Naval Conference.⁶² The financial situation left the RN fighting hard for an ever reducing budget and the RAF for its very survival. Whilst a more detailed examination of the impact of

⁵⁹ For more detail on the hope for the success of the league of nations in providing international peace see J. C. Smuts, *The League of Nations*, (London: Hodder and Stoughton, 1918) and B. Dexter, *The Years of Opportunity: The League of Nations, 1920-1926*, (New York: Viking Press, 1967)

⁶⁰ CAB 23/15 Cabinet Minutes and Papers Number 616A

⁶¹ For details on its continuation see CAB 24/229, also CAB 23/70/19(32) for CID recommendation on its removal which was accepted in 1932.

⁶² For further comment on the Geddes Committee (correctly termed the Committee on National Expenditure) and the Ten year rule see B. Bond, *British Military Policy Between Two World Wars*, (Oxford: Clarendon, 1980), pp23-27, Gibbs, *Grand Strategy Vol. 1*, pp. 3-6, Roskill *Naval Policy Vol. 1* pp. 214-215, 231-233, Montgomery-Hyde, *British Air Policy*, pp.59-60, 103-104.

economic pressures on military policy at this time is beyond the scope of this thesis, it is necessary to note that their fundamental significance for all policy decisions in this period.

The interwar period pre-dates the formation of the Ministry of Defence. At that time each branch of the military was run by its own independent ministry whilst advice on overall military policy and planning was provided by the Committee of Imperial Defence (CID), along with its various ad hoc and standing sub-committees.⁶³ At the centre of the CID was Maurice Hankey who was secretary to the committee from 1912 to 1938. During most of this period he was also cabinet secretary.⁶⁴ This central position allowed Hankey to exert considerable influence on the advice presented to cabinet on defence matters as well as the nature of the interaction between the Services.⁶⁵ The longevity of Hankey's involvement allowed the formation of personal relationships with those at the highest levels of the defence organisation; thus he was in a position to influence both the individuals involved as well as the process of the management of defence.⁶⁶ The official histories of the First World War were commissioned by the CID and their content discussed in detail prior to publication by a specialist sub-committee, they can therefore be reasonably considered to reflect the views of that body.⁶⁷ The texts dealing with the war against the German U-boats paint a picture of a

⁶³ For more on the role of the CID see CAB 21/710 especially pamphlet *The Machinery of the Committee of Imperial Defence*, also CAB 21/260 minute from the CID secretary Sir Maurice Hankey dated 03 Apr 1923 gives an in-depth summary of the work of the CID and its subcommittees in effectively fulfilling the role of a Ministry of Defence. CAB 21/268 shows lengthy discussions regarding the formation of a Ministry of Defence there was also an attempt to absorb the CID into the treasury in 1922 (see CAB 150/1). Despite all the various debates the CID was to remain the provider of military policy advice to the cabinet and the main military planning agency throughout the interwar years.

⁶⁴ J. Naylor, *A Man and an Institution*, (Cambridge: Cambridge University Press, 1984) and S. W. Roskill, *Hankey Man of Secrets Vol. 1 and 2*, (London: Collins, 1974)

⁶⁵ For examples see Boyle, *Trenchard*, pp. 347-8, 484-6, 506, 697-8, W. Chalmers, *The Life and Letters of David, Earl Beatty*, (London: Hodder and Stoughton, 1951), p. 381-2, B. Ranft (Ed.), *The Beatty papers: selections from the private and official correspondence and papers of Admiral of the Fleet Earl Beatty Vol.2, 1916-1927*, (Aldershot: Scolar, 1993), pp. 216-7, 228-9, 301, 328-331.

⁶⁶ Roskill, *Hankey Vol.2*, pp. 446-447

⁶⁷ Official histories were administered by the Historical Section of the CID, which began the collation of material whilst the war was still in progress see CAB 42/1/18 and CAB 103/97 for the standing orders of this section. In 1922 Cabinet instructed the setting up of a specific sub-committee to control this function (minute in

campaign halted prematurely by military successes in other theatres, and speculate as to the optimism for victory expressed by both sides had the conflict continued.⁶⁸ When dealing with the impact of the German submarine campaign the histories are unequivocal as to the pressure this tactic had exerted stating that ‘the strain to which British commerce and shipping were subject was beyond all previous experience’.⁶⁹ It can therefore be surmised that there was significant recognition of the extent of the problems posed by submarines in a war time scenario. When used as commerce raiders, submarines posed a serious threat to the fighting capability of Britain and during the conflict the German U-boat had not actually been defeated.

This appreciation of the potentially ‘grave extent of the submarine menace’ is echoed in the disarmament policies already discussed.⁷⁰ Despite this, ASW does not feature in the immediate post-war work of the CID. The agenda for the committee does not include ASW nor is it a topic of any of the numerous sub-committees.⁷¹ It can be seen therefore that at the overarching tri-Service policy level there was no significant discussion of ASW, though it is unclear if this was due to shortcomings of the CID or a belief that the provisions of the peace treaties had nullified the threat.

CAB 27/182). Various other reports show the control exerted over these texts from the funding and selection of authors to editorial approval of the texts at a cabinet level, CAB 21/ 182, CAB 21/212, CAB 16/52,3.

⁶⁸ Newbolt, *History of the Great War*, pp. 361-362

⁶⁹ C. Fayle, *Seaborne Trade Vol. 3*, (London: Imperial War Museum, 1997[original 1924]), pp. 458

⁷⁰ CAB 32/44 Memorandum by the Admiralty ‘Empire Naval Policy and Co-operations, 1926’ to CID Imperial Conference Sub-Committee, p. 4

⁷¹ CAB 21/468, 469 and 470, giving the function and constitution of the CID show that ASW does not feature in the lists for ‘Questions Discussed’, ‘Subjects Taken Note Of’ or ‘Cabinet Decisions Taken Note Of’, nor is it the specific subject of any standing or ad hoc sub-committees of the CID. It is also absent from other committees which may have discussed it such as the Standing Sub-Committee on the Co-Ordination of Departmental Action on the Outbreak of War (ADM 1/8682/128,) The Joint Overseas and Home Defence Committee of the Committee of Imperial Defence (CAB 36/1-7), the Imperial Policy Sub-Committee for the Imperial Conference in 1926 (CAB 32/44) and Joint Planning Sub-Committee of the Chiefs of Staff Committee (CAB 55/1).

Moving from the CID it can be seen that the two Services involved each took their own distinct stance on ASW. Whilst obviously constrained by the provisions of Ten Year Rule, the Admiralty felt it would be a ‘criminal...gamble’ to rely on this planning assumption.⁷² Internally a serious view was taken on the submarine threat both from those acting outside the legal provisions of international agreements for the use of submarines against merchant ships as well countries using them legitimately.⁷³ A 1921 paper on naval policy summarises this view:

‘The Admiralty rest under no delusions, however, as to the capabilities of submarines for legitimate naval operations, and this opinion, based on war experience, has been confirmed in Fleet Exercises which have since been carried out.’⁷⁴

The clearest indication of the RN view on the potential of this relatively new weapon was the apparently contradictory view taken on the RN’s own submarine programme. Despite having advocated the abolition of the submarine, the Admiralty continued the RNs own development and construction programme. Given the prevailing financial constraints this involved considerable argument with the treasury. Ultimately the number of vessels involved was relatively modest and the programme focused on development of a standard design to allow large scale construction of vessels at short notice if required.⁷⁵ The development of RN submarines was not however part of an anti-submarine strategy.⁷⁶

Although specific ASW vessels were originally suggested, as part of the reduction in the

⁷² ADM 116/3165 Washington conference and its effect on Empire Naval policy and co-operation considered by committee of Imperial Defence.

⁷³ TNA CAB 21/260 when questioned as to his faith in the application of the laws of war Lord Beatty, First Sea Lord replied he had ‘none whatever’, in questioning by Sub-committee on National and Imperial Defence.

⁷⁴ ADM 116/3165 Washington conference and its effect on Empire Naval policy and co-operation considered by committee of Imperial Defence.

⁷⁵ Detail on RN submarine programme in 1920s can be found in E. Grove ‘British Submarine Policy in the Inter-War Period 1918-1939 in M. Edmonds (Ed.) *100 years of ‘the Trade’* (Lancaster: Centre for Defence and International Security Studies, 2001), pp. 33-40.

⁷⁶ ADM 116/2410 the RNs ASW efforts were run under Captain (Anti-Submarine), though there were suggestions in the 1920s to move this under the command of Rear-Admiral (Submarines) these did not come to fruition.

number of different classes it was concluded that such tasking could be undertaken as a secondary role of other types.⁷⁷ Despite the RNAS having pioneered the use of aircraft in ASW in the First World War, interwar RN ASW policy rested almost entirely on surface craft using officers trained as ASW specialists.⁷⁸ The foundations for this belief in the superiority of surface craft lay in the emerging technology of sonar (then referred to as ASDIC).⁷⁹ The RN was keen to embrace this new technology, creating a dedicated research establishment at Portland for its trial and development.⁸⁰ Throughout the 1920s the level of confidence and interest in sonar grew.⁸¹ The results of this work were published in progress books including the reports from exercises conducted. Whilst it is clear the RN was seduced by the possibilities of the new technology of Sonar, it is unclear whether this was developed as a result of the RN identifying it as the best solution to a capability gap or as an emergent technology promoted by its developers and latched upon as a definitive solution. By 1929, the report shows a policy based on sonar equipped surface units with the role for aircraft being reconnaissance if the conditions were unfavourable for sonar.⁸² Aircraft were dismissed in the prosecution of a target submarine due to the lack of a suitable anti-submarine bomb.⁸³ The absence of aircraft from RN ASW policy is however less surprising taking into account the control of the fleet air arm by the RAF and the resultant debate over

⁷⁷ ADM 116/3164 a report on Submarine Development stated that although a 1922 Conference considered cruiser type submarine could be used for ASW, technical developments by 1923 made 'surface vessels...more suitable', by 1925, Uses of Various Types of Submarines: Final Report of Second Conference held on 19/2/25 shows decision for the programme to be 'confined to the Overseas Patrol type'

⁷⁸ ADM 1/8731/212 Appointment and training of personnel required for the expansion of the Anti-Submarine Service

⁷⁹ ADM 116/3164 Submarines: types and their uses; future of submarine warfare and submarine development, for technical detail on ASDIC see Franklin, *Britain's Anti-Submarine Capability*, pp. 57-66, 191-195.

⁸⁰ ADM 253/785 gives detail on establishment of Anti-Submarine School at Portland; the results of exercises conducted under its direction were published showing the genesis of formal tactics for this new technology.

⁸¹ ADM 1/8609/138 show that in 1921 ASDIC was still considered as only having potential, whilst by 1926 ADM 1/8699/117 contains a letter showing the satisfaction from the Lords of the Admiralty at progress with its development. Interest in the development in this technology included considerable effort by the Washington naval attaché to covertly establish American progress in developing it, shown in ADM 1/8636/37.

⁸² ADM 186/476 Progress in Torpedo, Mining, Anti-submarine and Chemical Warfare 1929, this also highlights the limited investigation into other detection methods such as hydrophone and loops.

⁸³ ADM 186/476 Progress in Torpedo, Mining, Anti-submarine and Chemical Warfare 1929.

the roles and relationship between the two Services. Although if a pivotal role had been seen by the RN for aircraft in ASW this would have provided another strand in the RN's argument for the return of control of aircraft supporting the fleet.

Whilst most of the ASW research discussed was focused on protecting naval vessels, the biggest threat posed by the submarine in the First World War had been to merchant vessels and Britain's supply lines.⁸⁴ Although outside the scope of this thesis it should be noted that discussion over the protection of merchant vessels in time of war was conducted within a wider legal debate over their status. There was a lack of international consensus over the legality of targeting merchant vessels and the extent of belligerent rights at sea.⁸⁵ Although not entirely concerned with protection against submarines, the main method of protecting merchant ships was the instigation of convoys. Air power was seen as having a role to play but this was mainly in protection from enemy aircraft not enemy naval units. When pressed on this matter by the Secretary of State for Air, the First Lord of the Admiralty would reluctantly concede that the effect of a lack of air cover to a convoy would be to 'Perhaps...lose something'.⁸⁶ Again a desire to promote the RN's own agenda could be seen to triumph over an impartial military assessment.

Within the RAF, the burgeoning discipline of ASW experienced a rapid descent into virtual obscurity after the end of the war. The RAF ended the war with 37 ASW specific squadrons for use in home waters, a number which was to quickly decrease over the subsequent years.⁸⁷ Coastal Area was formed in 1919 to encompass all maritime units of the

⁸⁴ CAB 21/260 Shorthand notes on evidence given by the First Sea Lord and Chief of Naval Staff before the sub-committee on National and Imperial Defence dated 17 April 1923, the First Sea Lord described the effect of submarine attack on the fleet as 'nil'.

⁸⁵ N. Tracy (Ed.), *Sea Power and the Control of Trade*, (Aldershot: Ashgate, 2005), pp. 191-408

⁸⁶ CAB 21/260 shorthand notes on evidence given by the First Sea Lord and Chief of Naval Staff before the sub-committee on National And Imperial Defence dated 17 April 1923

⁸⁷ AIR 41/45AHB Narrative The RAF in Maritime War Vol. 1, Appendix IV, p. 271

RAF but the forces under its control diminished to such a point that the 1929 figures list flights rather than squadrons of aircraft, with no ASW specific units included in the strength.⁸⁸ This decline in maritime strength resulted from the policy laid down in the Trenchard Memorandum which proposed the structure for a peace time RAF. This contains provision for only a 'small part' of the newly restructured force to work with the RN, and no provision for specific maritime tasks such as ASW.⁸⁹ Even with the expansion programme for the RAF in the 1920s there was still no attempt to acquire ASW aircraft.⁹⁰

This decline must be viewed in the context of the contraction in size of all the military Services at this time. Given the overall decline in the strength of the RAF significant decreases in maritime forces are unsurprising. Of more significance is the proportional decrease in this type of capability. The statistics show a massive shift in the relative strength of maritime aircraft in home waters from the immediate post-war position of numbering twice as many squadrons as bombers and fighters combined to 1929 whereby maritime consisted only one thirteenth the strength of the other two types.⁹¹ This shows a massive shift away from maritime operations by the RAF towards bombing, both in terms of bombers to attack an enemy as well as in later years fighter aircraft for both their protection and to defend against bomber attacks on Britain.

This shift away from maritime operations has two main causes, firstly a shift in threat prioritisation and secondly the inter-Service debate over roles and responsibilities of the individual Services. It can be seen that in the interwar years the bomber came to be seen as

⁸⁸ AIR 41/45AHB Narrative The RAF in Maritime War Vol. 1, Appendix V, p. 273

⁸⁹ AIR 1/17/15/1/84, see also AIR 1/718 for a Memorandum from Trenchard showing formative plan for RAF.

⁹⁰ AIR 9/34 Air Staff Requirements in Aircraft, undated copy from mid 1920s period shows no ASW aircraft in the list of required types.

⁹¹ AIR 41/45 AHB Narrative The RAF in Maritime War Vol. 1, Appendix IV, V, after the formation of Coastal Area ASW squadrons are accounted for under the general strength of maritime rather than being listed separately, so for the purposes of comparison the figures maritime aircraft are used.

the most significant aerial weapon, both from a military policy viewpoint and in terms of capturing the public imagination. Slessor described this as ‘an almost passionate faith in the efficacy of the bomber offensive as a major war-winning factor’.⁹² The increased allocation of resources to bombers as the main thread of Britain’s air power strategy was therefore perfectly logical to the RAF at the time. Given the financial constraints at this time as well as the constraints of industrial productive capacity, it was a virtual impossibility that increases in these aircraft types would not be at the expense of others such as maritime aircraft.

The policy decisions discussed so far all took place against a tumultuous background of rivalry between the branches of the armed forces and for the RAF a struggle for continued existence. There were on-going discussions as to how best to demarcate responsibility for the various aspects of the security of Britain and her Empire.⁹³ These ranged over a variety of topics and took place at all levels from inter-Service discussion to questions in parliament.⁹⁴ Although detailed examination of all aspects of the debate would be excessive, a précis serves to define the background that permitted the decline in the RAF’s maritime forces.⁹⁵ In broad terms, both the Army and RN felt the RAF should be subordinated to the senior Services’ control, that it was ‘a new arm and not a new service, and....must always be

⁹² Slessor, *Central Blue*, p. 203

⁹³ See W. Bird ‘The Military Organization of Imperial Defence’, *Royal United Service Institution, Journal*, 65 (1920), J. Mackay, ‘The Influence in the Future of Aircraft upon Problems of Imperial Defence’, *Royal United Service Institution, Journal*, 67 (1922), J. Davidson ‘Imperial Defence and the Co-ordination of the Three Services (lecture)’ *Royal United Service Institution Journal* 71 (1926), M. Smith, *British Air Strategy Between the Wars*, (Oxford: Clarendon Press, 1984), pp. 22-28 and M. Dean, *The Royal Air Force and Two World Wars*, (London: Cassell, 1979), pp. 33-40.

