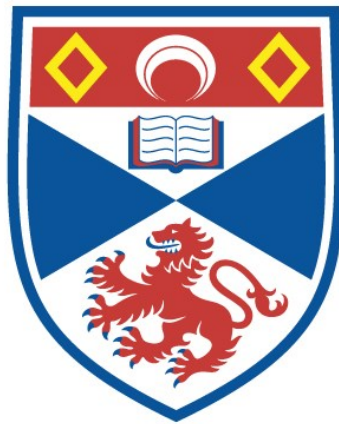


NORTH WESTERN APPROACHES : OPERATIONAL
ASPECTS OF SCOTLAND'S MARITIME ROLE IN THE
SECOND WORLD WAR

Andrew Jeffrey

A Thesis Submitted for the Degree of PhD
at the
University of St Andrews



2001

Full metadata for this item is available in
St Andrews Research Repository
at:
<http://research-repository.st-andrews.ac.uk/>

Please use this identifier to cite or link to this item:
<http://hdl.handle.net/10023/13775>

This item is protected by original copyright

North Western Approaches



OPERATIONAL ASPECTS OF
SCOTLAND'S MARITIME ROLE IN THE
SECOND WORLD WAR



Andrew Jeffrey

ProQuest Number: 10166861

All rights reserved

INFORMATION TO ALL USERS

The quality of this reproduction is dependent upon the quality of the copy submitted.

In the unlikely event that the author did not send a complete manuscript and there are missing pages, these will be noted. Also, if material had to be removed, a note will indicate the deletion.



ProQuest 10166861

Published by ProQuest LLC (2017). Copyright of the Dissertation is held by the Author.

All rights reserved.

This work is protected against unauthorized copying under Title 17, United States Code
Microform Edition © ProQuest LLC.

ProQuest LLC.
789 East Eisenhower Parkway
P.O. Box 1346
Ann Arbor, MI 48106 – 1346


NORTH WESTERN APPROACHES

OPERATIONAL ASPECTS OF SCOTLAND'S MARITIME ROLE IN THE SECOND WORLD WAR


Copyright © Andrew Jeffrey, 2001.
The moral right of the author has been asserted.

NORTH WESTERN APPROACHES


Declarations

I, Andrew Jeffrey, hereby certify that this thesis has been written by me, that it is the record of work carried out by me and that it has not been submitted in any previous application for a higher degree. 

Date: 8/4/01 Signature of candidate: .

I was admitted as a research student under Ordinance 12 on 22 September 1997 and as a candidate for Ph.D. in September 1998. The higher study for which this thesis is a record was carried out at St Andrews between 1997 and 2001. 

Date: 8/4/01 Signature of candidate: ...

I hereby certify that the candidate has fulfilled the conditions of the Resolution and Regulations appropriate for degree of Ph.D. in the University of St Andrews and that the candidate is qualified to submit this thesis in application for that degree. 

Date: 10/4/01 Signature of supervisor: /

In submitting this thesis to the University of St Andrews I wish access to it to be subject to the condition that, for a period of two years from the date of submission, it will be withheld from use. I understand, however, that the title and abstract of the thesis will be published during this period of restricted access; and that after the expiry of this period the thesis will be made available for use in accordance with the regulations of the University Library for the time being in force, subject to any copyright in the work not being affected thereby, and a copy of the work may be made and supplied to any bona fide library or research worker.

NORTH WESTERN APPROACHES

Contents

	<i>Preface</i>	1
	<i>Introduction</i>	2
	<i>Distortion and Received Wisdom - The Case for a Study.</i>	2
	<i>The Literature.</i>	3
	<i>Scope and Presentation.</i>	5
Chapter One	<i>Containment and Retreat - The North Sea to April 1940.</i>	8
	<i>The Introduction of Convoy.</i>	9
	<i>The Northern Patrol.</i>	19
	<i>The Northern Mine Barrage.</i>	22
	<i>The Montrose - Obvestad Patrol.</i>	24
	<i>Attacks on the Home Fleet and its Scottish Bases.</i>	27
	<i>Naval War in Northern Waters to April 1940 in Retrospect.</i>	34
Chapter Two	<i>First Challenge on the Norway Route.</i>	36
	<i>U boat attacks on the Scotland-Norway convoys.</i>	38
	<i>Trawlers in the first Air Attacks.</i>	41
	<i>U boat patrols resume off Scotland.</i>	42
	<i>Air Attacks Intensify.</i>	45
	<i>Scandinavian convoys in Retrospect.</i>	50
Chapter Three	<i>Battle of the Atlantic I - Scottish Coastal Convoys to May 1943.</i>	53
	<i>First Raids.</i>	57
	<i>Magnetic Mines.</i>	60
	<i>Convoy Attacks.</i>	62
	<i>Air Attacks on Chydeside.</i>	72
	<i>Coastal Convoys - March 1941-May 1943.</i>	79
	<i>German Signals Intelligence.</i>	83
	<i>Scottish Coastal Convoys in Retrospect.</i>	84
Chapter Four	<i>Battle of the Atlantic II - North-Western Approaches 1940-41.</i>	87
	<i>Wolfpacks in the North-Western Approaches.</i>	91
	<i>Luftwaffe operations over the North-Western Approaches.</i>	100
	<i>Balance Sheet in the North-Western Approaches.</i>	102
	<i>HMS Western Isles - Escort Group Training.</i>	105
	<i>Scotland's part in Breaking Enigma.</i>	109
	<i>Coastal Command's U boat War from Scotland.</i>	113
	<i>The Schnorbel and the end of Scotland's U boat War.</i>	124
	<i>Scotland's Gateway - The River Clyde.</i>	131
	<i>Scotland's Atlantic Role in Retrospect.</i>	150

Chapter Five	<i>Scotland's Combined Operations Bases.</i>	152
	<i>Right of Passage – Scandinavian Debacle</i>	153
	<i>The Commandos Formed</i>	162
	<i>Growing Pains</i>	164
	<i>The Raiding Phase I – Workshop, Claymore and Hemisphere</i>	167
	<i>Pilgrim's Progress – The Fall of Roger Keyes</i>	171
	<i>Combined Training (Naval)</i>	175
	<i>Combined Training (Military)</i>	178
	<i>The Raiding Phase II – Gauntlet, Anklet and Archery</i>	185
	<i>The Main Event – Torch, Husky, The Rattle Conference and Overlord</i>	201
	<i>Scotland's Combined Operations Role in Retrospect.</i>	215
Chapter Six	<i>Operations in Northern Waters by Scottish-based Maritime Forces 1941-1945.</i>	217
	<i>Scottish Submarine Flotillas Established.</i>	218
	<i>The Bismarck Breakout – May 1941.</i>	222
	<i>First Arctic Convoys and the Tirpitz.</i>	224
	<i>The Mediterranean Effect.</i>	231
	<i>The Battle of the Barents Sea and the Tirpitz disabled.</i>	233
	<i>Battle of The North Cape.</i>	237
	<i>Carrier operations against Tirpitz.</i>	240
	<i>Seaborne special operations from Scotland against coastal targets in Norway.</i>	243
	<i>The Shetland Bus and Operation Musketoon.</i>	247
	<i>Vulnerability of German coastwise shipping off Norway to anti-shipping operations.</i>	252
	<i>MTB anti-shipping operations.</i>	254
	<i>Scottish-based Coastal Command anti-shipping strikes 1943-44.</i>	257
	<i>Carrier Sweeps off Norway in 1944.</i>	263
	<i>Air and Sea operations in the winter of 1944-45.</i>	267
	<i>Final Submarine patrols.</i>	271
	<i>Operations in Northern Waters in Retrospect.</i>	273
Chapter Seven	<i>Apparently the War is Over.</i>	278
	<i>Synthesis.</i>	279
	<i>And the future?</i>	283
	<i>Bibliography</i>	286
	<i>Illustration credits</i>	315
	<i>Glossary</i>	317

Plans: Facing page 93: The attack on convoy SC2. (ADM 199 1976)

Facing page 204: Exercises FLAXMAN and MOSSTROOPER, October 1942. (DEFE 2 204)

Appendix 1: Admiralty Fleet Charts showing swept channels off the east coast of Scotland. (NLS Map Collection)

Appendix 2: Admiralty chart no. 2382 *Upper Loch Fyne* annotated to show training beaches and exercise areas at CTC Inveraray. (NLS Map Collection)

Appendix 3: Map of south-west Norway showing the passage through the Inner Leads. (AIR 41 74)

Cover: Main image: 'The Tail o' the Bank. (James Hall, Greenock.)

Bottom left: HM submarine *Sibyl* alongside HMS *Ambrose*, Dundee. (IWM)

Bottom centre: Heinkel 111 shot down at North Berwick while attacking the east coast convoy route in February 1940. (Scotsman Publications)

Bottom right: Landing craft at HMS *Quebec*, Inveraray. (IWM)

NORTH WESTERN APPROACHES

Preface

Escorted by Spitfires of 603 (City of Edinburgh) Squadron, three white JU52 transport aircraft came in to land at RAF Drem in East Lothian.¹ The planes carried senior German military personnel from Norway, among them nine Kriegsmarine officers who were put aboard a bus and driven through Edinburgh to Hawes Pier, Queensferry, where a pinnace waited to take them out to the battlecruiser *Renown*.

As the pinnace speeded across the calm water in which the setting sun reflected the giant shape of the Forth Bridge, the German officers looked eagerly around. Reaching the battleship, floating like a giant fortress in mid-stream, the German delegation...looked up at the British Ensign flying proudly in the breeze. Climbing up the companionway, they stood stiffly to attention and saluted Navy fashion, with the British guard lined up and the bo'suns whistle shrilling in traditional style.²

In the Admiral's dining cabin, British and Norwegian officers kept to their seats on one side of the table as the 'nervously quiet and obviously ill-at-ease' German delegation was directed to the other side. Coldly dignified, Vice-Admiral Edmund Drummond asked, 'Have the terms of the surrender which were handed to the Commander-in-Chief of the German Fleet by the Supreme Commander of the Allied Expeditionary Force been received by you?' Kapitan zur See Kruger replied simply, 'Ja!'.³



Kapitan Kruger (left) and the Kriegsmarine delegation aboard *Renown* at Queensferry on 11 May 1945.

It was the evening of Friday, 11 May 1945, and, after five years and eight months of relentless, often savage struggle, Scotland's sea war had ended.

¹ AIR 27 2080

² *The Scotsman* 12 May 1945.

³ *Ibid.*

NORTH WESTERN APPROACHES

Introduction

DISTORTION AND RECEIVED WISDOM - THE CASE FOR A STUDY

In May 1993 Liverpool played host to an armada of vessels from around the world in commemoration of the Battle of the Atlantic. Merseyside Development Corporation sponsored the souvenir programme, so perhaps the pro-Liverpool bias evident throughout should come as no surprise.⁴ But, while this publication ostensibly offered an over-view of the Battle of the Atlantic, the vital contribution of Scotland in general, and the Clyde in particular, was afforded only the most fleeting of references. In short, it was an historical distortion.

This is nothing new; the anglo-centric drift to the historiography of Britain's wider role in the Second World War is reflected in the accepted wisdom, sadly prevalent within Scotland itself, that Scotland played little part in events between 1939 and 1945. So is this fair, and, in particular, did Scotland really play an insignificant part in the war at sea? An examination of the available literature would certainly give that impression but, at least in respect of aspects of Scotland's role in the sea war, this thesis challenges that perception, and disproves it. Why, then, have historians so comprehensively ignored Scotland's wartime history and thus, apparently, condoned a misrepresentation?

This study, an assessment of aspects of Scotland's neglected role in the Second World War at sea, may have been impelled by a perceived injustice, but it is not propagandist. It does not confront the issue of anglo-centricity with another distortion, it does not ring-fence Scotland's experience then lard it with narrow nationalism and it does not attempt a demolition of the part played by the rest of the United Kingdom. Nor, for that matter, does it pretend to offer a comprehensive study of Scotland in the Second World War. Rather, it determines, for the first time, important aspects of Scotland's maritime role between 1939 and 1945 and identifies, in those respects at least, the substance of her contribution.

⁴ *Battle of the Atlantic 50th Anniversary (1943-1993)*. (Brodie Publishing 1993).

THE LITERATURE

Any critical review of published writings with direct relevance to wartime Scotland is constrained by the fact that such works are, to say the least, thin on the ground. And of those that do exist, too many evoke what Calder refers to as 'The Myth of The Blitz'.⁵

Among the earliest titles with a direct relevance to Scotland's war, Caulfield's melodramatic account of the loss of the *Athenia* (Caulfield : 1958) has a narrow focus. One of the few post-war publications to consider aspects of Scotland's maritime role, *A River Runs To War* (Drummond : 1960) is worthy, if propagandist. *Castle Commando* (Gilchrist : 1960), an anecdotal account of the author's experiences at the Commando Basic Training Centre, Achnacarry Castle, is another product of its period. *Terror of Tobermory* (Baker : 1972) describes the career of Admiral Stephenson of *Western Isles*, the Western Approaches working up base at Tobermory, yet, by concentrating on one larger than life character, it less informative on the wider significance of the Tobermory base. *The Clydebank Blitz* (Macphail : 1974) is a detailed account of the heavy air raids on Clydeside as they affected the town of Clydebank. But Dr. Macphail, who taught history at Clydebank High School, misrepresents the real story of the Clydeside raids by making little reference to events outside Clydebank, thus contributing to the widely held and fallacious belief that only that town was bombed, a distortion enshrined in the generic term 'Clydebank Blitz' that has come to encompass all air raids on Scotland.

The 1980s brought a rash of titles on the wider history of the Second World War, but again nothing of real merit on Scotland. Journalists Ian Nimmo and Paul Harris produced *Glasgow and The Clyde at War* (Harris : 1986), *Aberdeen at War* (Harris : 1987) and *Scotland at War* (Nimmo : 1989). Heavily dependent on the photo archives of the *Glasgow Herald* and *The Scotsman* these largely pictorial accounts contain little beyond images approved by the wartime censor. But carefully posed photographs of happy evacuees, grinning rescued seamen, ostensibly cheerful Scottish-Italians being herded aboard ships bound for Canada and apparently jolly air raid survivors absurdly and self-consciously giving thumbs-up signs from the ruins of their homes are, at best, unhelpful. And despite the fact that the 1970s had seen the release of much archival material on the war, where Nimmo and Harris do offer editorial it is generally of the 'Finest Hour', brave Clydesiders can 'take it' variety. This is not to suggest that the historiography of the war should ignore patriotism and courage, but, faced since 1945 with seemingly relentless decline, the British have demonstrated a pervasive propensity for belief in their own propaganda.

The Myth of The Blitz (Calder : 1991) appeared in 1991 and, notably in a chapter entitled *Celts, Reds and Conchies*, but also elsewhere throughout this thought-provoking book, the

author includes much of relevance to the Scottish experience of war and its lingering effect on the national psyche. In his preface, Calder writes of his 'anger' at the sentimentalisation of the myth of 1940, notably by politicians, and he is unable in his chilly, leftist analysis to keep his all-too-evident detestation of Margaret Thatcher entirely under control. While little work has been done on the Right in Scotland, *Voices From War* (1995) edited by Ian MacDougall, a leading light in both the Scottish Labour History Society and the Scottish Working People's History Trust, is a must for anyone wishing to understand what made the Scottish working class tick during both world wars.

By the end of the 1980s it was apparent to this author that, although a raft of titles was being produced on the Second World War in general, there was almost no published work on what happened in Scotland, when it happened, where it happened and why. So, between 1991 and 1993, I published three titles on Scotland's war. The first attempt to introduce primary source material into narrative studies of Scotland during the war, these were, nevertheless, commercial ventures with limited scope. Also at that time, Scottish Television's *Scotland's War* series, which echoed the earlier *World At War* even down to the sonorous delivery of its voice-over, was being screened. This too represented a welcome break from the hitherto 'couthy' representation of Scotland's war.

Thus, at the end of a century which saw two truly global wars, sizeable conflicts such as the Boer, Korean, Falklands and Gulf Wars, not to mention the Cold War, in all of which Scottish forces and bases were involved, it is surprising to find that the historiography of Scotland in at least one of these global conflicts is so sparse. Indeed, a reading list for a course of academic study on the subject would be an unimpressive document as the student would be forced to rely heavily on cherry-picking from titles with a wider 'British' or 'World' interest. All too many of these, in particular American titles, refer to Britain as England, but this irritating habit is by no means confined to US authors; for example in Williams' 1997 *Fleet Sweepers at War*, the Moray Firth is referred to as being off the English coast!

There is, of course, no shortage of published texts on the wider history of the Second World War at sea. Roskill's prodigious output, notably his *The War At Sea* series, must underpin any study of the period. Maund (1949) and Fergusson (1961) both make reference to the work of the Combined Training Centres on the Clyde in their respective works on Combined Operations. Ashworth (1992), Buckley (1995), Nesbit (1995) and Franks (1995) and others include material on Coastal Command operations from Scotland and numerous accounts of Arctic convoys have been published. Padfield's fine study of submarine warfare, *War Beneath the Sea* (Padfield : 1995), is comprehensive, yet it is an example of the dis-

⁵ Calder : 1991.

interest shown by historians in Scotland's role for it largely ignores submarine operations in northern waters and, in particular, the work of the Scottish flotillas. Evidential sources, often biographical, must be appraised in terms of the context in which they were written and derivative reference works based on primary sources, The seminal *Axis Submarine Successes of World War Two* (Rohwer : 1999) to name but one, are vital but offer little guidance for the broader consideration of diverse facts. The fundamental point is that none of these titles attempts to place Scotland's unique and vital operational contribution to the war at sea, or even the wider war, into perspective.

On the other hand, as the most intensely organised period in British history, the Second World War generated a vast archive of primary sources. These range from the Western Approaches War Diaries, a sweeping chronicle of events over millions of square miles of Atlantic Ocean, to the Queensferry ARP Post Log which offers a remarkably intense account limited only by the visible horizon. Some, compiled over a lengthy period, bear the mark of many hands, others were written in the immediate aftermath of combat. Most are remarkably free of prejudice and self-interest. Critically, however, as the bibliography for this thesis shows, there are numerous primary sources on the part played by Scotland in the war, and on how the war affected Scotland. As the research for this thesis progressed, it was apparent that many of these documentary sources had rarely been examined since 1945, some of them not at all.

SCOPE AND PRESENTATION

In his introduction to *Maritime Supremacy and the Opening of the Western Mind* (Padfield : 1999) writes of maritime supremacy as, 'the key which unlocks most, if not all of the questions of modern history,' and of geography as, 'the defining factor in the growth of both territorial and maritime power[s] and their opposing systems of government.'⁶ This has long been true of the British Isles, and never more so than during both world wars when, by dint of geography, Great Britain's principal strategic significance was maritime. And this was immeasurably enhanced in 1940 when, with the sole exception of the Rock of Gibraltar, the entire European littoral from the Aegean to the North Cape was either in enemy hands or neutral.

In seeking to define the importance of Scotland's maritime role, this thesis addresses three fundamental questions. First, as so little is known of the course of events around Scotland's maritime fringe, what actually happened and how did her maritime infrastructure aid the war effort? Second, in what maritime and amphibious operations of the wider war did

⁶ Padfield : 1999 pp. 1-5.

Scotland play a part, and, third, how strategically significant was Scotland's maritime role in these operations to the wider Allied effort?

No single work could, or arguably should, attempt a comprehensive, omniscient study of Scotland's Second World War, even her maritime war. The subject is just too complex, and so little is yet known about it, that no such study could hope to be coherent. And, as the written word invariably trivialises military history, in an effort to avoid superficiality this thesis confines itself to distinct operational aspects of Scotland's sea war. Selected to cover a range of maritime activity, these include the early use of the Home Fleet based on Scotland to contain the *Kriegsmarine* inside the North Sea and Scotland's role in the Atlantic trade war, including convoy battles both in the North Western Approaches and the coastal convoy route around Scotland. The performance of the Clyde, Scotland's principal port and one of the two principal UK ports, is examined and placed in context. And the role of the Combined Training Centres and other training establishments around Scotland in the development of the amphibious warfare capability that would ultimately see the Allies ashore in Normandy is discussed. Finally, the thesis looks at the role of the Scottish-based Home Fleet surface ships and submarines, along with aircraft of Coastal Command operating from Scottish airfields, in the maritime war in Northern Waters. This includes consideration of their part in fighting convoys through to the Soviet Union, in the defeat of the U-boats and the *Kriegsmarine* surface fleet, and in the campaign of deception and sabotage that tied down an Axis garrison of 350,000 men in Norway, well away from the main battlefield in Europe.

The decision to concentrate on these areas of study has been driven by the need to place Scotland's role in the context of a world war, yet keep the resulting work within manageable proportions. And, while it may be that maritime history is too important to be left solely in the hands of seamen, my own seagoing background was also a factor. But such is the enormous scope offered by study of Scotland in the war, one of the more frustrating features of this project has been the amount of material that has had to be left out. So the project aims to be more than merely an intellectual exercise in historical writing. In shedding light on a neglected area of Scottish, and indeed British, history, it is hoped that it will stimulate further study of Scotland's wartime experience.

Photographs can, as noted above, be misleading if used indiscriminately, but this should not mean that all historical writing should take purely textual form. This thesis is illustrated throughout both to illuminate adjacent text and to carry discreet information, though the images used have been selected with a critical eye. Maps accompanying the text are in Mercator projection. It should be borne in mind that this has an increasingly distorting effect in northern latitudes as meridians of longitude are opened out to allow the earth's surface

to represented as a flat surface and meridians of latitude are stretched to compensate. While this makes charts navigationally accurate, it has the effect, particularly noticeable on large scale charts, of making land masses appear disproportionately large the further north one goes. (Navigators in polar regions use gnomonic projection charts centred on the magnetic north pole and much pioneering work in polar navigation was carried out by war-time RAF navigators operating from Sullom Voe on patrols to the far north.) For the sake of continuity, naval date-time groups are used throughout the text and are presented as xxxx/xx being time/date. Unless otherwise stated, all times given are local. Otherwise, and in line with contemporary practice, Greenwich Mean Time is given as xxxz/xx, British Summer Time as xxxxA/xx and British Double Summer Time as xxxxB/xx. Central European Time is annotated (CET).

Chapter One

CONTAINMENT AND RETREAT - THE NORTH SEA AND NORTHERN WATERS TO APRIL 1940

Over-extended and unwieldy, by 1939 the British Empire lacked homogeneity and its oceanic trade routes had become all but impossible to defend. The Empire was also then a much looser confederation than it had been in 1914 and the whole-hearted support of the dominions for another war was by no means assured. Meanwhile, the United States, pursuing a Pacific agenda, had insisted on the ending of the Anglo-Japanese alliance that had brought Japan into the First World War on the Allied side. British interests in the Far East were left dangerously exposed before increasing Japanese bellicosity, but sending a fleet to the new base at Singapore would leave the Royal Navy in home waters seriously denuded. Australia, New Zealand and India were thus all but indefensible.

Britain had made a tentative start on rearmament in 1934 but, notably in respect of the RAF and Royal Navy, this was essentially defensive in nature. Not that, at least in respect of the Navy, this was anything new. Britain's maritime Empire began to decline in the early years of the 20th century as her economic and naval dominance was challenged by younger, dynamic powers, notably the United States and Germany, and after the near-disastrous Boer War did so much to expose its vulnerability. This brought a gradual change in British maritime policy from defending far-flung Imperial trade routes to facing, in alliance with France, a rapidly rising military superpower across the North Sea. As the naval arms race that would culminate in the First World War reached a crescendo in January 1912, First Sea Lord Winston Churchill said, 'The purposes of British naval power are essentially defensive,' and suggested that the British fleet was a necessity for a maritime power while the then nascent German Navy was a 'luxury'.¹

The British Army in 1939 was small and, while an expansion programme had been approved, this would take time to have any effect. These widely-known military weaknesses lay behind many of the apparent political failures in the 1930s and forced the British government into a policy of containment when war broke out. There may have been no

¹ Padfield : 1993 p. 820.

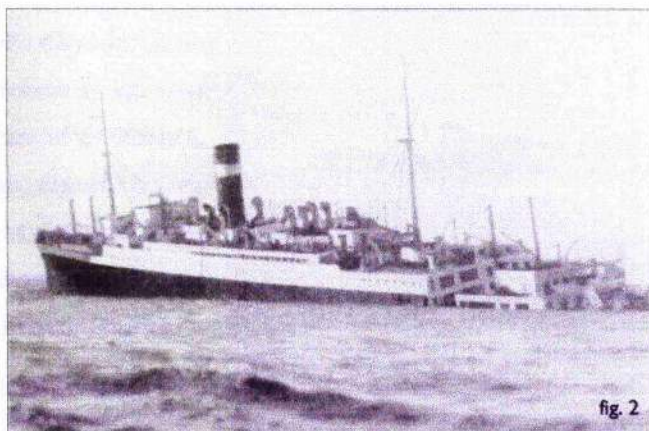
other option, but British policy was also over laden with much wishful thinking. Intelligence assessments in the late 1930s had suggested that a fragile German economy had been over-extended by rearmament and that the population was restless as a result. A naval blockade, the principal British maritime strategy for almost 300 years, would, it was believed, bring about a collapse similar to that of 1918 in under two years.² This sort of wholly fallacious strategic intelligence, offering as it did the prospect of a quick fix, held considerable appeal for a British administration wrestling with an intractable conflict of worldwide strategic interests, uncomfortable economic reality and military weakness. Though it must be said that German strategic intelligence about Britain and the United States in particular was even more at odds with reality. German territorial gains in 1940 would render the whole concept of their economic weakness obsolete.³

THE INTRODUCTION OF CONVOY

Addressed Admiralty Naval Wireless. From Malin Head Radio. 3/9/39. Important Important. Admiral Rosyth. Intercept 2059. Jamming near. SSSS SSSS SSSS Athenia GFDM torpedoed 5644 1405.⁴

The Glasgow liner *Athenia* (13,581T) left Princes Dock in the Clyde at 1200/1 September 1939 and, having called at Belfast and Liverpool, set course through the North Channel for Montreal. Among her 1,102 passengers were 469 Canadians, 311 Americans and 150 European refugees. At 1939/3, some 150 miles west of Ireland, Kapitänleutnant Fritz-Julius Lemp in *U-30* fired four torpedoes, one of which hit *Athenia's* port side at the bulkhead between the engine room and no. 5 hold. Two men were killed in the engine room, but much of the blast vented upwards through the hatch cover, killing and injuring women and children on the deck above. The Norwegian tanker *Knute Nelson*, the Swedish yacht *Southern Cross* and the American steamer *City of Flint* responded to *Athenia's* distress message, arriving just after 0001/4, and the destroyers *Escort*, *Electra* and *Fury* came up at daybreak after being detached from the Home Fleet at sea west of the Hebrides.

Athenia sinking early on 4
September 1939.



² *The Economic Blockade. History of the Second World War Civil Series*, W. N. Medlicott. HMSO 1952-1959. vol. 1 p. 24-37.

³ See *Strategic Intelligence and the Outbreak of the Second World War* article by Richard Overy in *War in History* vol. 5 no. 1.

⁴ ADM 199 140.

One hundred and twelve of *Athenia's* passengers and crew died. Since overshadowed by the wider war, in September 1939 the impact of *U-30's* torpedo did more than just sink one ship; it caused a worldwide reaction comparable to that which followed the sinking of the *Lusitania*. German memories of how unrestricted submarine warfare had done much to bring the United States into the First World War were only too clear, and various steps, including the crude faking of *U-30's* log, were taken to conceal Kriegsmarine involvement.⁵ In America, news of the sinking shrieked from the front pages alongside news of the British declaration of war. In Glasgow, as elsewhere in Britain, the reaction was a mixture of shock and revulsion. Most importantly, however, the Admiralty concluded, wrongly as it turned out, that unrestricted submarine warfare had begun and extended convoy arrangements without delay. (The first convoy had sailed Gibraltar for Cape Town on 2 September, the day before war broke out.)

Britain's Merchant Navy, and those of her dominions, began the war in a seemingly dominant position with 32.5% of world tonnage, but this apparent strength concealed fundamental weaknesses.⁶ The interwar years had been difficult for world shipping, and particularly fraught for British shipowners who had to cope with economic depression, unfavourable exchange rates and increasing competition. British non-coal exports fell from a peak of 17 million tons in 1929 to 9.8 million tons in 1933, though it did recover to 13.5 million tons in 1937. But, again excluding coal, in 1938 British exports were running at 68% of their 1913 tonnage. Not only did British liner owners suffer from declining traditional industries, but they were also increasingly exposed to aggressive competition, most notably from Scandinavia. And British shipowners failed to build new tonnage, or reconstruct older tonnage, to meet the requirements of new markets. By way of a comparison, in 1939 some 62.2% of Norway's merchant tonnage comprised modern, economical, diesel-powered ships as opposed to just 25.6% of the British merchant fleet.⁷ British-owned tramps lagged even farther behind, the typical British tramp being then still a 9-knot coal burner. As a result, British share of world seaborne trade had declined from 52% in 1912 to 40% in 1936, a decline that was particularly marked outwith the Empire.⁸

Against a background of frequent disarmament conferences and constant financial constraints, in 1932 the Admiralty was operating on the principle, established in 1925, that the Royal Navy in home waters should be strong enough to hold the line against a

⁵ Fregattenkapitan Gunther Hessler saw a BdU document, later destroyed, in which Lemp stated that he had believed *Athenia* was an Auxiliary Cruiser. But Vause : 1997 suggests that Lemp made, '...a stupid mistake; it broke every rule in the book and put the U-Bootwaffe and the Reich Propaganda Office on the defensive immediately.' Caulfield : 1958. Rohwer : 1999. Dunnett : 1960 p. 76. See also Brassey : 1948 p. 39.

⁶ *Merchant Shipping and The Demands of War*. C. B. A. Behrens. HMSO 1978 p. 17 for comparative tables of world tonnage over 100 tons gross in 1914 and 1937. See also 1939 figures for registered shipping over 500 tons in *British Shipping and World Competition* Sturmev : 1962 pp. 139-140.

⁷ Sturmev *op. cit.* p. 84.

⁸ *Ibid.* p. 89.