⁹⁴ See Hansard HC Deb 02 August 1923 Vol. 167 cc1717-21 for an example on one such House of Commons debate.

⁹⁵ CAB 21/260 –267 shows the debate between the three services over the control of air power was a constant thread throughout the CID Minutes of the 1920s see especially CAB 21/263 Committee of Imperial Defence National and Imperial Defence Sub-Committee Report dated 9 March 1923. From the CID it was referred to cabinet level see CAB 21/269 for detail on the decisions made, it also continued to feature at an inter-Service level for example AIR 5/900 Memorandum by Lord Trenchard on the reasons which require that an air officer shall command all forces employed to carry out an air control and CAB 21/269 for correspondence between amongst others The First sea Lord and CAS.

directly subordinate'.⁹⁶ Conversely the RAF wanted autonomy over all air power matters.⁹⁷ Several issues centred on the fight for control of Britain's flying forces, such as the huge debate over the future of capital ships and their vulnerability to air attack, the relative merits of aircraft and coastal guns in terms of protecting ports and of greatest significance, the control of aircraft working with the RN.⁹⁸ These led to numerous sub-committees investigating and reporting on each issue.⁹⁹ Such reports if favourable to the RAF would often lead to scathing protests and retorts from both the Admiralty and the General Staff. Against such determined opposition, the Air Staff chose to champion capabilities and responsibilities for the fledgling air force which were more likely to find political favour.

In giving evidence to the Sub-committee on National and Imperial Defence, the Chief of the Air Staff (CAS) requested a specific question to be added as to 'What assistance can the Air give to safeguard our mercantile marine ...?'.¹⁰⁰ The formal written answer states the exposure to 'attack by submarine craft' is still extant even under the provisions of the Washington Treaty, but then fails to expand on the possibility of the use of aircraft to counter this threat. The rest of the response mentions briefly the lack of co-operation from the RN regarding formulation of a policy for air escort to counter potential attack by surface craft; it then focuses on the dangers of attack from the air in various theatres and possibility

⁹⁶ CAB 21/262 Memorandum on 'The Relation of the Three Services' from the First Lord of the Admiralty to the CID Sub-committee on National and Imperial defence dated 13 June 1923.

⁹⁷ AIR 1/718/29/2 memorandum 'Why the Royal Air Force Should be Maintained as Separate from the Navy and the Army' by Trenchard dated 11 September 1919.

⁹⁸ The debate over control of aircraft working with the fleet often termed the 'Naval Air Controversy' a hugely significant area of dispute leading to arbitration at prime ministerial level (see AIR 8/82). It was the subject of considerable work by its own sub-committee see CAB 21/262 Sub-Committee of the Committee of Imperial defence on Relations between the Navy and Air Force Report July 1923 Annex for a copy its report. For a summary narrative see Montgomery-Hyde, *British Air Policy*, pp. 98-150. For a history on RN / RAF competition see G. Till 'Competing Visions: The Admiralty, the Air Ministry and the Role of Air Power' in T. Benbow, *British Naval Aviation, The First 100 Years*, (Farnham: Ashgate, 2011)

⁹⁹ CAB 21/260 gives a summary of these inquiries in CID paper 'Summary of Inquiries held since the War in Connection with Aerial Defence and Co-operation between the Navy, Army and Air Force'.

¹⁰⁰ CAB 21/260 memorandum dated 16 Mar 23 reference FS/S/1.

of countering it.¹⁰¹ The answer is contextualised by CAS's explicit statement of the intent to include this question in order to 'bring forward the points we want to make' with regard to a situation where aircraft were the only feasible method of defence. It serves to highlight the extent to which RAF policy priorities were influenced by the need to ensure its own position and continued existence in the face of opposition from the other Services, rather than by military necessity.

This links directly to the shift toward fighters and bombers already noted, based on a belief that 'the effect of air attack in the future may...in itself...bring hostilities to an early and successful conclusion'.¹⁰² The importance attached to the threat of air attack and the continental air menace led to an expansion scheme for the RAF.¹⁰³ This consisting entirely of bombers and fighters (along with supporting personnel and infrastructure), based on the fundamental assumption of the role of a first strike bombing raid the British battle plan. The expansion aimed at achieving numerical parity with the foreign air forces felt most likely to threaten Britain at this time, with a particular focus on France.¹⁰⁴

Even within the newly formed Coastal Area there was little appetite for ASW, the main focus in the 1920s being on proving the worth of flying boats via long distance cruises around the Empire.¹⁰⁵ These were successful in securing the funding for a small flying boat programme, based on the ability of such machines to deploy to remote parts of the Empire

¹⁰¹ CAB 21/260

¹⁰² CAB 21/262 notes by the Air Staff in answer to General Staff Paper ND 34, dated 1 June 23.

¹⁰³ Proposed in CAB 21/262 Committee of Imperial Defence National and Imperial Defence Sub-Committee 'The Expansion of the Royal Air Force for Home Defence Outline Scheme by Secretary of State for Air' 1 June 1923, see also CAB 21/269 memorandum by Secretary of State for Air 'Air Policy and a One-power Standard' dated February 1923. Hansard 26 June 1923 records a Prime Ministerial statement to the house of 'a home defence force of 52 squadrons to be created with as little delay as possible'.

¹⁰⁴ CAB 3/3, 3/4 shows CID memos and papers on home defence with a focus on the air menace, defence against air attack and ARP.

¹⁰⁵ For a detailed narrative of these cruises see Joubert de la Ferte, *Birds and Fishes*, pp. 79-97, AIR 5/595 report 'Far East Flight from Singapore to Hong Kong and back by Southampton Flying Boats' gives an example of details on one such cruise.

with little supporting infrastructure coupled with the advantages of air power in tackling unrest more economically and speedily than ground troops.¹⁰⁶ In this role the RAF was again keen to promote the need for flying boats to be in RAF control.¹⁰⁷ The reliability and capabilities of flying boats improved through the 1920s, it is noteworthy however that the RAF still viewed ASW (usually in support of RN surface units) as only one small piece of the role of these machines and in no sense their main purpose.¹⁰⁸ Coupled with the flexibility of deployment, advocates of flying boats focused on its wide ranging capabilities as being ‘analogous to those of the bombers’ which were attracting significant funding at the time.¹⁰⁹ The flying boat therefore was championed as an exemplar of the diverse abilities offered by air power, not a specific ASW weapon. As a 1926 staff college lecture indicates, the main view was that ASW was primarily the preserve of the RN and that whilst aircraft could be used to ‘locate and hold’ enemy submarines, it was best to use ‘surface ships to destroy’.¹¹⁰ An earlier lecturer on this topic went even further suggesting the use of aircraft should prioritise aerial defence over ASW.¹¹¹

The decade following the First World War saw the decline into virtual obscurity of airborne ASW despite having played a significant part in winning the conflict. In 1918, Geddes stated that ‘the responsibility for anti-submarine strategy must always rest with the

¹⁰⁶ This had been shown in areas such as Iraq; see Montgomery-Hyde, *British Air Policy*, pp. 167-174. AIR 5/449 ‘Equipment Policy of the Flying Boat Squadron Basra’ shows that the funding of this programme was still fought for by the Air Staff down to the level individual flights of machines, AIR 9/34 ‘Notes on CAS Address to Staff College Students’ dated 12 December 1928 states ‘C.A.S. indicated that it was his policy not to provide a large number of flying boats in the Service’.

¹⁰⁷ AIR 9/34 note to W/Cdr. Maycock dictated by CAS on 19 November 1926

¹⁰⁸ AIR 9/34 gives numerous reports on flying boat development from the late 1920s, for an indication of the progress see AIR 1/723/64/1/1, AIR 1/1881/204/221/22 and AIR 1/2397/267/5 for detail on flying boats in and immediately after the First World War, see also AIR 5/1144 ‘Air Staff Memorandum, No. 44 The Role of the Service Flying-Boat’ dated 1 May 1929. Within the Air Staff requirements for flying boats (ASM 44) ASW is only one of the roles envisaged

¹⁰⁹ AIR 9/34 ‘Duties and Employment of Flying Boat Squadrons’

¹¹⁰ AIR 9/34 ‘RAF Staff College Andover Lecture on Flying Boat Operations’ by Sqn Ldr Waugh dated 12th June 1928.

¹¹¹ AIR 1/2393/228/13/1 ‘RAF Staff College Lecture Aircraft vs. Submarine’ dated October 1924

Admiralty'.¹¹² This view prevailed throughout the inter-war period, although there was some recognition within the RAF of the utility of aircraft in this role. However, due to the on-going conflict with the RN over control of aircraft, the RAF focused on achieving gains where they could be made and securing the independent future of air power.¹¹³ This was done by maximising on the growing interest in the potency of the bomber and advocating the financial benefits of flying boats for imperial policing. There was no significant attempt to maintain or increase the ASW capability thus making ASW a victim of the wider discourse on the role of the RAF. Within the RN there was significant belief in the potential of sonar on surface ships and a reluctance to admit the potential benefits of aircraft as such machines were outside naval control. The net result was a near stasis in the development of airborne ASW as it was deprioritised to simply one of many roles for the flying boat.

¹¹² AIR 1/17/15/1/84 Admiralty memorandum for the War Cabinet 'Programme of the Royal Air Force to 30 September 1918 Allocation of Aircraft to the Navy' dated 31 August 1918

¹¹³ For more on the early development of the RAF's role see N. Parton 'The Development of early RAF Doctrine' in *The Journal of Military History*, Vol. 72, Number 4, October 2008

CHAPTER THREE

The Shift from Disarmament to Rearmament

The subordination of military needs to economic restraints in defence policy reached its peak with the League of Nations Disarmament Conference at Geneva between 1932 and 1934. Some of the criticism of Britain's failure to promote security via this conference has been levelled at the focus on the intricacies of material disarmament, rather than the inter-state political situation.¹¹⁴ Based largely on ever present financial pressures, combined with a somewhat idealistic approach to international security, the essence of Britain's approach was to attempt to lead the way in the reduction and limitations of armaments.¹¹⁵

With regards to aircraft, disarmament was to fail in the face of opposition from other leading nations none of whom favoured disarmament. There were two main reasons: the effect of the continual decline of Britain's military strength over the previous years and the lack of a consensus of opinion on the best approach to the conference.¹¹⁶ Firstly the RAF had declined to such a point that the negotiating position was one of weakness, not strength, which was obvious to the other nations.¹¹⁷ Secondly, whilst a degree of common belief in disarmament prevailed amongst the British, there was a lack of consensus on the areas to be

¹¹⁴ C. Kitching, *Britain and the Geneva Disarmament Conference*, (Palgrave Macmillan: Basingstoke, 2003) p. 203

¹¹⁵ CAB 16/102 Final Conclusions and Resolutions of the Three Party Committee lay out the guiding principles for the British delegation at the Geneva conference. See also Kitching, *Britain and Geneva*, p. 34 for summary of Foreign Office desire to be world leaders in disarmament. As will be discussed there was a wide variance of views on this policy and considerable debate and work by the government in arriving at it, see for example CAB 21/344 CID Sub-Committee on Disarmament, CAB 16/104 Preparations for the League of Nations Disarmament Conference, CAB 27/416 Preparations for League of Nations Disarmament Conference and CAB 27/416 Economic Consequences of Disarmament.

¹¹⁶ See Montgomery-Hyde, *British Air Policy*, pp. 274-317 for a detailed account of negotiations regarding aircraft.

¹¹⁷ The expansion plan to 52 squadrons had even been halted in anticipation of the Conference.

focused on, leading to ultimate failure in achieving arms reduction.¹¹⁸ Proposals ranged from trying to limit specific aircraft types to the complete abolition of military aviation. Whilst some favoured abolishing bomber aircraft, others based their view on the concept that any aircraft was a potential bomber and went to the extreme of suggesting the removal of all military aviation and the internationalisation of civilian aviation to prevent its use for military purposes.¹¹⁹ Both these concepts found favour amongst the RN and the Army, doubtless seeing an opportunity to reassert their dominance in defence, whilst they raised passionate objections from the RAF.¹²⁰ The debate amongst the British only widened over the course of the protracted conference. The abolition of bombers was ultimately rejected by the CID as possessing ‘considerable disadvantages from the point of view of imperial defence’, though the push for total abolition of military aviation continued.¹²¹ The draft convention for the Abolition of Military Aircraft and the Internationalization of Civil Aviation was defeated by a combination of domestic objections and pressures from other nations, notably France.¹²² The push for air disarmament continued, however, in the form of more traditional treaties limiting arms.¹²³ Whilst aircraft held central stage at the conference, there were also moves to continue in the vein of the Washington Treaty with further limitations to naval vessel

¹¹⁸ T. Jones, *A Diary with Letters*, (Oxford University Press: London, 1954) p. 56 provides a succinct summary from Stanley Baldwin describing the relationship between the various politicians on disarmament as ‘we are divided’.

¹¹⁹ CAB 23/71 Conclusions of a Cabinet meeting held on 4 May 1932, Baldwin gives details of argument for abolishing bombers whilst advocating abolition of all military aviation, which is accepted in principal by the Cabinet.

¹²⁰ AIR 8/150 paper by CAS ‘Air Disarmament’ dated 11 February 1933 and AIR 8/140 ‘paper by CAS ‘Arguments Against the Total Prohibition of Air Bombardment....’ Dated 6 March 1933 give RAF’s principal views on and objections to abolishment of bombing and military aviation.

¹²¹ CAB 23/71/8 Conclusions of a Cabinet meeting held on 11 May 1932

¹²² AIR 8/149 League of Nations Conference for the reduction and limitation of armaments draft Convention submitted by the United Kingdom Delegation.

¹²³ AIR 8/150 ‘Air Disarmament Policy Appreciation by the Under Secretary of State for Air’ dated 24 February 1933 argues against abolishing bombers and for reduction and limitation treaties as ‘the policy which can alone bring about a satisfactory settlement of the air disarmament problem’.

construction including submarines.¹²⁴ Ultimately with the failure of the conference as a whole such ambitions were unfulfilled.¹²⁵

The withdrawal of Germany from proceedings marked the end of any hope of significant achievements for international security.¹²⁶ This failure came in the shadow of a worsening international political dynamic in which Churchill's warnings of Germany's forthcoming 'foreign adventure of the most dangerous and catastrophic character' were increasingly gaining credibility.¹²⁷ This was true not just amongst politicians concerned with the decline in international relations but also in the military analysis of the possible threat.¹²⁸

The effects of the Conference for Britain had been largely negative. It had highlighted the growing fear of the effectiveness of the bomber, and cannot have failed to create a degree of ill feeling between the RAF and a government which the RAF felt had been prepared to sacrifice its very existence. Most significantly, unfulfilled hopes of disarmament had distracted attention from the growing military strength of other nations to such an extent that Britain found herself militarily weaker. The indefinite adjournment of the Conference was followed by a fruitless search for alternatives to rearmament through pacts and treaties.¹²⁹ However no practicable alternative was found and Britain was forced reluctantly to look towards rearmament. The Conference period thus marks a watershed between the decline in military strength in the 1920s and the accelerated rearmament through the 1930s in the build-up to the Second World War. Whilst the need to rearm in the face of

¹²⁴ Roskill, *Naval Policy Vol. 2* pp. 134-163

¹²⁵ Kitching, *Britain and Geneva*, p. 194

¹²⁶ Germany withdrew from the Conference in October 1933, see Kitching, *Britain and Geneva*, p. 174.

¹²⁷ W. S. Churchill, *The Second World War Vol.1: The Gathering Storm*, (London; Cassell, 1948), p. 81

¹²⁸ CAB 4/22 CID Imperial Defence Policy paper 1112-B dated 6 June 1933 dated 12 October 1933 and 1113-B characterise Germany respectively as 'evil' and a 'public menace', AIR 8/150 'Notes on First Impressions on Sir John Simon's Latest Paper' dated 19 October 1932 the concluding statement notes potential use of German civilian aviation for military purposes to make them 'at a stroke of the pen...overwhelmingly our masters'

¹²⁹ Montgomery-Hyde, *British Air Policy* pp. 303-305

growing foreign forces, especially Germany, had finally been conceded, the frictions between the Services regarding their defined roles would continue to be played out in the competition for the still limited funding, with negative implications for the already stagnant airborne ASW capability.

Defence by Deterrence

The failure of the disarmament conference and the worsening international situation forced a review of Britain's defence posture, specifically the capability shortfalls accumulated under the ten year rule; this was conducted by the Defence Requirements Committee (DRC) in 1933.¹³⁰ The submissions put before the DRC almost suggest disinclination towards rearmament from the Air Ministry. The initial RAF proposal was merely a continuation to completion of the expansion to 52 squadrons which had been halted pending the outcome of the Geneva conference.¹³¹ The DRC report acknowledged the precariousness of Britain's position and recommended a programme to address these deficiencies. The threat from Germany acquiring submarines was considered significant. However, plans to counter it were initially limited to mooted the potential requirement to equip some auxiliary naval vessels for ASW.¹³² The DRC report was ultimately toothless in terms of airborne ASW. There was acknowledgement for the need for aircraft for ASW in home waters. Although commended to the cabinet for special attention, this is not considered significant enough to warrant a recommendation for investment in the report itself.¹³³

¹³⁰ CAB 16/109 CID Defence Requirements Sub-Committee memorandum dated 10 November 1933 gives details of composition and terms of reference for the DRC.

¹³¹ CAB 16/109 Air Ministry Forecast discussed in CID DRC Minutes dated 30 January 1934

¹³² AIR 8/161 CID DRC report dated 28 February 1934 p. 9

¹³³ AIR 8/161 CID DRC report dated 28 February 1934 pp.10-11, 33-34

At a ministerial level there was a significant shift of focus from imperial defence to the European theatre especially the potential threat from Germany via bombing. The recommendations of the DRC for the RAF were seen as inadequate and a specially appointed sub-committee directed the preparation of a programme for greater expansion. The directive required CAS to pay ‘particular attention to achieving the maximum deterrent effect’.¹³⁴ The resultant programme was the first of a series of alphabetically designated expansion schemes, several of which never came to fruition due to constant revisions, driven by a desire to form an effective deterrence against Germany. Through the expansion process the proposals of the Air Ministry were not necessarily accepted, mirroring the ministerial rejection of the original DRC recommendations as inadequate, 1935 saw the formation of an Air Parity sub-committee to improve on the Air Ministries propositions. Deterrence through parity became the bedrock of defence policy, and effective deterrence naturally required large increases in the number of bombers.¹³⁵ As would be expected the increased bomber striking capability was accompanied by an increase in air defence provisions.¹³⁶ Whilst it can be claimed that parity with potential enemies had long been part of British defence policy, the situation had now shifted such that the government was prepared to fund achieving it for the RAF.¹³⁷ The constant reactions to estimates of German aviation capabilities, generated considerable debate as to exactly what parity meant and how it could be measured. Seeking to match numbers of aircraft and squadrons was ineffective and there was considerable discussion as

¹³⁴ AIR 8/249 Historical summary of British air re-armament and comparative table of R.A.F. expansion schemes

¹³⁵ It is noteworthy that there was not universal acceptance for a policy that in effect promoted an air arms race; see for example WO 190/329 note from Colonel of the General Staff dated 9 May 1935 warning against the dangers of this policy.

¹³⁶ AIR 2/1386-95 Home Defence Committee Sub-Committee on the re-orientation of the Air Defence System of Great Britain papers give more detail on some of the work in this area.

¹³⁷ The desire to match Germany’s bomber force is reminiscent of the naval arms race to match her capital ships fleet prior to the First World War, for more on the history of British armament strategy see G. Penden, *Arms, Economics and British Strategy*, (Cambridge: Cambridge University Press, 2007)

to how to assess the actual relative striking capability of the RAF.¹³⁸ It can be seen therefore that despite the widespread acceptance of the parity goal, there was a lack of an effective measure for its achievement. This is indicative of the short comings of this approach as an effective defence policy.

The RAF's growth in the 1930s owed more to the actions of government committees than to the Air Ministry and senior officers; hence, it was the desire amongst politicians for a powerful bomber force which directed the focus of the expansion. However the Air Ministry did shape the details of the expansion schemes such that Coastal Area was not totally ignored and achieved some limited growth, though it was only a fraction of that of the bomber and fighter forces.¹³⁹ Whilst it can be argued that action at a ministerial level led to reliance on the bomber force as the key tenet of defence policy, the near-religious belief in the potential of this weapon was also the bedrock of thinking at senior levels within the RAF.¹⁴⁰ It was the supreme faith in this specific capability that proved to be the single biggest factor in stymieing development of appropriate ASW aircraft. A 1933 note from CAS highlights this, arguing against relying on fighters as the sole defence of London. Much emphasis is placed on the dangers presented by submarines to the supply of food. However, it makes no mention of the potential of maritime aircraft, instead arguing solely for 'the vital necessity for offensive bombing aircraft'.¹⁴¹

In reviewing the growth achieved, the challenge echoes that facing those questing for air parity in the 1930s, namely that squadron and airframe numbers do not provide a full account of military capability. Costs vary between aircraft types and the allocations made for

¹³⁸AIR 8/227 gives detail on the debate over the principals of parity including various statements from government spokesmen.

¹³⁹ AIR 8/249 Comparative Table of RAF Expansion Schemes

¹⁴⁰ Slessor, *Central Blue*, pp. 166-167

¹⁴¹ AIR 8/150 memorandum from CAS to Secretary of State dated 27 February 1933

the growth of maritime forces in the expansion schemes were split between land based aircraft and flying boats.¹⁴² The landplane received a greater share of the increase in maritime forces. There are two logical motivations for this; firstly, land based aircraft were considerably cheaper, hence a greater increase in numbers could be achieved at less cost. Secondly, land based aircraft were more easily re-rolled to other tasks. This had specific negative consequences for ASW, in that the shorter range of the land based aircraft compared to the larger flying boats limited their use. Those flying boats provided by the expansion scheme were of limited range; the effect of this oversight would become apparent in the early stages of the Second World War with the emergence of the Atlantic Gap.¹⁴³ In critiquing the expansion schemes, it should be noted that they were reflective of the higher level thinking in defence and served the purpose for which they were designed. Both the land based aircraft and flying boats allocated to coastal area were originally designated as general purpose squadrons, later changed to general reconnaissance squadrons, giving a clear indication of their intended use: to augment other capabilities, rather than provide a specific ASW capability.¹⁴⁴ This theme is continued through the later expansion schemes, whereby the increase in general reconnaissance squadrons was altered to a type of aircraft that would have a dual role use as a bomber; this had a double effect of increasing the strength of that force as well as reducing the costs associated with operating multiple aircraft types.¹⁴⁵ The increases in aircraft numbers during the expansion schemes do not, however, give a full picture of the relative growth of maritime air power. Once allocated by the expansion schemes, the new aircraft would then have to be procured. Having won a share of the financial allocation,

¹⁴² AIR 8/249 Comparative Table of RAF Expansion Schemes

¹⁴³ This was an area where initially no air cover was available for ships crossing the Atlantic, for a graphical representation see Admiralty, *The Battle of the Atlantic*, (London: HMSO, 1946), pp. 46-47

¹⁴⁴ AIR 8/249 Comparative Table of RAF Expansion Schemes, AIR 2/2729 shows correspondence between Deputy Director Plans, a post held at this time by Harris, and DCAS in November 1936 explicitly expanding on the policy of effectively turning General Reconnaissance squadrons into bomber reserves.

¹⁴⁵ AIR 8/215 enclosure 10 CAS letter dated 21 December 1936 regarding expansion scheme H.

Coastal Command would again compete with other areas of the RAF for allocation of productive capacity.¹⁴⁶ This often resulted in a lower priority for the building of maritime aircraft compared to bombers and fighters.¹⁴⁷

Along with aircraft strength, the other principal factor in determining the effectiveness of air power in the ASW role is the ability to prosecute a target, once detected. The main munition at this time was the anti-submarine bomb; this had performed poorly during the First World War and was the object of development in the interwar period.¹⁴⁸ As with other aspects of maritime air power, funding was inadequate, resulting in deficient bombs, bomb sights and bomb release equipment with limited effectiveness.¹⁴⁹ In direct contrast to the positive role technology played in shaping RN ASW policy via ASDIC, the lack of effective ASW weapons for the RAF created a technological shortfall to further restrict the development of an effective airborne ASW capability.

The large size increase from the expansion schemes led to a functionally orientated organisational restructure such that in 1936 Coastal Area became Coastal Command and Fighter and Bomber Commands were also created.¹⁵⁰ The shift to Commands was intended to provide a structure capable of utilising the increased number of aircraft, as well as to deconflict the demands of both an offensive and defensive force. The inclusion of coastal forces in the reorganisation was not, however, indicative of equal status. Given that the main task of Coastal Command was co-operation with the geographically structured RN, the

¹⁴⁶ CAB 16/123 Minutes of Interdepartmental meeting held on 6 February 1936 discussing industrial production give an indication of some of the problems with the massive increase in British industrial output required by the expansions schemes.

¹⁴⁷ See Hendrie, *Cinderella Service*, pp. 25-46 for more detail on maritime aircraft procurement. Although taking the procurement of fighter and bomber aircraft as its subject C. Sinnott, *The Royal Air Force and Aircraft Design 1923-1939*, (London: Frank Cass, 2001) gives a useful overview of the procurement process.

¹⁴⁸ AIR 41/81 Armament Vol. One Bombs and Bombing Equipment 1952 pp. 30-38, 275-312, provides a narrative of anti-submarine bomb development.

¹⁴⁹ Price, *Aircraft vs. Submarine*, pp. 34-35, Hendrie, *Cinderella Service*, pp. 47-59

¹⁵⁰ Expansion scheme C led to the formation of the Commands structure see AIR 8/249 Comparative Table of RAF Expansion Schemes, AIR 2/8877 gives detail of the conference held to discuss the restructure,

system enforced by the new Commands structure was far from ideal. Coastal Command was not of sufficient size to form a Group to correspond to each of the local RN commands, and its inability to match its own command structure with that of the RN would prove detrimental to their co-operation.¹⁵¹ Despite an appreciation of these issues at the highest levels in the RAF, the new structure was still introduced.¹⁵² The adherence to this inappropriate structure shows another way in which needs of the maritime forces were subjugated to those of the fighter and bomber. Not until 1939, once the ineffectiveness of this system had been proven in joint exercises, would a fit-for-purpose, geographically based Group structure be introduced, which would remain for the duration of the Second World War.¹⁵³

Reports on the growth of German aviation were matched by those on the increase of the German navy, including submarines. The DRC's report acknowledged this, pairing submarines with aircraft as 'The greatest potential threat'.¹⁵⁴ The view of ASW as primarily a RN responsibility prevailed and this was reflected in the allocation of funds to the RN for ASW by the DRC. The same ministerial committee which rejected the DRC proposal for the RAF as too small would take the opposite view in the case of the RN and cut the sums allocated.¹⁵⁵ For their part the RN still placed all its faith in ASDIC as having largely nullified the submarine threat.¹⁵⁶ This was despite the fact that it was still a relatively new technology and relied on a suitably equipped vessel being in close proximity to the

¹⁵¹ AIR 41/45 AHB Narrative The RAF in Maritime War Vol. 1, pp. 137-140

¹⁵² AIR 2/8877 conference notes show several comments from the representatives of Coastal Area highlighting the unsuitability of the new structure to their specific requirements.

¹⁵³ Buckley, *The RAF and Trade Defence*, pp. 87-89

¹⁵⁴ CAB 16/109 DRC report dated 28 February 1934, p. 9, the 1935 Defence White Paper also acknowledged the extent of German rearmament.

¹⁵⁵ Roskill, *Naval Policy Vol. 2*, pp. 170-171

¹⁵⁶ ADM 116/3978' Memorandum for First Meeting of Shipping Defence Advisory Committee – March 1937' shows a complete reliance on naval surface vessels to counter the submarine threat

submarine.¹⁵⁷ It is a measure of the level of faith in this technology that in the preliminary meetings for the London Naval Conference of 1935-6 the British were willing to accept numerical equality in submarines with Germany.¹⁵⁸ The RN's overconfidence is also evident in its failure to conduct effective ASW exercises in the interwar period.¹⁵⁹ This self-deception by the Admiralty bordered on negligence given the evidence from a live action in the Mediterranean during the Spanish Civil War where ASDIC failed to perform satisfactorily.¹⁶⁰

As previously noted, RN policy for the use aircraft in ASW was based around reconnaissance; this was to prove of greatest benefit when used in conjunction with convoys. Despite internal debate within the RN, convoys were ultimately considered 'the most effective form of protection against surface, submarine or air attack'.¹⁶¹ Even in the face of suggestions to the contrary, much planning was put into place for the instigation of convoys at the outbreak of war.¹⁶² Though some exercises were conducted during the 1930s, the use of military ships in lieu of merchant vessels and the skewing of such exercises away from reality to maximise training benefits reduced the development of useful joint tactics in this area.¹⁶³ The lack of inclusion of maritime aircraft in the planning for an effective convoy system was yet another factor in retarding the development of ASW aircraft.

Interest in maritime air power within the RN lay mainly in regaining control of it. RN officers held syndicate discussions and provided summary reports on the 'Potential for Flying

¹⁵⁷ It should also be noted that whilst ASDIC was felt to be effective in locating submarines in the vicinity of merchant vessels if was of little use in locating enemy submarines at sea, which would require a third party sighting for example by an aircraft, however the relatively low speed of a surface vessel meant that it was unlikely to be successful in locating and prosecuting a target unless it was already in the vicinity.

¹⁵⁸ Roskill *Naval Policy Vol. 2*, p. 305

¹⁵⁹ *Ibid.*, p. 226

¹⁶⁰ *Ibid.*, p. 383 and Franklin, *British Anti-Submarine Capability*, p. 180

¹⁶¹ ADM 1/9182 Shipping Defence Advisory Committee: interim report dated 26 October 1937

¹⁶² AIR 2/2729 CID minutes regarding 'Protection of sea-Borne Trade' dated 2 December 1937 show a policy that a 'decision [on the use of convoys] ...should be made in light of war experience.' ADM 1/9501 shows planning for immediate instigation of convoys on the outbreak of hostilities.

¹⁶³ Llewellyn-Jones, *The Royal Navy*, p. 5, Roskill, *Naval Policy Vol. 2*, p. 431

Boats in Naval Operations' during 1931/2.¹⁶⁴ The reports of this investigation show a reasonable spread of opinions on the potential for these aircraft in ASW. Several reports acknowledged the threat from submarine and the potential of the flying boat as 'probably the greatest antidote'.¹⁶⁵ Summaries provided by senior officers, however, viewed flying boats as of limited use due to their inability to fulfil the same ASW role as surface craft.¹⁶⁶ Thus, at the senior level, capable of influencing policy, the main role of aircraft is still seen as supportive reconnaissance, expressed in the view that it was 'more than doubtful if flying boats unaided, will ever be able to destroy or neutralize hostile forces (whatever their nature) employed in the attack on trade'.¹⁶⁷ Attention was firmly focused on who controlled maritime aircraft, both land-based and flying boats, rather than the potential benefits of their employment. The decision was made not to pursue the inflammatory issue of control of flying boats, presumably to maintain the focus of deliberations with the Air Ministry firmly on the topic of the Fleet Air Arm (FAA) as a whole.¹⁶⁸

Overall the RN was eager to champion the advantages of carrier aircraft, over flying boats in trade defence roles.¹⁶⁹ Again these suggestions of the innate benefits of carrier aviation reflected the RN's on-going desire to regain control of the FAA. This was to be a major theme in RN thinking on aviation, and competition between the two Services reached a point whereby a specific inquiry was set up into maritime aviation.¹⁷⁰ This would ultimately

¹⁶⁴ ADM 116/2862 Aircraft and the Navy 1931-1934

¹⁶⁵ ADM 116/2862 syndicate report on 'Strategical Problem 'F'' HMS Royal Oak dated 12 October 1931

¹⁶⁶ ADM 116/2862 covering minute for Strategical Investigation 'F' report on potentialities of Flying Boats in naval Operations from director of planning dated 10 March 1932

¹⁶⁷ ADM 116/2862 remarks of Vice Admiral Second in Command 'Strategical question 'F'' p. 2, 10 March 1932

¹⁶⁸ ADM 116/2862 Co-Operation of Flying Boats with the Navy paper prepared at the instruction of Assistant Chief of the Naval Staff arguing for naval operational control of flying boats

¹⁶⁹ AIR 2/2729 RN paper Requirements of Aircraft for Protection of trade and for Coastal Operations p. 10

¹⁷⁰ CAB 64/25 gives details of the various submissions considered by the inquiry headed by the Minister for Co-ordination of Defence, Sir Thomas Inskip.

return control of the FAA to the RN whilst leaving coastal forces within the RAF.¹⁷¹

Naturally this was opposed by the RAF who, abiding by their belief in the unity of command of air power, lobbied to retain control of all maritime aviation.¹⁷² The RAF was equally guilty of prioritising the control of resources over their effective use. Correspondence predating the culmination of the naval aviation controversy suggests a plan to use flying boats for non-maritime tasks for the sole purpose of strengthening the argument for keeping them under RAF control.¹⁷³ For airborne ASW, this was of relatively little consequence as neither the RN nor the RAF had been promoting the use of aircraft in this role. The RN mirrored the general preoccupation with the threat of air attack and its main aim in increasing the FAA was to provide the fleet with protection against such attacks.¹⁷⁴

The theme of concern over the control rather than the potential use of assets continued in attitudes to ASW throughout the 1930s. Two concurrent staff papers from both the RN and RAF on the use of aircraft in trade defence serve to encapsulate this view.¹⁷⁵ The RN paper places its focus on the role for aircraft in ASW as being in supporting their own ASDIC vessels as the main thrust of any ASW campaign. The fact that the paper was filed in an Admiralty dossier concerned with regaining control of the FAA highlights the view of airborne ASW as simply a support to the RN's case for control of maritime aviation rather

¹⁷¹ CAB 64/24 gives full detail of the report of the inquiry, though this did not serve to end the inter-Service bickering for example AIR 2/2658 shows correspondence debating implementation of the report itself, ADM 116/3725 RN papers covering various issues regarding the reorganisation, see Roskill *Naval Policy Vol. 2*, pp. 392-415 for a full narrative.