European aggressor until reinforcements could be brought home from the Far East. But the political and strategic landscape across Europe and in the Far East was changing radically and, faced with the bleak prospect of simultaneous hostilities with Germany, Italy and Japan, Chatfield's Admiralty, like its political masters, placed excessive, even naïve, faith in the 1935 Anglo-German Naval Agreement. Not until the end of 1937 was it acknowledged that only Germany could deliver a decisive blow at the heart of the British Empire. The two-power strategy was evolved whereby the Navy at Singapore should be strong enough to act as a deterrent to the Japanese and the Navy at home should be capable of taking on Germany.⁹

The Navy's newest capital ships, *Nelson* and *Rodney*, themselves less capable than originally intended, were 12 years old. With the exception of *Hood* which, though laid down in 1916, was not commissioned until after the 1918 armistice, all the other capital ships were First World War veterans. Considerable sums were spent, from 1933, on reconstructing four *Queen Elizabeth* class battleships, yet *Nelson*, *Rodney* and the reconstructed *Warspite* were still slower than their German counterparts.¹⁰ Only the battlecruisers *Hood*, *Renown* and *Repulse* could have caught even the German 'pocket battleships' in a straight chase, and they would still have been out-gunned. The contest for the elderly but reconstructed *Renown* and the superannuated *Repulse* in the albeit unlikely event of a straight fight against the German battlecruisers *Scharnhorst* and *Gneisenau* would have been even more unequal.

In anti-submarine warfare the picture in 1939 was just as depressing. The Navy had ended the First World War with 477 escort vessels, but, while Britain's dependency on maritime trade had altered little, the number of escorts had reduced to 201 by 1939.¹¹ It would be too easy to lay the blame for British unpreparedness for a trade war in the Atlantic at the door of a parsimonious Treasury, but, as Peden writes;

...nothing can be more certain than that Treasury officials were under no illusions as to the danger posed by Germany, Japan and Italy...Deterrence of Germany was seen as the key, but a world-wide Empire and dependence on commerce inhibited concentration of defence resources against Germany.¹²

And, as Kennedy writes:

The final irony of British defence policy in the inter-war years was that the Treasury, cursed by the "rearmers" at the time and almost universally scorned in historical literature, was in

⁹ See Roskill : 1976 ch.s XI and XIII, also Peden : 1979 p. 113 *et passim* and *The First Sea Lords* (M.H. Murfett (ed) : 1995), in particular ch. 11 by Eric Grove on Admiral Sir Ernle Chatfield.

¹⁰ The *Queen Elizabeth* class rebuild programme first came under active consideration following machinery surveys in 1928. Detailed planning of the reconstruction of 34,000 ton *Warspite*, the first ship to be taken in hand, got under way in June 1933 and the modernised *Warspite* began trials in August 1936 just as the new 64,170 ton Japanese battleship *Yamato* armed with 18" guns was nearing completion. Of the seven planned part or complete reconstructions, four had been carried out before war began. ADM 1 18774. Roskill : 1976.

¹¹ This does not include 20 Asdic-equipped trawlers. See *Naval Policy between the Wars* monograph by Roskill.

¹² Peden : 1997 p. 113.

fact perfectly correct in its Cassandra-like forebodings.¹³

Wilmott takes a different line, suggesting that the Royal Navy was, in fact, not badly placed to meet the threat to trade in 1939, indeed better placed to defend British trade than Germany was to undertake an offensive against it.

Any attempt to have built up British anti-submarine forces before the last couple of years prior to the outbreak of war would have been...financially irresponsible and strategically irrelevant. In Britain's straitened interwar circumstances any attempt on the part of the Royal Navy to have developed anti-submarine forces would have encountered a very predictable response from the Treasury.¹⁴

At the core of Wilmott's argument is his peculiar assertion that, until 1938, the Navy had no enemy in Europe. But, as Ranft *et al* point out, reports of German naval expansionist intentions first reached London in April 1934 and further intelligence, some from the *Deuxieme Bureau*, followed at regular intervals. Notably, in January 1935, the British Naval Attaché in Berlin referred to conversations with Raeder and others and reported that Germany was concealing the construction of two battleships which were over the treaty limits. These became *Scharnhorst* and *Gneisenau*.¹⁵ There were many other indications of German rearmament, notably in March 1935 when a kite-flying Hitler revealed to the British press the existence of the Luftwaffe and, six days later, announced an imposing new German army of 36 divisions based on conscription.¹⁶

Politicians, particularly in Britain and France were merely reflecting the national mood when, from 1935 onwards, they sought to avoid war, even if this meant ignoring the writing on the wall. But the Admiralty, which was receiving regular and clear intelligence of German Naval rearmament, including U boat construction, both overestimated the effectiveness of British Naval technology and underestimated the trade protection capability that would be required. From 1932, it was planned to build three cruisers and just two A/S escorts annually, then, in 1936, First Lord Sir Bolton Eyres Monsell assured Ministers that submarines would be less important in a future conflict than they had been in the First World War.¹⁷ That year's estimates included two new battleships, the 1937 estimates included three more battleships, two carriers and seven cruisers along with 34 destroyers, 12 sloops and 15 submarines. As Grove writes, the then First Sea Lord Sir Ernle Chatfield accepted that he failed to fully recognise the true scale of the U boat menace, and only in the 1939 estimates do escort vessels appear in numbers.¹⁸

Thus, in 1939, the most immediate shortages lay in long-range escort vessels with sufficient

¹³ Kennedy : 1976 p. 297.

¹⁴ Paper by H. P. Wilmott in *Battle of the Atlantic - 50th Anniversary International Naval Conference*. Howarth and Law (ed.s) see pp. 181-182.

¹⁵ Ranft *et al* : 1977 p. 138.

¹⁶ Horne : 1990 p. 87.

¹⁷ Peden : 1979 p. 166.

¹⁸ Murfett (ed.) : 1995 p. 167.

speed, technology and hitting power to catch and destroy U-boats, and in tactics and training. Much of the responsibility for this must lie with the Admiralty which, faced with the competing imperatives to defend both the centre and imperial trade routes, gave A/S warfare low priority between the wars. New construction priorities and the attendant personnel and training programmes may appear, with the benefit of hindsight, to have been ill-judged, yet it is possible to sympathise with Admirals for whom the capital ship was the ultimate representation of naval might. All their experience pointed to the torpedo and the bomb being erratic weapons of dubious effectiveness, and the addition of anti-torpedo bulges was thought to have rendered capital ships all-but invulnerable to torpedo attack. This is not to suggest that the Royal Navy in 1939 was a paper tiger; it was after all much larger the *Kriegsmarine*, but it was scattered around the world in penny packets to protect imperial trade routes and meet the emergent threats from Germany, Italy and Japan. There were sloops, minesweepers and modern fleet destroyers, but capital ships dare not move without drawing on this already over-stretched force.

Britain still led the world in shipbuilding, but the depression had wrought considerable damage to heavy industry and the sudden growth in warship building had a knock-on effect on merchant vessel construction, using up yard capacity. Then the Treasury, keenly aware that the conflicting demands of all three services were coming up against physical limits of production, were concerned at the inflationary effect of naval expansion on the wider economy. New construction used up capacity hitherto used to manufacture export goods and demand for scarce raw materials and specialist machine tools, for example, meant rapidly rising imports. For example, 20 Hunt class destroyers were ordered in the 1939 estimates. These small, lightly-built ships had insufficient endurance for ocean escort duty, but they did draw on scarce, generally imported special steels used in the manufacture of turbine blades. The forming of these blades and similar precision finishing work was increasingly dependent on machine tools imported from the United States.¹⁹

It was the consequent need for an escort vessel with reciprocating machinery, which could be built quickly in large numbers, that led to the Flower class corvette. Based on a commercial whaler design, Flowers were simpler, faster and cheaper to build than sloops or destroyers, and orders for 60 were placed in July and August 1939 with 16 shipbuilders, few of whom had experience of warship construction. Flowers were originally conceived as a coastal convoy escort as it was not considered that close escort would be required for ocean convoys which would, in theory, be beyond the range of aircraft operating from Germany and U boats bottled up in the North Sea by the British blockade. Only capable of 15 knots, almost four knots slower than a surface-running U boat, they

¹⁹ Kennedy : 1976 p. 297 *et passim*.

were lightly armed with a single 4" gun and 40 depth charges. And, while they did have the range for ocean escort work, particularly in their earliest form, they were notoriously uncomfortable, their endurance being limited as much by the need to rest their crews as by effective range. As the Staff History of the North Atlantic Campaign states, by the end of 1940 it was apparent that neither sloops nor corvettes could stand up to the North Atlantic in winter.²⁰

Losses in Norway, at Dunkirk and elsewhere meant that, by mid-July 1940, the escort force available to Western Approaches Command comprised just 10 sloops, 22 destroyers and corvettes and 'a number of trawlers'. Additional ships were available from other commands, but that meant either reducing anti-invasion defences or abandoning convoy on, for example, the Gibraltar run.²¹

Asdic, the underwater sound ranging device with its characteristic heterodyne pinging, was seen by many before the war as a panacea. Such was the confidence in its abilities, when the 1936 Naval estimates were presented to Parliament, MPs were reassured that, thanks to the introduction of what was euphemistically referred to as modern equipment, '...fewer destroyers could do the work formerly done by many.' Whether this work was to be trade protection or protecting the fleet was not specified. But Asdic, particularly in its early manifestations, had serious shortcomings well-known to Royal Navy submariners; it had limited range, it could not determine the depth of targets and it was readily deceived by, for example, fish, temperature layers and Asdic sets in other ships. And Asdic was only as good as the people operating it. Anti-submarine warfare had held little appeal for naval officers attracted by more glamorous branches of the service. Little had been done to develop the tactics and teamwork that would bring success from 1941 onwards, but so evidently lacking in 1940.

Vitality, however, Asdic was unable to detect surface-running U boats. The Admiralty was aware of this, yet the one thing that, as had been proved in 1918, would force U boats into Asdic's operational envelope, namely maritime aviation, had been all but abandoned. With Kriegsmarine crews training for surfaced night attacks and maritime radar in its infancy, herein lay its most fundamental deficiency.²²

Naval aviation, handed over to the RAF in 1924 and the subject of prolonged demarcation disputes until it was returned to the Admiralty in May 1939 after a two-year campaign initiated by Chatfield, had withered on the vine and the Fleet Air Arm would play little part in the Battle of the Atlantic until the appearance of escort carriers in 1942.²³ The RAF's

²⁰ *The Defeat of the Enemy Attack on Shipping 1939-1945* p. 19.

²¹ ADM 199 6. See also *The Defeat of the Enemy Attack on Shipping 1939-1945* ch. 5.

²² Hackman : 1984 for Royal Navy Asdic development.

²³ Van der Vat : 1988 p. 72, 94, 111-112.

Coastal Command was principally expected to act as the eyes of the fleet in the event of a German surface raider break-out from the Baltic to the Atlantic, this being seen from the mid-1930s as the greatest threat to trade. Oddly, it was also expected to offer unspecified cooperation to Bomber Command in the strategic air offensive and this subservient role to Bomber Command would hamper Coastal's development throughout the war.²⁴ But, there were more immediate problems to be faced. As Buckley writes;

Coastal Command began the war with a whole host of failings and deficiencies. These were largely as a result of a lack of resources allocated during the rearmament process; of the influence of the doctrine of the flying boat; and of the strategical and political debate over the ability of aircraft to sink major naval vessels.²⁵

In 1937, the Joint Planning Committee had set a target of 339 operational aircraft for Coastal Command, but only 194 were available in April 1939. But the actual number of aircraft was not, at the outbreak of war, the main problem. The Kriegsmarine was, after all, small with few ships or U boats operational. The real issue lay in the standard of equipment, much of it, like the inadequate Anson and the 20-year-old Vildebeest, hopelessly obsolete. The procurement process for new, operationally capable aircraft had failed with contracts being awarded to companies like Blackburn which had dubious track records. New types such as the Botha, Bolingbroke and Lerwick flying boat had failed and their programmes had collapsed. The Beaufort had more promise, but its programme had been delayed. For trade protection and reconnaissance duties, the Hudson landplane and the Catalina flying boat, imports from America, would act as a stop-gap until the long-range Liberator, an American-built Bomber Command reject, came forward in numbers.

Coastal Command's procurement programme had become the subject of a long running dispute, that would continue through the war, between backers of the bombing offensive and advocates of trade protection. Invariably, Coastal Command came off worst and, in September 1939, its order of battle was ten squadrons of Ansons, one of Hudsons and two of Vildebeests. In flying boats, there was one squadron of obsolete Stranraers, another of the equally useless London and just two squadrons of the relatively modern Sunderland. But Shorts had turned over their lines to the new Lerwick flying boat which was rushed into production and proved a failure. Thus, when war broke out, production of the Sunderland, the one successful long-range aircraft available to Coastal Command, had stalled and was having to be hastily restarted.²⁶

Initially, the defence of ports and coastal shipping was to have been the responsibility of

²⁴ Terraine : 1985 p. 225. Buckley : 1995 *The RAF and Trade Defence* p. 117.

²⁵ Buckley *op. cit* p. 113.

²⁶ Terraine : 1985 p. 228.

Fighter Command. Four squadrons were transferred from Fighter Command for trade protection duty in December 1939 as losses in coastal waters mounted, but progress was agonisingly slow. And, in addition to North Sea patrols including what was then its most important task, the patrol between Leuchars and Norway, Coastal was now required to patrol the enemy-held coastline from Norway to the Bay of Biscay and to cover Iceland, the Denmark Strait and the North Western Approaches. In 1940, it was to provide support for the RAF in the Battle of Britain and mount attacks on enemy invasion shipping assembling in French and Belgian Channel ports as German successes heaped new priorities on an already overstretched Command.

If the situation as regards ships and aircraft was poor, the condition of the principal naval bases in Scotland was, if anything, worse. Rosyth, vital at least until 1917 as it was better placed than Scapa Flow for getting heavy units into the central North Sea, had closed in 1928. It had since been used as a shipbreakers' scrapyards by Metal Industries Ltd and had not been modernised, though it was being reactivated as war broke out. Scapa Flow would be the Navy's main base in northern waters, but its defences had been allowed to run down to a dangerous degree, as would soon be exposed by Prien and *U-47*. As the Navy moved onto a war footing, the battleships *Royal Sovereign*, *Royal Oak* and *Ramillies* lay at anchor in Scapa Flow on 21 August 1939. Surveying the defences, Captain Tom Baillie-Grohman of *Ramillies* recorded a lamentable picture of neglect: the Hoxa boom was in place and the gate through which he had just brought his ship was marked - but there was no gate. None of the other boom defences were even that far advanced, there were no patrol vessels, nor was there any covering fire. Baillie-Grohman wrote:

It appeared that the BDO, who had been working on the booms for about a year, had, in spite of frequent requests, been refused permission to work overtime. As it was only possible to work in the strong tides for a few hours round slack water, progress was extremely slow. This all seemed an appalling state of affairs, and it was with a sense of urgency that I instructed the BDO to work overtime, and at full speed, and at the same time made a signal direct to the Admiralty repeated to all concerned that this had been done, 'failing instructions from Their Lordships to the contrary', thus putting the responsibility squarely where it belonged.

I found that two batteries of four of the latest AA guns had lately been mounted at Lyness. These... had been manned for exercise between 12th August and 18th August by Territorials, who had, on the latter date, returned to the mainland whence they had come. At the moment (21st August and the following days) the guns were plugged, ammunition and breech blocks returned to some rather distant magazine, and no crews were available... I then inspected the Boom Defence Vessels at the Hoxa entrance and found the crews to be civilian RFA, mostly from the Orkneys. Between the two crews there was one World War One army artilleryman, who now knew just enough to go over the single 3-inch AA gun in each vessel with an oil can. The guns were plugged, and there was no ammunition on board.²⁷

And all this while, as Peden points out, large sums were being spent on the defences of Singapore.²⁸ Baillie-Grohman took his concerns to Rear Admiral Harold Blagrove, though

²⁷ *Naval Review* vol. XXXIII pp 63-66.

²⁸ Peden : 1979 p. 167.

just how much urgency registered with the latter is a matter for speculation as, ironically, he drowned when *Royal Oak* was torpedoed inside Scapa on 14 October 1939.

Control of merchant shipping was taken over by the Admiralty on 26 August 1939 and Naval Control of Shipping Officers were in place in all major ports. The first outbound convoy sailed from the Clyde on 5 September.²⁹ HX and OA/OB series Atlantic convoys began in mid-September, the first inbound Atlantic convoy sailing Halifax, Nova Scotia, on 16 September. As the speed of any convoy is limited to that of its slowest ship, it was decided that only vessels capable of between 9 knots and 14.9 knots were to be included in ocean convoys. Faster ships could safely sail independently but slower ships were left to fend for themselves and suffered heavy losses.

By March 1940, the Atlantic convoys had settled down to a four day cycle. The Admiralty Staff History offers an optimistic gloss by implying that HX and OA/OB convoys were, 'brought across the Atlantic by an anti-raider ocean escort' when, in practice, this rarely amounted to more than a single Armed Merchant Cruiser, one of the misleadingly titled converted liners hastily equipped with obsolete guns. But, such was the shortage of escort vessels and aircraft as detailed above, close anti-submarine escorts were only provided east of 12° west and occasional Coastal Command aircraft operated out to 8° west.³⁰ Later, in July 1940, the Ministry of Supply increased its import requirements by 1,000,000 tons per month and, as it would clearly be better for imports to arrive late than never, urgent consideration was given to providing escorts for slower ships.³¹ The first 8-knot SC convoy, SC1, sailed Sydney, Cape Breton, on 15 August 1940.³² The shortage of escort vessels meant that only one sloop, *Penzance*, was available and she was the first ship lost from the convoy, sunk by *U-37* on 24 August.

From the outbreak of war until June 1940 transatlantic traffic had been principally routed through the Western Approaches south of Ireland to ports in southern England, but German troops entered Paris on 14 June 1940 and the French government asked for an armistice three days later. The Rosyth war diary for 17 June opines, 'At last we are fighting this war on our own. Provided the French Fleet falls into our hands, no particular difficulty should be encountered.'³³ However, with France now enemy territory and ports in the south coast of England untenably close to Luftwaffe airfields, all Atlantic convoys were rerouted through the North Channel. Outbound OA convoys from Southend continued until 24 October 1940, though they were diverted northabout round Scotland,

²⁹ *The Defeat of the Enemy Attack on Shipping 1939-1945*. Ch. 5 for convoy organisation.

³⁰ *Ibid.* p. 30.

³¹ ADM 199 6 for minutes of discussion in A. V. Alexander's office on 18 July 1940 on the introduction of SC convoys. Rohwer : 1999.

³² ADM 234 372. *The Defeat of the Enemy Attack on Shipping* chapter 5 ss. 25 and 26.

³³ ADM 199 363.

Five converted merchant ships with a total capacity of 2,600 mines formed the 1st Minelaying Squadron based at HMS *Trelawney* in the Kyle of Lochalsh Hotel, which was selected because it had a railhead and was well away from danger of air attack.⁵⁴ The plan was to lay 60,000 mines in six months, out of a total required of 181,000. But the effectiveness of the barrage was evidently dependent on the Norwegian government agreeing to its eastern end being closed up to their coast, and this was not thought to be likely. Before laying could begin, the Shetland-Norway scheme was abandoned when the German invasion of Norway meant that the barrage would have been footed in enemy territory. The effort was shifted to the Shetland-Faroe-Iceland gap, a distance of 500 miles, almost twice the original length, where depths of over 500 fathoms were common, weather conditions were worse and currents stronger. Indeed, as Cowie writes, there were many places between Scotland and Iceland where it was physically impossible to damage a U boat with an antenna mine.⁵⁵

Laying began in June 1940 and, as in 1918, much trouble was experienced with premature firing, so many mines were laid with the antenna system sterilised. The schedule of almost 10,000 a month proved hopelessly optimistic, partly because there were not enough escorts available for the minelayers and partly due to transport difficulties between the factories in England and Kyle, then there were air raids, in one of which the mine assembly plant at Wolseley Motors in Birmingham was flattened. Minelaying continued, driven partly by the number of mines that were being produced and the lack of storage space ashore. In January 1943, however, the barrage scheme was abandoned in favour of strategically-placed deep fields of moored magnetic mines. Two of these had, by then, been laid off the North Channel and north of Cape Wrath to cover the ocean and coastal convoy routes.⁵⁶ The 1st Minelaying Squadron was disbanded late in 1943.⁵⁷

Some 81,000 mines were laid in the Northern Barrage, 31% of the British minelaying effort in the war. The scheme was hugely wasteful, costing £8 million and tying up five modern merchant ships and numerous escort vessels that could have been more profitably employed elsewhere.⁵⁸ The Admiralty Staff History concedes that,

⁵⁴ The squadron comprised *Southern Prince* (10,917T – capacity 560 mines), *Port Napier* (5,936T – 550 mines), *Port Quebec* (5,936T – 550 mines), *Agamemnon* (7,593T – 530 mines) and *Menesibens* (7,494T – 410 mines). At 1335/27 November 1940, *Port Napier* went on fire at Kyle of Lochalsh after oil from a fractured breather splashed onto a donkey boiler and ignited. The fire was soon out of control and Captain Tait ordered her 580 mines jettisoned, but the anchor cable of a collier which had fouled the port screw the previous evening also obstructed the port mine trap. This was cleared and local inhabitants were evacuated amid fears of a vast explosion as *Port Napier* was towed towards the Skye shore and cast adrift. At 1540/27, the first of a series of explosions took place and, at 1630/27, after one particularly violent explosion, part of her superstructure landed on the beach. Cowie : 1949 p. 132 for squadron details. ADM 178 249, Macdonald : 1993 pp. 65-76 and Baird : 1995 pp. 230-231 for loss of *Port Napier*. Mines still in *Port Napier* were dumped in 137 fathoms west of Kyle of Lochalsh AF/62 2632.

⁵⁵ Cowie : 1949 p. 133. See also Roskill : 1960 pp. 48-49.

⁵⁶ Cowie : 1949 p. 137. Roskill : 1954 p. 264.

⁵⁷ Roskill : 1962 pp. 48-49.

⁵⁸ Article by John Cowie in *Naval Review* no. 54 (1966) pp. 120-124.

No evidence has come to light that this barrage affected enemy surface or U-boat operations. One U boat was destroyed by it.⁵⁹

THE MONTROSE – OBRESTAD PATROL

The southernmost element in the blockade was put in place when the 2nd Submarine Flotilla depot ship, HMS *Forth*, secured alongside Dundee's King George V Wharf on the morning of 25 August 1939. *Forth* was joined the following morning by *Seawolf*, *Swordfish* and *Sterlet*, five of her brood having already taken up patrol positions off south-west Norway on 24 September. Flag Officer (Submarines) Rear Admiral Bertram Watson opened his headquarters in Corriemar, Aberdour, on 31 August.⁶⁰ Coastal Command Ansons of 233 Squadron based at Leuchars were to operate an endless chain patrol between Montrose and Obrestad, but the Anson had insufficient range so five boats of the 2nd Flotilla were stationed 12 miles apart off south-west Norway to fill the gap. The patrol was established too late to intercept *Graf Spee* or *Deutschland* which had sailed Wilhelmshaven on 21 August and 24 August respectively, but it was also directed against U boats making for the Atlantic.⁶¹



fig. 4

The necessity to employ submarines on the Montrose-Obrestad patrol arose from the inadequate range of Coastal Command's obsolete Anson reconnaissance aircraft. But submarines have a low height of eye, making them a poor reconnaissance tool, and, as the *Oxley* incident highlighted, there are inherent dangers in operating submarines so close together in a sensitive area.

Oxley sailed Dundee at 2000/4 September, followed 24 hours later by *Triton* which was to take up the adjoining billet. Surfacing eight miles off Kvasseim at 2004/10, *Triton*'s watchkeepers sighted another submarine about one mile off and more than four miles inside her sector. *Triton* made three challenges by flashing light and fired a rifle grenade, but got no response, so torpedoes were fired and there was one explosion. When *Triton* closed the area there was no sign of the submarine, just oil-covered water in which three men could be heard shouting for help. *Oxley*'s Lieutenant Commander Bowerman and a rating were picked up.⁶²

Oxley was the Navy's first loss of the war, though two other Dundee-based submarines came close to sharing her fate. On 4 September *Seahorse* was attacked off the Tay by a 233

⁵⁹ *The Defeat of the Enemy Attack on Shipping 1939-1945*. Naval Staff History, Second World War CB3304 (vol.'s 1A and 1B). Revised edition published by the Navy Records Society 1997 p. 152.

⁶⁰ The house had been earmarked in June 1939 as Aberdour was close to the Combined HQ at Donibristle and no accommodation was available in Rosyth. ADM 199 277.

⁶¹ Dundee Harbour Trust Wharf Books. Ashworth : 1992 p. 20. Padfield : 1997 p. 70. ADM 234 380.

⁶² Neither Steele or Bowerman, who had just been called to the bridge when *Triton*'s torpedo hit, were blamed although it was apparent that Manley and *Oxley*'s lookouts had been slack. Following the sinking of *Oxley* the boats on the Obrestad line were stationed further apart. Evans : 1986 pp. 195-199. ADM 234 380.

Squadron Anson. Her after planes jammed, *Seahorse* had to surface, but Pilot Officer Yorke attacked again so the submarine dived out of control and hit bottom at 240 feet. Yorke's aircraft was riddled by shrapnel from its own bombs and ditched in St Andrews Bay as another Leuchars-based aircraft attacked *Sturgeon* also off the Tay, but did no damage.⁶³ Then, off Aberdeen early on 14 September, *Swordfish* was mistaken for a U boat by her sister *Sturgeon* and attacked. *Swordfish* dived and the torpedoes missed, one passing close over her stern casing. She resumed her passage to Dundee, berthing on *Forth* at 0740/14.⁶⁴ *Spearfish*, patrolling off Hautsholm late on 24 September, was depth-charged and severely damaged. Surfacing after dark, she signalled for help at 0510/25 and *Nelson*, *Rodney*, *Ark Royal*, *Renown*, the 18th Cruiser Squadron and 11 destroyers sailed Scapa to bring her in. *Southampton*, *Aurora*, *Sheffield*, *Glasgow* and six destroyers sailed Rosyth and three Hudsons mounted patrols from Leuchars. *Spearfish* was met by *Somali* and *Eskimo* at 0100/26 and all ships turned for home.⁶⁵ At 0220/30 *H-34* on passage to Scapa missed a U boat with two torpedoes 15 miles north of Kinnaird's Head.⁶⁶ *Seawolf* missed the German cruiser *Nurnberg* in the Skagerrak at 0105/6 October and *Sturgeon* missed *U-23* on 14 October.

In addition to the 233 Squadron chain patrol on the Scotland-Norway patrol line itself, the Coastal Command reconnaissance which began on 23 August included dawn patrols north of the patrol line by London flying boats of 201 Squadron operating from the depot ship *Manela* in Sullom Voe, and by Stranraer flying boats of 209 Squadron from Invergordon. South of the patrol line, dusk patrols were flown by 224 Squadron Hudsons from Leuchars.⁶⁷

The first encounter with the enemy came on 4 September 1939 when a 224 Squadron Hudson returned to Leuchars damaged after an engagement with a DO18 flying boat over the northern North Sea. On 8 October 1939, during attempts to intercept German heavy units that had been sighted off south-west Norway, another DO18 of 2Kfg/506 was shot down by 224 Squadron Hudson 15 miles north-east of Aberdeen. Its four aircrew were

⁶³ The investigation revealed that the aircraft was off track, but the route used by submarines entering or leaving the Tay was moved and arrival and departure times were adjusted to take place at night. AIR 25 232.

⁶⁴ *Sturgeon's* CO Lieutenant G. D. Gregory was deemed partly to blame for not having acquainted himself with other submarine movements, but Captain (S2) William Stevens was held mainly responsible for having sent inbound and outbound submarines along the same track, a recipe for disaster. Kemp : 1995.

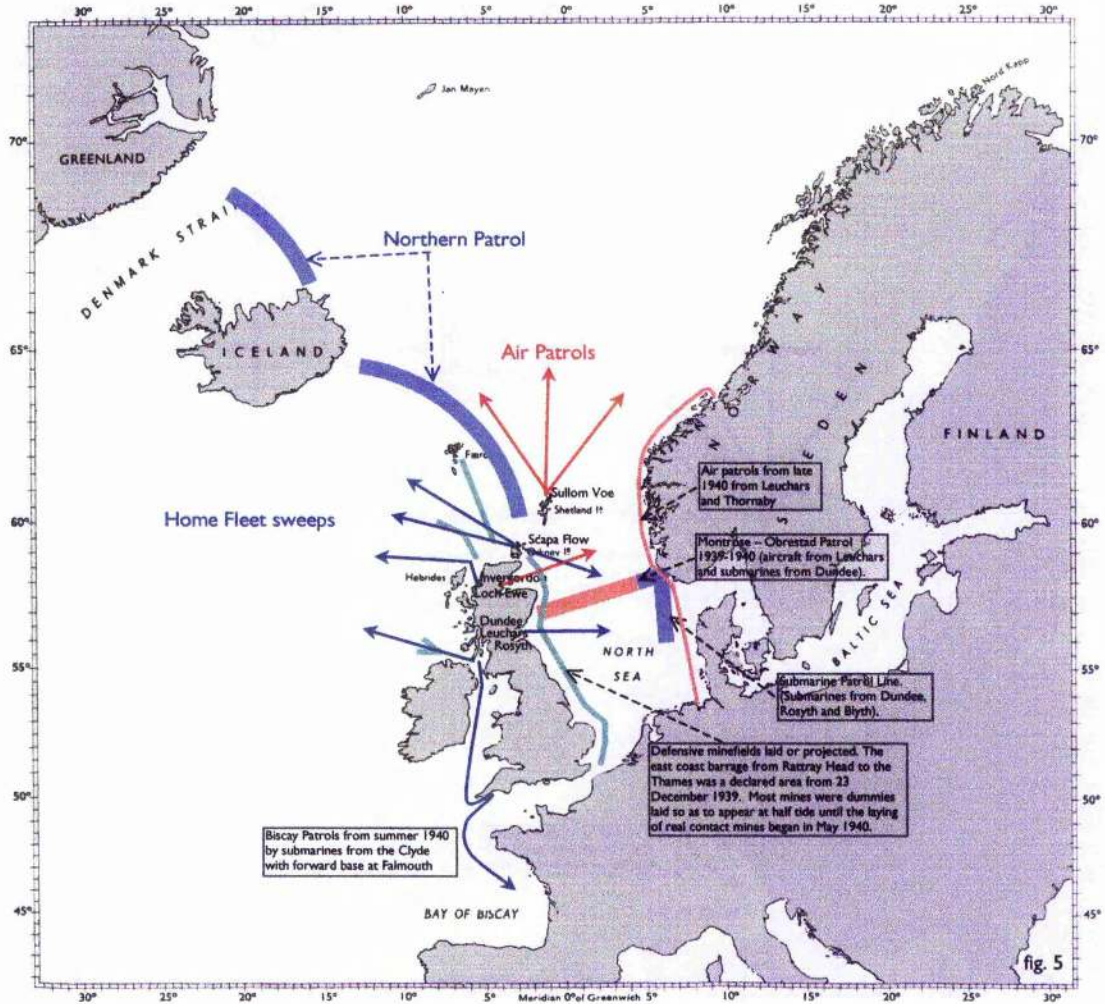
⁶⁵ See Roskill : 1954 pp. 68-69 for air attacks on the Home Fleet returning to Scapa. RN Submarine Museum. ADM 234 380. Rohwer and Hummelchen : 1972 p. 6

⁶⁶ According to Rohwer, *U-10* reported two torpedoes that missed, although Wynn states it was *U-22* which herself reported carrying out an unsuccessful attack on a British submarine while on patrol off Orkney. Rohwer appears to confuse this attack with another one reported by *U-3* at 2245/30 in 5745N 0800E which he credits to *H-34* even though she was nowhere near this position. *H-34* began patrolling off the Hebrides as protection for the fishing fleets but was required for training duties and replaced by *H-43* at the end of October. This patrol had no success and, after intermittent implementation, was withdrawn in May 1940 as more aircraft were then available. ADM 234 380. Wynn : 1997. Rohwer : 1997.