¹⁷² AIR 19/23 CAB 23/89/4 conclusions dated 29 July 1937 Inskip comments on the strength of the Air Ministries argument for RAF control.

¹⁷³ AIR 9/34 letter from W/C[sic] Harris to Gp. Captain[sic] Portal dated 30 October 1932, this shows the early attitudes of the two individuals who would go on to hold the posts of AOC-in-C Bomber Command and CAS during the Second World War.

¹⁷⁴ The vulnerability to air attack especially of capital ships was constantly debated in the inter-war period see ADM 116/4324 Sub-committee on the Vulnerability of Capital Ships to Air Attack (1936), AIR 8/202 Memoranda on Vulnerability of capital ships to air attack and AIR 2/2591A for information on bombing trails against capital ships.

¹⁷⁵ AIR 2/2729 Sea communications and trade protection in time of war: proposed squadrons and aircraft required

than a capability to be developed.¹⁷⁶ The bulk of the RAF paper sought to emphasise air attack as the primary threat and one which could only be effectively countered by aircraft. The RAF response, both in critiquing the RN paper and drafting its own, aimed to play down the submarine threat in light of the ‘improvements in naval equipment’, and to advocate the effectiveness of bomber aircraft.¹⁷⁷ It proposed the use of long range bombers against the ports and shipyards supporting submarines, an approach which had been employed with little success during the First World War.¹⁷⁸ Airborne ASW was thus marginalised in the early surge for rearmament. Furthermore the gains made by the Coastal force did not remedy the deficiencies accumulated under the austerity of the 1920s. This failure to develop resulted from the faith of the RN in its own new technologies, the RAF belief in and focus on bombing, and the interactions between the Services which focused on control of resources to the detriment of development of capabilities.

The Dash for Defensive Rearmament

Focus on deterrence, through possession of the ability to deliver a dramatic short term bomber offensive, continued as the cornerstone of a policy of ‘adequate deterrence to Germany’.¹⁷⁹ The Ministerial Committee, which had rejected the DRC’s initial recommendations, was surpassed by the Defence Policy and Requirements Sub-Committee in 1935, though the perceived shortcomings in Britain’s defensive capabilities were such that its

¹⁷⁶ ADM 116/3724 Fleet Air Arm: transfer of control to the Navy

¹⁷⁷ AIR 2/2729 Memorandum by Deputy Director Plans (Harris) dated 1 November 1935

¹⁷⁸ Abbatiello, *Anti-Submarine Warfare* pp. 59-81

¹⁷⁹ PRO 30/69/631 CID Defence Requirements Sub-Committee Programmes of the Defence Services report dated 21 November 1935, p. 10

work was subject to revision at Cabinet level.¹⁸⁰ Such was the clamour to rectify the cumulative deficiencies in Britain's military that there were now three committees providing policy papers to the cabinet in addition to a Ministerial position specifically charged with co-ordinating defence.¹⁸¹ The ineffectiveness of the quest for air parity caused considerable anxiety on security issues, as by the late 1930s financial pressures had made the number of aircraft required unaffordable. Coupled with the expansion of the German forces, this led to a reappraisal of fundamental British defence planning assumptions, led by the Minister for Co-ordination of Defence, Sir Thomas Inskip in 1937.¹⁸² This moved the focus for the RAF away from decisive strikes to a more balanced approach with an increased focus on defensive capabilities.¹⁸³ Inskip's recommendations shifted the emphasis of the continuing expansion programmes.¹⁸⁴

The developing threat of a conflict in Europe forced increasingly pragmatic appraisals of defence requirements as rearmament gained momentum.¹⁸⁵ Germany's U-boat capability was no longer the object of theoretical intelligence speculation, but a very real and acknowledged threat.¹⁸⁶ The fundamental tenet of the new approach heralded by Inskip's reappraisals of defence needs was that a future conflict would not be won by short term decisive striking actions, but over a protracted period combining striking force with

¹⁸⁰ CAB 21/422a Defence Policy and Requirements Sub-Committee terms of reference dated 30th December 1935

¹⁸¹ The CID and its various sub committees had by this point been supplemented by the Defence requirements Committee, the Defence Policy and Requirements Committee and the Minister for the Co-ordination of Defence, this complex and diffuse structure led to considerable pressure for the formation of a Ministry of Defence see Roskill, *Hankey Vol. 2*, pp. 178-179, 192-211

¹⁸² CAB 23/91 Cabinet conclusions dated 22 December 1937

¹⁸³ AIR 8/226 Aide Memoire written by Sir Thomas Inskip dated 9 December 1937

¹⁸⁴ AIR 8/249 gives details of expansions scheme up to scheme L; AIR 8/240 gives details of scheme M the last pre-war expansions scheme.

¹⁸⁵ CAB 21/531 Memorandum on 'Cost of defence Requirements' by Sir Maurice Hankey dated 23 November 1937 discusses various potential threats prioritising that from Germany.

¹⁸⁶ CAB 16/112 CID DRC paper 'Summary of the Latest Information Available regarding the Expansion of German and Japanese' dated 24 July 1935, see also ADM 116/3373 'German's Naval Forces – 1939 and 1942. Estimate of Joint Planning sub-committee'.

economic pressure.¹⁸⁷ Implicit in this was Britain's need to maintain her fighting effectiveness over a long period; in terms of a European centred conflict, this placed huge importance on her SLOCs. Their vulnerability to submarine attack had been well established in the First World War, as had the Germany's willingness to conduct an unrestricted submarine campaign, it was assumed this would feature from the outset of any future war.¹⁸⁸ This increased acknowledgement of the threat did not, however, result in a shift in policy with regard to trade defence; instead, the RN belief in ASDIC to 'rob[s] them of their chief advantage...and profoundly affect a future submarine campaign' prevailed.¹⁸⁹ There was, however, an acceptance of 'the possibility of losses from submarine attack' whilst this force was bought up to strength in the opening stages of a war.¹⁹⁰

The increasingly sharp focus on the need to protect the SLOCs could have potentially afforded the RAF, which was considered to be 'a very high if not first priority', a second opportunity to mould a more balanced structure for the anticipated conflict.¹⁹¹ However, discussion concerning Trade Defence Squadrons did not result in significant increases in the strength of coastal command, nor were the gains made in bespoke maritime aircraft.¹⁹² In line with the prevailing attitudes regarding strategic bombing the main advantage of the increases in strength of the General Reconnaissance aircraft was seen in the Air Staff as a gain in the 'number of additional potential bombers'.¹⁹³ This view of the potential use of Coastal aircraft in support of the air offensive came to dominate in Coastal Command, with naval co-

¹⁸⁷ AIR 8/226 Aide Memoire written by Sir /Thomas Inskip dated 9 December 1937

¹⁸⁸ CAB 4/26 CID paper 'The protection of Seaborne Trade' dated 26h November 1937 p. 2

¹⁸⁹ CAB 4/26 CID paper 'Defence Against Submarine Attack' dated 24 March 1937 p.5

¹⁹⁰ CAB 2/7 CID minutes dated 2 June 1938

¹⁹¹ CAB 21/531 Memorandum on 'Cost of defence Requirements' by Minister for co-ordination of Defence dated 23 November 1937

¹⁹² Although Inskip's recommendations were accepted by Cabinet, they were not popular with the air staff, AIR 8/249 describes his recommendations on war reserve reductions as 'arbitrary', AIR 8/226 'Note of Aide Memoire and Attachment by Sir Thomas Inskip' dated 11 December 1937 contain several objections based on the assertion that 'he may be subject to...fundamental misconception(s)'

¹⁹³ AIR 8/226 paper by Deputy Director Plans dated 18 December 1937

operation in coastal defence in a secondary position and trade defence only forming a very small portion of its role.¹⁹⁴ Hence one of the two war roles for Coastal Command was ‘Co-operation with the Bomber Command in the Main Strategical Air Offensive’, although in laying down these roles there is considerable criticism of the lack of direction from the Admiralty.¹⁹⁵ Ultimately as war loomed closer there was a realisation that the focus on a bombing role for Coastal Command was at risk of negating its existence, and inhibited the organisation of any effective structure for a wartime maritime force.¹⁹⁶ As late as 1938 there was ‘no clear cut picture of what is expected of aircraft co-operating with the A/S surface craft’.¹⁹⁷ The renewed emphasis on trade protection led to a series of conferences and exercises with the RN and RAF redefining Coastal Command’s war role.¹⁹⁸

Despite year of sometimes frenzied rearmament, outbreak of war found airborne ASW still a poorly armed reconnaissance platform, virtually undeveloped in real terms since the First World War.¹⁹⁹ At a political level, blame can be levelled at the myopic attitudes of faith in single capabilities; ASDIC to negate the submarine threat and bombers which it was widely believed by all politicians would provide the foundation of victory in a future conflict. These attitudes were the result of the expert advice of the Service chiefs; hence the lion’s share of responsibility for the lamentable state of airborne ASW in 1939 must be laid at their door. If the status of air power in ASW had remained static through the interwar period some

¹⁹⁴ AIR 2/1665 ‘The Role of Coastal Command in War’ authored by Commander in Chief Coastal Command dated 22 December 1936, ‘The Role of Coastal Command in War’, unknown author, paper dated 13 January 1936, see also AIR 2/1999.

¹⁹⁵ AIR 2/1999 letter to AOC-in-C Coastal Command dated 25 March 1937. Further papers show there was considerable background debate to this decision, with Coastal Command itself advocating a more appropriately maritime role amidst a lack of direction from the RN.

¹⁹⁶ AIR 2/1935 minute from Deputy Director Operations to DCAS dated October 1937

¹⁹⁷ AIR 15/65 minute dated 23 March 1938

¹⁹⁸ AIR 15/65 Role and Organisation of Coastal Command in war

¹⁹⁹ Price, *Aircraft vs. Submarine*, pp. 35-36, Hendrie, *Cinderella Service*, p. 202, Gibbs *Grand Strategy Vol. 1*, p. 433-434. Llewellyn-Jones, *The Royal Navy*, p. 11 takes an opposing view of the interwar development of ASW though this is not substantiated in the case of aircraft.

of the reasons behind this at a Service level shifted over the 21 years between the conflicts. The RN faith in ASDIC as a definitive ASW solution capable of ensuring that the submarine would 'never...be a fatal menace again' was consistent, despite being unproven in a conflict scenario.²⁰⁰ RN reluctance to explore the role of aircraft in ASW also remained consistent, due to their rivalry with the RAF for control of maritime air power. RN focus remained on the surface threat to commerce the defence against which they saw being aided by aircraft in a reconnaissance role.²⁰¹ The RN approach was aided by the RAF's acceptance of their responsibility for ASW. It is in the motivations for this that we see a change over the period. In the initial period of austerity and the era of the disarmament conference, the RAF focused on its own continued existence through promoting the most politically popular capability type, bombers, rather than the development of its potential capabilities in other areas. In the rearmament period the potential to develop airborne ASW was affected less by inter-Service rivalry; however, internal conflict within the RAF, again with those championing bombing capability, continued to stymie the development of ASW. Within the RAF, this led to a limited numerical expansion of the maritime arm, ensuring that new aircraft were procured with an eye for potential use in an offensive bomber role. The 'variegated air policy' of the interwar years, despite its numerous shifts ranging from total disarmament to urgent rearmament, was always focused on bomber and to a lesser extent fighter capabilities.²⁰² Thus, the RAF squandered the opportunity to develop an effective ASW force during the expansion period.²⁰³ Whilst the RN and the RAF contributed in different ways to the lack of

²⁰⁰ ADM 116/3635 minutes of the first meeting of the Shipping Defence Advisory Committee dated 10 March 1937

²⁰¹ AIR 15/3 Air Ministry paper regarding the war role of Coastal Command dated 28 January 1938 see also CAB 53/41 CID Chiefs of Staff Sub-committee 'War Plans' paper dated 25 October 1938, Air Force plans mention trade protection under 'plans for reconnaissance in co-operation with the Navy'

²⁰² Montgomery-Hyde, *British air Policy*, p. 502

²⁰³ Joubert de la Ferte, *Birds and Fishes*, pp. 118-119 outlines of several of the key aspects of this argument in an eloquent if somewhat parochial fashion. However these views are not substantiated with evidence much of which would have been unavailable at the time of publishing.

effective airborne ASW policy, the actions of both were rooted in the same institutional culture, namely the inability and unwillingness to work outside their natural sphere of operations. For the RN this resulted in the subsurface threat being seen as a distinctly naval problem and as such it required a naval solution. In the same vein when the RAF assessed its potential role in trade defence, it focused on the air threat to SLOCs, seeing an air problem necessitating an air solution. Both Services were thus limited by their own organisational cultures in their ability to think in joint terms. They failed to appreciate the potential of tackling the threat in one operational environment from a capability in another, thus the potential of air power in ASW remained underdeveloped in the interwar period, lost in the scramble for rearmament.

The final days of peace did yield recognition of the future ASW role of aircraft in some circles.²⁰⁴ There was joint training of the RAF with the RN ASW School, a detailed RN minute regarding ASW, and serious RAF effort in devising air ASW tactics.²⁰⁵ This was definitely a case of too little too late, with the RAF and RN discussing the ideal characteristics for ASW aircraft less than nine months before the outbreak of war.²⁰⁶ The source of this this eleventh hour epiphany is unclear, but unfortunately it does not seem to be indicative of a progression in inter-Service relations, as indicated by a Plans memorandum that the motivation for developing ASW capability was the fear that

‘When the history of the next War is written...we shall be told that the Air Ministry could not meet the submarine menace and the F.A.A. had to come to the rescue!’²⁰⁷

²⁰⁴ ADM 1/12141 undated minute from June 1939

²⁰⁵ ADM 1/12141 Minute from DNAD dated 14 May 1939 on joint training and RN memorandum ‘Anti-Submarine Striking Forces’, AIR 15/38 shows various minutes in 1939 discussing location and attack methods from the air. See also AIR 15/46 for exercise reports on ‘Air Co-operation with A/S School, Portland May 1939.

²⁰⁶ AIR 15/38 signal on RN memorandum ‘Anti-Submarine Striking Forces’ dated 16 December 1939

²⁰⁷ AIR 15/38 Minute to Senior Air Staff Officer from Wg Cdr plans dated 10 February 1939

Regardless of motivation, this late push for an ASW capability mostly at a tactical level and incapable of producing a significant shift in policy before the outbreak of war. Given the lead time in aircraft procurement and the complexity of arranging joint exercises with an underdeveloped system of co-operation it would make little difference in the readiness of Britain to defend her SLOCs at the outbreak of hostilities with Germany, though it did serve to point towards the future of ASW.

CHAPTER FOUR

The Test of Battle

The bombing campaigns which had been at the centre of interwar policy-setting were slow to become effective during the Second World War.²⁰⁸ Contrastingly, the war against seaborne trade began instantaneously, with the sinking of *Anthenia* on the day of Britain's declaration of war.²⁰⁹ The first blow by Coastal Command followed two days later, with an attack against a surfaced submarine off the Scottish coast.²¹⁰ The attack consisted of the British aircrew misidentified a RN submarine as hostile and attacked it with A/S bombs; although causing no damage to the vessel, the bombs severely damaged the attacking aircraft, forcing it to ditch. This was not an isolated incident. Whilst the misidentification indicated a lack of crew training; self-inflicted bomb damage was a common problem owing to the inadequacies of the weapon and the lack of a suitable bomb sight, one of the major threads of the lack of preparedness of Britain's airborne ASW forces. The fact that despite consistent sightings by Coastal Command aircraft the first U-boat kill by an aircraft was achieved by a Bomber Command crew in January 1940 using general purpose bombs again shows the inability of Coastal Command to conduct effect ASW operations at this point.²¹¹

The narrative of the Battle of the Atlantic has been recounted in detail elsewhere but a brief overview of the salient facts is necessary to define those aspects which directly resulted from policy decisions.²¹² The conflict can be viewed in two distinct phases: initial German

²⁰⁸ Dean, *The Royal Air Force*, pp. 118-119

²⁰⁹ S. W. Roskill *The War at Sea 1939-1945 Vol.1*, (London: HMSO, 1954), p. 103, though the Battle of the Atlantic would not be officially declared until much later in the War by Churchill conflict in this theatre began at the outbreak of hostilities.

²¹⁰ AIR 27/1436 contains post sortie report; see also Ashworth, *Coastal Command*, p. 21 and Price, *Aircraft vs. Submarine*, p. 39-40.

²¹¹ Price, *Aircraft vs. Submarine*, p. 42

²¹² Terraine, *Business in Great Waters* and Padfield, *War Beneath the Sea*, give an overall narrative of the U-boat portion of the Battle of the Atlantic.

domination before the Allies gained the upper hand, culminating in Allied victory with the withdrawal of the U-boats from the Atlantic in 1943. The early phase saw the Germans exploit their ability to expand their U-boat fleet at a far greater relative rate than Britain's ASW forces.²¹³ This, combined with shorter transit routes offered by the ports gained with the fall of France, and Coastal Command's inability to operate in the centre of the Atlantic, allowed them to inflict severe losses on Allied shipping.²¹⁴ The balance ultimately swung in Britain's favour; from having been forced to revert to First World War scarecrow tactics in 1939 in a bid to provide deterrence, Coastal Command made significant gains in aircraft both in type and quantity, especially after the Battle of Britain. This, combined with the exploitation of new technologies and intelligence sources, allowed a successful aggressive ASW campaign from 1942 onwards. Had the war continued, it is possible that the German navy would have returned to the Atlantic with new U-boat designs.²¹⁵

From an air power perspective, the result of the Battle of the Atlantic was determined by four main factors: the use of signals intelligence, the effective control of Coastal Command and its co-operation with the RN, the provision of suitable resources and the development of new technologies. With regard to signals intelligence, this was 'the most important source of information for the Allies on the activities of German U-boats'.²¹⁶ The interception of signals traffic allowed the plotting of likely positions for U-boats, which could

²¹³ Though in common with their hunters at Coastal Command the U-boat fleet were still saddled with inadequate peace time targets for new vessels which were not being achieved, see Terraine, *Business in Great Waters*, pp. 220-221, the inadequacies in aircraft and equipment for Coastal Command were however far more significant, Hendrie, *Cinderella Service*, p.72.

²¹⁴ AIR 15/19 paper by DCAS dated 16 July 1940 gives detail of the effect of German occupation of Norway, France and the Low Countries on the trade protection war

²¹⁵ AIR 15/454 gives information on faster ocean going boats, AVIA 7/3807 enclosure 23a 'notes on a visit to ORS Coastal Command' on 5 March 1945 for estimates on type XXI U-Boat performance, see also S. Roskill, *The War at Sea, Vol. 3, Pt. 2*, (London: HMSO, 1961), pp. 285-308 and Padfield, *War Beneath the Sea*, pp. 460-4, 520-2.

²¹⁶ D. Syrett (Ed.), *The Battle of the Atlantic and Signals Intelligence: U-Boat Situations and Trends, 1941-1945* (Aldershot: Ashgate, 1988), p. xi

then be used to re-route convoys accordingly.²¹⁷ Intelligence, however, was an area with its own policy paradigm, centred mainly on its effective exploitation whilst protecting its sources.²¹⁸ Once collected, intelligence is not usually the subject of competition from differing sections of the military in the same way other resources are; debate over its use is normally centred on the advantage gained against the risk of revealing the source. Thus, further examination of this area will provide little illumination on the role of RN and RAF in ASW policy. However, the other factors were all debated at the policy level, a debate impassioned by the consequences of shipping losses and the effects of the disruption to Britain's supply lines, as such they are worthy of individual consideration.

A constant thread among these factors is the level of priority afforded to ASW as part of trade defence within the overall war effort. At the opening of the conflict, Coastal Command was in a weak position regarding its aircraft types and strength, and had still not achieved the modest targets set for it.²¹⁹ The outbreak of War brought a swift change in the control of the armed forces with the establishment of the War Cabinet; this, however failed to solve the conflicts over resources which had dominated the interwar period.²²⁰ For airborne ASW, this meant a continuation of the conflict within the RAF itself mainly between Coastal and Bomber Commands, specifically for radar sets and very long range aircraft.

²¹⁷ See Syrett (Ed.), *The Battle of the Atlantic and Signals Intelligence: U-Boat Situations and Trends*, and D. Syrett (Ed.), *The Battle of the Atlantic and Signals Intelligence: U-Boat Tracking Papers, 1941-1947*, (Aldershot: Ashgate, 2002).

²¹⁸ For more on the role of intelligence in the anti-U-boat campaign see F. Hinsley, *British Intelligence in the Second World War*, (London: HMSO, 1984) and W. Gardner, *Decoding History, The Battle of the Atlantic and Ultra* (Basingstoke: MacMillan, 1999).

²¹⁹ AIR 15/773 'Despatches on the operations of Coastal Command Royal Air Force' p. 28 paragraph 127.

²²⁰ For more on the development of the War Cabinet system in British government see J. Ehrman, *Cabinet Government and War 1890-1940*, (Cambridge: Cambridge University Press, 1958).

The Naval Aviation Controversy Revisited

One of the earliest effects of the priority battle on policy was to reopen the debate on the control of maritime air power. The RN realised relatively early in the conflict that the war against the U-boats was not maturing as anticipated. The opening months of the conflict had shown the limitations of ASDIC due to the relatively small number of vessels available and the inherent limits of speed and range of surface craft.²²¹ Meanwhile the natural advantages of air power in an ASW role were quick to emerge. Simultaneously, the disadvantages of carrier aviation on which so much emphasis had previously been placed became apparent, with the loss of the *Courageous* and near loss of the *Ark Royal* in September 1939.²²² This was compounded by the RN being badly overstretched operating across several theatres such that, by 1940 they were looking to land-based aircraft and flying boats to provide an air solution to the traditionally naval problem.²²³

This effectively pitched them into the internal RAF / Air Ministry battle over resources as the RN demanded more aircraft for ASW.²²⁴ This was discussed by the War Cabinet with the RN asserting Coastal Command's 'Cinderella' status due to the denial of resources by the Air Ministry; however, the debate skewed to one on the control of Coastal

²²¹ Roskill *The War at Sea Vol.1*, p. 68 gives a laudatory report of the use of ASDIC surface vessels in the successful prosecution of a U-boat in the opening weeks, however the list of necessary factors which combined to produce this result serves to highlight the limitations of these platforms. See also ADM 186/799 Naval Historic Staff History Second World War: Home waters and Atlantic Sept 1939 - Apr 1940 pp. 67-71 and 119-121, this gives the official narrative of RN ASW operations in the early stages of the War exposing the same limitations.

²²² Roskill, *The War at Sea Vol.1*, pp. 104-106

²²³ See for example AIR 15/19 enclosure 36A message from Admiralty dated 28 February 1941 on the need for aircraft counter U-boat activity.

²²⁴ CAB 66/13/14 memorandum by First Lord of the Admiralty 'Strengthening of Coastal Command' dated 4 November 1940 argues for significant short and long term increases in Coastal commands aircraft numbers for ASW which currently had 'no means of meeting the Navy's urgent requirements'. Though the term Cinderella Service would become inextricably linked with Coastal Command this was a common contemporary phrase for example Harris was also to refer to Bomber Command as the 'Cinderella of the Service' in AIR 15/109 letter dated 19 September 1942.

Command rather than the pressing issue of aircraft shortages.²²⁵ In direct contrast to the control battles of the 1930s, the RN was focused, in the short term at least, on the provision of additional ASW capability whilst Lord Beaverbrook, Minister for Aircraft Production was advocating transfer of maritime aircraft to the RN.²²⁶ Throughout CAS's contribution to the debate seems motivated by the traditional desire to defend the integrity of the RAF.²²⁷

Now with the imperative of defending Britain's SLOCs, it was the ministers rather than military officers who were pushing the issues of control to the fore, to the detriment of addressing the pressing capability deficit. The result was an inquiry ordered by Churchill into the control of Coastal Command, aimed at increasing the effectiveness of air power in trade defence.²²⁸ The need to conduct such an inquiry, which could only serve to detract from the main effort of conducting the War, shows the negative ramifications of Coastal Command's on-going fight for resources within the RAF. The impetus of the debate was largely removed by the allocation of more aircraft to Coastal in accordance with the Admiralty's wishes.²²⁹ The eventual result of the inquiry was the decision by the Defence Committee to transfer operational control of Coastal Command to the RN, although it would still remain part of the RAF.²³⁰ Superficially, this appears to be a bold shift in policy to the benefit of the use of air power in the ASW campaign. The net effect, however, was negligible, as to all intents and purposes the RN already had operational control for the duration of the conflict, the Commander in Chief Coastal Command reporting that this decision 'made little

²²⁵ CAB 69/1 minutes of War Cabinet Defence Committee Meeting dated 5 November 1939

²²⁶ CAB 69/1 minutes of War Cabinet Defence Committee Meeting dated 5 November 1939 shows reiteration of what had always been the RN's accepted long term aim of control of all maritime air power.

²²⁷ CAB 69/1 minutes of War Cabinet Defence Committee Meetings

²²⁸ AIR 20/2891 Coastal Command aircraft: operational control

²²⁹ AIR 41/73 AHB narrative The RAF in Maritime War Vol. 2, p. 279.

²³⁰ CAB 69/1 minutes of War Cabinet Defence Committee Meeting dated 4 December 1940; it is noteworthy that both the Air Ministry and the Admiralty objected to this decision, which also made provision for the Defence Committee to be the ultimate arbiter on aircraft allocation.

difference to... [the]...existing close co-operation... [which]...remained unchanged'.²³¹

Whilst inter-Service conflict motivated by maintenance of status was responsible for the shortfalls in ASW aircraft at the outbreak of the War, faced with mounting a campaign against the German U-boats the RN and RAF seemed largely able to put such rivalries aside. They were able to co-operate effectively at a Command level, with the naval personnel embedded within Coastal Command widely acknowledged as having been critical in the conduct of the ASW campaign.²³² At the ministerial level however the vestiges of such attitudes prevailed, producing an inquiry which in addition to being an unwelcome distraction produced a decision of little real consequence. More significantly, it failed to address the underlying issue of the shortcomings in aircraft for ASW, the concessions made only proving a stopgap solution to the problem. While the interwar period can be characterised by the lack of a policy for the use of air power in ASW, this first attempt to address this policy shortfall, motivated by the prevailing operational situation, failed to have a significant impact.

Technological and Tactical Leapfrogging

Technology was a significant component of the British campaign against the U-boats; technological and complementary tactical developments were fundamental in deciding the Battle of the Atlantic. In contrast to the pre-war development of ASDIC, which formed a

²³¹ AIR 15/773 p. 35 paragraph 168 see also Buckley, *The RAF and Trade Defence*, pp. 121-123.

²³² AIR 41/47 AHB Narrative The RAF in Maritime War Vol. 3, pp. 44-45. Much of the praise falls on Capt. Peyton Ward, the senior RN staff officer who led the way in post attack debriefs, and analysis of U-boat movements to the betterment of Coastal Command's tactics, AIR 15/286 show his considerable contribution to the work of the Coastal Command Committee on Anti-Submarine Warfare. AIR 15/19 gives an example of a tactical paper produced by the naval officers at Coastal Command, being used by the Commander in Chief; see also V. Orange, *Slessor: Bomber Champion*, (London: Grub Street, 2006), pp. 102-104 and Slessor, *Central Blue*, p. 486 for his praise of the work of these individuals. This is all the more significant as there were often suggestions that officers selected for liaison duties were underachievers in their primary roles. There were also efforts to share knowledge at an operator level between the Services, correspondence in AIR 15/19 in early 1941 shows organisation of joint conferences and exchange visits at the junior officer level.

significant strand in shaping and defining ASW policy, the wartime policy shift to the use of air power in ASW devoted more resources to the development of equipment required to counter the U-boats from the air. The tactical battle pitched convoys against wolf packs, with the use of radio direction finders to locate U-boat groups and constant shifts in the U-boat areas of operations in response to the range and coverage of Coastal Command's aircraft.²³³ Later the German snorkel was developed aimed at reducing detectability whilst a U-boat was recharging its batteries whilst the British began the development of sonobuoys.²³⁴ Technological advances came in both the detection and prosecution of targets. In detection, one of the most significant steps was the airborne maritime search radar termed Aircraft-to-Surface Vessel, which led the Germans to develop radar detector devices. There was a constant shift in advantage in this battle to dominate the electromagnetic spectrum; the British changed to new frequencies while the Germans attempted to develop detection equipment amidst fears that the detectors themselves were giving off spurious emissions, giving away the U-boats' positions.²³⁵ The Leigh Light allowed the exploitation of radar detection to successfully attack U-boats, which reduced the relative immunity to air attack that U-boats had been enjoying in darkness.²³⁶ In terms of target prosecution, the ineffective anti-submarine bomb gave way to the aerial depth charge, initially modified naval charges,

²³³ Price, *Aircraft vs. Submarine*, pp. 104-105, 133-136.

²³⁴ AIR 15/454 gives detail on initial discovery of and attempts to counter the 'Schnorkle' see also AIR 41/74 AHB Narrative The RAF in Maritime War Vol. 5, Appendix V, for details on the difficulties posed by the snorkel. AIR 15/426-7 gives details on the development and trials of sonobuoys.

²³⁵ Price, *Aircraft vs. Submarine*, pp. 49-54, 106-107, 111-112, 160-162.

²³⁶ AIR 41/73 AHB narrative The RAF in Maritime War Vol. 2, Appendix X 'The History of the Development of the Leigh Light', AIR 41/47 AHB narrative The RAF in Maritime War Vol. 3, Appendix VI 'The Leigh Lights for night anti-submarine operations', Joubert de la Ferte takes some issue with the details of the official account of the Leigh Light's development, see Joubert de la Ferte, *Birds and Fishes*, pp.147-148

and then a more bespoke design.²³⁷ This allowed aircraft to move from detection and deterrence to a meaningful attack capability.²³⁸

Britain's ability to maintain pace in the technological conflict resulted from a conscious policy for development and exploitation of new technologies, largely achieved through the work of the Operational Research Section (ORS).²³⁹ This had originated from the various technical organisations dealing with the problem of defence against air attack prior to the War before becoming formalised as part of Fighter Command.²⁴⁰ Coastal Command was able to benefit from the intellectual capital of another section, as the successful model of Fighter Command's ORS was copied, principally to promote the development of radar.²⁴¹ From this initial tasking, the ORS went on to tackle challenges as diverse as aircraft camouflage schemes for working over the sea and optimum depth charge settings and attack patterns.²⁴²

The positive policy for technology was not limited to the formations of the ORS. The selection of Air Chief Marshal Sir Philip Joubert de la Ferte to take charge of Coastal Command was influenced by his perceived ability to lever his previous technical experience to address the use of radar within the command.²⁴³ Joubert de la Ferte had previously been heavily involved in the appointment of a scientific advisor to Coastal Command, a precursor

²³⁷ Buckley, *The RAF and Trade Defence*, pp. 167-169, Price, *Aircraft vs. Submarine*, pp. 48, 91-93

²³⁸ AIR 41/73 AHB narrative The RAF in Maritime War Vol. 2, Appendix III shows the large number of U-boat detections in the early phases of the War but no aircraft only kills.

²³⁹ AIR 15/916 report 'Scientists at the Operational Level' dated 31 October 1941 gives an outline of the benefits derived from the work of the ORS, see also AIR 15/988 for examples of various topics investigated Joubert de la Ferte, *Birds and Fishes*, pp. 137-140, give an extremely complimentary summary of the work of the ORS.

²⁴⁰ Air Ministry, *Publication 3368, The Origins and Development of Operational Research in the Royal Air Force*, (HMSO: London, 1963), pp. 1-11.

²⁴¹ Air Ministry, *Publication 3368, The Origins and Development of Operational Research*, p.74.

²⁴² Air Ministry, *Publication 3368, The Origins and Development of Operational Research*, pp. 75-103, for detailed narrative on the role of the ORS in ASW see C. Waddington, *OR in World War 2, Operational Research against the U-boat*, (London: Elek Science, 1973).

²⁴³ Buckley, *The RAF and Trade Defence*, pp. 117-118, 125-126

to the formation of the ORS.²⁴⁴ Policy for technological advancement permeated through the Command itself, the Leigh Light being the result of an internal request for suggestions for solutions to the difficulties of night attacks.²⁴⁵ Despite the success of this policy in producing technological innovations, the implementation of such advances proved more problematic thanks to the continual issue of resource allocation. In this instance, the problem lay in competition for specific pieces of equipment, such as radar sets and their sub-components, which also had uses for other Commands. This was especially true with the later development of centimetric radar, on which Fighter Command had first call for use in air defence fighters.²⁴⁶ Once the priority afforded by the Battle of Britain and the London Blitz had passed, Coastal Command was still in competition with Bomber Command, who required the new radar for use in their pathfinder force.²⁴⁷ Direct communication between the two Commanders in Chief regarding their requirements was ineffective with neither willing to compromise, Harris being particularly belligerent due to his poor opinion of the relevance of Coastal Command to the conduct of the War.²⁴⁸ The Air Ministry was to decide the matter and this proved a rare example of Coastal Command gaining the upper hand, as it received the radar sets at the expense of Bomber Command.²⁴⁹ However, by January 1943 priority had swung back to Bomber Command. It is noteworthy that the language of the report suggesting the reprioritisation of Bomber Command referred to an instruction from CAS to be informed if 'at any time it appears that the effort required to help Coastal Command was

²⁴⁴ AIR 19/148 Appointment of Scientific adviser to C-in-C, Coastal Command

²⁴⁵ Price, *Aircraft vs. Submarine*, pp. 54-60

²⁴⁶ Price, *Aircraft vs. Submarine*, p. 53, 98-99

²⁴⁷ AIR 15/109 letter from AOC-in-C Bomber Command to AOC-in-C Coastal Command dated 19 September 1942 described the H.2.S. Radar as 'At the head of the list of essential equipment'.