⁶⁷ AIR 41 73. Ashworth : 1992 pp. 35-36.

picked up by a Danish steamer and interned.⁶⁸

By mid-October 1939, 233 Squadron had re-equipped with Hudsons which had the range to reach Norway and the submarines were withdrawn from Norwegian coastal waters.⁶⁹ The Admiralty were also concerned that Dundee and Blyth were inadequately protected against air attack, so the 2nd and 6th Flotillas were ordered to Rosyth. *Forth* and the boats not on patrol left Dundee on 14 October, ironically arriving in Rosyth just in time for the first air raid of the war on 16 October.⁷⁰



Scotland's geographical position placed her naval and air bases at the heart of Allied maritime strategy in the North Atlantic as seen here with the principal blockade patrols of 1939-40. Blockade may have been flawed, but it was then the only strategy open to Allied naval planners concerned with keeping the sea lanes open in the North Atlantic and elsewhere. And, from mid-1940, as the Allied supply route moved to the North Western Approaches, so the strategic importance of Scotland's bases increased.

⁶⁸ AIR 28 459. Asworth *op. cit.* p. 21.

⁶⁹ Ramsay *et al.*: 1989.

⁷⁰ The 6th Flotilla returned to Blyth on 21 November and were established ashore in HMS *Elfin*. DHT Wharf Books. ADM 234 380.

The Montrose-Obrestad Patrol was hardly an impregnable barrier, not least because none of the air patrols flew at night and, such was the paucity of aircraft, just one going unserviceable was enough to leave a gap in cover. And patrols were often hampered by bad weather as, in November 1939, when *Scharnhorst* and *Gneisenau* were returning from the sortie which included their engagement with *Rawalpindi*.⁷¹ In one notable encounter on 10 January 1940, a 233 Squadron Hudson engaged an HE111 over the east coast convoy route and, having run out of ammunition, attempted to down the Heinkel by dropping bombs on it from 100 feet above.⁷² Then, on 24 February 1940, it was Hudson Q/224 out of Leuchars that found the *Graf Spee*'s supply ship *Altmark* hidden in a Norwegian fjord.

ATTACKS ON THE HOME FLEET AND ITS SCOTTISH BASES 1939-1940

Much on the principle of using a sledgehammer to crack a nut, in the early weeks of the war the Royal Navy deployed its limited aircraft carrier strength on anti-submarine patrols in the Western Approaches.⁷³ The folly of this strategy, a child of Churchill's relentlessly offensive approach, would be demonstrated by the near destruction of *Ark Royal* off the Hebrides on 14 September and by the loss of *Courageous* in the South Western Approaches three days later. These sweeps clearly placed the valuable carriers at risk and subjected ships and crews to much wear and tear for little return. By the end of October the trade-off in naval vessels was *Courageous* sunk and *Ark Royal* near missed from the carrier force, the battleship *Royal Oak* sunk, the battleship *Nelson* only saved by the torpedoes that struck her failing to explode and the submarine *Oxley* lost to friendly fire while, on the German side, *U-39* and *U-27* had been lost, the latter due largely to slack lookouts.

But Churchill was also advocating CATHERINE, the sending of a naval squadron into the Baltic, partly to attack German shipping and partly to give the Soviet government pause for thought before, as then seemed likely, it entered the war in alliance with Germany. CATHERINE was never attempted, but Vice Admiral Edward-Collins sailed Rosyth on 22 September in *Southampton* with *Glasgow*, *Aurora*, *Sheffield* and destroyers of the 6th and 7th Flotillas for a raid into the Skaggerak. Sir Charles Forbes sailed Scapa with units of the Home Fleet as distant cover but this operation was aborted when the destroyers *Javelin* and *Jersey* collided.⁷⁴

On 8 October the German battlecruiser *Gneisenau* and cruiser *Köln*, on a foray to tempt the Home Fleet across a U boat line and into range of the Luftwaffe, were sighted off southern Norway by a 224 Squadron Hudson from Leuchars. Bomber Command Wellingtons were

⁷¹ Denis Richards, *The Royal Air Force 1939-1945*. AHB Narrative HMSO p. 57.

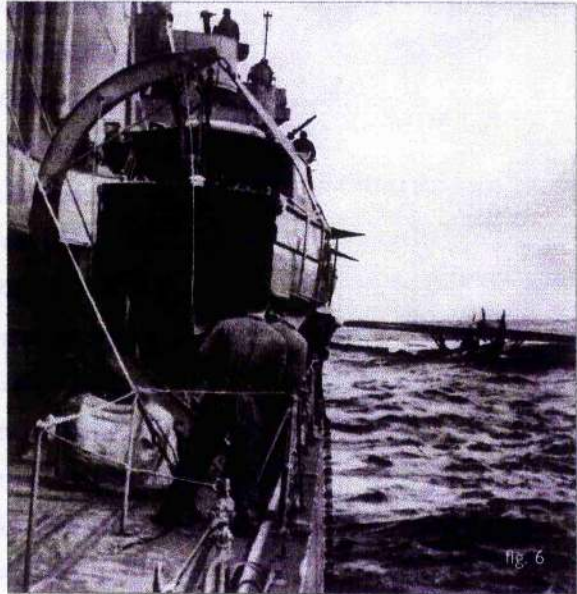
⁷² AIR 28 459.

⁷³ The folly of using fleet carriers in this role was demonstrated when *U-29* sank *Courageous* (22,500T) south-west of Ireland at 2000/17 September 1939. *Courageous* went down in 18 minutes, taking 519 of her 1,202 crew with her.

⁷⁴ ADM 186 799.

sent out but failed to make contact in heavy snow. Forbes sailed Scapa with *Hood*, *Nelson*, *Rodney*, *Furious*, *Aurora*, *Belfast* and nine destroyers and, despite being attacked by enemy aircraft the following day, returned unscathed on 10 October without sighting the enemy. Too slow to keep up with her more modern counterparts, the battleship *Royal Oak* was sent on a sweep across the Fair Isle Channel.⁷⁵

On 13 October, once again leaving the obsolete *Royal Oak* behind, Forbes sailed for Loch Ewe. Meanwhile, intelligence from a neutral merchant skipper diverted to Kirkwall by the Northern Patrol, a Luftwaffe reconnaissance flight on 26 September and a patrol by *U-16* had shown that the eastern entrances to Scapa Flow were open and, late on 13 October, Kapitanleutnant Gunther Prien took *U-47* through a gap between the blockships in Kirk Sound. The main fleet anchorage south of Cava was empty so he turned north to Scapa Bay where lay *Royal Oak* and the seaplane tender *Pegasus* which they misidentified as the battlecruiser *Repulse*. Prien fired three torpedoes at 0058/14, one of which struck *Royal Oak*'s bow. *U-47* then fired another torpedo from her stern tube but this missed. No reaction was detected so the forward tubes were reloaded, then three torpedoes ripped the bottom out of *Royal Oak* at 0118/14. The battleship capsized and sank, and 833 men died.⁷⁶



On 26 September 1939 the Home Fleet sailed Scapa to cover the return to Rosyth of the damaged submarine *Spearfish*, which had hit a mine. At 1100/26 a *Swordfish* from *Ark Royal* sighted three Dornier 18 flying boats shadowing the fleet. A flight of 803 Squadron Sea Skuas from *Ark Royal* intercepted them and DO18 KY+YK of 2/506 was shot down. Leutnant zur See von Reitenstein and his crew were picked up, as above, by *Somali*.

That afternoon, nine HE111s of I/KG26 and four JU88s of I/KG30 attacked the *Ark Royal* group, one bomb falling off the carrier's port bow. *Ark Royal* was undamaged though German propaganda credited Unteroffizier Karl Francke with having sunk her. An unexploded bomb glanced off *Hood*'s port bulge.

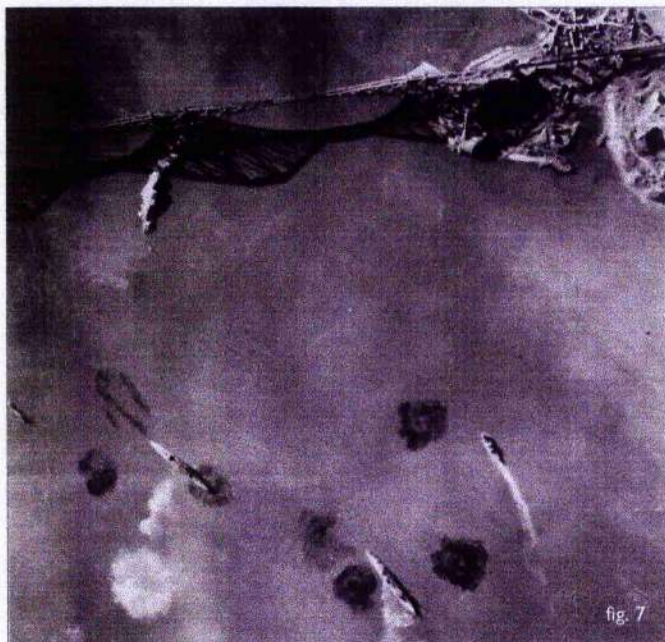
The next evening, 15 October, *Repulse* was steaming down the east coast of Scotland towards Rosyth. Her progress was being monitored by the Luftwaffe who, like Prien's lookouts, misidentified her, this time as the battlecruiser *Hood*. But she was clearly an

⁷⁵ Ashworth : 1992 p. 21. Ramsay et al : 1989.

⁷⁶ ADM 199 158. *The U Boat War in the Atlantic* HMSO 1989 p. 32. Published sources on *Royal Oak* include McKee's *Black Saturday* and Weaver's *Nightmare at Scapa Flow*. See also Padfield : 1984 pp. 201-202, Vause : 1997 for the planning of the operation and *After The Battle* no.72 on Scapa blockships.

important target and, on 16 October, Hauptman Helmut Pohle commanding the new JU88s of 1/KG30 received orders to attack her. Also off the east coast was HN0, a seven-ship convoy inbound from Norway for the anchorage at Methil.

Drone Hill RDF station at Cockburnspath detected Luftwaffe reconnaissance aircraft off Fife Ness and St Abbs Head between 0935/16 and 1129/16.⁷⁷ Spitfires of 602 Squadron scrambled from RAF Drem intercepted a reconnaissance HE111 ten miles east of the Isle



Enemy aircraft appeared over Britain for the first time on 16 October 1939 to attack Royal Navy ships at Rosyth. This German photograph shows the cruisers *Southampton* (left) and *Edinburgh* (centre) raising steam to get under way as bombs fall around them. One has just passed through *Southampton*'s deck and hull to explode alongside, sinking her pinnace and the Admiral's barge. Three men were wounded.

of May at 1021/16 but the Heinkel escaped into cloud.⁷⁸ Pohle led his 12 JU88s over East Lothian at 1420/16.⁷⁹ He wrote:

The order is quite definite; do not attack if she is in dock. The powers in Germany were still hoping there could be an agreement with England and civilian casualties should under no circumstances aggravate propaganda...I could see the *Hood* [sic] already in the lock of Rosyth. However, in the Firth lay HMS *Southampton* and HMS *Edinburgh* at anchor. I attacked...the *Southampton*, but during the dive the top part of the canopy came off.⁸⁰

Two 602 Squadron Spitfires shot Pohle down near Fife Ness at 1453/16 and the destroyer *Jervis*, escorting HN0 off Fife Ness, picked up the injured Pohle and the body one of his crew.⁸¹ Red section of 603 Squadron had

earlier shot down another JU88 into the sea off Port Seton,⁸² Spitfires chased raiders across Edinburgh at rooftop height and bombs damaged *Southampton* at Queensferry and the destroyer *Mohawk* off Elie Ness.⁸³ Thirteen died in *Mohawk*.⁸⁴

⁷⁷ Information from Ian Brown of the Historic Radar Archive, 12 January 1995.

⁷⁸ This was Fighter Command's first engagement with enemy aircraft. AIR 25 232. AIR 27 2073.

⁷⁹ Hugh Barkla was in the Filter Room at Fighter Command Headquarters, RAF Stanmore, during the raid. He recalled that, despite the problems at Drone Hill, the raid was tracked by other RDF stations including Ottercops Moss in Northumberland and Douglas Wood near Dundee. Unidentified aircraft were also reported by Observer Corps posts in East Lothian. Letters to the author from Hugh Barkla 27 October 1994 and 15 November 1994. WO 166 2127.

⁸⁰ Letter to the author from Helmut Pohle 4 May 1992.

⁸¹ AIR 25 232. AIR 27 2073. AIR 28 166. Information from the late Group Captain George Pinkerton. ADM 53 109405. See also Observer Corps logs held by The Museum of Flight, East Fortune Airfield.

⁸² By some seven minutes, this was the RAF's first victory of the war. AIR 27 2079. AIR 50 167. Jeffrey: 1992 pp. 19-20. Information from the late Group Captain George Denholm, May 1992.

⁸³ Information from Air Vice Marshal Sandy Johnstone and Wing Commander Hector MacLean. HH50/5. Jeffrey:

(Cont'd overleaf)

1/KG30 returned the following day, this time to Scapa where they damaged the only large warship present, the training ship *Iron Duke*.⁸⁵ Unlike Rosyth the day before, there was no fighter cover for Scapa, but one JU88 hit by anti-aircraft fire crashed on Hoy. Unteroffizier Ambrosius baled out and survived being shot at by gunners in the depot ship *Voltaire*.⁸⁶ Three hours later, at 1400/17, a second formation approached Scapa.⁸⁷

Luftwaffe reconnaissance flights ranged across Scotland searching for the Home Fleet which had clearly left Scapa. 603 Squadron shot down a reconnaissance HE111 of 1(F)/122 four miles off St Abbs Head at 1435/22 October and three crewmen were picked up by *Gurkha*.⁸⁸ Early on 28 October an HE111 crossed the coast at Crail, went west to the Clyde, then followed the Forth and Clyde Canal eastwards until, at 1010/28, it came under anti-aircraft fire between the Forth Bridge and Inchcolm.⁸⁹ It was intercepted by 602 and 603 Squadron Spitfires over Tranent and brought down south-west of Haddington.⁹⁰ Two of its crew died and the pilot was injured.⁹¹

Forbes had long been aware of the vulnerability of his ships to air attack and of the inadequacy of the Scapa defences. On 7 September 1939 he had been told that there were 800 German bombers within range of Scapa and ordered to disperse his ships.⁹² Some units were sent to Loch Ewe, though despite hurriedly laid anti-submarine nets, this was even less well defended than Scapa.⁹³ Rosyth, its 40-mile approach channel vulnerable to mining, was never considered as a principal Home Fleet base.⁹⁴ It was, in any case, 150 miles from where the ships really needed to be - the northern exit from the North Sea. So, following the loss of *Royal Oak*, with Scapa clearly unusable, the only alternative base for the homeless Home Fleet was the Clyde. At first light on 29 October the 3rd Anti-Aircraft Division began removing guns from Rosyth and Glasgow to cover the Clyde Fleet Anchorage. Eight 3.7" statics from Glasgow and 16 from Edinburgh and Rosyth were moved to positions at Cloch Point, Loch Thom, Port Glasgow, Cardross, Helensburgh and Kilcreggan. The final layout had forty 3.7" statics covering the Clyde Anchorage with just

1992 p. 21. *Edinburgh Evening News* 17 October 1939. See also Queensferry ARP Log held by Edinburgh City Archives.

⁸⁴ ADM 1 10091.

⁸⁵ Listing, and with open scuttles awash, *Iron Duke* was beached in Ore Bay. Patched with concrete, she remained there as a depot ship until December 1945. ADM 199 362. ADM 1 18096. Ramsay et al : 1989.

⁸⁶ Ramsay et al : 1989. McKee : 1978 ch 11.

⁸⁷ Glass : 1994.

⁸⁸ AIR 25 232. AIR 27 2079. AIR 50 167. See also transcript of MI.1.a eavesdrop on conversation between Unger and an Unteroffizier Grimm on 7/11/39 in WO 208 4117.

⁸⁹ WO 166 2127.

⁹⁰ AIR 25 232.

⁹¹ Seven months later, an apparent blind-landing receiver from this aircraft was recognised as the Knickebein radio bombing aid.

⁹² This nonsense reflects the wider terror of air attack prevalent at the time. Roskill : 1954 p. 68.

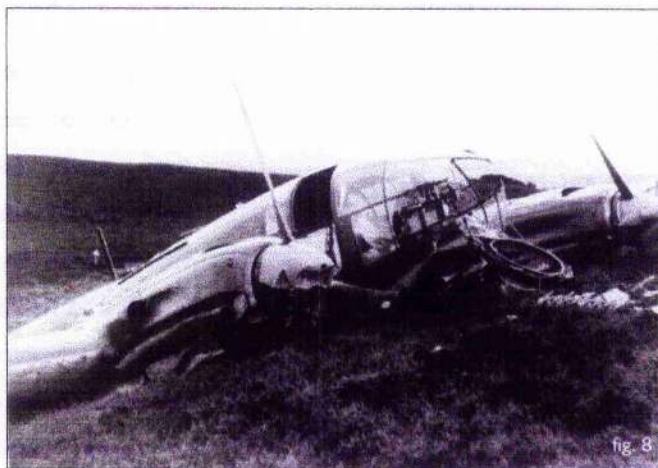
⁹³ ADM 1 9852. ADM 186 799. Roskill : 1960 pp. 48-49.

⁹⁴ Roskill : 1954 pp. 77-78.

eight guns left around Glasgow.⁹⁵

At the end of October, the Royal Navy came close to another disaster to rival *Royal Oak*. Reasoning that the Home Fleet would be wary of entering the North Sea and bound by rules of engagement that made warships his principal targets, Dönitz had stationed U-boats west of Orkney.⁹⁶ On 30 October *U-56* was 45 miles north of Cape Wrath when *Nelson*, *Rodney* and *Hood* hove into view while returning to the Clyde after covering the inbound ore convoy NARVIK1. Kapitanleutnant Zahn fired three torpedoes, two of which hit *Nelson* with loud clangs clearly audible in the U boat. But they failed to explode and the ships sailed on, unaware of the incident until 1945.⁹⁷

Forbes was keeping his ships on the move, but German observation of the Home Fleet's wanderings had pointed to places where mines might profitably be sown by U boats and the longer nights meant that they could be accurately laid within the approaches to naval bases. On 27 October, *U-31* laid 18 TMB magnetic bottom mines in the entrance to Loch Ewe after first hitting the net barrage while trying to get inside the anchorage.⁹⁸ Frauenheim's *U-21* laid mines in the Firth of Forth the following day and Kretschmer's *U-23* laid another field off Invergordon.⁹⁹



HE111 IH+JA of Stab Staffel KG/26 operating from Luneberg was brought down near Tranent while on a shipping reconnaissance to the Forth and the Clyde on the morning of 28 October 1939, the first enemy aircraft to crash on mainland Britain. Credit was shared by 602 and 603 Squadrons though the aircrew said that anti-aircraft fire from ships in the Forth had sealed their fate.

Remarks overheard on hidden microphones at the Cockfosters POW cage led Air Ministry scientists to take a second look at the communications equipment aboard both this aircraft and the Heinkel shot down at North Berwick on 22 November 1939. It was discovered that the Lorenz blind-landing receiver (stub mountings for the aerial just visible under the aircraft pictured on page 36) was far more sensitive than would normally be required for that purpose. Thus was the puzzle of Knickebein, the first German radio beam navigation system, unravelled.

⁹⁵ The withdrawal of heavy ships from the North Sea greatly concerned Churchill who, unable to shake off the strategic imperatives of 1916, wrote to First Sea Lord Dudley Pound asking, 'Why then should we chose the Clyde at the cost of uncovering the island. Churchill was also concerned at the presence of 'Irish traitors in the Glasgow area' who would pass news of the fleet's arrival by telephone to the German delegation in Dublin. WO 166 2127. Gilbert 1989 p. 71.

⁹⁶ *The U Boat War in the Atlantic*: HMSO 1989 p. 32.

⁹⁷ Roskill: 1954 p. 82. Rohwer: 1999. Van der Vat 1988 p. 141.

⁹⁸ The TMB mine, specifically designed for use by U boats, was an unearched, magnetic pistol seabed mine with a 1,276 lb warhead, twice the explosive charge of contemporary torpedoes.

⁹⁹ *The U Boat War in the Atlantic* p. 12.

At 1052/21 November *Belfast* was five miles west of Fidra in the Forth, on a practice shoot with *Southampton*, when one of *U-21*'s mines exploded on her port side abreast the foremast. Captain George Scott tried to beach *Belfast* in shallow water at Inchkeith, but she lost steerage way. Her engines had been knocked out of line, turbine bearers twisted and fractured and boilers distorted. Lighting and power failed and every telephone in the ship jumped from its cradle, jamming the exchange. All four turrets had jumped, the roofs of A and B turrets were open to the sky, gunpowder lay on the deck of A turret and shell hoists and training and elevation mechanisms were distorted. Dozens of nose-fused 6" and 4" shells were damaged and fuses had to be thrown overboard. The upper deck was buckled and cracked right across, the foremast was bent back, snapping aerials, and wireless sets were wrecked. Nineteen crewmen were injured and the listing cruiser was dry-docked at Rosyth that afternoon.¹⁰⁰

Nelson was entering Loch Ewe 0754/4 December to refuel her escorting destroyers after the abortive sweep to find the ships that sank *Rawalpindi*, when an explosion under her starboard bow whipped the fore part of the ship violently upwards three times. She had detonated one of the mines laid by *U-31* on 21 October and, listing to starboard and eight feet down by the head, she anchored in the lee of Ewe Island. Divers found 70 feet of plating and frames dished four feet inboard and, just abaft station 60, there was a large hole.¹⁰¹ Seventy-four men were injured, one officer and 45 ratings seriously, and there were numerous fractures due to concussion. The Rosyth war diary laments;

This littering up of the fairways with mines is having a wider effect than was at first expected. The damage done to *Nelson* is offset by the alleged sinking of a submarine by an aircraft, but the menace is still of a serious character. A day of rumours of more frightfulness.¹⁰²

In thick fog eight miles north-west of the Mull of Kintyre on 12 December the battleship *Barham* rammed and sank the destroyer *Duchess*, and 129 of the destroyer's crew were lost.¹⁰³ *Barham*, however, was scarcely damaged and, within hours, she was outbound with *Hood* and *Warspite* to escort TC1, the first troop convoy from Canada.¹⁰⁴ At 1449/28 December she was off the Butt of Lewis as distant cover for the ore convoy HN5 when a torpedo from *U-30* struck her port side. Her forward shellrooms and magazines flooded and four men drowned.¹⁰⁵

¹⁰⁰ Her back broken, *Belfast* was out of action for two years. ADM 199 362. ADM 1 10670. Rohwer : 1999.

¹⁰¹ ADM 1 109897. Rohwer : 1999.

¹⁰² The 'rumours of frightfulness' referred to supposed enemy sabotage of dockyards and oil installations. Churchill told the War Cabinet that *Nelson* had been damaged but the news was kept secret for as long as possible, even from the Dominion Prime Ministers. *Nelson* crept out of Loch Ewe on 4 January 1940, every hand who could be spared mustered on the upper deck in case of another explosion, and rejoined the fleet in August 1940. ADM 199 362.

¹⁰³ ADM 199 362.

¹⁰⁴ TC1 with 7,450 troops of the 1st Canadian Division aboard *Aquitania*, *Empress of Britain*, *Empress of Australia*, *Monarch of Bermuda* and *Duchess of Bedford* arrived safely in the Clyde on 17 December. ADM 199 362. Roskill : 1954 p. 89.

¹⁰⁵ *Barham* reached Liverpool the following day. Earlier, at 0230, Lemp had shelled and sunk the minesweeper trawler *Barbara Robertson* 35 miles west of the Butt of Lewis. One of the sweeper's crew was killed. See ADM 199 362.

Meanwhile, on 22 November, nine enemy aircraft had attacked the RAF depot ship *Manala* in Garth Voe, Shetland. The anti-aircraft guardship *Coventry* opened up and the raiders scattered, reformed over Sullom Voe and tried again without success. They then dropped 16 bombs in North Harbour and strafed a flying boat. Raiders also appeared over Scapa Flow and Max Horton signalled the Admiralty:

This morning, 22nd November, an enemy aircraft circled the anchorage at about 3,000 feet for some time disregarding a few shots from the Bofors gun at Hatston airfield. The absence of any air activity on our part with an air station in full view of the anchorage must counteract our propaganda as the numbers of British fighters. If importance is attached to neutral opinion, or to information reaching Germany, it is unfortunate that this state of affairs should exist at a base where a large number of neutral observers is always present...It is also natural that some misgivings should be felt by local inhabitants.¹⁰⁶

An enemy reconnaissance aircraft was engaged by two Spitfires of 602 Squadron over North Berwick at 1100/7 December. These flights often preceded a raid and, at 1251/7, Spitfires of 72 and 603 Squadrons intercepted raiders near Fife Ness, 603 Squadron claiming two as damaged.¹⁰⁷ At 1023/1 January 1940, two JU88s attacked the guardship *Coventry* in Sullom Voe. Near misses caused extensive minor damage but no casualties.¹⁰⁸ A Gladiator from Sumburgh pursued one raider for 90 miles, but had to return for lack of fuel. A JU88 of 1/KG30 did not return to base and the other raider escaped over Lerwick and a Dornier reconnaissance aircraft appeared soon after.¹⁰⁹

By March 1940, Scapa Flow's fixed defences were deemed sufficiently strong to allow the Home Fleet to return. Fighter cover was being reinforced, 14 Group Fighter Command was being set up as operational control and RDF Chain Home cover north of the Tay was being improved.¹¹⁰ On 1 March, the Hurricanes of 43, 111 and 605 Squadrons arrived at Wick to cover the return of the capital ships to Scapa.¹¹¹ *Hood* and *Valiant* led the return on 7 March. Then, intent on disabling Royal Navy capital ships ahead of the German invasion of Norway, 15 enemy aircraft raided Scapa at 1950/16 March. One bomb fell through *Norfolk's* quarter deck to explode in a fuel tank, killing three officers and injuring one. The training ship *Iron Duke* was damaged by two near misses and bombs fell close to *Rodney*.¹¹² On land, 113 bombs fell, including nine UXBs.¹¹³ Churchill told the War Cabinet

Rohwer : 1999. Showell : 1989.

¹⁰⁶ Chalmers 1954.

¹⁰⁷ Two HE111s did crash 40 miles east of Leuchars. Two bodies were found at sea and one came ashore at Belhelvie on 16 December. AIR 25 232. ADM 199 362. Ramsay et al. : 1987.

¹⁰⁸ ADM 199 377.

¹⁰⁹ ADM 199 377. Ramsay et al : 1989.

¹¹⁰ AIR 41 73. The 14 Group Headquarters went to France in May 1940, returning to the north of Scotland in the autumn of 1940 when it was based at Inverness.

¹¹¹ Ibid.

¹¹² *Norfolk* suffered a direct hit through her quarter deck on port side abaft Y turret. The explosion left a 16'x12' hole in her starboard side below the waterline, much buckling of bulkheads and compartments flooded. ADM 199 377. ADM 199 362. ADM 199 1050.

¹¹³ Cottages at Bridge of Waith, four miles east of Stromness, were damaged. Jim Isbister, killed when he went to help a neighbour and took the full blast of a bomb, was the first civilian air raid fatality in Britain of the Second World

on 18 March, "There is considerable feeling in the country that, while the Germans use bombs, we only drop leaflets."¹¹⁴ The following day, an air attack was mounted on Hornum air base and List harbour, both on the island of Sylt.

The raid of 16 March resulted in the fleet being ordered to sea during the next moon period between the 19 and 26 March. So it was that *Rodney*, *Warspite*, *Renown* and *Repulse* and 29 destroyers returned to Scapa on 27 March, just as the Luftwaffe began closely monitoring Home Fleet movements ahead of the German invasion of Norway. A reconnaissance HE111 of 1(F)/122 was brought down off Wick at 1230/28 by 43 and 605 Squadrons. That evening, two trawlers and ON23 and HN22 were attacked in the Fair Isle Channel. Four fighters were scrambled but no interception was made.¹¹⁵

NAVAL WAR IN NORTHERN WATERS TO APRIL 1940 IN RETROSPECT

While the British Merchant Navy was still dominant, albeit though in decline, the Royal Navy that went to war in September 1939 in the North Atlantic and Home Waters was, by dint of conflicting strategic priorities, defence cuts and poor planning, singularly ill-equipped to both blockade Germany and maintain the supply route, vital even then before the fall of France, to North America.

But the principal strategy of the period was to blockade Germany, thus, it was hoped, bringing about an economic collapse and forcing a surrender. A product of wider political irresolution and wishful thinking, this strategy was doomed to failure from the start, not least because the blockade was at best only partial and was rendered even less effective by the need not to offend powerful neutrals, notably the United States. Thus, for example, US oil companies were able to continue trading freely with Germany both by the North Atlantic route, and via eastern Europe.

One major German import which the blockade could do nothing to stop, was the 10 million tons of iron and other ores bought annually from Sweden. Almost half the yearly German requirement and vital to their war effort, this running sore for the Allies and Churchill's Admiralty would, as we shall see in Chapter 5, be at the centre of the first major clash of arms of the war in western Europe.

The Northern Patrol, the Mine Barrage and the Montrose-Obrestad Patrol all involved a huge effort, particularly in the North Atlantic in winter, but the verdict must be that they achieved little. And weak naval preparedness and strategy had been exposed by notable setbacks in Northern Waters. There was the loss of the submarine *Oxley* off Norway, the

War. HH50/160. HH50/20.

¹¹⁴ War Cabinet 1130/18 March 1940 quoted in Gilbert : 1983 p. 192.