²⁴⁸ AIR 15/109 correspondence between AOC-in-C Coastal Command and AOC-in-C Bomber Command September 1942

²⁴⁹ AIR 20/1060 'Minutes of the Meeting held at 11:30 a.m., 30.9.42 at Oakwood Court, to consider the production of H. 2. S. Equipment for both Bomber Command and Coastal Command requirements'

affecting Bomber Command in too adverse a manner', indicating a deep seated priority for the latter at the highest levels of the RAF.²⁵⁰

A further issue with the radar was the timing of the release to service of new centimetric frequency equipment; this was due to fears that its use by Bomber Command would quickly result in German access to the equipment from a downed aircraft. This would affect the ASW campaign, as it would allow for the development of new radar detectors for U-boats, removing the advantages gained by the frequency shift. It is noteworthy that the main concern over this was within the Admiralty rather than the RAF, indicating the growing trend for the RN to be the prime supporter of the use of aircraft in the ASW role.²⁵¹ Ultimately the matter was decided personally by Churchill in Bomber Command's favour, allowing early operational release of the centimetric radar sets, though the same situation was to occur the following year with the 3cm frequency radars.²⁵²

Whilst, aircraft apart, radar is the most significant example of competition between Commands over technological resources, it was by no means a unique issue. Competition over items ranged from explosives for depth charges to bomb sights; attempts to procure such equipment were always against a background of rivalry with other commands.²⁵³

In the technological field, there was some policy success for ASW. This was, however, stunted by the constant fight for the necessary resources to translate the technological innovations into kinetic effect in operations. Ultimately much of the

²⁵⁰ AIR 20/1060 Paper from Assistance Chief of the Air Staff (Operations) to CAS dated 28 January 1943

²⁵¹ ADM 205/24 papers to the First Sea Lord and the Chief of the Naval Staff 23-25 July 1942

²⁵² CAB 86/2 minutes of the Anti-U-Boat Warfare Committee dated 23 December 1942 shows Churchill's decision. See CAB 86/2 minutes of meetings of the Anti-U-Boat Warfare committee dated 27 October 1943 for suggestion to move Coastal Command to 3cm equipment, see also Buckley, *The RAF and Trade Defence*, p. 180.

²⁵³ AIR 15/286 Coastal Command Committee of Anti-Submarine warfare dated 8 May 1942. In an internal meeting Professor Blankett (who as a civilian attached to the Command can be viewed as less ingrained with intra-Service biases) advocated a decision on bomb sites as due to Bombers Commands potential interest Coastal Command may otherwise 'go short'.

technological policy success in development was at the command level and required a higher level policy shift to realise its potential.

Aircraft Allocation

The most significant area of resource competition was undoubtedly for aircraft, which continued throughout the course of the war. The evident potential of aircraft in the ASW role resulted in some additional allocation due to pressure from the RN in the midst of the operational control debate already described.²⁵⁴ This was, however, only a short-term solution, as the losses to U-boats continued. It is a measure of the pressure on Coastal Command that to bolster its ability to fulfil trade protection role some of its tasks were aided by resources from both Bomber and Fighter Commands.²⁵⁵ Despite these attempts to alleviate the pressure, Coastal Command itself felt that its requirements were consistently neglected; 'Bomber Command always won, though a few crumbs would be thrown to coastal'.²⁵⁶ Though this comment is obviously coloured with Command bias, there are numerous suggestions elsewhere that the primarily defensive nature of maritime operations rated second in most opinions to the offensive bombing campaigns; Churchill was a leading supporter of this view, being 'reluctant to weaken the most powerful offensive weapon' Britain had.²⁵⁷

²⁵⁴ AIR 15/773 Despatches on the operations of Coastal Command Royal Air force p. 35 paragraph 167

²⁵⁵ AIR 15/19 letters dated 28 February 1941. AIR 15/19 correspondence between Coastal and Bomber Commands and the Air Ministry 22 February 1941- 25 March 1941 shows the return of loan aircraft from Bomber Command for anti-invasion patrols was the subject of some disagreement between the two Commanders in Chief see also AIR 15/359 A.O.C.-in-C. Daily Conference dated 8 July 1941, indicating RN opposition to the return of the aircraft.

²⁵⁶ Joubert de la Ferte, *Birds*, p. 150

²⁵⁷ M. Howard, *Grand Strategy: Vol. 4*, (London: H.M.S.O., 1972), p. 24, see also W. S. Churchill, *The Second World War Vol.3: The Grand Alliance*, (London: Cassell, 1950), p. 450-452 for Churchill's view on the primacy of Bomber Command in the allocation of resources. This view was also shared by those operating the bomber

The escalating losses at sea increased the attention being paid to the trade defence war, and resulted in the first significant policy shift of the War to affect ASW, the Battle of the Atlantic Directive.²⁵⁸ This was accompanied by the formation of the Battle of the Atlantic Committee, which directed the Battle from March to October 1941.²⁵⁹ In principle, the elevation of the significance of this theatre of operations should have improved the priority of all agencies engaged in it, including Coastal Command. However, the committee focused mainly on the management of dockyards and the Merchant Navy, with the main aerial aspect being aerodrome construction.²⁶⁰ Air power is conspicuous by its limited mention in the minutes of these meetings. The RAF's lack of attention to this strand of the conflict can be explained by their heavy engagement in other aspects of the War. Whilst the First Sea Lord attended the early meetings, CAS did not attend any, the RAF, being represented, throughout by the more junior Deputy Chief of the Air Staff.²⁶¹

The ineffectiveness of this committee in improving the equipment situation of Coastal Command is attested to by the continuing complaints of shortfalls, even after the committee had concluded; a specific internal department was established to give direction of aircraft capability requirements in the on-going effort to address this.²⁶² Churchill, however, claimed

fleet who were just as parochial as their maritime counterparts see, AIR 15/109 letter from AOC-in-C Bomber Command to AOC-in-C Coastal Command dated 19 September 1942 which gives a view on the benefits of the bomber offensive as opposed to the defensive nature of other areas of operations.

²⁵⁸ Copy of the directive dated 6 March 1942 held in CAB 86/1, of note Churchill issued this under the office of Minister of Defence rather than Prime Minister, in his own account he takes the sole credit for the proclamation of the Battle of the Atlantic and the instigation of the corresponding committee, see Churchill, *The Second World War Vol. 3*, p. 106-107.

²⁵⁹ CAB 86/1 minutes and memoranda of the Battle of the Atlantic Committee

²⁶⁰ CAB 86/1 minutes and memoranda of the Battle of the Atlantic Committee, other topics discussed varied from air raid shelters for dock workers to railway management, air power was afforded a tiny fraction of the committee's time however with only two consistent topics namely the construction of aerodromes for the Battle of the Atlantic located in Iceland, the Hebrides and Northern Ireland and the availability and use of Catalina flying boats. See also Padfield, *War Beneath the Sea*, pp. 116-117.

²⁶¹ CAB 86/1 minutes and memoranda of the Battle of the Atlantic Committee, show the First Sea Lord at the first six official meetings of the committee as well as the tenth and the final session. The most senior representation from the RAF was the Deputy Chief of the Air Staff who attended throughout.

²⁶² AIR 15/46 'The Operational Requirements of Coastal Command'

that the committee achieved all its aims prior to dissolution; there is some truth in this, as the detail of the original directive makes no mention of expanding Coastal Command.²⁶³

However, the overall aim of defeating the U-boat was still far from achieved at this point. In reviewing the complaints of Coastal Command, it should be noted that many of the papers concerned originated from the AOC-in-C; the incumbent of this post changed in June 1941 from Frederick Bowhill to Phillip Joubert de la Ferte.²⁶⁴ The latter was known for his more outspoken nature, possibly contributing to the increasingly forthright nature of the complaints.²⁶⁵

A lull in losses in the summer of 1941 provided some optimism regarding the Battle of the Atlantic.²⁶⁶ Whilst this had the potential to weaken Coastal Command's position, such optimism was quickly rejected with demands for more aircraft.²⁶⁷ The issue at stake was not only expansion, but also simply achieving and maintaining the Command's allocated strength.²⁶⁸ This difficulty was seen to be compounded by the financial interests of aircraft manufacturers:

‘unless a Command is prepared to lobby...an approved Air Ministry programme is allowed to fall behind performance because another Command has in a bigger order and is therefore financially more interesting’²⁶⁹

²⁶³ Churchill, *The Second World War Vol. 3*, p. 107

²⁶⁴ Ashworth, *Coastal Command*, p. 47

²⁶⁵ AIR 20/2779 minute to CAS from VCAS suggests Joubert de la Ferte was less likely to ‘adhere to the doctrines of the Air Staff’ than Bowhill had been, see also AIR 15/773 Despatches on the operations of Coastal Command Royal Air Force for the differences in the tone of the sections written by Bowhill and Joubert de la Ferte. It must be remembered that whilst the discussion of whom to place in charge of the Command can be seen here at a senior Air Force level there would also have been influence from the political sphere upon such selections.

²⁶⁶ Roskill, *War at Sea Vol. 1*, p. 618 Appendix R gives statistic for losses during 1941. Whilst press article of this period carry the obvious bias of propaganda, they carried sufficient credibility for AOC-in-C Coastal Command to express his ‘great alarm at their content in AIR 20/2779 letter from AOC-in-C Coastal Command to CAS dated 1 August 1941

²⁶⁷ AIR 20/2779 correspondence between AOC-in-C Coastal Command and CAS 1-6 August 1941.

²⁶⁸ AIR 19/183 and AIR 15/43 correspondence between AOC-in-C Coastal Command and Minister for Air September - November 1941.

²⁶⁹ AIR 15/213 letter from AOC-in-C Coastal Command to CAS dated 20 October 1941

This formed another thread to Coastal Command's complaints of shortages, though it was dismissed by the CAS as the 'result of a misunderstanding'.²⁷⁰

Increased aircraft availability, brought about by the United States joining the War, had the potential go a long way to fulfilling Coastal Command demands; however, the impact of these new resources was blunted. This was impacted by the American inability, or unwillingness, to understand the operational structure of the RN/RAF relationship, coupled with their own internal inter-Service conflicts over types and number of aircraft to be supplied.²⁷¹ Allocation was determined by the Air Staff and the main constraint was, again, the conflict with the bomber forces, with an added international element; bombing advocates could cite the political dimension of using American aircraft be used in the offensive bombing role as evidence for marginalising ASW requirements.²⁷²

The first meeting of the Battle of Atlantic Committee noted that 'importance was attached to the employment of aircraft with a longer range than the Hudson.'²⁷³ Throughout its tenure, however, the committee failed to enact the necessary policies to fully exploit the potential of air power. This was a failing, not only at the political level but also from the senior military officials involved, specifically those from the RAF; on the two occasions where comments were made defending the need for aircraft in the Battle of the Atlantic, these originated from RN representatives.²⁷⁴ Buckley suggests that the root of the reluctance to

²⁷⁰ AIR 15/213 letter from CAS to AOC-in-C Coastal Command dated 6 November 1941

²⁷¹ AIR 20/2891 shows suggestion of the appointment of a liaison officer to mitigate this issue, see also Buckley, *The RAF and Trade Defence*, pp. 143-147 which also shows the further complications caused by the internal frictions in the USA between the Navy and Air Force.

²⁷² PREM 3/97/1 letter from CAS to Prime Minister dated 29 March 1942, PREM 3/97/2 letter from Prime Minister to CAS dated 21 July 1941, see also AIR 8/637 for details of the Arnold-Portal agreement and the role of CAS in influencing stipulations in aircraft usage.

²⁷³ CAB 86/1 Battle of the Atlantic Committee meeting minutes dated 19 March 1941.

²⁷⁴ CAB 86/1 Battle of the Atlantic Committee meeting minutes dated 14 August 1941 show the First Lord of the Admiralty defended the need for continued supply of long range aircraft, minutes dated 22 October 1941 record the First Lord of the Admiralty leading rejection of Prime Minister's suggestion to divert aircraft to Bomber Command.

equip Coastal Command was that it was 'directed by the Admiralty', indicating that inter-Service rivalry was still alive and well. This said, the RAF was far from homogeneous, with Coastal Command naturally aligning with the RN. Furthermore, the pressures of the conflict were such that it is fair to suggest the fight for resources owed far more to entrenched beliefs in the importance of offensive bombing than to political manoeuvring for individual Service status.

It must be noted that competition for resources was an overriding characteristic of the conflict affecting all arms of the military, thus Bomber and Coastal Command were not simply competing with each other for resources. Certain factors however placed these two Commands as direct adversaries. First, was the timing of the period of high operational tempo in each of their campaigns, which was such that both Commands felt their need for aircraft to be at its most acute at similar times. Second, the nature of the tasks they performed meant that as was the case with radar sets both Commands often competed for the same airframes as in many cases an aircraft type could be employed with equal success in an ASW or a bombing role.

Policy Shift

When Bowhill stood down as AOC-in-C of Coastal Command in 1941, he felt 'early difficulties and problems had been largely overcome... [and]...the value of air power...recognised'.²⁷⁵ Joubert de la Ferte's arrival, however, signalled a shift in priorities towards tackling the Atlantic gap, as the technological advantage which was beginning to be enjoyed by the British was nullified by the large area in which they were unable to operate.

²⁷⁵ AIR 15/773 Despatches on the operations of Coastal Command Royal Air Force dated December 1950, p. 41 paragraph 203

He also advocated moving from ‘a defensive – and consequently ineffective’ approach to an offensive one.²⁷⁶ The consequences of this policy shift were to change the focus of the demands for aircraft from number of aircraft towards types with the required range to work in the mid-Atlantic; these were requested both in the form of newly manufactured airframes and requests for transfers from other Commands.²⁷⁷ Again, the Admiralty was highly vocal in supporting Coastal Command’s requests.²⁷⁸ Coastal Command’s shift in demands and continued complaints of being ‘done down’ was still met with the same competition and resistance from the needs of Bomber Command.²⁷⁹

Whilst the subject of conflict in policy-setting, the use of air power in ASW was also attracting support at the theoretical level. During the War, Trenchard continued to interact with the very highest levels of the Service in addition to the upper levels of government, from his position in the House of Lords. Through these channels as well as pamphlets published at his personal expense, he continued to advocate the effectiveness of strategic bombing.²⁸⁰ It is, however, a measure of the shift of his opinion that in a 1942 essay Trenchard argued strongly for the offensive against submarines being within the remit of air power, to the subordination

²⁷⁶ AIR 15/773 Despatches on the operations of Coastal Command Royal Air Force p. 53 paragraph 3, for a detailed account of Joubert de la Ferte’s view of the U-boat war during his time in command see CAB 63/179 ‘Review of the U-boat War 1940-1943’ authored by Joubert de la Ferte.

²⁷⁷ AIR 15/213 Expansion Programme July 1940 - June 1942

²⁷⁸ PREM 3/97/2 shows correspondence between the Admiralty and Prime Minister regarding Coastal Command aircraft allocation throughout 1941, see also AIR 15/213 letter to CAS from First Sea Lord dated 8 May 1942.

²⁷⁹ AIR 15/213 letter to Chapman from AOC-in-C Coastal Command 31 May 1942. AIR 20/4562 shows continued push for Coastal Commands expansion; see Churchill, *The Second World War Vol. 3*, p. 450-452 for Churchill’s view on the primacy of Bomber Command in the allocation of resources in late 1941 see also Overy, *The Air War*, pp. 104-105.

²⁸⁰ Boyle, *Trenchard* pp. 720-726, see Slessor, *Central Blue*, p. 50 for mention of Trenchard’s pamphlet publishing. Trenchard was also an ardent personal supporter of Harris’ running of the bombing campaign; see Probert, *Bomber Harris*, p.160 and W. Kudrycz, ‘A Practical Prophet? Arthur Harris, the Legacy of Lord Trenchard and the Question of ‘Panacea’ targeting’ in *Air Power Review Vol. Five Number One*, (2002). In *The Principles of Air Power in War*, (London: Air Ministry, 1945) Trenchard goes as far as to say that history may well view Bomber Command’s role more decisive than that of coastal command in the defeat of the U-Boats, this continuing championing of the contribution of Bombing after the war can also be seen in his draft of a forward for *Coastal Command Leads the Invasion*, a narrative of Coastal Command’s war authored by two of its officers, where he makes significant mention of the role of Bomber Command, correspondence regarding this is held in The RAF Hendon Archive ref MFC 77/1/374 .

of naval forces.²⁸¹ Hence the individual who presided over an air force which squandered opportunities to develop ASW capability in the inter-war period had by the middle of the War shifted viewpoints. However, organisations being significantly slower than individuals to change, the RAF as a whole continued to focus on strategic bombing, the support for which owed much to Trenchard's promotion of its benefits.