¹¹⁵ AF62/1339. ADM 199 362. ADM 199 377. ADM 199 1050

sinking of *Royal Oak* inside Scapa, the raids on the cruisers at Rosyth on 16 October and on Scapa the following day, the retreat of the Home Fleet to the Clyde and Loch Ewe, the mining of *Belfast* in the Forth, the loss of *Rawalpindi*, the mining of *Nelson* at Loch Ewe, the loss of the destroyer *Duchess*, the torpedoing of *Barham* and the mining of the submarines *Spearfish* and *Triumph*. The destroyer *Exmouth*, the fleet minesweeper *Sphinx*, the Admiralty oiler *Gretafield* and the destroyer *Daring* had all been sunk and the cruiser *Norfolk* had been bombed in Scapa.

Then there had been some notable near-misses such as the torpedoes that exploded in the wake of *Ark Royal* on 14 September, the air attack on the Home Fleet on 26 September and on the destroyer *Valorous* the following day, the raid on the depot ship *Manela* and Coastal Command aircraft at Sullom Voe on 22 November, Zahn's faulty torpedoes that hit *Nelson* on 30 October, Prien's torpedoes that exploded close astern of the cruiser *Norfolk* on 28 November and the bombs that near-missed the cruiser *Coventry* in Sullom Voe on 1 January.

And, as we shall see in the next chapter, U boats and aircraft had reaped a rich harvest of merchant shipping, both allied and neutral, during this period in Northern Waters while themselves suffering few losses. The balance sheet hardly favoured the Allies, though with a preponderance of maritime power, they could afford to sustain relatively high loss rates. Matters were, however, about to take a decided turn for the worse as both Allied and Axis forces turned their attention to Scandinavia.

Chapter Two

ATTACKS ON SHIPPING OFF SCOTLAND AND THE SCANDINAVIAN CONVOYS SEPTEMBER 1939-APRIL 1940

The *Athenia* had provided proof, if it were needed, that U boat patrols were in place off the coast of Scotland and the North Channel at the outbreak of war. Allied and neutral shipping was vulnerable, particularly when in not in convoy. But U boat operations in the late 1939 were hampered by restrictive rules of engagement, reinforced after the *Athenia* episode, and by the fact there were too few operational U boats. Nor was there any effective cooperation between the *Kriegsmarine* and the *Luftwaffe* in their anti-shipping war. This last was to dog German efforts in the trade war until 1945.

In the first weeks of war, Raeder was exercised by the passage of 'contraband' across the North Sea to Britain and, following a meeting with Hitler on 23 September 1939, the rules of engagement imposed after the *Athenia* incident were relaxed. U boats were authorised to use force against any Allied ships that tried to send an SSSS signal and those carrying 120 passengers or less could be sunk in accordance with the Prize Rules. But this led to a sharp increase in sinkings of neutral vessels, particularly in convoys to and from Norway, and brought loud protests from Oslo, Copenhagen, Stockholm and Helsinki, so the restrictions had to be reimposed a few days later. Raeder's wish for a 'Siege of England' which would allow the sinking on sight of neutral shipping in British waters led him to advocate, from late 1939, the occupation of Norway.¹

Britain, meanwhile, was engaged in a diplomatic offensive in Stockholm that resulted in the December 1939 Anglo-Swedish Trade Agreement which restricted raw material exports from Sweden to the belligerent powers to 'normal' prewar levels. Having gone to some lengths to secure this agreement, and with iron ore and timber exports a vital part of the Swedish economy, it was thus incumbent on the British to continue their share of the trade.²

As seen in Chapter One, the Royal Navy was ill-prepared to meet the challenge of a trade

¹ See *Fuhrer Conferences on Naval Affairs*, September to November 1939 in Brassey: 1948. Also Blair 1997.

war. But, despite early successes in what van der Vat has termed, '...a shooting gallery full of Aunt Sallies',³ in the first months of the war U boat commanders found that time and again their torpedoes misfired or failed to detonate. *U-27* was sunk on 20 September 1939 after misfires by two of her torpedoes alerted destroyers then, on 22 September *U-21* reported a misfire when she fired at destroyer off Berwick on Tweed.⁴ Prien reported that, while sinking *Royal Oak* in Scapa Flow, three of *U-47*'s torpedoes misfired and, on 30 October, *U-56* hit the battleship *Nelson* with two torpedoes, both of which failed to explode. By January 1940, Dönitz was claiming that over 300,000 tons of shipping would have been sunk but for faulty U boat torpedoes.⁵ Torpedo problems continued into 1940, hampering U boat operations during the Norway campaign when, for example, *U-48* ought to have hit the battleship *Warspite*. German torpedoes were fitted with two pistols, one contact and one magnetic, one of which the U boat commander selected before firing. It was found that the magnetic pistol was too sensitive and the contact pistol would only work against a straight surface. Against a curved surface, the torpedo could glance off without exploding.⁶

Early Luftwaffe anti-shipping operations were also hampered, in their case by lack of suitable aircraft and the fact that they were operating at extreme range from airfields in Germany. As with the RAF, the Luftwaffe lacked suitable aircraft, effective weaponry and specially trained aircrew in sufficient numbers. Having been principally intended to work closely with an advancing army over mainland Europe, its maritime capability was wholly inadequate and lacked coordination with, for example, the U-bootwaffe. And, mirroring the dispute between Coastal Command and Bomber Command in the RAF, the Luftwaffe's contribution was dogged by a turf war between Goering and Raeder. As a direct result, there was no clear policy for an air war against seaborne trade.

Again like the RAF, the Luftwaffe lacked a specific anti-shipping weapon, the most common bomb it dropped over the Scottish shipping lanes being the 250kg *Sprengbombe Cylindrische*, or SC for short. Thin-skinned SC bombs of various weights had a high charge ratio but were designed for maximum blast effect in general demolition, not for sinking ships.⁷ Aside from the torpedo, the one anti-shipping weapon that did offer the Luftwaffe and Kriegsmarine a real chance of making an impact in the shipping war was the magnetic mine, but these were in desperately short supply. Discussing the planned German declared area off eastern Scotland, Raeder told Hitler on 22 November that, while mines were not actually to be laid, 'In this area our submarines will be able to sink ships without warning

² *The Economic Blockade*. W. N. Medlicott. HMSO 1952-1959 vol. 2 p. 173 *et passim*.

³ Van der Vat : 1988 p. 172.

⁴ Wynn : 1997. Blair : 1997

⁵ Van der Vat : 1988 p. 173.

⁶ Wynn : 1997. Blair : 1997. Jones : 1986.

⁷ Ramsay et al : 1989 vol.1 p. 157.

and it will appear that they struck a mine.¹ It was hoped that this would paralyse traffic off the east coast and, on 1 December, the following warning to shipping was transmitted,

The German Government hereby gives warning that, in the course of operations against British forces and bases on the east coast of Britain, mines have been laid in an area bounded on the north by the latitude of Kinnaird's Head up to 0° 30' W and on the south by the latitude of St Abb's Head up to 1° 30' W and on the east by the line connecting the above points.⁸

Meanwhile, the secrets of the magnetic mine had been exposed when one was made safe after falling on mudflats at Shoeburyness at the end of November 1939.⁹

U BOAT ATTACKS ON SCOTLAND-NORWAY CONVOYS

The waters between Scotland and Scandinavia were dangerous, yet trade with Norway and Sweden included important exports of coal and vital imports of timber and, above all, iron ore. It had to continue and despite the fact that almost all of the ships involved were neutral, given the German reaction noted above, convoy was essential. The first Scandinavian convoy, HN0, had sailed from Norway on 14 October and arrived off the Forth two days later only to steam into the first air raid on Britain of the war. The 12-ship NARVIK 1 followed on 26 October, ten of them arriving safely at Methil on 31 October, the other two proceeding independently to the Clyde. The first outbound convoy for Norway, the five-ship ON1, sailed Methil on 4 November 1939.¹⁰

Methil and Bergen were assembly points and the routing and escorting of Scandinavian convoys was the responsibility of the Rosyth escort force.¹¹ The cycle varied with the weather and the volume of trade and, in the early days, two convoys were run on a 16-day cycle. By early February 1940 this had reduced to two convoys, one inbound and the other outbound, every four days. ON convoys sailed Methil during the afternoon, passed through the Moray Firth west of the normal track to bring the convoy under fighter cover, and were timed to pass the Fair Isle Channel, a focal point for U boats, in darkness. Arrivals off Norway were timed carefully to avoid twilight, the best time for U boat attack. The escort would then loiter offshore for four hours to await a Methil-bound HN convoy.¹²

First victim on the Norwegian trade was the British collier *Truro* (974T) sunk by *U-36* at 1830/15 September.¹³ *U-32* sank the Norwegian *Jern* (875T) off Skudesnes on 28 Septem-

⁸ Brassey : 1948.

⁹ Ibid.

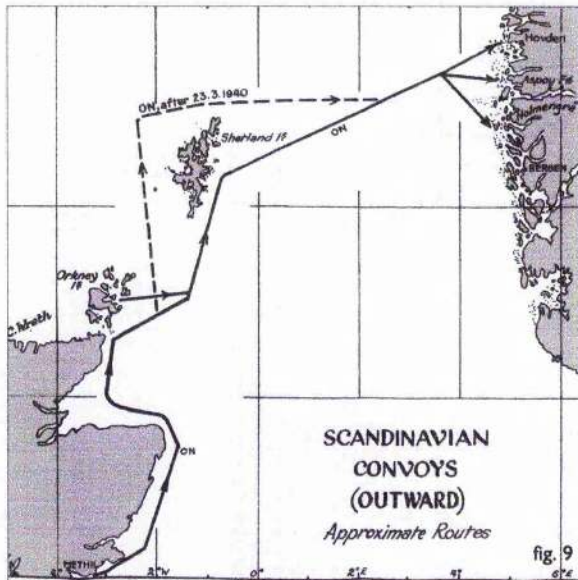
¹⁰ ADM-186 799 appendix G.

¹¹ Captain Ralph Kerr commanding the Rosyth Escort Force took command of *Hood* on 15 February 1941 while she was in minor refit at Rosyth, and lost his life when she was sunk on 24 May.

¹² ADM 186 799.

¹³ *Truro's* crew was handed over to a neutral Belgian steamer. *Lloyds War Losses* vol. 1. Rohwer : 1999. Wynn : 1997. Survivors' accounts in *The Scotsman* 18/9/39.

ber. Then, at 0550/4 October, Kretschmer's *U-23* sank the *Glenfarg* (876T) off Wick.¹⁴ The Swedish *Vistula* (1,018T) was sunk by *U-37* on 8 October 45 miles north-east of Unst.¹⁵ *U-34* was outbound for patrol at 0732/20 October when she sank the Swedish *Gustav Adolf* (926T) 40 miles north-east of Shetland, killing two of her crew and injuring six. Later that day, at 1410/20, coastwatchers on Unst reported a vessel being shelled 20 miles to the north-east. Aircraft were diverted to the scene but were too late to save the collier *Sea Venture* (2,327T), outbound for Tromso, sunk by *U-34*.¹⁶ Ten days later, on 30 October, the *Cairnmona* (4,666T) was torpedoed three miles off Rattray Head by *U-13*.¹⁷ That same evening the patrol trawler *Northern Rover* was sunk off Orkney by *U-59*.¹⁸



U-18, *U-21* and *U-22* operated off the Moray Firth during November and *U-22* sank the Kirkwall-bound collier *Parkhill* (500T) 17 miles north of Troup Head at 2200/17. *U-18* sank the Grimsby trawler *Wigmore*, part of an Iceland-bound fishing convoy, 25 miles north of Rattray Head at 2230/18.¹⁹ The destroyers *Imogen*, *Impulsive* and *Imperial* were sent on a sweep of the area but found nothing. On 20 November a torpedo fired by *U-18* at the tanker *Athelking* exploded in the wake of *Inglefield* off Rattray Head.

Four U boats operated in Scottish waters during November: *U-47* in the Minch, *U-35* in the Pentland Firth and *U-31* and *U-48* off Orkney. The operation was planned in conjunction with the sortie by *Scharnhorst* and *Gneisenau* and the four boats formed a trap for Royal Navy units tempted out after the German ships.²⁰ A large explosion in the wake of the cruiser *Norfolk* east of Shetland on 28 November, assumed to have been caused by an air-

¹⁴ One of *Vistula's* boats reached Norwick the following morning and two drifters sailed Lerwick to search for the other which had nine aboard. But a south-easterly gale blew up and they had to run for shelter in Whalefirth without finding the missing men. One of *Glenfarg's* crew died, the other 16 were picked up by *Forester*. ADM 199 2057. Robertson : 1981. *Lloyds War Losses* vol. 1. Rohwer : 1999. Wynn : 1997.

¹⁵ ADM 199 377. Rohwer 1999. *Lloyds War Losses* vol. 1.

¹⁶ Lerwick Lifeboat picked up all *Sea Venture's* crew. ADM 199 2057. ADM 199 377. *Services by the Lifeboats of the Royal National Lifeboat Institution 1939 - 1946*.

¹⁷ Three of her engineers died and 42 survivors were picked up by the Aberdeen trawler *River Lossie*, then transferred to the Peterhead Lifeboat. Rohwer : 1999. *British Vessels Lost at Sea*.

¹⁸ *Northern Rover's* loss remained a mystery until after the war. *Lloyd's War Losses* vol. 1. Rohwer : 1999. Wynn : 1997.

¹⁹ All nine aboard *Parkhill's* and all 16 aboard *Wigmore* were lost. ADM 199 362. *Lloyds War Losses* vol. 1. Rohwer : 1999 gives the time of this sinking as 1330/18, but this is a probable misprint..

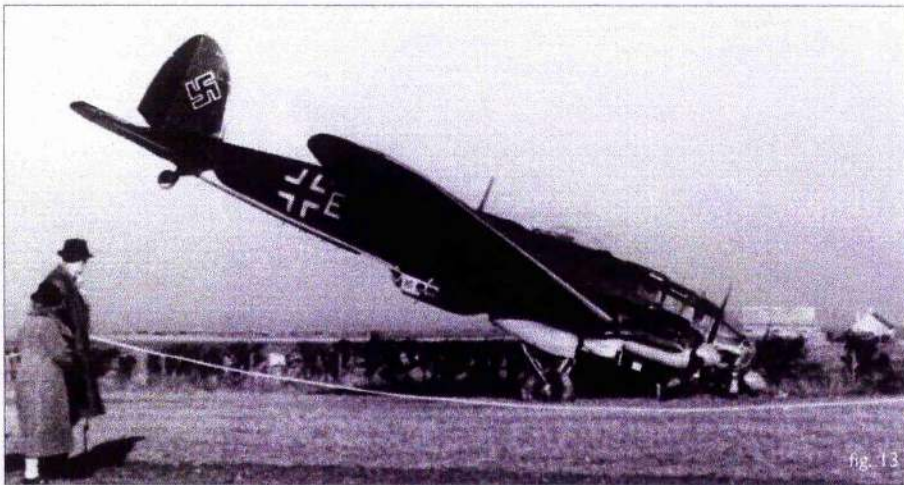
²⁰ Blair : 1997. *The U Boat War in the Atlantic* p. 13.

from a raft twelve hours later and ten more *Fram* survivors were found after 36 hours on a raft. Ten of the *Fram*'s crew were lost.⁵⁴

AIR ATTACKS INTENSIFY

Luftwaffe reconnaissance of the Scandinavian convoy route continued in all weathers. At 0938/29 January, in snow showers and a south-easterly gale, 609 Squadron Hurricanes scrambled from Drem and chased off an HE111 that had attacked a trawler in the Tay estuary. This raider had also bombed and strafed *Imperial Monarch* (5,831T) and *Otterpool* (4,876T) off Montrose. *Otterpool* landed two injured crewmen at Dundee and *Imperial Monarch* reached Grangemouth badly holed.

At 1200/29 four bombs fell at Sullom Voe, none of which did any damage, then at Scapa Flow shortly afterwards.⁵⁵ The collier *Giralda* (2,178T) was bombed and sunk off South Ronaldsay on 30 January. Her 23 crew were seen in a boat drifting towards Water Sound but it hit rocks and capsized leaving no survivors.⁵⁶ Thirty miles to the east, the same raiders



An He 111 shot down near North Berwick by 602 Squadron during a series of attacks on the east coast convoy route between Aberdeen and Cromer on 9 February 1940.

Attacks by aircraft such as this one from 5/KG26 were flown with great determination, often in dreadful weather, but the Luftwaffe assault on coastal convoys off Scotland and eastern England lacked coordination. Traffic on the route was all but continuous with long, two-column convoys almost merging into each other, and convoys passing on opposite headings causing large concentrations of shipping in a narrow swept channel in which they had no room to manoeuvre under attack. It was also discovered in mid-1941, after the worst attacks were over, that the Luftwaffe had been getting clear and accurate intelligence of coastal convoy movements from the German decryption service, B-deinst. Yet Allied shipping losses on the coastal route, though serious, were never as bad as they ought to have been, had the Luftwaffe accorded the anti-shipping raids sufficient priority.

⁵⁴ ADM 199 362. Macdonald : 1993 pp. 123-137. Rohwer : 1999.

⁵⁵ AIR 25 232. AIR 27 2102. ADM 199 362. ADM 199 377. HH50/160. *Lloyds War Losses* vol. 1. Ramsay et al : 1987.

⁵⁶ ADM 199 377. *Lloyds War Losses* vol. 1. *Services by the Lifeboats of the Royal National Lifeboat Institution 1939 - 1946*.

sank the inbound *Bancrest* (4,450T) and damaged the naval trawler *Ullswater*.⁵⁷ In St Andrews Bay, bombers attacked *City of Bath* (5,079T), *Stancourt* (563T) and the Hull trawler *Lady Shirley*. A 111 Squadron Hurricane engaged these raiders near the Isle of May, but they disappeared into a snowstorm, then were intercepted again near Coquet Island by 43 Squadron Hurricanes and one Heinkel was shot down.⁵⁸

Convoy ON10 was due to sail for Norway on 5 February and the 5th Minesweeping Flotilla sailed Invergordon on 3 February to sweep its route across the Moray Firth. At 0912/3 the fleet minesweepers *Sphinx*, *Speedwell* and *Skipjack* were off Kinnaird's Head when two raiders attacked *Sphinx*. One bomb ripped through her bridge and foredeck to explode in the forward messdeck. The foredeck was folded back against the bridge, four of her crew were killed and three seriously injured. Return fire was opened, albeit late, and a JU88 of 2/KG30 crashed in the Moray Firth. When its crew was picked up, they reported that they had been hit by return fire from a minesweeper. Also in this raid, the patrol trawlers *Hugh Walpole* and *Arctic Explorer* and the coaster *Rota* were bombed. None suffered serious damage. The tanker *British Loyalty* was attacked off Arbroath but escaped undamaged and the Norwegian *Tempo* (629T) was bombed and sunk near the Isle of May at 1000/3.⁵⁹



Her foredeck torn up by the explosion and her fore ends open to the sea, *Sphinx* wallows in worsening weather as *Speedwell* closes to pass a tow.

Speedwell took *Sphinx* in tow for Invergordon at 1050/3 but the tow parted repeatedly in worsening weather. At 0300/4 *Sphinx* was forced to abandon ship and *Speedwell* crashed alongside three times, picking up four men. The destroyer *Boreas* then made repeated attempts to go alongside and managed to take off another seven before, at 0455/4, *Sphinx* capsized. *Boreas* picked up 30 survivors from the sea many of them choking on oil. Forty-six survivors

were picked up in all; five officers and 49 ratings had been killed. Thirty bodies were washed ashore near Wick and at Walls in Orkney.⁶⁰

⁵⁷ ADM 199 377. Of *Bancrest's* crew, one was killed; the other 31 were picked up by the destroyer *Javelin* out of Scapa.

⁵⁸ ADM 199 362. ADM 199 364. AIR 25 232. AIR 27 2102. Information from Tayside Police Museum. *Services by the Lifeboats of the Royal National Lifeboat Institution 1939 - 1946*.

⁵⁹ Five of *Tempo's* crew died and the tug *Brahmin* came across a lifeboat with her survivors off Elie Ness that afternoon. ADM 199 362. ADM 199 377. *Lloyds War Losses* vol. 1. Ramsay et al. : 1987.

⁶⁰ *Sphinx* drifted ashore north of Lybster on 5 February. The Board of Enquiry, held in Invergordon, found that the first attack had gone unopposed as it had taken three minutes for the guns' crews to close up. Sub Lieutenant Anthony Bellars said that the delay was due to officers being, 'doubtful as to whether it was a test or a proper alarm, Sir.' The ships' armament had been poorly maintained, close range weapons had jammed after just a few rounds and the fuses of shells in the ready-use racks were not set. The fuse setting keys could not be found and fire was opened

(Cont'd overleaf)



The tanker *Gretafield*, a straggler from HX18, was torpedoed by U-57 at the eastern end of the Pentland Firth on 14 February 1940. She drifted ashore, still burning, near Dunbeath. Her loss, and that of eleven of her crew was a sharp reminder of the vulnerability of unescorted vessels on the coastal route. That a tanker fully-laden with Admiralty fuel oil should be allowed to proceed alone through waters known to be dangerous was a notable lapse.

At midday on 10 February the trawler *Theresa Boyle* was bombed and sunk by HE115 sea-planes 115 miles north-east of Aberdeen. Skipper Bell and his crew were picked up 20 miles off Peterhead at about 1400/12.⁶¹ U-9 laid mines off Invergordon on 9 February.⁶² U-50 sank the Swedish *Oriana* (1,854T), Buenos Aires for Malmo, north of Muckle Flugga on 11 February.⁶³ Shortly before midnight on 15 February, U-14 sank the Danish colliers *Rhone* (1,064T) and *Sleipner* (1,066T) in the Moray Firth with heavy loss of life. On the following evening, Wolfarth sank the Swedish colliers *Liana* (1,664T) and *Osmed* (1,526T) off Kinnaird's Head.⁶⁴ The Panamanian collier *El Sonador* (1,406T) sailed Methil on 16 February in ON14, then disappeared with her 17 crew, sunk by U-61 east of Shetland on 18 February.⁶⁵ U-61 then sank another ship in ON14, the Norwegian *Sangstad* (4,297T).⁶⁶

U-23 was patrolling east of Orkney on 18 February in the path of the Methil-bound 30-ship HN12 when she torpedoed the escort destroyer *Daring*. From the 162 in *Daring*, only one officer and four ratings survived.⁶⁷ In the Fair Isle Channel on 19 February, a torpedo from U-19 exploded off the starboard bow of the naval oiler *Daghestan* then, on 21 Febru-

with unfuzed shells. Officers were also criticised for not getting the wounded off before the weather worsened as this had contributed to the heavy loss of life. ADM 1 10785. ADM 199 362. ADM 199 365.

⁶¹ ADM 199 365.

⁶² At 1955/4 May 1940 the tanker *San Tiburcio* (5,995T) struck a mine laid by U-9 in 165° Tarbat Ness 4.2 miles. She sank, but all 40 crew were saved. Other mines were swept in the area between May and August 1940. ADM 199 365. ADM 199 477. Macdonald : 1993 pp. 107-121.

⁶³ *Oriana* sank and 14 of her crew died. ADM 199 362. ADM 199 377. Wynn : 1997. Rohwer : 1999. *Lloyds War Losses* vol. 1.

⁶⁴ The trawler *Loch Hope* picked up 17 survivors from *Liana* and *Osmed* from a raft in 5807N 0212W, and landed them at Scrabster. Eight from the *Liana* were being taken home aboard the Swedish tramp *Santos*, but she too was torpedoed on 24 February and six of the *Liana* survivors were among the dead. In all, 10 were lost from *Liana* and 13 from *Osmed*. ADM 199 362. ADM 199 377. Glass : 1994. Rohwer : 1999. Wynn : 1997. *Lloyds War Losses* vol. 1.

⁶⁵ Rohwer : 1999. *Lloyds War Losses* vol. 2.

⁶⁶ *Sangstad's* master was the sole casualty. The rest of her crew were picked up by the destroyer *Inglefield* after being spotted on a raft by a 233 Squadron Hudson. ADM 199 377. AIR 28 470. Rohwer : 1999. *Lloyds War Losses* vol. 1.

⁶⁷ *Daring* was the first loss in convoy to be publicly acknowledged as the result of a torpedo attack. Her survivors were picked up by the submarine *Thistle*. ADM 186 799. ADM 199 362. ADM 199 377. ADM 234 380. Rohwer : 1999. Robertson : 1981.

ary, *U-57* torpedoed the Glasgow steamer *Loch Maddy* (4,996T) south-east of Copinsay.⁶⁸ The 11th Anti-Submarine Flotilla swept the area but found nothing, losing one of their number to air attack in the process.⁶⁹

Royal Archer (2,266T) detonated a mine and sank off Gullane in the Forth on 24 February.⁷⁰ That afternoon, the Asdic trawler *Loch Tulla* reported a contact outside the Hoxa entrance to Scapa Flow. The destroyer *Inglefield* and more trawlers joined the hunt. *Coventry City* attacked a contact in the Pentland Firth, another contact was depth-charged east of South Ronaldsay and *Ivanhoe*, *Gallant* and *Griffin* were hunting another U boat reported in the Fair Isle Channel. But that night, at 2154/24, the Swedish *Santos* (3,840T) was sunk east of Orkney by *U-63*. *Santos* had not been in convoy but was well illuminated with navigation lights burning and two floodlights shining on a Swedish flag. *U-63* chased her for 90 minutes, then sank her with one torpedo.⁷¹

The following morning, at 0755/25, the submarine *Narwhal* escorting HN14 sighted *U-63* on the surface five miles astern of the convoy, turned towards the U boat and worked up to full speed. The destroyers *Inglefield*, *Imogen*, *Escapade* and *Escort* joined the chase and dropped depth-charges. At 0950/25 *U-63* surfaced and, as *Inglefield* and *Imogen* opened fire, scuttled herself. Oberleutnant Lorentz and all but one of his crew were taken prisoner.⁷²

Enemy aircraft appeared off the east coast on 27 February and, at 1300/27, the trawler *Aurora* was attacked off Buchan Ness. Another trawler, *Ben Vurie*, was bombed and strafed by an enemy aircraft off Rattray Head.⁷³ Meanwhile, 609 Squadron Hurricanes were east of St Abbs Head on one of the new standing convoy patrols instituted after 602 Squadron's successful interception on 9 February. An HE111 of 2/KG26 dropped out of cloud and was shot down to crash off Fife Ness at 1305/27. Four airmen were taken to Dundee.⁷⁴

German preparations for their invasion of Norway brought an increase in Luftwaffe monitoring of naval movements, particularly around Scapa Flow, in March 1940. There was also

⁶⁸ Six of *Loch Maddy's* crew died and 33 survivors were found by the destroyer *Diana*. *Diana* stopped, and was about to pick them up, when she too was near-missed by a torpedo, and left. Shortly afterwards they heard two heavy explosions as *Inglefield*, *Imperial*, *Imogen* and *Diana* hunted two submarines (actually *U-19* and *U-22*) in the Fair Isle Channel. *Loch Maddy* broke in two and the stern half was towed to Inganess Bay by *St Mellons*. The other half was sunk east of Copinsay by *U-23* on 22 February. ADM 199 362. ADM 199 377. AIR 28 470. Rohwer : 1999. Wynn : 1977.

⁶⁹ HM trawler *Fifeshire* was bombed and sunk 50 miles east of Copinsay. One of her 22 crew survived. HM trawler *Ayrshire* was strafed, though her crew escaped injury. ADM 199 364. ADM 199 377.

⁷⁰ *Royal Archer's* crew of 28 were landed at Leith by the trawler *Tourmaline*. Another mine victim in the same area was the trawler *Ben Attow* early on 7 March 1940. ADM 199 362. ADM 199 364. ADM 199 365. AF62/2632. Rohwer : 1999. Johnstone : 1986. Baird : 1993. *Dundee Courier* (various from March 1940).

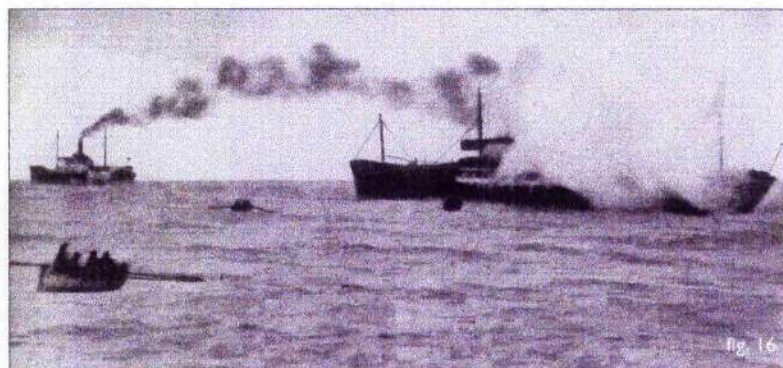
⁷¹ Twelve survivors were spotted on a raft in 5970N 0042W by a Hudson which directed the destroyer *Gallant* to pick them up. *Santos* had been carrying eight survivors from *Liana* (see above), two of whom survived the second sinking. ADM 199 362. ADM 199 365. Jones : 1986 p. 30.

⁷² *U-63's* operational career had lasted five weeks and she appears to have been an unhappy ship. Her survivors, three officers and 20 ratings, were landed at Leith by *Inglefield* and *Imogen* on 27 February. Under interrogation, two officers blamed Lorentz for the loss, citing poor ship-handling. ADM 199 362. ADM 199 377. Jones : 1986 p. 30-34.

⁷³ AF62/1339. *Glasgow Herald* 21 January 1942.

an increase in attacks on the Norwegian convoys.⁷⁵ Though there were few successes, at 0615/1 March the trawler *Star of Liberty* picked up 19 survivors from the Norwegian collier *Vestfos* (1,388T) which had been bombed and sunk off Auskerry.⁷⁶ 603 Squadron Spitfires shot down an HE111 off Aberdeen on 7 March.⁷⁷ Three raiders dropped bombs into Scapa Flow the following afternoon, and two bombs fell close to the Kirkwall portion of ON18.

U boats were being withdrawn from southern North Sea and Atlantic patrols for Norway, and reconnaissance lines, principally aimed at detecting British warships, were set up off Orkney and Shetland and in the Moray Firth from mid-March. Schepke's *U-19* intercepted ON21 in the Moray Firth late on 19 March and sank the Danes *Minsk* (1,229T) and *Charkow* (1,026T), both Methil for Esbjerg. At 0457/20, east of Wick, he sank two more Danes, *Viking* (1,153T) and *Bothal* (2,109T) from HN20.⁷⁸ Aircraft were seen over Shetland that afternoon and, between 1830/20 and 1950/20, three air attacks were mounted on HN20 and ON21. The Norwegian collier *Svinta* (1,276T) in ON21 was damaged and abandoned, but taken in tow for Kirkwall. *Thistlebrae* (4,747T), the anti-submarine trawler *Windermere* and the *Northern Coast* (1,211T) were also bombed, strafed and damaged.⁷⁹



The attack on ON21 east of Orkney on 21 March 1940. The Oslo-bound collier *Svinta* is ablaze and the oiler *Daghestan* has been damaged. *Svinta* was torpedoed and sunk by *U-57* off Copinsay at 2210/22 March.

Two more Danes, *Algier* (1,654T) and *Christianborg* (3,270T), both Philadelphia for Copenhagen, were sunk north of Shetland by *U-38* early on 21 March, and, in the same area on 25 March, the Danish *Britta* (1,146T) was torpedoed and sunk by *U-47*. At 2013/25, off Copinsay, *U-57* torpedoed the naval oiler *Daghestan* (5,742T) which had sailed Scapa Flow earlier that evening for Sullom Voe. Four died and 29 survivors were picked up by the naval trawlers *Northern Dawn* and *Brontes*.⁸⁰ Then, at midnight, the Norwegian *Cometa* (3,794T),

⁷⁴ This was 609 Squadron's first successful combat of the war. Another HE111 from the same raid was shot down off Coquet Island by Spitfires of 152 Squadron. AIR 25 232. AIR 27 2102. ADM 199 364. Ramsay et al. : 1986.

⁷⁵ Roskill : 1954 p. 143.

⁷⁶ AF62/1339. ADM 199 362 *Lloyds War Losses* vol. 1.

⁷⁷ Ernst Breiler was picked up by RAF *HSL 272* at 1853/7 and taken to Leuchars. ADM 199 362. ADM 199 364. AIR 25 232. AIR 28 459. WO 208 4117.

⁷⁸ Eleven of the 20 aboard *Minsk* were killed as was the entire crew of the *Charkow*. Fifteen of the *Viking's* 17 crew died as did 15 of *Bothal's* 20 crew died. Wick Lifeboat picked up survivors spotted by an aircraft. *Lloyds War Losses* vols. 1 and 2. ADM 199 362. Wynn : 1997. Glass : 1994.

⁷⁹ *Thistlebrae* reached Trondheim only to fall into the hands of invading German troops on 9 April.

⁸⁰ ADM 199 377. Rohwer : 1999. Glass : 1994. *Lloyds War Losses* vol. 1.

Oslo for Buenos Aires, was sunk by *U-38* north-west of Noup Head.⁸¹

Intense air activity continued and the *Northern Coast* was again bombed and strafed on 29 March off Kinnaird's Head. A reconnaissance of Scapa Flow caused an air raid alert in Wick at 0840/31 and the anti-aircraft barrage opened up from Kirkwall. The cruiser *Sheffield* was attacked by HE111s east of Orkney on 2 April and, at 2030/2, two enemy aircraft passed over John o' Groats on their way to Scapa. The Leith trawler *Ratapiko* was attacked off Copinsay. Duncansby Head Lighthouse was strafed and bombs fell on Flotta. A U boat sighted west of Fair Isle was *U-38* which had earlier that day sunk the Swedish *Signe* (1,540T) from HN23. Twelve Aberdeen trawlers fishing east of Muckle Flugga were attacked at 1420/3 April. *Sansonnet* took a direct hit and her ten crew were all lost. *Gorspen* suffered two near misses, one of her crew was injured and she was abandoned. *Braemar* cut away her gear as she made her escape. *Delila* was attacked for the second time in a week in the Moray Firth, and her wheelhouse roof was shattered by gunfire. But she returned fire, claiming hits on one of the raiders.⁸²

Two groups of U boats were in position off the north of Scotland by 6 April, the 6th Group (*U-13*, *U-57*, *U-58* and *U-59*) west of the Pentland Firth and around Shetland, the 9th Group (*U-7*, *U-10* and *U-19*) east of Shetland. At 0250/6 Jurst's *U-59* sank the Norwegian collier *Navarra* (2,118T) about 25 miles west of Orkney. Ten of her crew died and 14 survivors were picked up by the Finnish steamer *Atlas* and landed at Kirkwall.⁸³

ATTACKS ON SHIPPING OFF SCOTLAND AND THE SCANDINAVIAN CONVOYS SEPTEMBER 1939 TO APRIL 1940 IN RETROSPECT

For the first winter of the war, Scandinavia was the centre of strategic interest for Allies and Axis alike, the latter then including the Soviet Union. Scandinavian convoys have to be set against the background of Allied and Axis interventionism. Admiralty attention was initially directed mainly towards the Baltic, and British interests lay principally in negotiating trade limitation agreements with strongly isolationist Norway and Sweden, in particular agreements that would limit Scandinavian exports to Germany. But Norway and Sweden in particular were heavily dependent on trade with both belligerent blocs, so negotiations dragged on inconclusively.

While Churchill's Admiralty correctly identified the supply of Swedish iron ore as of cru-

⁸¹ *Cometa* had earlier been intercepted by the Northern Patrol vessel *Kingston Peridot* which put an armed guard of one officer and four ratings on board to take her into Kirkwall. Shortly before midnight *Cometa* was again stopped, this time by *U-38*, which sank her with a torpedo after the crew and passengers had abandoned ship. Three lifeboats were found by the patrol vessel *Northern Sky* on 26 March and the survivors were landed at Kirkwall. ADM 199 377. *Lloyds War Losses* vol. 1. Rohwer : 1999.

⁸² ADM 199 363. AF62/1339. CE87/4/41. Ritchie : 1991. *Glasgow Herald* 21 January 1942. *Lloyds War Losses* vol. 1.

⁸³ ADM 199 363. Rohwer : 1999.

cial importance to the German war effort and proposed measures to block it, Minister of Supply Leslie Burgin pointed out to the War Cabinet that Britain was dependent on Sweden for supplies of ferro-chrome and calcium-carbide.⁸⁴ And there was also important trade in timber, paper and coal to consider, along with the likely loss of supplies of Danish foodstuffs that would follow on from an intervention. Much of the trade between Norway and Scotland was, in any case, carried in neutral ships and their losses to U boat attack served a perceived political purpose in driving neutrals further towards the Allied camp.

Aside from the economic importance of commerce and the strategic importance of raw materials, for both Axis and Allies alike the maintenance of maritime trade as a form of diplomacy was essential. Britain, for example, was negotiating the chartering of a large part of the Norwegian merchant fleet, in particular its 150 modern tankers. As Salmon writes, the tense and difficult shipping negotiations were one of the principal factors that acted as a brake on Churchill's interventionist schemes, first mooted on 19 September 1939.⁸⁵ And among the cargoes carried out from Britain were carefully disguised packages of aid for Finland, then engaged in the Winter War with the Soviet Union. So the Scandinavian convoys organised from Rosyth remained, for the time being, a necessity.

The Luftwaffe contributed little to German efforts to stop sailings between Scotland and Norway. The main German effort was undertaken by U boats and it is noteworthy that among those honing their skills in the waters off Scotland, practising the night attacks from within convoys that would prove so successful in the autumn of 1940, were future aces such as Kretschmer, Moehle, Rollmann, Schepke and Prien. U boats on their own were too few in number to make an appreciable difference over a sustained period in coastal waters, but had there been closer coordination with the Luftwaffe, the German anti-shipping offensive off Scotland would have been considerably more effective.

There is little evidence that the Royal Navy learned much from its experience on the Norway run. But their convoying of neutral shipping, along with the sinking, by 8 April 1940, of 55 Norwegian ships by German forces, contributed much to the speedy arrival of Norwegian tonnage in Allied ports in April 1940.⁸⁶ Willmott suggests that the accession of Norwegian merchant shipping to the Allied cause represented the most significant German failure in their 1940 Norway campaign. Certainly, in 1941, 40% of all foreign flagged vessels entering British ports were Norwegian.⁸⁷

By the end of March 1940, the Home Fleet was back at a reinforced Scapa and military

⁸⁴ Minutes of War Cabinet no. 122 of 22 December 1939 quoted in Gilbert : 1989 p. 110.

⁸⁵ Salmon *et al.* : 1995 p. 10.

⁸⁶ Papers by Atle Thowsen and Øivind Schau in Salmon *et al.* : 1995 Chapters 7 and 8.

⁸⁷ *From Neutrality to NATO - The Norwegian Armed Forces and Defense Policy 1905-1955* Ph.D dissertation by David G. Thomson, Ohio State University 1996. p. 214.

forces were massing in Scotland, France and in north-western Germany. Increasing German activity ahead of their invasion of Norway led to a sharp increase in sinkings of mainly neutral vessels both in and out of the Norway convoys. Thus was the stage set for the first major collision of the war in western Europe, the campaign in Norway, Scotland's role in which is examined in detail in Chapter Five.

Chapter Three

BATTLE OF THE ATLANTIC - PART I LUFTWAFFE OPERATIONS AGAINST SCOTTISH COASTAL CONVOYS AND COASTAL TARGETS JUNE 1940 TO MAY 1943

Prior to the Allied collapse in Norway and France, the main outbound OA series convoys assembled off Southend and steamed round the south coast of England collecting ships from Southampton and other ports before heading into the Atlantic via the South-Western Approaches. Outbound convoys from Liverpool and the Clyde, the OB series, rendezvoused with OA convoys in the South Western Approaches. Inbound convoys followed the reverse route but, from July 1940, most ocean traffic began using the North Channel and the North Western Approaches. This route kept the convoys as far away as possible from Axis-held territory and Luftwaffe airfields, but it also caused massive disruption, particularly for traffic to and from British east coast ports.

Pre-war British imports had exceeded 50 million tons, but this figure was cut from the outset. Behrens compiled the following table showing imports and net consumption of imported supplies in millions of tons from Ministry of War Transport data:

	Imports	Changes in stock level	Net consumption
First year of war	44.2	+0.9	43.3
Second year of war	31.5	+1.9	29.6
Calendar year 1941	30.5	+1.4	29.1
Calendar year 1942	22.9	-2.45	25.35
Calendar year 1943	26.4	+2.8	23.6
Calendar year 1944	25.1	-1.9	27.0

Merchant Shipping and the Demands of War HMSO 1978 p. 201

Dramatic reductions in imports there may have been, but, even at full capacity, the principal west coast ports on the Clyde, the Mersey and at Avonmouth could only handle about two thirds of trade in 1940 in addition to military traffic. So, under pressure from the Ministry of Shipping, the Admiralty began escorting coastal convoys around the north of Scotland to and from east coast ports. FS and FN convoys between the Thames and Forth began on 9 July when FN1 sailed Southend for Methil. From there it became EN1 for the passage northabout to the Clyde, eventually to feed Atlantic convoy OA180. WN convoys from the Clyde to Methil began immediately, though the OA/OB series continued into

October 1940. The MT/TM series between Methil and the Tyne began running in December 1940. However, from 10 September 1940, only ships of less than 6,500 GRT were allowed to use east coast ports as far south as the Humber, coasters only being allowed south of the Humber. The tonnage limit was later raised to 8,500 GRT though restrictions on types of cargo and ships remained. For example, diesel-powered vessels were barred from the east coast as they were more likely to detonate acoustic mines.¹

As noted in the previous chapter on the Scandinavian convoys, conditions of the coastal route were very different to those on the Atlantic, one writer who was there describing it as the 'quick-fire corner of the war'.² Between the Pentland Firth and the Forth, and on to the south, the convoys had to keep to a narrow swept channel that only allowed them to run two abreast. This meant that a 50-ship convoys frequently straggled out over many miles, making it impossible for the few, ill-armed escorts available to protect the whole convoy. In one respect at least, coastal convoy schedules were dictated by the tide and the need to ensure a safe passage of the notorious Pentland Firth where the tide can run at eight knots and the weather can be appalling, particularly when a gale blows against the tide. It was common for the Commodore of a strung-out convoy could find that only some of his ships had got through, the rest being trapped and at the mercy of the Luftwaffe until the tide turned.

Navigation had to be precise, yet the swept channel was marked only by occasional dimly lit buoys. All shore lights had been blacked out, though they could be shown briefly if a convoy was in the vicinity. After an air raid in August 1940, Peterhead NOIC Captain Hewett wrote, 'It is considered that Buchan Ness Light is being used by enemy aircraft as a landfall and departure...Buchan Ness Light, the only light remaining lit for the use of shipping locally, is doused by me on receipt of Air Raid Warning "yellow" for so long as is considered necessary.' Following the raid, the light was only shown for a maximum of five minutes in every thirty minutes.³

Unlike in the Atlantic, off the east coast there was no margin for error. A case in point was WN7, a 35-ship convoy that had experienced dreadful weather as it passed through the Pentland Firth on 3 April 1941. The convoy was bombed as it passed Rattray Head, then, as it passed Aberdeen, two steel derricks on the Commodore ship *Stuart Queen*, weakened by seas when dodging the air attack, crashed to the deck. This induced a 10° compass error which, due to bad visibility, was not noticed until, as Commodore Harry Rogers wrote,

¹ Behrens, *Merchant Shipping and the Demands of War*, HMSO 1978 p. 136.

² Nicholas Monsarrat in *Three Corvettes* (Cassell 1945).

³ ADM 199 365

At 2000/3, I made the Bell Rock on the port bow instead of passing three miles outside of it. As soon as I saw this I did an emergency away, but owing to the gale, bad visibility and straggled condition of the convoy, all ships did not obey this and it was later reported to me that the SS *Emie Frankham* [sic] (nationality unknown) had collided with the Bell Rock...⁴

The Belgian *Emile Franqui* had, in fact, struck the unlit Bell Rock, and then freed herself only to run ashore on the nearby Abertay Sands.⁵

Outside the swept channel, a British offshore minefield stretched from Shetland to the English Channel and a particular hazard facing shipping off the east coast was British mines that had broken loose, often during easterly gales. One victim was the Fleet Air Arm target ship *St Briac*, a former passenger steamer working as a radar training ship for the FAA training establishment at HMS *Condor*, Arbroath, which blundered into the minefield during a storm on 12 March 1942 and sank.⁶

For coastal convoy survivors taking to boats there was at least the consolation that, unlike in mid-Atlantic, traffic on the coastal route was all but constant and RNLI Lifeboats, patrol craft, air-sea rescue launches, minesweepers and convoy escorts were never far away. But being caught on a lee shore in bad weather was highly dangerous. In the case of the *St Briac*, Lifeboats from Broughty Ferry, Arbroath and Montrose launched and the Free French tug *Abielle IV* sailed Aberdeen. One of *St Briac's* boats was found by the tug *Empire Larch*, but the other ran ashore near Collieston and 14 of the 17 aboard were drowned.⁷ The destroyer *Rockingham* was another victim, heavily damaged by a British mine off Aberdeen in September 1944.⁸

The U boat effort having concentrated in the Atlantic by mid-1940, Scottish east coast convoys were up against the Luftwaffe. Convoys constrained within the narrow swept channel were, on the face of it, easy targets and, with the growing demands on the east coast ports, shipping traffic off the east coast was, by 1941, almost continuous and not hard to find. But the Luftwaffe was designed for operations with, or immediately ahead of, the Wehrmacht, so neither its aircraft or its crews were suited for anti-shipping operations over long distances such as those between Norway and Scotland. And, as Coastal Command's anti-shipping Strike Wings were to find operating off Norway from 1943, operating off enemy territory brought the Luftwaffe's unescorted bombers close to British Chain Home RDF stations and Fighter and Coastal Command airfields. The Luftwaffe's greatest handicap, however, was that its anti-shipping operations off the British east coast were a

⁴ ADM 199 14.

⁵ *Emile Franqui's* passengers and all but 18 of her crew were taken off by the Broughty Ferry Lifeboat *Mona*, then she was refloated and made Methil under tow. ADM 199 14. ADM 199 400. ADM 199 401. ADM 199 412.

⁶ ADM 199 401.

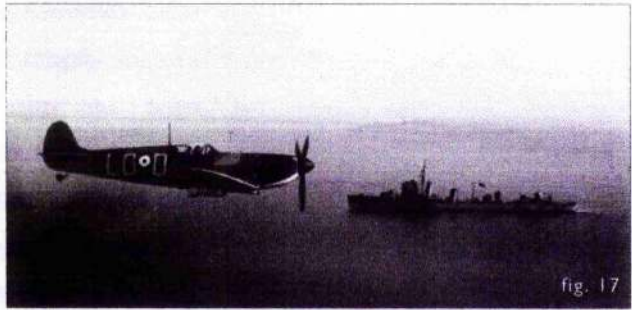
⁷ Forty-seven died in the *St Briac* incident. ADM 199 401.

⁸ Baird : 1993.

side-show conducted without coherent policy. As Bletchley Park discovered in 1941, the Luftwaffe had excellent intelligence of convoy movements, yet were powerless to intervene decisively.⁹

From mid-1940, the principal Luftflotte 5 units operating across Scotland from Stavanger Sola in Norway and Aalborg in Denmark were 2/KG26 (He111) and 2/KG30 (Ju88). Reconnaissance was the responsibility of the He111s, Do17s and Ju88s of 2(F)/22, 3(F)/22, 1(F)/120 and 1(F)/121, and there were regular weather reconnaissance flights west of Shetland by Wekusta-Kette X's He111s. These were chiefly intended for operations against, and to support operations against, land targets. But three designated anti-shipping staffeln of Kfg/506 (He115) based at Stavanger achieved a higher strike rate per sortie than the landplane Luftwaffe units, thus demonstrating the need for appropriate training. What the anti-shipping campaign off Scotland in 1940-1941 did achieve was to provide Luftflotte 5 units with experience that would prove invaluable in their operations against the Arctic convoys from 1942 onwards.

Ranged against the German units were 13 and 14 Groups, Fighter Command. 13 Group had been operational since before the war covering the north of England and southern Scotland, in particular the Forth with its naval base at Rosyth. An isolated sector was set up at Wick to provide fighter cover for the Home Fleet base when Scapa Flow was reopened in March 1940.



Protection for convoys around Scotland and the east coast of England was provided by Fighter Command aircraft such as the 602 Squadron Spitfire shown here, and by surface ships like the destroyer *Valorous* which had been fitted with high-angle anti-aircraft armament.

This left the coast between the Forth and Caithness undefended so detachments of fighters were sent to Coastal Command airfields at Leuchars, Montrose and Dyce. But this was an imperfect solution, not least because the Coastal Command fields were not linked to the Fighter Command control system, so 14 Group was established on 1 August 1940 with its headquarters at the Drumossie Hotel, Inverness, to cover the whole area between the Tay and Shetland. Sector HQs were at Dyce, Wick and Kirkwall and among the first operational units were 603 Squadron's Spitfires and 141 Squadron's Defiants at Dyce and Montrose and the Hurricanes of 504, 232 and 3 Squadrons at Castletown and Inverness.¹⁰

⁹ ADM 223 2.

¹⁰ *The Royal Air Force 1939-1945* vol. 1 *The Fight at Odds*. Denis Richards (HMSO 1974) p. 68-69. AIR 25 250.

Approval for the first 20 Chain Home RDF stations was given in August 1937 with a target date for completion of April 1939. In Scotland, the first Chain Home stations were built at Drone Hill near St Abbs Head, Douglas Wood near Dundee, School Hill near Aberdeen and Netherbutton on Orkney to cover Scapa Flow, the latter two passing plots to the isolated sector HQ at Wick while the others passed plots to the main Fighter Command Filter Room at Stanmore. Due to the earth's curvature, Chain Home was ineffective against low-flying aircraft, so the network was enhanced by Chain Home Low stations to fill the gaps beneath and on either side of Chain Home transmissions, the first Scottish CHL stations being at Cockburnspath and Doonies Hill north of Aberdeen.

Given that the use of the east coast ports was essential, the east coast convoy route around northern Scotland was a vital artery. While the Luftwaffe offensive was at its height between July 1940 and June 1941, some 111 vessels totalling almost 400,000 tons were sunk or damaged in the swept channel between the Pentland Firth and Berwick-upon-Tweed. Had not the east coast route been kept open, an intolerable load would have been placed on the principal west coast ports in the Clyde and Mersey. Military operations around the world would have been hampered, if not abandoned altogether, and industry, particularly in the hinterland of river ports like the Tees, Tyne and Humber, would have been severely disabled.

But the Luftwaffe did not confine their attentions to the east coast. Raids were mounted against coastal towns and across Scotland against Clydeside. This chapter considers, therefore, the hitherto untold story of the Luftwaffe air offensive against Scottish coastal convoys and targets on the Scottish maritime periphery from 1940 onwards.

FIRST RAIDS

The first post-Dunkirk air raids against Scotland were directed at coastal land targets, principally Rosyth naval base, in late June 1940. Operating from newly acquired bases in Norway, 15 He111 bombers of 3/KG26 launched a raid against Rosyth late on 25 June. At 0020/26 an He111 was shot down into the river off Grangemouth by Flight Lieutenant Ken MacDonald of 603 Squadron. Another He111 plotted over Glasgow and Ardeer was intercepted near Turnhouse by 603 Squadron Spitfires and jettisoned its bombs south of Edinburgh, then was intercepted by 602 Squadron's Flight Lieutenant Johnstone and crashed in the sea off Barns Ness at 0204/26.¹¹ 3/KG26 returned the following night, scat-

¹¹ MacDonald's victory was the second successful night interception by a Spitfire. One body was recovered. HM trawler *Katbleen* picked up three survivors from Johnstone's victim and the body of Gefrieter Wähler was later recovered from sea. WO 166 2128. AIR 25 232. AIR 27 2074. AIR 27 2079. HH50/160. ADM 199 363. ADM 199 400. HO 198 198. Information from the late Air Vice Marshal Sandy Johnstone, the late Group Captain George Denholm and the late Group Captain George Pinkerton.

tering bombs around Dalmeny and Cramond, and again in the early hours of 28 June when bombs fell south of the Forth and near Dundee. At 0030/30 Aberdeen Harbour was bombed and the *Empire Henchman* was attacked off Peterhead. Early on 1 July incendiaries fell on a timber yard and a school in Torry, Aberdeen, and bombs fell in the Tay.¹²

None of these poorly directed attacks had caused casualties but, at 1635/1 July, a raider dropped two bombs beside Wick harbour, killing 14 and injuring 22.¹³ At 1930/1 four Ju88s of 3(F)/121 approached the Forth, two of them being chased out to sea by 602 Squadron after dumping bombs in Belhaven Bay.¹⁴ 603 Squadron shot down a Ju88 of 8/KG30 off Aberdeen on 3 July,¹⁵ and another 8/KG30 Ju88 off Stonehaven that evening.¹⁶ Enemy aircraft were plotted off the east coast late on 5 July and again the following night. At 1813/7, 602 Squadron intercepted two 1/KG30 Ju88s off St Abbs Head and shot one down.¹⁷ Late on 8 July, mines were dropped into the Forth and bombs fell near Crail, at Lossiemouth and Forres.¹⁸ 602 Squadron claimed one Ju88 down in flames off Fife Ness at 1750/9 and another damaged.¹⁹

Despite these early successes for 602 and 603 Squadrons, the Spitfire was no nightfighter and, despite the short hours of darkness, raiders were able to roam across Scotland at night almost with impunity. One raider plotted 45 miles east of Arbroath at 2248/10 July crossed the coast near Leuchars, crossed Perthshire, Stirlingshire, Loch Lomond, Helensburgh and Dunoon, then dropped five bombs on Mull and attacked a trawler off Tiree before returning to Norway completely unchallenged.²⁰

Costliest among these early air raids on coastal targets was that which began at 1253/12 July when He111s of 9/KG26 dropped 19 bombs across Aberdeen. Two fell in the boiler shop at Hall Russell's and two more exploded outside. Twenty shipyard workers were killed and 50 were injured. Yellow section, 603 Squadron, shot down one of the raiders on South Anderson Drive at 1255/12, but the crash resulted in further casualties on the ground. In all, 29 died and 103 were injured.²¹

¹² WO 166 2128. HH50/160.

¹³ HH50/160. ADM 199 377. Glass : 1994.

¹⁴ AIR 25 232. AIR 27 2074. WO 166 2128.

¹⁵ Three aircrew were killed and Unteroffizier Heringlehner was picked up unhurt by a trawler. Bordfunker Friedrich Rabe's body was recovered later and buried at Dyce. AIR 50 167. AIR 27 2079. Ramsay et al : 1987.

¹⁶ Gourdon Lifeboat *Margaret Dawson* found the bomber off Foulshaugh Cliffs, north-east of Gourdon. It was almost submerged and none of its crew had survived. AIR 27 2079. Ramsay et al : 1987. *Services by the Lifeboats of the Royal National Lifeboat Institution 1939 - 1946*.

¹⁷ AIR 27 2074. Ramsay et al : 1987. Information from Wing Commander Hector McLean.

¹⁸ AIR 25 232. HH50/160.

¹⁹ AIR 27 2074.

²⁰ WO 166 2128. ADM 199 362. ADM 199 377. HH50/160. HH50/161. Ramsay et al : 1987.

²¹ Muddle gripped the emergency services and Medical Inspector Dr J. Nairn Hay wrote that, despite the police being inundated with calls for ambulances, only two were sent. Then a policeman refused to allow the first ambulance near the scene, so lorries were commandeered and Nairn Hay's report describes dead, dying and grievously injured lying

(Cont'd overleaf)

Thirteen enemy aircraft were plotted over Scotland in the early hours of 13 July, some penetrating to the west coast. One raider passed over Edinburgh, Hamilton and Barrhead, then followed the railway through Bridge of Weir to Greenock, dropping bombs at Barrhead, Paisley and Bridge of Weir. Seven 50kg bombs fell in Greenock where one man died. Other enemy aircraft scattered bombs across Renfrewshire, Angus, Fife and East Lothian.²² An He111 seen off Rattray Head at noon on 15 July was shot down off Peterhead by 603 Squadron.²³ That evening, among 12 bombs to fall in Leith, one demolished a transit shed at Victoria Dock, one burst in Portland Place and one, a UXB, was discovered in Nicoll Place.²⁴ Another raider appeared at midnight on 15 July, dropped bombs on remote country between Fort William and Mull, then went south over the Clyde.²⁵

Enemy aircraft were active over the convoy lane off Kinnaird's Head on the afternoon of 16 July and, at 1557/16, two bombs fell at Peterhead Prison. Twenty-six people were injured when six bombs were dropped on Fraserburgh five minutes later and, at 1620/16, 18 bombs fell on Portsoy, injuring two. Meanwhile, an He111 of 9/KG26 that had attacked naval vessels 25 miles to the north was shot down by 603 Squadron. Another enemy aircraft circled off Gourdon at 1802/16 and a ship was bombed off St Abbs Head.²⁶

The ICI explosives plant at Ardeer and Irvine Harbour were targeted at 1452/17 July, then two more raiders laid mines off Montrose that afternoon and a 603 Squadron Spitfire disappeared while attempting to intercept.²⁷ A raid on Leith on 18 July killed seven and the first raid on Glasgow the following morning killed three and injured 31.²⁸ At 0140/20 a Ju88 dropped two mines off Gourrock and another mine between Irvine Shipyard and Ardeer Dock. Mines were also dropped in the Forth off Inchkeith. Two mines exploded at Stirling at 0220/20 injuring 32, three of them seriously, and leaving 29 families homeless. Three bombs exploded at Peterhead Academy and one was reported on the shore at

on mattresses and improvised stretchers being driven at high speed to the Royal Infirmary. Those still alive on arrival at Woolmanhill had suffered greatly from a lack of essential first aid and terrible wounds to the head, trunk and limbs had been left exposed. Rapid transportation in heavy vehicles had aggravated injuries and increased shock. The four aircrew in the Heinkel of 9/KG26 were buried in the Old Churchyard at Dyce. For Nairn Hay's report see HO 199 197. See also ADM 199 364. HH50/162. Ramsay et al : 1989.

²² HH50/160. HH50/161. WO 166 2128. AIR 25 232. HO 198 198. *Greenock Telegraph. Glasgow Herald*

²³ Obergefreiter Reinhardt killed. Oberleutnant Hollmann, Unteroffizier Walz, Obegefreiter Probst and Obergefreiter Trefzger were sighted in their dinghy by a 224 Squadron Hudson, then came ashore near Fraserburgh on 17 July. ADM 199 365. AIR 27 2079. Ramsay et al : 1987.

²⁴ The Bomb Disposal Section from Dreghorn Barracks made the UXB safe by 0837/17. HH50/160. AIR 25 232. WO 166 2128. ADM 199 363. HO 198 198.

²⁵ This raider dropped two mines into the Kyles of Bute off Tighnabruich Pier. One exploded immediately, the other detonated at 2245/17 July. ADM 199 363. WO 166 2128.

²⁶ Two men were injured during the fighter attacks and believed killed. Oberleutnant Lorenz unhurt and Unteroffizier Beer took to their dinghy and were picked up by an RAF HSL. James 'Black' Morton's Spitfire was hit by return fire, but returned to base safely. AIR 25 232. HH50/160. ADM 199 377. Ramsay et al : 1989.

²⁷ WO 166 2128. HH50/160. AIR 25 232.

²⁸ WO 166 2128. HO 198 198. HO 199 201. AIR 25 232. HH50/160. Edinburgh Corporation War Damage Records.

Strathbeg Bay.²⁹ A Ju88 appeared over Leith at 0559/22 July and dropped a 1,000kg bomb in the river off Seafield and another beside Albert Dock. A shed and AFS station were demolished, one fireman was killed and eight injured. Banff and Macduff were also bombed.³⁰ Air activity began again in the early hours of 23 July with the laying of mines in the Forth at 0005/23. At 0023/23 around 100 incendiaries were scattered over Granton Harbour, bombs fell across Fife, near St Abbs Head, and in the sea off Arbroath.³¹

MAGNETIC MINES

Mines laid by U boats had scored two notable successes in Scottish waters, namely the near destruction of the cruiser *Belfast* and the damaging of the battleship *Nelson*, both in 1939. Luftwaffe mine laying sorties in Scottish waters during 1940 and 1941 used mainly the 500kg Luftmine A magnetic ground mine.³² These were dropped off Aberdeen and the Tay, but the Forth with its heavy commercial and naval traffic was a particular target, as was Scapa Flow. Few vessels of note were sunk, though even the merest suspicion that mines had been dropped was enough to close harbours and major rivers until they could be swept. The disruption to tightly organised convoy schedules could be considerable.

Air-dropped magnetic mines first appeared off Scotland in the summer of 1940, notably off Montrose on 17 July and in the Forth on 23 July. Then three were dropped at the entrance to Aberdeen at 0200/26 July 1940 and the sweepers *Eldorado* and *Newhaven* took almost ten days to clear the channel during which time shipping movements were restricted.³³ The loss of the Salvesen tanker *Salvestria* (11,938T), inbound for Grangemouth from HX55 with 12,000 tons of oil the following day, amply demonstrates the vulnerability of vessels in a narrow swept channel. She was heading up the swept channel for Inchkeith gate with three other ships when, at 1749/27, she detonated a mine and settled, burning fiercely, by the stern. The swept channel was marked by a line of buoys topped with white flags and both Captain Jamieson and Pilot Flockhart were adamant that they had passed within 100 feet of the buoys. The Enquiry found that the buoys marking the centre line of the channel became, 'displaced either to east or west of the charted position owing to the direction of the tidal stream.'³⁴ Two mines fell in the Tay on 28 July and, later that day, the

²⁹ WO 166 2128. AIR 25 232. ADM 199 363. HH50/160. HH50/161. *Stirling Observer*.