Individuals at the top levels of organisations invariably have had long associations with them, hence several, like Trenchard, were in positions to influence airborne ASW in both peace and war time. Notable amongst these were Arthur Harris and Maurice Hankey. Harris' aggressive promotion of the benefits of strategic bombing befitted his position as AOC-in-C Bomber Command; it is noteworthy however that he held similar views prior to this appointment.²⁸² The influence he exerted as Deputy Director of Plans in the Air Ministry, a post he held from 1934 to 1937, has already been seen.²⁸³ This was in many ways more damaging to airborne ASW than his later input in direct support of his own Command.²⁸⁴ Hankey's influence is somewhat harder to define; he was at the centre of the work of the CID in the interwar years.²⁸⁵ In addition to his formal responsibilities as secretary he was also in a position to exert influence on the Service chiefs in a variety of

²⁸¹ AIR 21/1660 'The Change over from Sea Power to Air Power' dated December 1942

²⁸² AIR 15/109 letter from Harris to Joubert de la Ferte dated 19 September 1942 shows a characteristically succinct defence of his Command. Secondary literature including official histories record Harris' unshakable and blunt advocacy of strategic bombing and objections to the diversion of his resources to other tasks, with which his name would become synonymous, see Richards and St George Saunders, *The Royal Air Force*, pp. 118-140, Overy, *The Air War*, pp. 116-117, Neillands, *The Bomber War*, 299-300, 311, M. Hastings, *Bomber Command*, (London: Book Club Associates, 1979), pp. 135, 138. These views can also be seen earlier in his career (for a summary of Harris' appointments see H. Probert, *High Commanders of the Royal Air Force*, (London: HMSO, 1991) when working as Deputy Director Plans and as Deputy chief of the Air Staff prior to taking over Bomber Command, see D. Richards, *The Royal Air Force 1939-1945, Vol.1: The Fight at Odds*, (London: HMSO, 1953), p.223. For a summary of Harris' own summary of his views see Harris, *Despatch on War Operations*.

²⁸³ For more on Harris see Probert, *Bomber Harris*.

²⁸⁴ Also noteworthy is the amicable relationship Harris enjoyed with Churchill see Probert, *Bomber Harris*, pp.132-3, 262-3, 312-3 and A. Verrier, *The Bomber Offensive*, (London: Batsford, 1968), p.90.

²⁸⁵ For details on the career and positions held by Hankey see Naylor, *A Man* and Roskill, *Hankey Vol.1 and 2*.

informal ways.²⁸⁶ Though he only served in the War Cabinet under Chamberlain, he was still involved in the government in a position to influence the key decision makers throughout the War.²⁸⁷ The demi-official and unofficial nature of much of the influence he exerted however makes it problematic to quantify.

Joubert de la Ferte combined his agitation for increased resources for ASW with support for the use of bombing in the war against the U-boats.²⁸⁸ Indeed, the RN was rapidly overshadowing Coastal Command as the main campaigner for more ASW aircraft and specialist resources such as radar.²⁸⁹ The Admiralty's role as the primary ASW air power advocate developed as the conflict continued. They would continue to overshadow the RAF as the use of aircraft in ASW came to the fore in the policy priorities arena with the formation of the Anti-U-boat Warfare Committee in November 1942.²⁹⁰

It is difficult to isolate an individual reason for the formation of the Anti-U-boat Warfare Committee, as it appears to result from a confluence of factors. These include the growing losses from U-boat sinking and the precariousness of Britain's supply situation, the increased in available resources due to the entry of America into the war and the build-up of American troops in Britain in preparation for the operation to invade Europe placing an

²⁸⁶ See for example CAB 21/314 Correspondence between Hankey and Trenchard regarding a paper by the latter, April/May 1929.

²⁸⁷ In addition to a seat in the House of Lords, Trenchard also sat on other government committees; CAB 69/173 shows suggestions regarding ASW from Hankey to the First Sea Lord and AOC-in-C Coastal Command.

²⁸⁸ AIR 20/2779 Letter from Joubert de la Ferte to CAS dated 4/7/41 advocates the main bombing of Germany and the bombing of Biscay ports as part of the solution to the U-boats. Coastal command had also conducted bombing raids earlier under Bowhill see AIR 20/2779 correspondence between Bowhill and CAS discussing appropriate targeting priorities. AIR 20/2779 Correspondence between Joubert de la Ferte and AOC-in-C Bomber Command dated 28 June 1941 shows Joubert de la Ferte advocating the bombing of the Biscay ports which was rejected by Bomber Command as an unwelcome diversion from their main effort.

²⁸⁹ AIR 20/846 Memorandum by the First Lord of the Admiralty 'Bombing policy' dated 14 February 1942, PREM 3/97/1 shows note from Churchill to the First Sea Lord citing evidence from AOC-in-C Bomber Command as explanation for not transferring further aircraft to Coastal Command. See also CAB 69/4 War Cabinet Defence Committee (Operations) minutes dated 18 March 1942 show the First Sea Lord arguing against CAS and Churchill for more ASW aircraft for work in the Bay of Biscay. See also ADM 205/24 'Points which arose at 1st. Sea Lord's meeting (27.9.42) to discuss memorandum by A.O.C. in C. Coast Command.'

²⁹⁰ CAB 86/2 minutes of meetings of the Anti-U-Boat Warfare committee

increased emphasis on the SLOCs. The path of the War at this point can be viewed as being decided by two opposing centres of gravity: namely, whether the strategic bombing campaign would defeat Germany and whether Germany would gain sufficient advantage in the Battle of the Atlantic to force Britain into submission by strangulation of her supply lines. The increased focus on trade defence shows an understanding of the need to balance the offensive and defensive efforts within the overall conflict.²⁹¹ The official history cites the inability of the Service chiefs to resolve this debate necessitating the formation of the Committee as ‘the situation was so grave, and the Service had apparently made so little progress towards solving it.’²⁹² Whilst Churchill is blamed in the *Grand Strategy* official history for taking so long to step in to address this issue, in his own account he takes credit for personally convening the committee.²⁹³ He cites the extent of the losses of merchant shipping as the impetus for the Committee as ‘So menacing were the conditions in the outer waters beyond the range of air cover’.²⁹⁴

This work of this Committee put great emphasis on the role of air power in defeating the U-boat. From the outset, CAS was a regular attendee and the use of aircraft in ASW formed a significant portion of the topics discussed.²⁹⁵ The work of this committee covered all aspects of ASW, for the air component this resulted in closing the Mid-Atlantic Gap through provision of Liberator aircraft, a shift to offensive operations against transiting U-boats in the Bay of Biscay, increases in aircraft strength and work on providing improved

²⁹¹ The debate record for both the Houses of Commons and Lords show questions from several members questioning progress in the anti-U-boat campaign especially in the early part of 1943.

²⁹² Howard, *Grand Strategy*, p. 23

²⁹³ Howard, *Grand Strategy*, for an example of Churchill’s view on his personal responsibility for the Anti-U-Boat Warfare Committee see Hansard HC Deb 15 December 1942 Vol. 385 cc1769-71.

²⁹⁴ W. S. Churchill, *The Second World War Vol.4: The Hinge of Fate*, (London: Cassell, 1951), p. 114.

²⁹⁵ CAB 86/2 minutes of meetings of the Anti-U-Boat Warfare committee shows some new uses of aircraft against U-Boats were also discussed; see minutes dated 13 January 1943 for discussion of the potential of helicopters and airships in ASW. Though now part of the national archive section for the records of Cabinet committees these files were originally stored as part of the files relating to the Air Ministry.

anti-submarine weapons for aerial delivery.²⁹⁶ Coastal Command's ability to successfully argue for resource increases was assisted by the ORS's work in increasing the Command's efficiency, thus enabling refutation of the suggestions they were not in need of additional aircraft.²⁹⁷

The second significant indicator of this policy shift was the Casablanca Directive, which resulted from the conference of the same name in January 1943.²⁹⁸ In this, the Combined Chiefs of Staff report placed the priority on ASW; 'defeat of the U-boat must remain a first charge on the resources of the United Nations'.²⁹⁹ The directive on strategic bombing resulting from the conference also placed attacks on the U-boat building facilities top of the priority order, an additional note advocated continuation of the attacks on the Biscay operating bases in the short term.³⁰⁰ Whilst the Casablanca directive shows the policy shift in prioritising ASW it also demonstrates the continuing primacy of the bomber.³⁰¹

The arrival of Slessor, who had been heavily involved in the Casablanca Conference, prompted another shift in priorities within Coastal Command. With the Atlantic gap largely closed he shifted the emphasis to the Bay of Biscay as 'the decisive point on which we should concentrate', this was also aimed at mitigating the risk posed to the forthcoming

²⁹⁶ CAB 86/2-86/7

²⁹⁷ AIR 19/183 letter to Ministry of Aircraft Production dated 19 September 1941 suggests aircraft shortage in training units is causing a shortage of trained crews which is the limiting factor in Coastal Command's output, see also PREM 3/97/1 'Expansion of Coastal Command' dated 4 June 1942. Whilst the ORS investigation rejects this (PREM 3/97/1 letter CAS to Prime Minister dated 15 June 1942) it does lead to a planned flying and maintenance programme to increase efficiency see AIR 15/154 and AIR 15/341 for details.

²⁹⁸ For detail on the Casablanca Conference and other decisions made see A. Fredrick, W. Franklin and S. William, *Foreign Relations of the United States: The Conferences at Washington 1941-1942 and Casablanca 1943* (Washington: United States Government Printers Office, 1968), pp. 487-849 and A. Armstrong, *Unconditional Surrender*, (New Brunswick: Rutgers University Press, 1961)

²⁹⁹ AIR 75/11 Conduct of the War in 1943 report by the Combined Chiefs of Staff

³⁰⁰ AIR 75/11 The Casablanca Directive dated 21 January 1943

³⁰¹ It has been argued that the Casablanca directive was deliberately framed in such a way to be open to wide interpretation thus accommodating the range of views present amongst the Allies without bringing them into further debate, see P. Gray, *The Leadership, Direction and Legitimacy of the RAF Bomber Offensive from Inception to 1945*, (London: Continuum international, 2012), pp. 209-212 and T. D. Biddle, *Rhetoric and Reality in Air Warfare*, (Woodstock, Princeton University Press, 2002), pp. 214-215.

cross-Channel invasion.³⁰² This focus on independent offensive operations was far more in line with the prevailing RAF thinking on the use of air power.³⁰³

As early as the second meeting of Anti-U-boat committee, the CAS advocated the bombing of the U-boat operating bases in France and agreement for this was secured by the next meeting.³⁰⁴ The debate over the impact of this bombing campaign and its benefits versus offensive ASW operations in the Bay of Biscay continued for the duration of this committee.³⁰⁵ Throughout, the RN maintained its position in support of air power for ASW, continuing to press for more resources for Coastal Command's ASW tasking whilst the RAF still championed the effectiveness of bombing, though this was split between advocates of bombing the Biscay bases and those promoting the main strategic campaign as the solution.³⁰⁶

The U-boats were withdrawn from the Atlantic in 1943 though offensive operations against them continued in the Bay of Biscay.³⁰⁷ The official history in the form of Howard's

³⁰² Slessor, *Central Blue*, p. 512, Slessor had previously also worked in America on negotiating for aircraft, experience which doubtless stood him in good stead with regard to the significance of America's input to Coastal Command's tasks.

³⁰³ Slessor was a supporter of the offensive use of air power having previously commanded a bomber group, this focus on independent area operations shows the progress made in airborne ASW from its initial war role focused on direct support operations with the RN. Slessor was a devout follower of Trenchard, embracing many of his views on the use of air power, see Slessor, *Central Blue*, pp. 45-51 for a summary of his appreciation of Trenchard theories. Also of note is that Slessor was a far less controversial figure in terms of falling in with the prevailing views of the Air Staff, see Orange, *Slessor: Bomber Champion*, pp. 99-100.

³⁰⁴ CAB 86/2 minutes of meetings of the Anti-U-Boat Warfare committee dated 13 and 19 November 1942.

³⁰⁵ CAB 86/2 the battle damage assessment of these raids continued to be debated due to several factors such as the rate of repair, the availability of alternate bases, the fact that the crews were billeted outside the areas attacked and the resistance of the German fortifications to air attack (see G. Williamson, *U-boat Bases and Bunkers 1941-45*, (Oxford: Osprey, 2003) and J. Showell, *Hitler's U-boat bases*, (Annapolis, Md.: Naval Institute Press, 2002) for more detail on the latter)

³⁰⁶ Howard, *Grand Strategy*, p. 315 gives detail on the objections raised by Harris to the dilution of his main bombing effort by the Biscay attacks.

³⁰⁷ The U-boats were withdrawn on 24 May 1943 which is often stated as the end date of the Battle see D. Macintyre, *The Battle of the Atlantic*, (London, B.T. Batsford, 1961) p196, and Terraine, *Business in great Waters*, p. 607-9, this view is supported in the memoirs of the Commander of the German U-boat fleet, K. Doenitz, *Memoirs, Ten Years and Twenty Days*, (New York: Da Capo Press, 1997), p. 341 though two official histories differ, Admiralty, *The Battle of the Atlantic: the official account of the fight against the U-boats, 1939-1945*, (London: H.M.S.O., 1946), placing it in May 1945 and Howard, *Grand Strategy*, stating September 1943 as the end date.

Grand Strategy records that ‘the contribution of the air force to this victory had been considerable, perhaps decisive’.³⁰⁸ Despite this acknowledgement and that fact that Coastal Command had moved from a marginalised force on the periphery of the Battle of the Atlantic to a position of central responsibility in winning it, the debate over the effects of bombing the U-boat bases was left unresolved.³⁰⁹ With the Atlantic threat largely neutralised, the war against the U-boat continued elsewhere; in home waters, the next task of significance for ASW was the support of the D-day landings. By this point the situation was considered sufficiently stable for the Anti-U-boat Warfare committee to be rolled up into another focused on the invasion preparations.³¹⁰

The Anti-U-boat Warfare Committee can be seen as the pinnacle of the formulation of airborne ASW policy as it provided a forum whereby the on-going debates could finally be drawn to some form for resolution. It provided a forum whereby if the RN and RAF could not reach a consensus then at least the matter could be resolved expediently; in most cases the arbiter appeared to be Churchill.³¹¹ He usually chaired the meetings in his role as Prime Minister, but he also held the post of Minister of Defence, since taking office. The significance of this post is that it was a creation of Churchill’s, following in the place of the previous Minister for Co-ordination of Defence. In creating this position Churchill had given himself deliberately vague terms of reference and consequently more power and authority, in his own words he had been;

‘careful not to define my rights and duties....It was however understood and accepted that I should assume the general direction of the war.’³¹²

³⁰⁸ Howard, *Grand Strategy*, p. 311

³⁰⁹ *Ibid.*, p. 311-317

³¹⁰ Churchill, *The Second World War Vol. 4*, p. 518.

³¹¹ CAB 86/2 minutes of meetings of the Anti-U-Boat Warfare committee

³¹² W. S. Churchill, *The Second World War Vol.2: Their Finest Hour*, (London; Cassell, 1949), p. 15

He continues from this statement emphasising the power of this post when combined with that of Prime Minister whilst elsewhere emphasising his control over the military apparatus.³¹³ His autocratic style in executing this can be seen in his personal approval of the initiation of the Biscay bombing raids, having previously stated a need for referral to the War cabinet.³¹⁴ In many ways it can be argued that Churchill held the balance of power in the debate of strategic bombing versus trade defence. Hence, the relative influence of the RN and RAF on airborne ASW policy at this time is largely determined by their ability to influence Churchill.

The conduct of the Battle of the Atlantic can be seen as the peak of policy priority for Airborne ASW. However, this was only after the culmination of the interwar policies had proved their ineffectiveness in battle. Whilst the fundamental competition with bombers for resources remained a constant, the pressures of the conflict forced opinion shifts in some individuals and organisations, while others maintained a slavish adherence to their inter-war positions. The speed of change varied across those involved; at the command level the Services were able to act with characteristic flexibility to the opening stages of the conflict, while the shift in control to the political level and the relative sluggishness of the political leadership to adapt led to effort being devoted to investigating matters of operational control, rather than more pressing issues of front line aircraft. This highlighted not only the initial inadequacies of the political leadership but an underlying belief that such issues had not been adequately resolved despite significant efforts in the reviews of 1937. It would thus be some time before the inter-war cultural legacy of deprioritising ASW aircraft would be eroded by

³¹³ Churchill, *The Second World War Vol.2.*, p. 219

³¹⁴ CAB 86/2 minutes of meetings of the Anti-U-Boat Warfare committee dated 19 November 1942

threat of defeat by constriction of the SLOCs. Hence, ASW policy owed far more to the exigencies of war than to the input of the RN and RAF.