³⁰ WO 166 2128. AIR 25 232. AIR 27 2074. Edinburgh Corporation Air Raid Damage Repairs records held, unindexed at the time of consultation, by Edinburgh City Archives.

³¹ WO 166 2128. WO 166 3261. AIR 25 232. HH50/160.

³² Ramsay et al : 1989 p. 147-149.

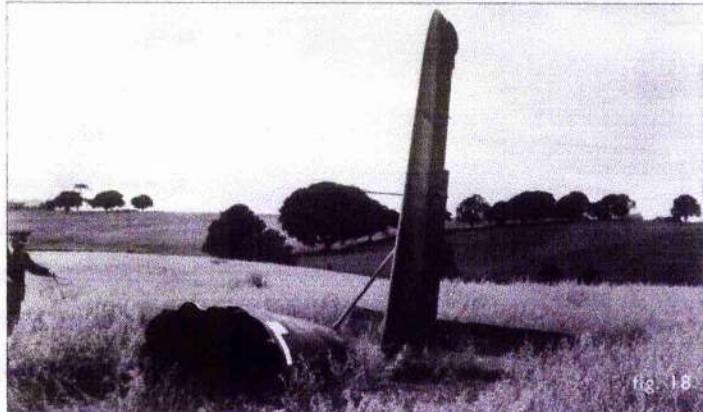
³³ ADM 199 364.

³⁴ Ten of her crew died. ADM 1 10775. ADM 199 363. AF62/2632. *Lloyds War Losses* vol. 1.

sweeper *Gadfly* was badly damaged when her 'M' sweep exploded one of the electrically-fired British defensive mines laid in the Tay to deter unwanted visitors.³⁵

The coaster *Orlock Head* (1,563T) was bombed, strafed and set on fire west of Scrabster at 0200/28 July. Six of her 25 crew died and *Orlock Head* sank off Strathy Point.³⁶ An 8/KG26 He111 was shot down off Montrose at 1205/30 July by 603 Squadron.³⁷ At 2350/2 August the coaster *Highlander* (1,216T) was attacked by three He115 seaplanes off Tod Head and shot two of them down.³⁸ Sirens sounded in Lerwick at 2354/2 as a small number of bombs fell in open country, then, at 0045/3, the 42-ship WN4 came under air attack off Cape Wrath. Two enemy aircraft attacked the leading ships with bombs and machine gun fire and an unexploded bomb lodged in *White Crest's* stokehold.³⁹ A bomb exploded close to *Autocyclus* and another hit the mainmast of *Somali*, then fell on deck without exploding. Fierce fires started aboard *Statira* (4,825T).⁴⁰

Raiders dropped mines into the Forth early on 4 August, the Tay on 5 August, and the Forth again on 7 August. At 0012/8 August two raiders dropped nine bombs in the Clyde between Inverkip and Cloch Point, two more on the beach at Lunderston Bay and three close to Ardgowan House and, early on 13 August, aircraft mined the Clyde between Port Glasgow and Dumbarton Rock.⁴¹ At



This He115 seaplane of I/Kfg 506 from Stavanger flew into a hill near Arbroath at 0355/15 August 1940 after being blinded by a searchlight during anti-shipping sortie to the Tay. Generally commanded by Kriegsmarine officers, these aircraft were employed on minelaying and anti-shipping missions off Scotland.

³⁵ Grandage MS, IWM Department of Documents ref. 87/61/1. ADM 199 364. ADM 199 400.

³⁶ Twenty-five survivors were rescued by Thurso Lifeboat. ADM 199 377. *Services by the Lifeboats of the Royal National Lifeboat Institution 1939 - 1946.*

³⁷ AIR 27 2079.

³⁸ The first He115 was hit by anti-aircraft fire and crashed. The second dropped bombs which missed, then it too was hit, lost height, struck *Highlander's* port lifeboat and crashed onto her deck. *Highlander* made Leith the following morning with the wreckage still aboard and, to protect her from reprisals that might arise from the widespread publicity, was renamed *St Catherine*. ADM 199 363.

³⁹ *White Crest* dropped back while her crew hauled the UXB on deck, dived it over the side, then rejoined the convoy the following day with a hatch cover secured over the hole in her side. ADM 199 13.

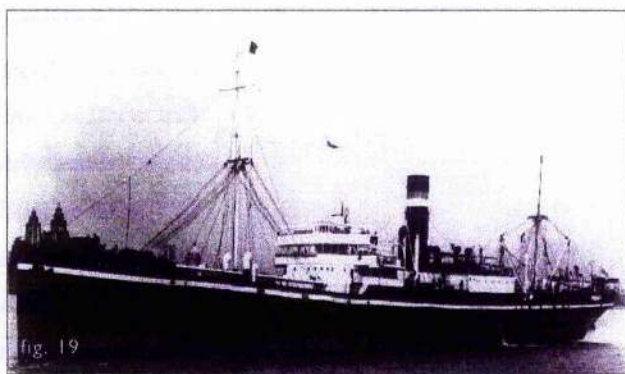
⁴⁰ *Statira's* crew were saved and she was beached, still burning, at Stornoway. Lieutenant Stannard commanding *Arab* made a 'strong plea' for better HA armament. James Nelson also recommended that at least six machine guns should be fitted to ships in coastal convoys and that these should be manned by the Army. The idea was taken up with the Admiralty by Lawrence Holt and led directly to the formation of the Maritime Anti-Aircraft Regiments of the Royal Artillery. ADM 199 13. ADM 199 363. Roskill : 1962 p. 50-51. *Lloyds War Losses* vol. 1.

⁴¹ ADM 199 365. ADM 199 372. AIR 25 232. HH50/160. D-TC 8/10 76.

2245/13 August 12 raiders dropped bombs across Peterhead and Fraserburgh where three died and five were injured. The raid spread south over Aberdeenshire and, though the alert did not sound over the city, bombs fell around Aberdeen harbour.⁴² Four raiders dropped mines at Scapa Flow early on 20 August, one exploding on land near Kirkwall. Six raids entered Scottish airspace late on 21 August, two of them unsuccessfully attacking a convoy at anchor off Methil.⁴³ Four bombs in Peterhead at 2139/22 left four dead and six injured.⁴⁴

CONVOY ATTACKS

Torpedo-carrying He115 seaplanes attacked OA203 twelve miles off Wick at 2200/23 August 1940, damaging the *Beacon Grange* and sinking *Makalla* (6,667T) and *Llanishen* (5,053T).⁴⁵ Three days later, at 2055/26 August, HX65A was attacked six miles off Kinnaird's Head by eight Ju88s and four He115s. *Cape York* (5,027T) was set on fire and *Remoura* (11,445T) was torpedoed and sunk, though her crew were all saved. *Cape York* sank in flames off Rattray Head while under tow of *Saucy*.⁴⁶ A raid on Peterhead at 0017/27 August left three dead and five injured, then, at 0015/28 eight bombs fell at Monifeith east of Dundee, one killing one and injuring four. Sirens sounded in Aberdeen at 0045/28, just as bombs began to fall at Nigg, Cove Bay and St Fergus. Twelve bombs exploded at Invergordon at 0250/28.⁴⁷



Makalla

⁴² At 0003/14 an enemy aircraft passed over Lochwinnoch heading towards the Clyde. The raider was one of several dropping transmitters and bogus instructions to non-existent agents. The New British Broadcasting Service announced later that day that agents were being hidden by Fifth Columnists. According to the OKW war diary, 'We dropped pack assemblies in order to feign a parachute landing, which caused great excitement in the British press.' 14 Bttm. Argyll and Sutherland Highlanders recorded; 'Report from Whitecraigs Post, Home Guard. Plane dropped leather suitcase, later that two or three parachutists had landed on Eaglesham Moor. Subsequent action by various units left something to be desired.' ADM 199 364. ADM 199 377. HH50/160. WO 166 2128. WO 166 4126.

⁴³ Two fighter patrols took off from Turnhouse but were unable to intercept. At 2355/21 Ju88A-1 4D+LT of 9/KG30 crashed 40 miles east of Berwick after its engines overheated and caught fire. Two crewmen died and two were captured after 12 hours in their dinghy. AIR 25 232. HH50/160. Ramsay et al : 1989.

⁴⁴ ADM 199 365. HH50/160.

⁴⁵ Twelve of *Makalla's* 84 crew died and 17 were injured. Survivors from *Makalla* and *Llanishen* were landed at Lyness by HMS *Leith* and SS *Kylebrooke Beacon Grange*, with 26 crew missing, anchored off the Caithness coast to await a tug. Still burning, she was towed to Kirkwall the following day by *Buccaneer* and *Salvage King* and beached. Once the fire was out, she was refloated and arrived Dundee on 11 September 1940 where her cargo was discharged. ADM 199 363. ADM 199 372. ADM 199 377. *Lloyds War Losses* vols. 1 and 2. *Services by the Lifeboats of the Royal National Lifeboat Institution 1939 - 1946*.

⁴⁶ ADM 199 363. ADM 199 364. ADM 199 365. Baird. *Lloyds War Losses* vol. 1.

⁴⁷ ADM 199 365. HH50/160. HH50/162.



Lagosian on fire after being bombed during the attack on OA208 off Peterhead on 2 September 1940 with the rescue tug *Seaman* standing by.

At 2310/2 September OA208 was attacked 10 miles south-east of Peterhead and *Lagosian* (5,412T) was left burning fiercely and abandoned. The Dutch *Delftdijk* (10,220T) was bombed and torpedoed but reached Aberdeen under tow of *Saucy* and *Lagosian* was towed, still burning, to Peterhead by the tug *Seaman*.⁴⁸ The collier *Ashby* (4,868T) was also damaged but made Leith.⁴⁹

SL44A was bombed off Cruden Bay at 2120/6 September and *St Glen* (4,647T) was sunk and three of her crew killed. *Dorrington Court* was damaged and towed to Peterhead by *Seaman*, and the coaster *Gannet* was abandoned. Peterhead Lifeboat found a boat with 24 men from the *Gannet* whom she took back to their ship, then stood by as she was towed in.⁵⁰ WN14 was attacked by an He111 in the Moray Firth at 2110/11 September and the tanker *Alexia* (8,016T), outbound for Curacao in ballast, was damaged by near misses.⁵¹ At 2230/11 the trawler *Beathwood* was bombed and sunk while at anchor off Montrose Coastguard Station. Six of her eight crew were lost.⁵²

A mine laying and bombing raid on the Forth began at 2130/15 September. Explosions and gunfire could be heard over Methil at 2140/15 as an He115 dropped a torpedo into the convoy anchorage. A convoy was attacked near the Isle of May and the fishing boat *Sunbeam* was damaged by a mine near Inchkeith. The coaster *Halland* (1,264T) was bombed and sunk eight miles east of Dunbar and an He115 was shot down by a naval trawler 7.5 miles north-east of Eyemouth at 2156/15.⁵³ At 2230/15 *Nailsea River* (5,548T) was hit by an aircraft torpedo four miles east of Montrose and sank with the loss of six of her crew.⁵⁴ Two days later the Norwegian *Augvald* (4,811T) was damaged when she detonated a mine

⁴⁸ *Saucy* (579T) sailed Aberdeen at 2330/3 with *Delftdijk* in tow bound for the Forth. At 1935/4 she had just cast off the tow 1.25 miles north-west of Inchkeith when she detonated a mine and sank. ADM 199 364. Baird : 1993.

⁴⁹ ADM 199 363. ADM 199 364. ADM 199 365. *British Vessels Lost At Sea. Lloyds War Losses* vol. 2. *Services by the Lifeboats of the Royal National Lifeboat Institution 1939 - 1946*.

⁵⁰ ADM 199 195. ADM 199 363. ADM 199 365. ADM 199 377. ADM 234 372. *Services by the Lifeboats of the Royal National Lifeboat Institution 1939 - 1946. Lloyds War Losses* vols 1 and 2.

⁵¹ *Alexia* had been torpedoed and badly damaged by U-99 on 2 August (see below). ADM 199 13. ADM 199 363. ADM 199 377. *Lloyds War Losses* vol. 1. Ramsay et al : 1989.

⁵² The Aberdeen trawler *Star of the North* lying nearby slipped her anchor to escape. Engineer James Ruddiman, lost with *Beathwood*, had been aboard the *Dorothy Gray* (Minesweeping Trawler 96) when she and the destroyer *Garry* rammed U-18 off Hoxa Sound on 23 November 1914. ADM 199 364. CE87/4/41. Baird : 1993. Ritchie : 1991.

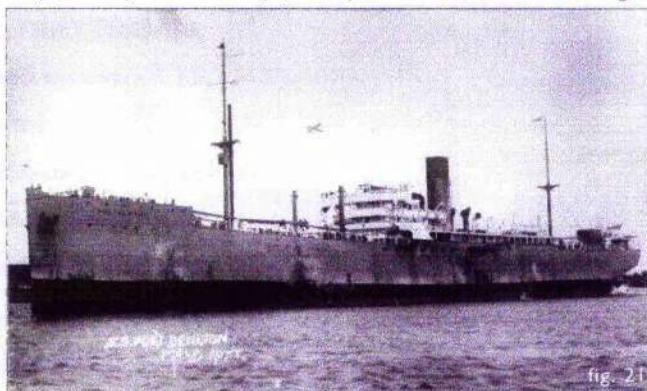
⁵³ *Halland* sank in three minutes and 17 of her 22 crew died. Hauptman Bergman, Oberleutnant Lucas, Feldwebel Kalinowski and Hauptman Kreipendorf were all rescued unhurt by a fishing boat and landed at Eyemouth. ADM 199 365. ADM 199 364. AIR 25 232. *Lloyds War Losses* vol. 1. Baird : 1993. Ramsay et al : 1989

⁵⁴ ADM 199 363. ADM 199 364. *British Vessels Lost At Sea. Lloyds War Losses* vol. 1. Baird : 1993.

off Methil. Then, at 2352/18, the coaster *St Catherine*, formerly the *Highlander* that had steamed into Leith with the wreck of a Heinkel on her deck, was unsuccessfully attacked by an enemy aircraft off Stonehaven. Meanwhile, at 2215/18, an enemy aircraft passed over a small convoy in the Moray Firth and continued towards Invergordon. The convoy included the coastal tanker *Shelbrit 1* (1,025T) bound for Inverness with petrol and aviation fuel. At 0735/19 *Shelbrit 1* passed the Whistle Buoy off the Sutors and set course for Navty Buoy. Seven minutes later Captain McGurk, battery commander at South Sutor, heard;

... a dull explosion, and on looking up observed the vessel approaching Inverness Firth partly lifted out of the water and covered with a cloud of grey smoke. Within about four seconds there was a flash of flame and the ship and the surrounding sea went on fire. About a quarter of an hour later, at about 0800, part of the vessel appeared for a few seconds outlined in the flames, and then disappeared again.⁵⁵

Shelbrit 1 sank slowly and her crew of 21 were lost.⁵⁶ Three raiders appeared over the Tay at 0200/25 September, bombs fell in Dundee and the trawler *Strathfinella* was strafed off Cruden Bay.⁵⁷ In another air attack six miles north-east of Peterhead at 2005/26 *Port Denison* (8,043T) in OA220 was hit first by a torpedo and then strafed. A signalman was seriously injured and many crew to jumped overboard to escape. Sixteen died and *Port Denison* sank.⁵⁸ In the same attack, *Welsh Prince* (5,248T) and *Suva* (4,873T) suffered bomb damage. Two days later, at 2020/28, HX73A was attacked by aircraft 15 miles north of Kinnaird's Head. Hit by two bombs, *Dalveen* (5,193T) sank and *Queen City* (4,814T) was damaged.⁵⁹ The raid continued into the early hours of the following morning, one bomber starting a huge fire at the Caledonian Distillery bonded store in Duff Street, Edinburgh, and



Port Denison, the Commodore ship in OA220, with a complement of 86 and outbound for Liverpool and Auckland, was hit by an air-launched torpedo, then strafed and set on fire, before sinking off Rattray Head.

⁵⁵ ADM 1 10778.

⁵⁶ One body, that of Third Engineer E. McVicker, was recovered. Doubts were expressed about the cause of the explosion, but the balance of opinion at the Enquiry was that it was caused by a mine dropped by the aircraft that had crossed the previous night. ADM 1 10778. ADM 199 363.

⁵⁷ AIR 25 232. WO 166 3261. HH50/260. ADM 199 363.

⁵⁸ Peterhead Lifeboat found *Port Denison* sunk and Naval vessels picking up survivors. The escort trawler *Pentland Firth* took 40 survivors to Lyness. At 0200/27 *Bluebell* transferred another eight survivors to the Lifeboat which landed them at Peterhead at 0300/27. ADM 199 363. ADM 199 364. ADM 199 372. *Services by the Lifeboats of the Royal National Lifeboat Institution 1939 - 1946. Naval Review* vol. XXXVI - XXXVII pp. 191.

⁵⁹ Thirty-two survivors from the *Dalveen's* 43 crew were landed at Lyness. Two of *Queen City's* crew died and Fraserburgh Lifeboat picked up her Master and 14 others from a boat. Another 20 survivors were landed at Thurso by the escort trawler *Windermere*. *Queen City* was towed to Aberdeen by *Abeille IV*. See statement by Chief Officer McQueen of *Dalveen* in ADM 199 2134. See also ADM 199 363. ADM 199 364. *Services by the Lifeboats of the Royal National Lifeboat Institution 1939 - 1946. Lloyds War Losses* vols 1 and 2.

scattering incendiaries towards Leith.⁶⁰

OA222 and SL47A were attacked five miles off Peterhead at 2020/30 September and *Mountpark* (4,648T) and *Empire Success* (6,009T) were damaged. A reconnaissance Do17 flew down the port side of WN19 off Wick at 1430/1 October. The convoy continued towards Rattray Head until 1930/1 when two raiders attacked, dropping torpedoes which missed two Dutch ships, *Mijdrecht* and *Otterland*.⁶¹ HX74A was attacked by three He115s five miles east of Peterhead at dusk on 2 October. The Heinkels approached from the north at 50 feet, damaged the *Trebata* (4,817T), then were themselves attacked by Hurricanes of 145 Squadron and one was shot down.⁶² Bombs also fell at Fraserburgh, Montrose and Crail. Flares were dropped over Dunbar and two ships were attacked at Methil.⁶³

A mine exploded under its parachute over Inchkeith early on 8 October,⁶⁴ then a Do17 reconnaissance aircraft crashed off Rattray Head at 1500/8 following engine failure.⁶⁵ That evening, *Bellona II* (840T) was set on fire in a seaplane attack off Inverbervie.⁶⁶ At 0025/16 October a raid circled south of the Clyde then dropped four bombs south of Greenock. Incendiaries fell at Port Glasgow.⁶⁷ At 1055/18 October a Ju88 dropped bombs off North Berwick, damaging an Observer Corps post, and on the foreshore at Crail.⁶⁸ Three raiders attacked OA232 off Aberdeen at 1835/20 October, torpedoing the *Conakrian* (4,876T).⁶⁹ Four days later, at 0150/24, seven UXBs fell around the examination trawler *H. E. Strood* off Aberdeen. Two Ju88s laid mines in the Clyde at 0500/25 and, at 1830/25, 13 enemy aircraft crossed the east coast. Bombs and incendiaries were dropped around Montrose harbour where a factory was wrecked and the examination drifter *Duthies* was sunk. At the airfield, the officers' mess, two hangars and eight aircraft were destroyed. Six died and 21 were injured. A train was strafed between Montrose and Arbroath, the Naval Air Station at Arbroath was attacked, bombs were dropped close to the CHL station at Anstruther, at

⁶⁰ HH50/160. WO 166 2128. AIR 25 232. WDA 1844 939.

⁶¹ ADM 199 363. ADM 199 364. ADM 199 13.

⁶² He115 S4+AH of 1/506 made off to the south streaming smoke and flames. It crashed five miles south-east of Kinnaird's Head and three men were picked up from a dinghy. ADM 199 364. Ramsay et al : 1989.

⁶³ HH50/160. WO 166 2128. AIR 25 232.

⁶⁴ The patrol craft *Persevere* was blown up by a mine near Inchkeith on 27 October 1940, HMS *Black Swan* was damaged by another in the same area on 1 November and another patrol vessel, *Goodwill*, was sunk off Inchkeith the following morning. Ten more mines were discovered in the Forth during November and early December, along with one off the Tay. ADM 199 363. ADM 199 365. ADM 199 400.

⁶⁵ Leutnant von Eickstedt, Hauptman Hardt and Oberfeldwebel Freund from DO17P 4N+GK of 2(F)/22 were picked up by fishing boat. ADM 199 363. Ramsay et al : 1989

⁶⁶ Nine died in *Bellona II*. Gourdon Lifeboat rescued 10 from the burning ship and took another eight off a Dutch vessel that had picked them up from a small boat. Another survivor was found by a trawler and landed at Fraserburgh. She went ashore the following day, still burning, in Strathlethen Bay and was declared a total loss. ADM 199 364. ADM 199 377. *Services by the Lifeboats of the Royal National Lifeboat Institution 1939 - 1946*. *Lloyds War Losses* vol. 1

⁶⁷ AIR 25 232. WO 166 2128. HH50/160

⁶⁸ HH50/160. WO 166 2128.

⁶⁹ *Conakrian* came ashore at Bridge of Don and was further damaged in air attacks as she lay beached but was refloated on 23 September 1941 and towed to the Tyne for repair. ADM 199 363. ADM 199 364. AIR 25 250. *Services by the Lifeboats of the Royal National Lifeboat Institution 1939 - 1946*. *Lloyds War Losses* vol. 2.

Boarhills and in St Andrews.⁷⁰ The raid ended at 1915/25 with an unsuccessful torpedo attack by a He115 on the examination drifter *Avance* off Aberdeen.⁷¹

Enemy aircraft dropped flares over the Forth and Tay between 0200/26 and 0400/26 October, then bombs fell in and around the Forth and searchlight posts at Methil and Arbroath, East Linton and a train on the east coast main line were all strafed. Little damage was done, but, at 1820/26, three He111s approached Wick and seven bombs fell at the airfield, only one of which exploded, wrecking a hangar. In the town, 14 bombs killed three and injured 20.⁷² Another three Heinkels from 3/KG26 attacked Lossiemouth airfield ten minutes later. One Heinkel blew up over the airfield, three RAF personnel were killed, five injured and one Blenheim destroyed.⁷³ Later that night a parachute mine exploded prematurely over Ayr Harbour. At 2202/28 October a raider over the Forth was picked up by a searchlight on Inchkeith and engaged by the anti-aircraft battery there, then a vivid flash lit the night sky. Two He111s strafed the examination trawler off Aberdeen five minutes later. Like the raider over the Forth, these aircraft were mine laying, but once again their mines exploded in mid-air.⁷⁴ WN29 was attacked by torpedo-carrying aircraft off Kinnaird's Head at 1930/3 November. *Kildale* (3,877T) was sunk and Fraserburgh Lifeboat found *Eros* (5,888T) hit in the engine room with the escort *Challenger* standing by.⁷⁵

Bombs were dropped across Aberdeenshire and Fife between 1850/3 and 2008/3, then there was a lull until, at 0231/4, Queensferry ARP post logged anti-aircraft fire over the Forth. Flares were dropped over St Andrews at 0240/4 and Dundee at 0310/4. Five bombs in Torry, Aberdeen, killed four and injured 44, and nine bombs fell near North Berwick at 0345/4.⁷⁶ That night, bombs were scattered across Scotland, some falling on Speyside, others near Dunbar and in Fife. Bombs and flares fell along the Clyde valley, in particular at Coatbridge and Maryhill, six damaged Edinburgh Zoo and four fell at Dundee.⁷⁷ Twelve raiders appeared the following night, the most serious incident being eight

⁷⁰ One bomb at Anstruther killed two and, in St Andrews, 12 people were injured. AIR 25 232. AIR 25 250. AIR 27 866. WO 166 2128. WO 166 3621. ADM 199 363.

⁷¹ ADM 199 364.

⁷² Some 140 houses in Wick, were damaged and two bombs fell at Thrumster. ADM 199 377. Glass : 1994

⁷³ Four German airmen died instantly. The other He111s were damaged by ground fire but returned to base, each with one injured crewman. AIR 25 250. HH50/160. Ramsay et al : 1989.

⁷⁴ It seems likely that the bright flash over Inchkeith was also the premature explosion of a mine as Luftwaffe records quoted in Ramsay et al : 1989 do not show any casualties for these raids. The Heinkels at Aberdeen dropped bombs close to the derelict *Conakrian*. AIR 25 250. HH50/160. ADM 199 377. Ramsay et al : 1989.

⁷⁵ Two of *Eros*' 46 crew had died and 26 were in *Challenger*. The Lifeboat transferred the rest, then helped pass a tow and *Challenger* brought *Eros* in to Aberdeen. ADM 199 377. *Services by the Lifeboats of the Royal National Lifeboat Institution 1939 - 1946. Lloyds War Losses* vols 1 and 2.

⁷⁶ AIR 25 232. AIR 25 250. HH50/160. HH 50/161. *Queensferry ARP Log*.

⁷⁷ Ibid.

250kg bombs across Dundee that killed three and injured 14. Bombs also fell at Dyce, Buckie, Fraserburgh and Corpach.⁷⁸

An enemy reconnaissance aircraft was plotted passing along the convoy route west from the Pentland Firth at 0940/6. Messages from the aircraft were intercepted and showed that it had reported the position of WN31. At 1818/6 WN31 had just completed its passage of the Pentland Firth in single file and was at its most vulnerable, reforming into two columns. Unable to see the raider despite being in the centre of the convoy, the escort sloop *Hastings* logged;

At 1818, *Hastings* was about two miles from Duncansby Head, and abeam of the tenth ship in the convoy which had just started to form two columns. Four rapid explosions were heard and smoke and flames were seen coming from one of the ships near the head of the convoy. Tracer was seen coming from the escort trawlers. No aircraft was heard or seen until 1825, when one was heard and indistinctly seen about 2,000 feet and flying 340 degrees... Tracer was being fired intermittently by ships ahead, and at 1855 two more explosions followed by smoke and flames from another of the leading ships. Aircraft was not seen by *Hastings* who was by then about two miles off.⁷⁹

Four bombs left the Commodore ship *Clan Mackinlay* (6,365T) ablaze and sinking with five dead.⁸⁰ In the second attack, a bomber approached the convoy from eastward and badly damaged *Harborough* (5,415T), injuring two of her crew.⁸¹

EN23 was attacked off Aberdeen at 1815/11. One bomb hit *Trebartha* (4,600T), killing four. The rest of her crew, including 10 injured, were strafed as they took to the boats.⁸² *Creemuir* (3,997T) was sunk and *Harlaw* (1,141T) reported one glancing hit by a bomb, and two near misses, and entered Aberdeen for repairs.⁸³ WN35 was southbound five miles north of Rattray Head at 1800/13 when it was attacked by two low-flying He115s and the Belgian *Anvers* (4,398T) was sunk.⁸⁴ An He111 bombed Aberdeen Harbour at 1900/13 and two He111s mined the convoy anchorage at Methil.⁸⁵

St Catherine II ex-*Highlander* (1,216T), which had shot down two Heinkels in August 1940 and had survived another attack the following month, sailed Aberdeen on 14 November to

⁷⁸ HH50/160. HH50/162. HO 199 204.

⁷⁹ ADM 199 13.

⁸⁰ ADM 199 13. ADM 199 377.

⁸¹ Lieutenant Hughes in *Blackfly* had been advised that an air escort of Blenheims would join the convoy at 1600/6 but it was, 'at no time in evidence... About five minutes after the initial attack one of our fighters appeared and replied correctly to our challenge. The rest of the convoy fired on him, however, and we were later advised that merchantmen have no means of distinguishing friend from enemy at night.' *Harborough* was towed to Scapa by *Buccaneer*, *Bandit* and *Abeille 21* and arrived in the Tyne on 5 December 1940 for repair. ADM 199 13. ADM 199 377. AIR 25 250. *Lloyds War Losses* vols 1 and 2.

⁸² At 1820/11 Gregness Coastguard reported flares south-east of Findon and Aberdeen Lifeboat found the abandoned, burning *Trebartha* at 2000/11, then SS *Oberon* with survivors. A transfer was deemed unsafe, so the Second Coxswain of the Lifeboat boarded *Oberon* and piloted her into Aberdeen. *Trebartha* went ashore on 12 November at Cove Bay.

⁸³ *Creemuir* sank in three minutes, 26 of her crew died and her 13 were picked up. ADM 199 364. CE87/4/41. *Services by the Lifeboats of the Royal National Lifeboat Institution 1939 - 1946*. *Lloyds War Losses* vols 1 and 2.

⁸⁴ One of *Anvers'* 37 crew died. ADM 199 364.

⁸⁵ The Forth was reopened after being swept at 1616/14. ADM 199 121. ADM 199 363.

join EN25 for Kirkwall. Still just off the harbour entrance at 1800/14, she was torpedoed by an He115 and sank in four minutes. One passenger and 14 of her 24 crew died.⁸⁶ WN40 was attacked off Rattray Head on 19 November and an He115 attacked WN55 in the Moray Firth at 1720/20 December.⁸⁷

The coaster *Bay Fisher* (575T) was bombed and sunk off the Bell Rock with the loss of eight of her crew at 1100/7 February.⁸⁸ A raider passed over Scapa Flow at 1935/11 February and bombed the trawler *Eamont* off Dunbeath Harbour. The trawler *Arnold Bennett* was strafed off Lossiemouth, the trawler *John Dunkin* (202T) was bombed off Buckie and the coaster *Cantick Head* (488T) was strafed north of Kinnaird's Head.⁸⁹ Hurricanes of 111 Squadron intercepted a raider over Montrose at 1745/13, but it escaped in bad visibility.

EN71 was attacked by He111s off Aberdeen 35 minutes later and a bomb exploded close to *Cape Rodney* (4,512T). *Oregoni* was hit by a bomb and other ships were strafed. Two bombers appeared over Aberdeen an hour later, dropping bombs in and around the harbour, one of which caused 15 casualties.⁹⁰ EN72 sailed Methil at 0600/15. Two reconnaissance flights were detected off the east coast in a southerly gale and snow, bombs were dropped at Stonehaven and Wick and a ship was strafed off Sarclet Head. At 1810/13, when EN72 off Peterhead, a He111 dropped three bombs, none of which did any damage.⁹¹ The naval trawler *Ormonde* was sunk off Cruden Bay at 1830/16.⁹²

EN73 was in the convoy anchorage at Methil on 17 February, its sailing delayed by bad weather, when a Ju88 dropped three bombs at 1115/17.⁹³ Another Ju88 flew up the Cromarty Firth to Invergordon at 200 feet and dropped two bombs on naval oil tanks, three of which were damaged. This raider also strafed a moored Sunderland and a patrol trawler.⁹⁴ A Dornier 17 dropped four bombs near Lerwick at 1220/17, killing two and injuring four, then strafed the naval trawler *Beaconsfield*.⁹⁵ EN74 was passing the Isle of May at 1030/19 when a Ju88 dived out of a snow squall and dropped two bombs that near-missed *Athelsultan* which limped back into Leith with two holes in her side. A Ju88 appeared out of fog at 1021/21 February and strafed the naval signal station at Buddon Ness in the Tay, then flew

⁸⁶ ADM 199 364. AIR 25 250. Aberdeen Harbour Commission Minutes vol. 20/2/56. *Lloyds War Losses* vol. 1.

⁸⁷ ADM 199 13.

⁸⁸ Four survivors were taken to Dundee in the naval trawler *Heliopolis*. ADM 199 400. *Lloyds War Losses* vol. 1.

⁸⁹ *Eamont's* crew were landed by the naval trawler *Harmony* and she drifted ashore the following day next to Dunbeath Coastguard Station which was hurriedly evacuated as a UXB was still aboard. Eight of the nine aboard *John Dunkin* were rescued when she sank under tow. ADM 199 412. ADM 199 397. AIR 25 250. CE87/4/41. *Services by the Lifeboats of the Royal National Lifeboat Institution 1939 - 1946*. *Lloyds War Losses* vol. 1.

⁹⁰ One of the raiders was claimed damaged by a 111 Squadron Hurricane. ADM 199 16. ADM 199 401. AIR 25 250.

⁹¹ ADM 199 16.

⁹² There were no survivors. ADM 199 401.

⁹³ ADM 199 16. ADM 199 412.

⁹⁴ One of the bombs, a 500kg UXB, pierced no. 17 tank but was made safe. Thousands of gallons of oil spilled onto the railway and into the Firth. ADM 199 412. HH50/160. AIR 25 250.

⁹⁵ ADM 199 401. HH50/150.

into a hill at Pitairlie Wood, north of Dundee.⁹⁶ Four enemy aircraft were plotted over northern Scotland on the evening of 22 February, then Out Skerries and Stroma Lighthouses were strafed and two bombs were dropped at Portsoy. At 1840/22 two 111 Squadron Spitfires engaged an He115 off Peterhead, then, at 1856/22, an He115 dropped a mine in the path of EN75, also off Peterhead.

WN90 was southbound across the Moray Firth in a storm at 1135/26 when a Ju88 bombed the straggler *Empire Steelhead* (7,744T) which was towed to Invergordon. On 27 February an He111 attacked trawlers off Peterhead and shipping off Stonehaven and the coaster *Noss Head* (438T) disappeared while on passage to Kirkwall.⁹⁷ Two reconnaissance flights by Ju88s flew along the east coast on 1 March, one strafing the trawler *St Agnes No.1* off Kinnaird's Head at 1350/1, killing two of her crew. EN79 and WN91 were about to pass each other off the Aberdeenshire coast that evening when both convoys were attacked. From EN79, the *Atbeltemplar* was hit by two bombs and set on fire. Another bomb hit the *Temkesbury*, coming to rest unexploded on gratings in the engine room from where it was extracted by her crew and ditched over the side.⁹⁸ The 24-ship WN91, meanwhile, was attacked by an He111 and Commodore Cashmore in *Forthbank* wrote:

Enemy aircraft was first sighted about 1925 flying about 320° distance about 2 miles on my port beam. HMS *Curacao* was then engaging her. Aircraft was engaged from time to time by escorts and vessels in the convoy and reappeared flying up the two columns being engaged continuously, then flying out of sight. At 1944 (approx) enemy was observed flying towards leaders of columns athwart convoy at an altitude of about 150 feet. Aircraft was engaged, dropped a stick of two or three bombs, disappearing in a steep climb in the poor light. One bomb appeared to make a direct hit on the wireless cabinet, demolishing it, the Second Radio Officer, Mr L. J. Moser, undoubtedly being instantly killed although no trace of him was found. One or two other bombs striking the vessel in the same vicinity exposing engine room and No. 4 hold, placing main engines, steering and lighting out of action.⁹⁹

Forthbank (5,057T) burst into flame. She lost fire main pressure and a bucket chain had to be organised, then *Gavotte* came alongside and got hoses across. *Forthbank's* midships accommodation was burnt out and she had four dead and five injured. One of her attackers, an KG26 He111, crashed in the sea off Melrose Head.¹⁰⁰ Another KG26 He111 was lost

⁹⁶ The Junkers probably lost its way in bad visibility as examination of the wreck revealed it was on a mission to Kinnaird's Head. Four crewmen killed. AIR 25 232. ADM 199 400. Ramsay et al : 1989.

⁹⁷ *Noss Head* was Leith 25/2 for Kirkwall with coal and bricks and 12 crew. She sheltered in Gardenstown Bay from 1000/26 until 0830/27 and was not seen again, but two rafts, each with one body, were washed ashore at Deerness on 1st March, and Tarraciff Bay on 2nd March. The cause of her loss has never been established, though EN78 did hear explosions and firing near the Pentland Firth at 2100/28. *Lloyds War Losses* vol. 2. ADM 199 16.

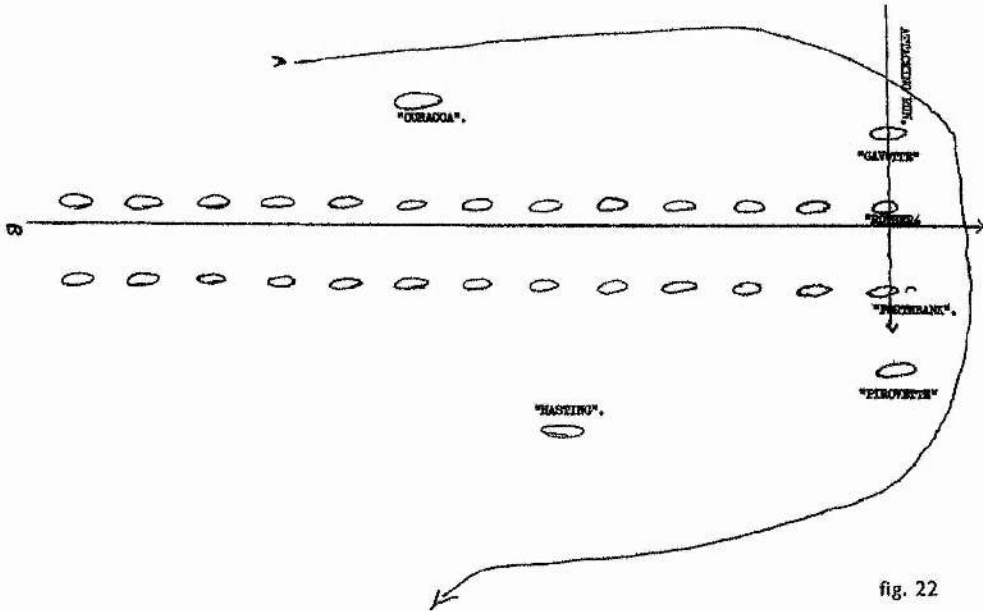
⁹⁸ ADM 199 16.

⁹⁹ ADM 199 13.

¹⁰⁰ Oberleutnant Huhn, Unteroffizier Grossardt, Gefrierer Hänel and Unteroffizier Männling were taken prisoner. Salvage work on the aircraft revealed that one wing had been damaged by a kite wire and a ship in the convoy confirmed that her kite cable had been carried away. Several holes caused by machine gun fire were also evident. ADM 199 13. See also ADM 199 401. ADM 199 412. Ramsay et al : 1989

when, at 2002/7 March, it hit the mast of the trawler *Stratblane* in the Tay and crashed, leaving two unexploded bombs on the trawler's deck.¹⁰¹

EN83 sailed Methil at 0230/9 March and, at 1440/9, was attacked by one aircraft which



Commodore Cashmore's sketch of the attack on WN91 illustrates how coastal convoys forced into two straggling columns by the narrow swept channel were so hard to defend. It was impossible to provide the whole convoy with anti-aircraft cover, and the Commodore lost sight of most of his charges whenever the lead ships rounded a headland. At the Pentland Firth, where spring tides run at over eight knots, the lead ships could make it through while stragglers were trapped on the wrong side of the race where, unescorted, they were vulnerable to attack.

dropped two bombs that did no damage. EN83 was attacked again off Tod Head at 1807/9 but once more no damage was done. At 1955/9 a bomber attacked the Commodore ship *Esmoud* and dropped four bombs, one of which was a direct hit disabling her engines and steering gear and setting her on fire.¹⁰² At 2030/9 WN95 was abeam of Rattray Head in bright moonlight, and southbound towards EN83, when an aircraft flew down the convoy and several ships opened fire. Another aircraft flew over WN95 at 0545/10 March as it passed the Bell Rock, but did not attack.¹⁰³

EN84 was off Tod Head at 1935/11 March when an aircraft showing navigation lights approached the convoy. Commodore Macmillan in *Jamaica Producer* wrote:

¹⁰¹ The four aircrew from He111 1H+HH died and the trawler crew were uninjured. AIR 25 233. ADM 199 400. Ramsay et al: 1989.

¹⁰² *Esmoud* had seven wounded. The fire was put out, jury steering was rigged and she proceeded to anchor seven miles south of Peterhead at 2335/9. ADM 199 16. ADM 199 401

¹⁰³ ADM 199 13. ADM 199 16. ADM 199 401

When at a distance of 2 or 3 cables the pilot gave his engines full throttle, maintaining an altitude of about 20 feet and heading straight towards my funnel. I considered that the pilot could not possibly clear masthead height now and would turn to port after attacking. I ordered the helm to be starboarded with the intention of fouling the plane with the foremast, or at least upsetting his plan of attack. As soon as the ship's head began to move he opened fire with all his forward machine guns at close range and at the same time climbed steeply... Seeing that he might not clear, the plane attempted to swerve to port and in so doing fouled the foretopmast with his tail. A terrific jolt was felt on board as the tail struck the upper crows nest. The foretopmast backstay and wireless aerial came crashing down on deck and the kite, which was brailed up at the masthead (there being insufficient wind to fly it) was carried away. At the same time, great pieces of aircraft came hurtling down on the bridge, maindeck and into the sea. As the ship steadied on her course, the plane was seen to side slip round my stern in an unstable manner and tracers from the rear ships were seen attacking him. Very soon afterwards, a huge column of water was seen to spout up about a mile away, on the port quarter of the convoy. It is considered that this was caused by the plane diving into the sea.¹⁰⁴

Ten minutes later another aircraft approached the convoy and dropped bombs that shook the *Royal Star* (7,900T). Lieutenant Commander Aubrey, escort commander in *Fowey*, reported that this raider was last seen heading towards the coast, pursued by anti-aircraft fire and losing height. At 1954/11, another enemy aircraft under heavy barrage fire passed within 20 feet of *Royal Star*, flew up the convoy from astern, then headed towards the coast. An He111, it was attacked by a 42 Squadron Beaufort from Leuchars and, at 2200/11, Coastguards reported flares in St Andrews Bay. Three survivors were picked up by the minesweeper *Gadfly* and taken to Dundee.¹⁰⁵



fig. 23



fig. 24

Lieutenant Commander Bob Aubrey (left) commanded the escort for WN95 and two of the Luftwaffe aircrew brought down during the attack on that convoy are seen (right) under escort in Dundee

¹⁰⁴ ADM 199 16.

¹⁰⁵ ADM 199 401.

AIR ATTACKS ON CLYDESIDE AND SCOTLAND'S MARITIME FRINGE

The first serious night raid on Glasgow began at 0102/18 September 1940 when an He111 scattered bombs and incendiaries east of the city but did little damage. At 0207/18 another He111 dropped bombs and incendiaries which started fires around Queens Dock and cratered Kelvin Wharf. At 0236/18 a third raider dropped bombs onto the fires at Queen's Dock and incendiaries into Dumbarton Road. A bomb exploded between the underground railway tunnels below Meadowside Park, another damaged Yorkhill Quay. In Yorkhill Dock, the cruiser HMS *Sussex* was hit by a 250kg bomb that exploded among oil tanks abaft the engine room. As burning oil flowed through the ship towards the stern, attempts to flood magazines failed and there was clear danger of a massive explosion that would have devastated Partick, Yorkhill and Govan. Evacuation zones were created on either side of the river and then, at

0440/18, just as the evacuation was getting under way, another bomber scattered incendiaries and bombs across the centre of Glasgow. The after magazine in *Sussex* was eventually flooded, but torpedoes and depth-charges lined the burning cruiser's upper deck so the Govan Ferry with mobile pumps aboard was manoeuvred alongside the cruiser. The



Detail from a Luftwaffe reconnaissance photograph of the upper Clyde showing Yorkhill Dock where the cruiser *Sussex* was severely damaged during an air raid on 18 September 1940.

evacuees were allowed home later that morning, but fire fighting in *Sussex* continued through the day and not until 2100/18 was the situation under control. Two charred bodies were found in the gutted cruiser's gyro compartment. Twenty-nine officers and men had been injured.¹⁰⁶

A Ju88 was caught in searchlights over Govan Iron Works at 0055/19 September. In Glasgow, bombs fell beside Paisley Road West and at Maryhill, and the Clyde was closed due to

¹⁰⁶ That night's *Glasgow Evening Citizen* quoted an official communique which stated that, 'A few enemy aircraft dropped bombs in the Glasgow area, where slight damage was done to industrial premises.' Despite the smouldering, listing cruiser lying in full view of morning commuters, the *Glasgow Herald* was only able to describe *Sussex* as, 'A burning structure.' *Sussex* was repaired and the Japanese surrender at Singapore was signed on board in 1945. HH50/160. D-CD 9/9/28. D-TC8/10/96. T-CN 657/1-13. WO 166 2128. AIR 25 232. Ramsay et al : 1987. Drummond : 1960.

suspected mine laying.¹⁰⁷ Raiders appeared over Clydeside at 0244/24 October and bombs fell near Paisley and in Greenock where a tenement was hit, killing seven and injuring ten.¹⁰⁸ At 1830/6 November a raider dropped four bombs on Campbeltown which hit the pier and the Royal Hotel, killing seven and injuring five.¹⁰⁹ At 1930/20 December, enemy aircraft were plotted coming up the Irish Sea towards Clydeside and, at 2040/20, bombs fell across the east end of Glasgow, injuring 17. Two 500kg UXBs were dropped into the British Aluminium plant at Corpach at 0850/22 December. The Ju88 responsible then attacked the Icelandic trawler *Arinbjorn Hersir* (321T) three miles north of Rathlin Island.¹¹⁰ Fourteen enemy aircraft were plotted flying up the Irish Sea on the evening of 9 February 1941 and, at 2300/9, four of them dropped mines, bombs and incendiaries on Campbeltown.¹¹¹

With the compromising of the German radio navigation and ranging systems, Knickebein, X-Gerät and Y-Gerät that had done much for the accuracy of early air raids over southern England and the Midlands, what Professor Jones calls the Battle of the Beams had been won by February 1941.¹¹² And Luftwaffe Enigma messages, their encypherment relatively insecure compared with Naval Enigma, were read from May 1940 until the end of the war almost without interruption.¹¹³ But this did not mean that the entire Luftwaffe bombing campaign was rendered ineffective, if for no other reason than that, once a raid was in progress, there was almost nothing that the minuscule British nightfighter capability and anti-aircraft barrage could do about it. In the case of the first heavy air raid on Clydeside which began on the evening of 13 March 1941, there is clear evidence that the attack was expected. Aside from possible decrypts, none of which appear to have survived, Luftwaffe reconnaissance flights following a well-established pre-raid pattern were detected over central Scotland that morning.

Accounts of the Clydeside raids may be found in *This Time of Crisis* (Jeffrey : 1993) and *The Clydebank Blitz* (Macphail : 1974), so this thesis will concern itself with the effect of the raids on maritime activity on and around the Clyde. The first waves of bombers began crossing the coast of East Lothian at 2112/13 and, at about 2125/13, the first bombs be-

¹⁰⁷ This was at the height of the invasion scare and, at 0111/19, a Mr Reid reported parachutists descending on Maxwell Park. Armed search parties found nothing. WO 166 4054. HH50/160. D-TC9/10/96. D-CD9/9/26

¹⁰⁸ Mines were dropped in the Forth and the Clyde, one exploding off North Berwick during the raid and another off Greenock at 0111/25. HH50/160. HH50/161. WO 166 2128.

¹⁰⁹ Hamish Mackinven accounts to author 3 January 1994 and 31 January 1994. ADM 199 372. AIR 25 232

¹¹⁰ The raider went east over Aberdeen. The UXBs were made safe by a party from 91 Bomb Disposal Section. Another attack on Corpach was made by a Ju88 at 0815/15 January 1941, but the bombs fell some distance from the factory and did no damage. AIR 25 233. AIR 25 250. WO 166 2128. WO 166 4054. HH50/160. Allen : 1996.

¹¹¹ Two of the mines exploded on hitting the loch. Two people were killed and 15 injured. Hamish Mackinven account 31 January 1994. ADM 199 658. AIR 25 250.

¹¹² Jones : 1978 ch.s 11-22.

¹¹³ Sebag-Montefiore : 2000 p. 82.

gan to fall. Among these were bombs and showers of incendiaries which set alight to a timber yard at Singer's works in Clydebank, a distillery in Yoker and oil tanks at Dalnottar. It was this, and not a predetermined targeting of Clydebank, that led to such a heavy weight of attack falling on that burgh over the two nights. The raid continued into the following night and, at 1800/15, some three hours before the first bombers appeared, the Ministry of Home Security were able to warn Civil Defence authorities on Clydeside.

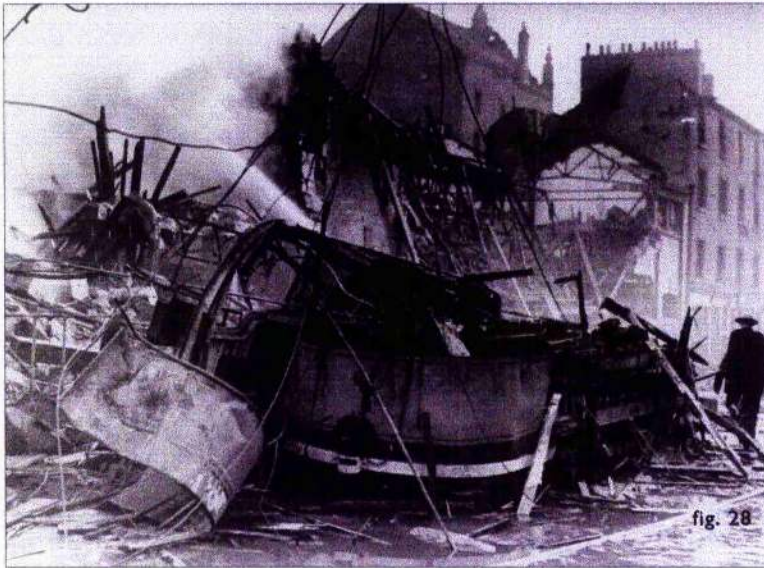


fig. 26

Clydebank (above) seen from the north, and Glasgow Road, Yoker, (right) on the night of 13-14 March 1941. Air raids on Clydeside were principally targetted on the maritime-related concerns that together formed an integrated arms industry. But, despite the widespread destruction, docks, shipyards and other maritime industries escaped serious damage. This was in sharp contrast to Merseyside where air raids left the docks and other industries in chaos.



fig. 27



Despite the concentrated nature of the attack on that burgh, it is unfortunate that the air raids that spread across Central Scotland in 1941 have been lumped together under the generic 'Clydebank Blitz'. The heavy raids of March, April and May that year were primarily directed against targets in the Forth-Clyde valley with maritime significance such as docks, shipyards and associated engineering works. Indeed, some of the worst incidents during the raids did not even take place in Clydebank. A land mine in Paisley killed 92 and here, beside Kingston Dock in Glasgow, at least 110 are known to have died when a land mine exploded between a tram and a tenement in Nelson Street late on 13 March.

By the time raids ended at 0300/15, some 1,095 missiles not including incendiaries had been dropped on Clydeside, around 700 of them within a 2½ mile radius of Clydebank Town Hall. In Glasgow, 647 died, 1,680 were injured and over 10,000 were homeless, 6,835 homes having suffered major damage, almost 700 of them beyond repair. In Clydebank, then a separate burgh, there were 346 known dead and more than 12,000 homes damaged or destroyed. But, despite the loss of life and destruction, industrial damage was slight. In Glasgow, the Fairfield and Alexander Stephen shipyards had been hit, but production at either yard was little affected. Denny's Shipyard in Dumbarton was hit by two parachute mines, one of which damaged two ships under construction. Nearby, at Dalnottar Tank Farm, seven oil tanks had been set alight along with one at the Admiralty Oil Depot, Old Kilpatrick. At the Yarrow shipyard, however, a parachute mine at 2335/13 brought an office building down onto a shelter which, in turn, collapsed killing 67 workers and injuring 80. Another mine two hours later destroyed the electrical and paint shops and production was slowed for six months.

Singer's Clydebank works, largely involved in arms production, had been heavily damaged, yet the great prizes, the shipyards, had scarcely been touched. John Brown's reported that, despite a large fire, they had sustained only minor damage and could have continued normal production had their 10,000 workforce been available. But post-raid trekking to safer areas meant that, late on 15 March, the Ministry of Home Security estimated that, from a

pre-war population of 48,118 which had been inflated to almost 60,000 by war workers, barely 2,000 were left in Clydebank. A major effort involving feeding arrangements and housing repairs was mounted to bring vital workers back and subsequent estimates of Clydebank population were;

14/4/41	4881
26/4/41	7154
10/5/41	6969
19/6/41	11877
23/8/41	19431

The second heavy raid on Scotland began at 2130/7 April 1941 with an attack on Leith Docks that killed three but did no significant damage. The raid was poorly directed, bombs being scattered across Scotland, but Rosyth Dockyard and Queen's Dock, Harland and Wolff's and Connell's Shipyards and Mechan's Ironworks, all in Glasgow, were hit, none of them seriously. Four bombs fell close to the Torpedo Trials Range in Loch Long, Renfrew and Abbotsinch airfields were hit and other bombs fell from Thurso to The Borders, but, as the Regional Commissioner reported, 'Little or no industrial damage was done.'¹¹⁴ Casualties on the ground were 95 killed, 98 seriously injured and 415 slightly injured. One enemy aircraft was shot down.

The third and final large-scale air attack on Scotland took place over two nights, 5-6 and 6-7 May 1941. The first raiders appeared over Clydeside shortly after 0001/6, bombs falling in Maryhill and south of Glasgow. At 0117/6 the first of 80 bombers detailed to attack Greenock with 112 tonnes of high-explosive and 80,146 incendiaries dropped its bombs. Visibility was bad and, once again, the attack was poorly concentrated with bombs falling across Scotland from Argyllshire to Fife and Ayrshire. Twenty nine died in Greenock but the worst incident was in Paisley where 90 died when a First Aid Post took a direct hit. Some damage was done at Rothesay Dock in Clydebank and a major conflagration at Milton petrol storage depot was averted by three quick-thinking Argyll and Sutherland Highlanders.

The raids resumed the following night at 0030/7 with a heavy attack on the ICI explosives plant at Ardeer, Irvine, where 64 bombs and hundreds of incendiaries fell in the factory. More bombs and incendiaries fell across Irvine Harbour and town. The Clyde was blocked by mines east of King George V Dock and mines fell in John Brown's Shipyard at Clydebank. But by far the heaviest concentration of attack was on Greenock where among the first targets to be hit were Ardgowan Distillery with its 3,000,000 gallons of whisky, Dellingburn Power Station and the neighbouring Westburn Sugar Refinery. All electric power

¹¹⁴ HH50/1.

failed, rivers of burning spirit ran down the hill towards Victoria Harbour, setting buildings alight, and rescue workers at the Sugar Refinery had to contend with pools of boiling syrup. As in the case of Clydebank in March, these massive fires acted as a beacon for following raiders and the east end of Greenock was heavily damaged. Considerable damage was done at Greenock Harbour where quays were cratered, the pumping machinery for the important East India Graving Dock was wrecked and two vessels were destroyed in a direct hit on Lamont's Dry Dock. But it was soon apparent the most of the damage in the harbour had been caused by blast effect and that cranes and other cargo handling equipment remained intact.

One notable feature of this raid was the success of the STARFISH decoy sites across central Scotland in diverting a considerable weight of attack away from vital industrial and maritime targets. STARFISH sites around Greenock and Clydebank attracted 565 bombs and mines, though the position of one site west of Loch Lomond resulted in 63 bombs, three UXBs and a parachute mine falling in and around the village of Cardross.

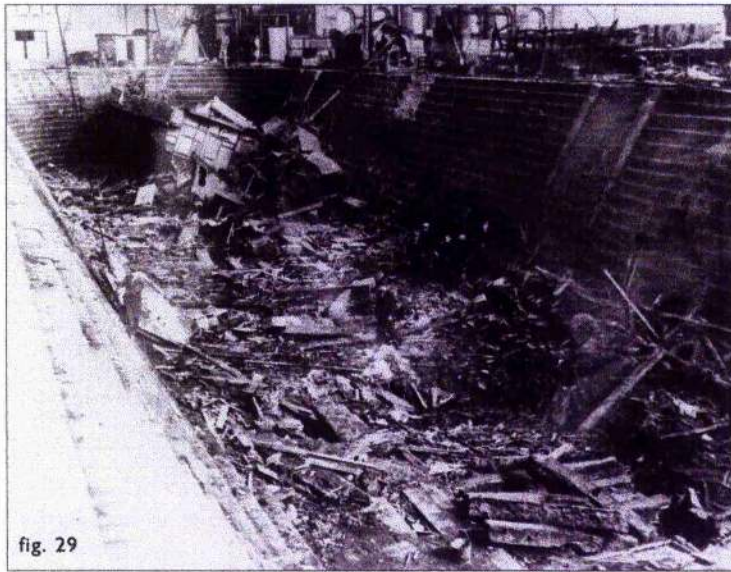


fig. 29

On the night of 5-6 May 1941, the main weight of attack fell on and near Greenock. One large bomb destroyed the coaster *Blue Stone* in Lamont's dry dock, hurling the Admiralty drifter *Gowan Hill* against the dock wall. Repairs to the heavily damaged shipyard were well in hand by 26 May.

At John Brown's Clydebank shipyard damage was restricted to two timber stores and a pattern store destroyed during the March raids. Despite much of its 10,000 workforce having been made homeless, by 1 April, Brown's were able to report that all but 650 men were back at work and production was almost normal. And it was the same story elsewhere across Central Scotland with damaged industrial concerns being speedily repaired and normal production being restored.

While air raids on Scotland, indeed Britain generally, never reached the intensity of the attacks on German cities by Bomber Command and the USAF, the resilience of industry on Clydeside and elsewhere appears to have made little impression on Allied advocates of area bombing.

Over the two nights raiding on the west of Scotland, 455 people died, 328 of them in Greenock, and 434 were seriously injured. At the time of the raids, the population of Greenock was estimated at 95,000 including war workers and service personnel. About 8,000 of the 18,000 homes in the town were damaged, a considerably smaller proportion than in Clydebank in March. Some 5,575 people were evacuated from the town by 8 May and there was a what one report describes as, 'a considerable unofficial exodus of people.' Before the raid, the prospect of an attack on Greenock had been viewed with official apprehension, not least because there were only two main roads in and out of the town. As foreseen, though the main road through Port Glasgow did stay open, road and rail links were indeed badly disrupted and this helped to prevent a repeat of the trekking evident at Clydebank.

While much of the workforce remained in Greenock, industrial targets had suffered heavier damage than in the March raid. Yet the effect on production was much less severe than expected. By 26 May, Greenock and Port Glasgow's principal maritime-related undertakings damaged in the raids were reporting:

Name	Manufacturing	Damage	State of Production
A. & C. Head.	Boatbuilders.	Blast damage.	Normal.
Alexander Tough & Sons.	Ropeworks.	Blast damage.	Normal.
Aluminium Castings Ltd	Heavy castings.	Buildings destroyed by fire. Plant not badly damaged.	Some production restored.
Barr & Co.	Brassfounders.	Blast damage.	Normal.
George Brown & Co	Shipbuilders.	Blast damage.	Normal.
Gourock Ropework Co. Ltd, Port Glasgow and Greenock.	Ropes etc.	Fire and blast damage to roof of flax store, net works and ropewalk.	Normal.
Greenock Dockyard Ltd	Shipbuilders.	Blast damage.	Normal.
Jas. Lamont & Co. Ltd	Ship Repairers.	Two heavy bombs exploded in dock. Apart from wrecked and damaged vessels, severe damage to buildings including machine and engine shops, dock pump house, joiners shop and offices.	Will be some time before normal production restored but repairs well in hand.
John G. Kincaid Ltd.	Marine Engineers.	Extensive damage to buildings.	Production returning to normal.
Port Glasgow & Newark Sailcloth Co. Ltd.	Canvases.	Flax tow store destroyed by fire. Fire and blast damage to other buildings.	Normal.
Rankine & Blackmore Ltd.	Marine Engineers.	Brass finishing and pattern shops destroyed. Boiler shop, smithy and upper machine shop damaged.	Production to recommence in latter three on 26 May, repairs to others under way.
Scott's Shipbuilding & Engineering Ltd.	Shipbuilders.	Severe damage to around 200,000 sq feet of walls and roofs, main offices and drawing offices destroyed, boiler house, power house and electrical plant badly damaged.	Production to be affected for some time.
Scottish Aviation Ltd	RAF flying boat maintenance.	Severe damage to sheds and fitting and machine shops.	Normal.

And, outwith Greenock,

Ayrshire Shipyard Ltd, Irvine	Shipbuilders	Blast damage	Normal.
Babcock & Wilcox Ltd, Dumbarton	Tubes and brass parts.	Blast damage and canteen destroyed.	Normal.
Babcock & Wilcox Ltd, Renfrew.	Boilers and armaments.	Blast damage	Normal
Clan Line Repair Works, Glasgow.	Ship Repairers.	Blast damage to works, gates, roofs and walls of 14 departments.	Normal.
Dawson Downie Ltd., Clydebank.	Pumps.	Brass Foundry badly damaged and blast damage to buildings.	Production almost normal.
Dennystoun Forge Co. Ltd, Dumbarton.	Heavy forgings.	Blast damage to buildings.	Normal.
Ferguson Bros., Port Glasgow.	Shipbuilders.	Blast and fire damage.	Normal.
ICI Ltd., Ardeer, Irvine.	Explosives manufacturers.	Sixty-four bombs and hundreds of incendiaries. Twenty buildings destroyed and over 100 damaged.	Production almost normal. Chief casualty was nitrates, cordite production at 70% and most repairs to be completed within a month.
John Brown Ltd, Clydebank.	Shipbuilders	Slight damage.	Normal production, except as affected by earlier raid.
Lithgows Ltd., Port Glasgow.	Shipbuilders.	Slight blast damage.	Normal.
Lobnitz Ltd., Renfrew.	Shipbuilders.	Slight blast damage.	Normal.
R. McAlister &. Son, Dumbarton.	Boatbuilders.	Blast damage.	Normal.
Wm Hamilton & Co. Ltd., Port Glasgow.	Shipbuilders.	Slight blast damage.	Normal.
Wm. Denny Bros, Dumbarton.	Shipbuilders	Extensive blast damage.	Production almost normal.
Wm. Simons & Co. Ltd., Renfrew.	Shipbuilders	Slight blast damage.	Normal.