The end of the War in Europe brought about a swift reduction of Coastal Command, with many aircraft and personnel being transferred to other commands, notably Transport Command which was still heavily engaged in the fight against Japan.³¹⁵ Mirroring the reduction of the maritime squadrons after the First World War, Coastal Command's contraction was rapid, though it did survive as an independent command.³¹⁶ Competition for limited resources would continue in peacetime, impacted by the evolving relationship between the Services and the British defence industry; a recurrent issue would be procuring aircraft fit for the specific requirements of ASW.³¹⁷ War experience had converted the RN to the importance of air power in ASW and they remained foremost amongst its supporters.³¹⁸ With the constraints of conducting war removed, inter-Service rivalry would again blossom with the new battleground of the provision of the nuclear deterrent.³¹⁹ In time the Soviet Union would come to replace Germany as the principal sub-surface threat, as the advent of nuclear powered submarines introduced new challenges into ASW.³²⁰ Britain's move to a submarine-borne nuclear deterrent in 1968 fundamentally shifted the landscape against which

³¹⁵ PREM 3/97/2 memorandum from VCAS to Prime Minister dated 9 June 1945 reports the reassignment of aircraft and personnel.

³¹⁶ PREM 3/97/2 shows the speed with which this was undertaken.

³¹⁷ See Ashworth, *Coastal Command*, pp. 196-211 for narrative on Coastal Command in the immediate post-war era, AVIA 15/3900 give information on the conversion of the Lincoln bomber to a maritime reconnaissance role in 1946 (this airframe would also form the basis for the development of the Shackleton aircraft), AIR 20/3140 and AIR 20/1771 give details on the Shetland flying-boat a cancelled replacement for the Sunderland, AIR 10/3782 gives information on the Seaford another unsuccessful attempt to re-equip the Command.

³¹⁸ See for example ADM 1/23062 Naval Requirements for Coastal Aircraft and ADM 1/23062 Requirements for maritime aircraft and investigation into merits of Shackleton and Gannet.

³¹⁹ See H. Wynn, *The RAF Strategic Nuclear Deterrent Forces their origins, roles and deployment 1946-1969*, (London: HMSO, 1994) and P. Malone, *The British Nuclear Deterrent*, (Beckenham: Croom Helm, 1984)

³²⁰ For more on the development of the Russian force see Moore and Compton-Hall, *Submarine Warfare*, pp. 139-153. AIR 2/11846 Memorandum from Assistant Chief of the Air Staff (plans) dated September 1953 and AIR 2/16777 Memorandum from Secretary of State to Minister for Aviation dated 6 May 1963 both expand on the contemporary difficulties of detecting submerged nuclear powered submarines. For a detailed narrative on submarine development see Edmonds (Ed.), *100 Years*.

airborne ASW was conducted.³²¹ The advent of the Nuclear age would redefine relationships between the Services and the structure of Britain's defence establishment. For ASW this would have far reaching policy consequences which would require a separate study for their examination.

³²¹ J. Moore (Ed.), *The Impact of Polaris: The Origins of Britain's Seaborne Nuclear Deterrent*, (Huddersfield: Richard Netherwood, 1999). The situation is further complicated by the use of submarines for other tasks such as surveillance and insertion of ground forces.

CHAPTER FIVE

CONCLUSION

‘the submarine has been mastered’³²²

‘The only thing that ever really frightened me during the war was the U-boat peril.’³²³

The above quotes, bridging the Second World War, show it to have been the culmination of interwar policy setting and the decisive episode in the history of airborne ASW. The test of battle showed the extent of the errors in inter-war policy regarding this capability area. It has been seen that the history of airborne ASW policy is far more than just that of a single Command or indeed a single Service; it involved several agencies, resulting more often in conflict than in co-operation. Thus the previous discussed discrepancy between the official histories is resolved as the records conclusively support the view of *Grand Strategy* series that there was considerable inter-Service conflict in this area.

The net effect of this was a tumultuous experience for airborne ASW as it struggled to gain and maintain appropriate policy priority. This would manifest itself in a variety of ways in the inter-war period. Faith in naval sonar capabilities was so strong that, coupled with the other factors affecting the RAF in its battle for definition and indeed existence, there was in reality no policy for airborne ASW. Wartime pragmatism and early experience brought some change, though this was limited by the prevalent mantra of strategic bombing. With conduct of the military now more closely controlled at the political level, it would take significant time for airborne ASW to gain traction in policy setting. It would not be until losses at sea

³²² PREM 1/345 Memorandum on sea power by Churchill dated 25 March 1939.

³²³ Churchill, *The Second World War Vol. 2*, p. 529

threatened Britain's ability to continue fighting that ASW would be catapulted to the forefront of the policy debate. This hiatus in the relatively neglected position of airborne ASW would be critical to Britain's ability to continue the War, though it did not change many of the underlying beliefs regarding the use of air power, and as Britain moved towards a peace footing, ASW again became a low priority.

The intrinsically inter-Service nature of this topic means that the conclusions draw on areas beyond just Britain's maritime aviation forces. The nature of the interface between the armed forces and politics and how this serves to shape and define individual Services and Commands along with their cultures is of major significance. In common with all other aspects of air power for the period under discussion the study of ASW is implicitly also the study of strategic bombing policy, as this capability area overshadowed all others. Whilst the "Cinderella" relationship of ASW to other sections of the RAF especially Bomber Command is possibly somewhat oversold by those closest to it, understanding the nature of this competition between capabilities is key to understanding how the use of air power developed. Also fundamental in ASW policy has been the role of technology in defining capabilities and the role of key individuals, both of which find resonance across most military topics.

The Interface between the Services and the Political Sphere

The nature and level of the interface between the political and the military spheres shifts through the period being studied. During the interwar period, the lack of a centralised ministry to run defence led to a diffuse and thus less efficient military establishment. Peaking with the chaotic rearmament process in the 1930s, this allowed internal rivalries to

flourish. At this point, economic pressures rather than sound threat assessments and associated planning assumptions formed the basis for defence policy decisions.

With austerity affecting all aspects of defence, Service leaders had to prioritise the political position of their Services over the overall effectiveness of British defence. The primary role of senior officers became ensuring the continued existence and standing of their Service. Thus, certain capabilities such as strategic bombing were championed as gambits in the political interaction between the Services, naturally resulting in less attention for other areas such as ASW. The resultant failures in policy are indicative of the failure of politicians to provide a suitable economic situation to allow the Service chiefs to focus on strategic, rather than financial, issues. The result of this was the melee of rearmament in the late 1930s as the inadequacies of this approach were exposed by the impending conflict. The swing of the political approach to defence policy in the inter-war period, moving from peace treaties and disarmament to deterrence through parity, highlighted the need for flexibility on the part of the military in terms of capability provision. The ability to be able to react to shifts in political direction was a challenge which would only increase as military equipment became more complex and hence the lead time for the introduction of new capabilities increased.

Mirroring the way in which peacetime inter-Service wrangling had pushed military officers to develop the manoeuvring skills of politicians, the outbreak of conflict had a similar effect placing politicians in military leadership roles as the War Cabinet assumed closer control of Britain's armed forces. This serves to highlight that the organisational flexibility innate in military structures was absent from their political counterparts. Although the RN had adapted to the needs of the conflict in terms of the use of aircraft in ASW, politicians still focused on the issues of operational control, which had been at the forefront in peacetime but were an unwelcome and somewhat unbelievable diversion during the

conflict. The strongest criticism which can be levelled at the politicians was the policy lag caused by the continued prioritisation of bombers and their sluggishness in heeding the calls for more resources for ASW. This must be contextualised not only in light of the continued demands from Bomber Command along with other sections of the RAF, which matched those from the RN and Coastal Command, but more significantly the nature of the advice received from the officers at the upper levels of the Services. For most of the interwar period the threat from and the offensive capability of strategic bombing had consistently been emphasised by the military. In contrast, the demands for aircraft for offensive ASW were a new feature, albeit supported by both the RN and Coastal Command, resultant of the early experiences of the conflict. Indeed, in the last years of peace even Coastal Command did not envisage the value of air power in ASW beyond a mainly observational role. Given that bombing still had massive support across the RAF, the weight of expert opinion was clearly stacked on one side, extending logically to political support for bombing at the expense of ASW. The fact that much of the strength of opinion supporting bombing was rooted in the era of austerity when the RAF needed to champion an air specific capability to ensure its survival should, however, have engendered more debate. Hence, demonstrating the need to take into consideration the context in which expert opinion is forged before it is acted on.

Service Cultures

The damaging effects of inter-Service rivalry based on self-interest rather than strategic requirements, in which ASW policy became a major battleground, have been demonstrated. This created an environment dominated by single-Service thinking, whereby those at the top of the Services found themselves culturally incapable of developing a joint

mind-set at the policy level. This forged a cyclical relationship whereby the lack of effective co-operation prevented the growth of an effective joint operating culture, which in turn inhibited effective co-operation. At the lower levels of the organisations, the effectiveness of inter-Service co-operation was far greater. At the Command level there had been some success in developing an effective joint operating culture, enabling RAF personnel to operate effectively with their RN counterparts.

The RAF itself was far from homogenous and internal conflicts added to inter-Service competition providing a further obstacle to the development of ASW policy. Coastal Command's relationship with the rest of the RAF can be viewed as a microcosm of the place of the RAF in defence as a whole, as it constantly battled for appropriate resources that were only supplied under the pressures of conflict.

ASW policy was thus a victim of a wider challenge for the armed forces as a whole: balancing the development of technical specialists in specific areas of warfare whilst avoiding parochialism, and building and maintaining the requisite *esprit de corps* without recourse to inter- and intra-Service rivalries. These issues can be observed in the development of the RAF as a new service in the interwar years, and raise further questions regarding appropriate structures for the defence establishment. In ASW policy this challenge can be seen in the deadlock reached during the Second World War between the Air Ministry and the Admiralty, with the latter becoming the prime air power advocate. That airborne ASW falls between the natural spheres of operation of the two Services compounded this issue and shows the negative impact of defining the threat as being specifically naval or air, as a joint approach to combating a threat in the first place requires a joint definition of that threat. The immediate implications of this were that it could well have been avoided by an alternate approach to the control of maritime air power, diluting the power of the Air

Ministry, whilst in wider terms the challenge lay in developing a true joint structure for determining defence policy.

More significant than the battle over resources was the role played by the general interaction between the RN and the RAF in the policy-setting process. This combined with their internal cultures in necessitating ad-hoc structures such as the Anti-U-boat Warfare Committee whilst not making long term structural changes, thus shaping the ways in which it was possible for airborne ASW policy to be developed. The official history blames Service chiefs for not resolving the debate over trade defence versus bombing, necessitating the formation of the Anti-U-boat Warfare Committee. However, the politicians who claim credit for having resolved the situation also deserve a share of the blame for creating the peacetime cultural legacy under which the Services were operating.

Selection of Capabilities

Bombing policy was the single most influential factor in retarding the development of ASW policy. A superficial critique would claim that the order of battle with which the RAF entered the Second World War resulted from an indefensible lack of foresight caused by inappropriate faith in the role of bombing in a large scale conflict. In the interwar period, it can be argued that the belief in the effects of bombing was still somewhat of a myth as it had yet to be proved operationally, however this only served to ensure that making the case against it in favour of other capabilities was even more difficult. It must be remembered, however, that the use of air power was still in a relatively early stage of evolution and the most respected contemporary theorists supported the primacy of bomber capability. Furthermore, the offensive nature of bombing made it far more readily acceptable to

conventional military thinking. It is noteworthy that when airborne ASW did finally gain ground at the policy level its emphasis had shifted away from the support and reconnaissance focus of the interwar period to independent offensive operations. The experiences of conflict were to prove the shortcomings of this myopic approach to the provision of defence capabilities. The policy shift this caused was, by its nature, policy by necessity, and did little to diminish adherence to the principles of strategic bombing. The description of the support of strategic bombing as ‘an almost passionate faith’ goes some way to explain this; like any passionate belief, a monumental weight of decisive evidence would be needed to shift the dogmatic confidence in this capability which was proving effective in its area of the conflict.³²⁴ A similar critique can be levelled against the belief placed in ASDIC in the interwar period, again unproven in conflict it formed the cornerstone of an entire area of defence.

The primary conclusion which may be drawn from this is the necessity of a balanced force with capability breadth, which would have included more provision for ASW. It must also be noted that in the time period under discussion maritime patrol aircraft enjoyed the benefit from a high degree of interoperability with those used as bombers. This allowed relatively simple role changing of aircraft as the needs of the conflict and resultant policy direction dictated thus limiting the negative impact of many of the early policy decisions not to increase the strength of ASW aircraft. Secondary to this is the danger of excessively emphasising one capability area, the worth of which has yet to be proven. This highlights the value of trials and exercises in quantifying capability effectiveness, rather than reliance on papers founded on theoretical extrapolations. Hence had there been more joint ASW exercises in the interwar period it may well have had a positive impact on policy setting.

³²⁴ Slessor, *Central Blue*, p. 203

Furthermore, throughout the period under examination the impact of policy decisions was been tempered by the procurement process and the aircraft production industry which if not controlled can exert its own influence on defence capabilities.

The Role of Technology

ASW evolved as a highly technical discipline, and it was the ability of aircraft to exploit technological advances which made them a decisive factor in defeating the U-boat during the Second World War. The role played by technology in the conflict as a whole would cause resource competition in the military to include not only funding, personnel and machines, but also scientific expertise for research and development, as the need to practically exploit any technological advantage became increasingly apparent. The ORS is the success story of this shift, showing the RAF exploiting technological advantage to act as a force multiplier, an approach which is still very much part of contemporary policy.

Technology came with drawbacks, as the relationship between technological advances and policy struggled for definition. In the case of ASDIC, it can be seen that technology was clearly in a dominant position, with claims for the abilities of this new technology leading policy setting and defining the overall approach to ASW. The potential pitfall of technology leading policy was shown when ASDIC did not prove to be the definitive solution that it had claimed to be. This shows the dangers of a panacea-like technological solution being allowed to dominate an area of defence, and the error of assuming a policy approach based on the desire to exploit a specific technology rather than the effect required from a capability. Conversely, the numerous technological successes of the trade defence war, such as the maritime search radar, the Leigh light, aerial depth charges

and sonobuoys, were based on the development of technology to fulfil requirements defined in policy setting. ASW thus offers an excellent example of how policy-led technological developments can prove the decisive factor in a campaign. This was, however, only the case when the technologies in question were born from the contemporary operational needs in an environment permissive to their research and development.

Personalities

As with any historical study, the role of personalities in ASW policy cannot be overlooked, as the history of policy setting is constituted of the idiosyncrasies of individual personalities and their interactions as much as it is of large organisations and institutions. The influence of the individuals in key positions can clearly have a disproportionate impact on the course of events, enhanced by the structural deficiencies of the defence organisation already discussed.

The longevity of the involvement of several of the personalities involved allows the development of their attitudes to be seen before they held key positions in the decisions making process. In the case of Harris, his belief in the importance of strategic bombing in winning a conflict can be traced to early in his career; others, such as Trenchard himself, can be seen to shift opinions on ASW as it evolved while still holding to their early beliefs in bombing. Churchill, one of the central actors, is the hardest to analyse. Although heralded for his unique and decisive contribution to the Second World War, it has been seen that his single-mindedness regarding ASW and bombing had its near-disastrous consequences. The two quotes at the head of this chapter serve to highlight his fallibility. In him we certainly

see an individual as concerned with securing his place in posterity as much as perceptions of him in his own time.³²⁵

The impact of any of these individuals is worthy of a study in its own right, though some overall conclusions as to the general nature of individual influence can be drawn. Firstly, the significance of a specific personality cannot be viewed in isolation. Churchill's support of bombing was all the more effective due to his good relationship with Portal; equally, Trenchard's relationship and patronage of Harris must have had some responsibility for the strength and forthright nature of the latter's views. Secondly, whilst Trenchard and Hankey demonstrate the continued influence that some can wield having left central positions, the formative years of such individuals are also key. For RAF officers, having served through years when their service struggled for its very existence doubtless did not help to foster a healthy joint attitude. To understand those in senior positions it would also be necessary to understand the process by which they were appointed, who had supported their early career and who made the decision to put them in their more influential roles. Thus it can be seen that whilst problematic to empirically assess, the role of personality is key to understanding the policy decision making process.

Numerous factors resulted in the poor formulation of airborne ASW policy. Several of these were universal to defence capabilities in this period such as austerity, inter-Service rivalries and the role of specific individuals in influencing the course of events in an inadequate control structure for defence. Others were ASW specific such as the use of various technological advances and the perceptions of the relative worth of protecting SLOCs against taking the offensive to the enemy using bombing. Ultimately however the failings in

³²⁵ Reynolds, *In Command of History*, gives a detailed analysis of Churchill's role as a historian expanding on his 'firm intention' (p. xxi) to shape perceptions of his premiership.

ASW policy can be seen to centre on the inability of the RN and RAF to move beyond their silos of thinking to cross traditional Service boundaries and produce an effective joint approach to ASW.

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