Sources: HH/50 1-5. HH 50 92. HO 198 198. HO 198 205. HO 199 410. HO 207 1089.

During this peak period of air raids on and around Scotland between March and May 1941, the Luftwaffe mounted at least 940 sorties and lost 12 aircraft over Scotland or during sorties to Scotland. While the small number of German aircraft shot down illustrates the ineffectiveness of the British defences, it is also clear that the raids on Scotland had little real effect on the war effort. There were still sharp raids, notably over Edinburgh on 6 August 1942, Edinburgh and Glasgow on 25 March 1943 and lastly at Aberdeen on 21 April 1943 when 113 died and 235 were injured. But the Luftwaffe effort had lacked coherence and judicious planning throughout, it had neither the training nor the aircraft to mount a strategic bombing offensive and, particularly in 1941, it was subject to constantly changing priorities.

COASTAL CONVOYS - MARCH 1941 TO MAY 1943

Wick was bombed at 2037/17 March 1941 and then, at 2050/17, the Norwegian *Einar Jarl* (1,858T) was hit by an air-launched torpedo and sank near the Bell Rock.¹¹⁵ On 22 March a wreck was bombed off Aberdeen, an Observer Corps post at St Fergus was strafed and

¹¹⁵ One Greek fireman was lost and 21 survivors were landed at Aberdeen. ADM 199 400. ADM 199 401. ADM 199 412. Baird: 1993.

bombs fell in the Tay and on Shetland.¹¹⁶ At 1134/23 March one of two ZG/76 ME110s attacking Sullom Voe was shot down by shore batteries, then two raiders flew down the Caledonian Canal shortly after 1300/23, one bomb narrowly missing a vessel at Cullochry Lock and, at 1815/23, the trawler *Elmira* was bombed and sunk west of Shetland.¹¹⁷ On 24 March the *Beaverbrae* (9,956T) was bombed and sunk off Shetland and a 111 Squadron Hurricane damaged a Ju88 off Montrose.¹¹⁸

On 26 March the Chain Home station on Unst was strafed and bombed, two trawlers were attacked off the Bell Rock and the *Empire Mermaid* was bombed west of the Hebrides.¹¹⁹ Unst Chain Home was attacked again at 0814/27 then, at 0750/28, a Ju88 strafed Fair Isle North Lighthouse and again bombed Unst Chain Home.¹²⁰ Later that day, *Staffordshire* (10,638T) was bombed and set on fire west of Shetland.¹²¹ The Norwegian *Veni* (2,982T) was bombed and damaged west of Shetland on 29 March.¹²² At 0850/30 Unst radar site was attacked yet again, as was another Chain Home site at Wick, then, that afternoon, a Ju88 bombed the submarine *Seawolf* off Dunbar and strafed Bell Rock Lighthouse.¹²³ At 2120/30, bombs fell at Crail and Kingsbarns in Fife and, at 2140/30, a *Kondor* dropped four bombs at RAF Sumburgh.¹²⁴ The trawler *Ontario* was bombed and sunk off Shetland on 31 March.¹²⁵ Bell Rock Lighthouse was strafed again at 0823/1 April, then a Ju88 sank the patrol trawler *Cramond Island* off Eyemouth at 1404/1 and another trawler, *Fortuna*, disappeared when sent to assist. Two bodies were washed ashore at Berwick.¹²⁶ Cruden Bay Brickworks was bombed at 1525/2 and *Berrieden* was attacked off the Bell Rock at 2000/2, returning to Methil with two UXBs aboard.¹²⁷

WN7 was southbound off Rattray Head at 0757/3 April when the *Filliegh* was strafed by a Do215. Another Do215 attacked the convoy off Aberdeen that afternoon and the *Harmitius* was damaged by a bomb.¹²⁸ EN94 was attacked near the Bell Rock at 1512/3 and the *Geddington Court* (6,903T) was holed by a bomb. Three coasters were also attacked off Montrose; the *Assuan* (499T) ran for shelter in Montrose and went aground at Scurdie Ness, the

¹¹⁶ AIR 25 250. ADM 199 397.

¹¹⁷ HH/50 160. AIR 25 233. AIR 27 866.

¹¹⁸ *Beaverbrae's* entire crew of 84 were landed at Lyness by *Tartar*. ADM 199 397.

¹¹⁹ *Empire Mermaid* sank on 28 March. Twenty-one died. AIR 25 250. ADM 199 397.

¹²⁰ ADM 199 401. HH/50 160.

¹²¹ Fourteen passengers and 14 crew died. *Staffordshire* was beached at Loch Ewe on 29 March and repaired on the Tyne. *Lloyd's War Losses* vol. 1.

¹²² *Lloyd's War Losses* vol. 2.

¹²³ AIR 25 233. ADM 199 412.

¹²⁴ HH/50 160. ADM 199 401. AIR 25 250.

¹²⁵ *Lloyd's War Losses* vol. 1.

¹²⁶ St Abbs Lifeboat picked up survivors from *Cramond Island*. Four of her crew died. St Abbs MFV *Milky Way* picked up the men on the raft. The raider was intercepted and damaged near Alnmouth by Flight Lieutenant Young of 317 Squadron. ADM 199 400. ADM 199 412. *Services by the Lifeboats of the Royal National Lifeboat Institution 1939-1946*.

¹²⁷ HH/50 160. ADM 199 412.

¹²⁸ ADM 199 14. AIR 25 250.

collier *Cairnie* was sunk and the *Greenawn* (784T) disappeared with all 14 hands.¹²⁹ Roseheart, an Observer Corps post at Inverallochy and the village of St Combs were strafed at 1120/4 and a Ju88 was sighted over Helmsdale that afternoon by a civil mail plane.¹³⁰

The Bell Rock was strafed again at 1000/5 April and bombs in Fraserburgh killed four and injured 19.¹³¹ The Orkney steamer *St Clement* (450T), outbound from Kirkwall to rendezvous with WN9, was sunk by two near misses off Girdleness at 2150/5 and *Ratray Head* (496T), which had straggled from the convoy, was also sunk in this attack.¹³² A Ju88 passed over Scapa at midday on 6 April, then five raiders attacked EN95 off Aberdeen at 2134/6.¹³³ Also on 6 April, the Faroese trawler *Naeraberg*, *Dunstan* (5,149T) and *Olga* (2,252T) were bombed and sunk west of Shetland.¹³⁴ Bombs fell near Stonehaven at 0338/7, a Ju88 was plotted off Aberdeen at 0800/7 and the trawler *Sylvia* was sunk at 1000/7.¹³⁵ That evening, as raiders crossed central Scotland to Glasgow, bombs fell near Thurso and a trawler was bombed and strafed off Buchan Ness.¹³⁶ A Ju88 strafed trawlers off Fraserburgh at 1442/8.¹³⁷

Hurricanes of 43 Squadron intercepted at Ju88 over North Berwick at 0645/9 and, at 1212/9, the Naval trawler *Invertay* was attacked off Girdleness.¹³⁸ The Aberdeen examination trawler and Torry Battery opened fire, damaging an He111, and the sloop *Hastings* was diverted from WN11 to pick up four German airmen from a dinghy off Peterhead.¹³⁹ A north-bound convoy was attacked that evening off Wick and a trawler was strafed off Aberdeen. The tanker *British Workman* (6,994T) and *Pandorian* were damaged.¹⁴⁰ That night, trawler and a convoy were attacked off Copinsay, two more trawlers were attacked off Fraserburgh and *Thirlby* (4,887T) was bombed and strafed west of the Hebrides.¹⁴¹ Five trawlers were strafed west of Shetland at 1600/11 and the Swedish *Kexholm* (3,815T) was bombed and sunk west of Shetland on 12 April.¹⁴²

WN14 was approached by an enemy aircraft off Aberdeenshire at 1330/15, but the raider was driven off by AA fire from HMS *Jason*.¹⁴³ Bombs fell at North Berwick and Greenock

¹²⁹ All seven from *Cairnie* were picked up. AIR 25 250. ADM 199 362. ADM 199 400. ADM 199 401. ADM 199 412.

¹³⁰ A small boy received gunshot wounds at St Combs. AIR 25 250.

¹³¹ HH/50 160. ADM 199 412.

¹³² *St Clement's* Chief Engineer and three crew from *Ratray Head* were lost. AIR 25 250. ADM 199 397. ADM 199 401.

¹³³ ADM 199 16. HH/50 160.

¹³⁴ ADM 199 397. *Lloyds War Losses* vol. 1.

¹³⁵ *Ibid.*

¹³⁶ ADM 199 397.

¹³⁷ AIR 25 250.

¹³⁸ AIR 27 442. ADM 199 401.

¹³⁹ The aircrew insisted that they had had engine failure during a training flight the previous night, but *Hastings* signalled that, 'It is not considered they had been so long in the water.' ADM 199 401. Ramsay et. al. : 1988.

¹⁴⁰ ADM 199 397. ADM 199 412.

¹⁴¹ ADM 199 658. ADM 199 372. *Lloyds War Losses* vol. 2.

¹⁴² ADM 199 397. *Lloyds War Losses* vol. 1.

¹⁴³ ADM 199 14.

early on 16 April, then the Norwegian *Favorit* (2,826T) was bombed and sunk off Shetland at 1130/16.¹⁴⁴ A Ju88 dropped two bombs in Fraserburgh at 1522/17, killing seven and injuring six seriously.¹⁴⁵ Ju88s operated over the Northern Isles on the morning of 18 April, one strafing Fair Isle North Lighthouse and another circling over HMS *Prince of Wales* west of Hoy. The steamer *Lothdale* was slightly damaged by one of five raiders plotted off Fraserburgh that evening and eight bombs were dropped near Thurso.¹⁴⁶ A Ju88 strafed a convoy off Fraserburgh at 1610/20, then bombed and strafed the streets, killing one and injuring four seriously.¹⁴⁷ A convoy was attacked off Montrose at 1335/21, then the Naval trawlers *Dorothy Lambert* and *Chrysolite* were strafed off Cruden Scaurs at 1500/22 and the Skipper of the *Dorothy Lambert* killed.¹⁴⁸

At 2145/22 the 14-ship WN17 signalled for fighter cover after it was attacked six miles south of Girdleness. The convoy was attacked again at 2154/22 and this time the *Silverlarch* was strafed from bridge to stern and near missed by bombs.¹⁴⁹ At Peterhead, bombs fell in a fish curing yard and the North Harbour.¹⁵⁰ Shipping was again attacked off Aberdeenshire the following night and bombs fell on land at Old Deer.¹⁵¹ Enemy reconnaissance aircraft appeared over the Pentland Firth and Fair Isle Channel on the morning of 24 April.¹⁵² At 2120/24, the 26-ship WN18 was southbound off Auchmithie when a raider appeared and repeatedly attacked the convoy in the face of heavy barrage from the escorts. *Dolius* was escorted into Largo Bay with her shaft tunnel and one hold flooded.¹⁵³

On 25 April, five raiders attacked shipping off the east coast and the Norwegian minesweeper *Boertund* was bombed and strafed in the entrance to the Tay. Two bombs fell at Pittenweem.¹⁵⁴ *Mountpark* (4,648T), inbound for Manchester with grain, was bombed and sunk west of the Hebrides on 26 April.¹⁵⁵ WN19 was east of Wick at 2145/27 when an He111 dropped five bombs around the Dutch *Meliskerk*, one a direct hit that failed to explode. As the Dutchman made frantic signals for help, another raider dropped bombs close to the port column, but did no damage. An He111 first plotted east of Montrose at 0324/28 strafed a goods train, shot up an army post near the Bullers of Buchan, injuring an officer, and strafed St Fergus. WN19 continued its passage towards Methil until a Ju88

¹⁴⁴ WO 166 2129. HH/50 160. AIR 25 233.

¹⁴⁵ AIR 25 250. HH/50 160.

¹⁴⁶ AIR 25 250. ADM 199 397.

¹⁴⁷ ADM 199 412 AIR 25 250. HH50/160.

¹⁴⁸ ADM 199 401.

¹⁴⁹ ADM 199 14.

¹⁵⁰ ADM 199 401.

¹⁵¹ ADM 199 397. HH/50 160.

¹⁵² ADM 199 397.

¹⁵³ ADM 199 14.

¹⁵⁴ AIR 25 250. ADM 199 400.

found it off Rattray Head at 0851/28. The raider was beaten off by intense AA fire, then strafed Cruden Bay and dropped two bombs at Newburgh that left one injured seriously. Raiders continued to follow the convoy throughout the day, but kept out of range. WN19 reached the Forth late on 28 April.¹⁵⁶

GERMAN SIGNALS INTELLIGENCE

In a report entitled *Continued Compromise of British Convoy Movements* dated 20 August 1941, Bletchley Park Naval Section provide an insight into German advance knowledge of coastal convoy sailings off Scotland.¹⁵⁷ This intelligence, derived from decrypts of Luftwaffe signals traffic, showed that, from 24 July 1941, German decrypts of British signals traffic were giving Luftwaffe units in Norway as much as 12 hours notice of British convoy sailings. Among the decrypts of Luftwaffe signals to their base at Stavanger were;

1215/6/8	According to sailing schedule 6/8, presumably in the early afternoon, since the convoy is leaving the Firth of Forth.
1845/7/8	According to sailing schedule, WN59 will be proceeding south at 0100/8/8 in the Pentland Firth.
1441/8/8	According to sailing schedule, WN60 will be off Wick southbound at 0200/9/8.
1316/11/8	According to sailing schedule, proceeding south, WN61 will be off Wick at 0400/12/8.
1316/12/8	According to sailing schedule, WN62, southbound, will be in Moray Firth, latitude of Dunbeath, at 0400/13/8.
1816/12/8	B report: Northbound convoy at 1200/12/8 in square 1548, 15 west (bomber grid).
1319/14/8	As the convoy is proceeding to the Atlantic northabout it will, according to schedule, presumably leave the Firth of Forth in the early afternoon of 14/8.
1600/14/8	B report: Fighter protection for convoy PATTERN took off at 1528.

Decrypted intelligence such as this is generally fragmentary, often revealing only one side of a conversation, but it was clear to Bletchley that the Germans had precise knowledge of some shipping movements off Scotland and that this was derived from British signals, though it is noteworthy that the decrypts refer principally to the WN convoy schedule, intelligence on northbound EN convoys clearly emanating from air reconnaissance. And, while this report only refers to the first two weeks of August 1941, it is intriguingly titled *Continued Compromise...*, thus inferring that this had been the case for some time. A search of relevant files at the Public Record Office has not yielded information on the situation prior to August 1941.

But, despite this excellent intelligence, Luftwaffe attacks on shipping were increasingly rare as German air strength was concentrated in eastern Europe for Operation BARBAROSSA

¹⁵⁵ Six of *Mountpark's* 41 crew died and survivors were landed at Oban by *Umtali*. ADM 199 658. *Lloyds War Losses* vol.1.

¹⁵⁶ *Meliskerle* was escorted into Kirkwall by the tug *Buccaneer* and the trawler *Preston North End*. Her UXB was removed and dumped in deep water. ADM 199 14. ADM 199 397. HH/50 160. AIR 25 250.

and later in Northern Norway to counter the Arctic convoys. Two reconnaissance sorties, clearly searching for WN59, did pass up the east coast from Montrose to the Pentland Firth early on 8 August, but failed to find the convoy and turned back southwards to drop bombs at RAF Dyce and in Aberdeen. Two JU88s looking for WN 62 appeared off the east coast at Stonehaven and Cruden Bay on 13 August, one damaging a ship off Portlethen and strafing fishing vessels.

With Luftwaffe appearances over the coastal convoy route off Scotland increasingly rare, it became hard to keep crews, even of naval vessels, at a high degree of readiness. The hazards of complacency were illustrated at dusk on 8 December 1941 when He111s attacked a Naval trawler off Aberdeen, injuring three ratings, then bombed and strafed four trawlers of the 41st Minesweeper Group off Lunan Bay, sinking the sweepers *Milford Earl* and *Phineas Beard*. All 11 aboard *Phineas Beard* were lost, as were six from *Milford Earl*.¹⁵⁸

ALL THE ADDITIONAL RISK SCOTTISH COASTAL CONVOYS IN RETROSPECT

The mathematical case for keeping the east coast convoy route open was clear. In 1939 Britain had imported 55 million tons of goods including all of her oil, much of her raw materials and half of her food. Imports were dramatically reduced from the first year of war and successively thereafter but, even at full capacity, the principal west coast ports on the Clyde and the Mersey could only handle around 20 million tons. And, even were that possible, landing everything on the west coast would place an intolerable strain on the transport infrastructure. Thus, without the use of the port facilities on Forth, the Tyne, the Tees, the Humber and the Thames, shipping could only operate at greatly reduced efficiency, much of British industry would grind to a halt for want of raw materials, food supplies would dwindle and, given the narrow margin that then lay between survival and collapse, defeat would have been inevitable. And later, without these port facilities, the Allied military build-up that would culminate in Normandy would have been impossible.

¹⁵⁷ ADM 223 2.

¹⁵⁸ NOIC Dundee, Captain Hurt, wrote that Lieutenant F. R. D. Corbett RNVR, First Lieutenant in *Milford Earl*, '...assumed command when his commanding officer was killed at the beginning of the action. Although suffering from considerable facial injuries, he worked indefatigably to save his ship and to keep all available armament in action...he took all possible steps succour of the wounded and the safety of his crew.' Corbett was awarded a DSC. Hurt also recommended Leading Telegraphist L. E. Welch RNVR of *Milford Earl* who salvaged a Lewis gun from the wreckage, improvised a mounting and, 'although he had not handled this weapon before, opened an accurate fire on the aircraft, thus helping to prevent the accurate aiming of a second salvo of bombs.' Welch received a DSM. But the Admiralty Board of Enquiry found that, 'These ships were not in the required state of readiness to meet attack by enemy aircraft, but they did eventually put up a strong, if not very effective, resistance to the determined attacks of the enemy aircraft of which there may have been more than one.' Lieutenant W. M. Morrison, the senior officer of the group, lost in *Milford Earl*, was blamed for the unpreparedness and Captain Hurt was instructed to improve the gunnery of all minesweepers operating from Dundee. ADM 1 12310. ADM 199 400. AIR 25 250.

But one incident illustrates top-level nervousness about the east coast route. Ellerman's *City of Calcutta* was due at Loch Ewe in 2 March 1941 with a munitions cargo and was to continue round the north of Scotland to Methil and Hull. On 28 February, however, the Prime Minister intervened personally, minuting First Lord A. V. Alexander;

This ship must on no account be sent to the east coast. It contains 1,700 machine guns, 44 aeroplane engines and no fewer than 14,000,000 cartridges. These cartridges are absolutely vital to the defence of Great Britain.¹⁵⁹

Churchill's minute points out that sending a ship such as this down the east coast, 'with all the additional risk' would be, 'abominable'.¹⁶⁰

Two weeks later, on 11 March, as attacks on the east coast convoy route intensified, the Lend-Lease Bill passed its final hurdle in the House of Representatives. Then, in Washington on 27 March, the first formal United States and British Commonwealth (USBC) staff conversations concluded with the *Joint Basic War Plan Number One*, while, that same day in London, the 'Destroyers For Bases' was signed. Lend-Lease was by no means the 'most unsordid act' of Churchillian oratory, but it did give Britain's beleaguered war economy far greater access to American productive capacity than hitherto. Now, more than ever, would have been the time for the *Kriegsmarine* and the *Luftwaffe* to mount a decisive and coordinated attack on British convoy routes and the vulnerable east coast convoys should have been a prime target. Yet, despite the obvious importance of the east coast route, the German effort against the all but endless lines of shipping off Scotland was too little, too late and largely ineffective. Some disruption to convoy sailings was caused and ships were sunk, but there was never any danger of the east coast being closed to shipping.

To be fair, however, the *Luftwaffe* and *Kriegsmarine* were operating at several disadvantages. The *Kriegsmarine*, like the Royal Navy, remained heavily committed to its capital ships, and the German tactic in spring 1941 was to maintain pressure on the Royal Navy with a series of Atlantic operations, of which *ROSSELSPRUNG*, the foray by *Bismarck* was but one, while pursuing operations in the Mediterranean basin alongside the Italians. In the end, however, both the Axis and the British, in particular the Royal Navy, were excessively committed to the Mediterranean for three years. For example, while the German intervention in the Balkans induced an ultimately fatal delay in the start of *BARBAROSSA*, the British wasted resources and threw away ships pointlessly in the strategically irrelevant defence of Crete. But the British could absorb naval losses with greater equanimity than the *Kriegsmarine* for whom the loss of *Bismarck* was not only a disaster in itself, but it also effectively put an end to hopes for a capital ship strategy in the Atlantic.

¹⁵⁹ Gilbert : 1989 p. 1017.

¹⁶⁰ *Ibid.*

The Luftwaffe, heavily committed to the air war over southern England in 1940, then forced to husband resources for the invasion of the Soviet Union and the Mediterranean, had insufficient suitable aircraft in the North Sea and Atlantic theatres. In 1940-41 its crews were largely untrained in long-range anti-shipping warfare and its weaponry was unsuitable. British coastal convoys were restricted to a narrow lane where slow-moving ships were strung out like targets in a coconut shy. But they were also relatively close to RAF fighter bases and, increasingly through 1940 and 1941, radar cover, and this made them easy to defend.

Perhaps most significantly, however, over the North Sea, as elsewhere, the Luftwaffe suffered from ever-changing strategic imperatives and a lack of clear direction. In one respect, however, Luftflotte 5 units in Norway did gain much from their attacks on the Scottish convoys. A year later, when these same units were committed to the air offensive against Allied convoys on the Arctic route, experience gained off Scotland made them a more formidable adversary.

In its attacks on Scotland's maritime periphery, the Luftwaffe could never bring enough strength to bear to be decisive. While the loss of life and property was often appalling, industry and society in general proved notably and unexpectedly resilient to bombing. Arguably, this was a factor that should have had greater influence on British thinking when the RAF strategic bombing offensive against Germany was being planned early in 1942, and on the long-running dispute between Coastal and Bomber Commands over long-range aircraft allocation.

By 1943, much of the Luftwaffe had been expended over the Soviet Union and, as if to emphasise the changed balance of air power over the North Sea and Atlantic, a Ju88 night fighter crew sent from Stavanger to attack the BOAC flight between Leuchars and Stockholm on 9 May 1943 signalled their controller that they had engine failure, then headed for Aberdeen to defect. Spitfires found the bomber with its undercarriage down and firing flares and escorted it in to Dyce. The aircraft was hidden in a hangar and an immediate security clampdown was ordered, but there was intense local excitement, not least because many believed its appearance heralded another Hess-style peace mission. Some 2,578 letters posted in the area between 10 and 12 May were examined and 400 referred to the arrival of the Junkers. 'Helen' in the Met Office wrote,

I should not be telling you this, so keep your thumb on it or I'll get shot. We were aroused by Florence yelling through the door "Air Warning Red"...we looked out and Maisie said, "Oh, its only a Mosquito," when off went the ack-ack, and, shepherded by the new fighter flight the thing came in and landed!!! And out stepped three Jerries complete – and I think this is pukka gen – with a despatch case.¹⁶¹

¹⁶¹ The Junkers was extensively evaluated and is now in the RAF Museum, Hendon. AIR 15 413.

Chapter Four

BATTLE OF THE ATLANTIC - PART II

THE NORTH WESTERN APPROACHES 1940 - 1941

German forces crossed into Luxembourg and France at 0430/10 May 1940 just as the cruiser *Berwick* arrived at Reykjavik from Scapa Flow. Marines went ashore to prevent German use of Iceland for airfields and U-boat bases. German successes in Norway had made it seem likely that Iceland might be next and, in any case, spare U-boat crews were living there as welcome paying guests. Icelanders were reluctant to reveal the whereabouts of U-boat men; they were paying good money and some had formed relationships with the wives and daughters of absent fishermen, but a few well-placed bribes soon had them rounded up. Iceland's importance as a naval and air base in the Battle of the Atlantic, and, later, for the Arctic convoys, was incalculable and the bloodless capture of the island paid handsome dividends.¹

While Dönitz had recalled all ocean-going U boats from the Atlantic in April 1940 for the invasion of Norway, the Type IICs were still successful in Scottish coastal waters. *U-13* sank the *Swainby* (4,935T) off Shetland on 17 April and damaged the tanker *Scottish American* (6,999T) in the Pentland Firth on 28 April.² *U-58* sank *Astronomer* (8,401T) off Kinnaird's Head at 2253/1 June³ and, on 27 June, *U-62* sank the trawler *Castleton* off Orkney.⁴ At 1250/10 July the Canadian destroyer *St Laurent* escorting OA180 reported the Dutch *Alwaki* (4,533T) sinking 12 miles north-east of Cape Wrath after she had been torpedoed by *U-61*.⁵

As noted in Chapter Three above, following defeat in Norway and France, from July 1940

¹ While Quill and barrister Pen Slade were interrogating German Consul Gerlach, the Marines smelt burning and were just in time to prevent Frau Gerlach from incinerating diplomatic cyphers and other documents in the bath. ADM 199 377. McLachlan : 1968.

² *Scottish American* was not, as claimed by Schulte, and as stated in Rohwer, sunk, but was found by the trawler *Bracondene* and towed into Loch Eriboll where her cargo of Admiralty fuel oil was discharged. ADM 199 363. Rohwer : 1999. CE87/4/41.

³ In the crew's quarters aft cots, tables and sleeping men were hurled against the deckhead. Casualties had to be extracted from the debris in pitch darkness as the water level rose. *Leicester City* and *Stoke City* landed 109 survivors. *U-58* was pursued for 43 hours before making her escape and returned to Kiel on 17 June after an otherwise uneventful patrol. ADM 1 10237. ADM 199 363. ADM 199 364. ADM 199 377. Rohwer : 1999. Wynn : 1997.

⁴ On 28 June HMS *White Bear* escorting *Shoalfisher* and the Admiralty oiler *Carindale* through the Minches reported attacking a U boat contact in 5828.3N 0535W. The U boat was reportedly blown to the surface by depth charges, then sank again. Wynn : 1997. ADM 199 363. ADM 199 377. HO 198 198.

⁵ *Alwaki's* crew were picked up by the cruiser *Coventry* which was escorting minelayers into Kyle of Lochalsh. ADM 199 363. ADM 199 377. Wynn : 1997. Rohwer : 1999. Sims : 1972.

British convoys were rerouted through the North Channel and the North Western Approaches, as far as possible away from enemy held territory and particularly his airfields. But this concentrated shipping into a narrow funnel, the North Channel, seemingly ideal conditions for U boat warfare. When U boat anti-shipping operations resumed in mid-May, however, there were just 24 ocean-going boats in commission, three less than in September 1939 and, at Raeder's behest, six of these were diverted to positions around Scapa Flow. At this, arguably the only point when the U boat could have been a decisive, war-winning weapon, once again the Kriegsmarine's lack of war preparedness meant that they were unable to bring sufficient strength to bear.⁶

First out in the Atlantic post-Norway was *U-37* which sank the Swedish *Erik Frisell* (5,066T) west of the Hebrides. Also west of the Hebrides and in the North Channel, *U-48* sank *Stancor* (798T) on 5 June, then sank *Frances Massey* (4,212T) and damaged *Eros* (5,888T) on 7 June. Three AMCs, *Carinthia* (20,277T), *Scotstoun* (17,046T) and *Andania* (13,950T), were sunk between 6 and 15 June, the tanker *Scottish Minstrel* (6,988T) was torpedoed by *U-61* on 16 July and the Swedish *O. A. Brodin* (1,960T) and *Fellside* (3,509T) were sunk on 17 July. That night, at 2317/17 and six miles off Cape Wrath, *U-57* sank *Manipur* (8,652T) from HX55A. The Norwegian *Gyda* (1,591T) was sunk east of Islay by *U-58* on 18 July, *U-62* sank the *Pearlmoor* (4,581T) nearby at 1828/19 and *Empire Conveyor* was sunk 40 miles west of Iona, probably by *U-122*, on 20 June.⁷

With the exception of *Andania*, these early sinkings had all been within 10° west, that is within 50 miles west of the Butt of Lewis. But even the few Coastal Command aircraft then available were becoming more troublesome with *U-37*, for example, having come under attack in the Fair Isle Channel on her outward passage in May. Now the Royal Navy and RAF were escorting convoys to 17° west, and this took them out of what were then 'British Waters' in the terms of the U boat rules of engagement. Dönitz knew of the change in policy from B-deinst decrypts, but operating U boats that far west posed problems as the older Type VIIAs had only half the range of the later VIIBs. Dönitz flew to Lorient on 22 July to confer with Lemp, Rollmann, Salmann and Kretschmer, four of his most experienced commanders. Inspections of Lemp's *U-30*, Rollmann's *U-34*, Salmann's *U-52* and Kretschmer's *U-99* revealed that only *U-99* was in good condition. The other three were in urgent need of refits and were to be patrolled back to Germany.⁸

Rollmann left first on 23 July and attacked OB188 west of the North Channel sinking *Accra*

⁶ ADM 199 363. ADM 199 371. ADM 199 377. Rohwer : 1999.

⁷ Ibid.

⁸ Blair : 1997 p. 177

(9,337T), *Vinemoor* (4,357T), *Sambre* (5,620T) and the tanker *Thiara* (10,364T).⁹ Kretschmer took a more westerly course off Scotland and, between 0500/28 July and 1324/31, and, from OB191, sank *Auckland Star* (13,212T), *Clan Menzies* (7,336T), *Jamaica Progress* (5,475T) and *Jersey City* (6322T) and damaged the tankers *Strinda* (10,973T), *Lucerna* (6,556T) and *Alexia* (8,016T), all from OB191.¹⁰ The three tankers limped into Greenock at 2125/4, but these attacks by just one U boat had cost OB191 some 32,345 tons sunk and 25,545 tons damaged. And the only counter-attack that came even close to being effective was by a Sunderland from Oban. The escort achieved almost nothing beyond picking up survivors.¹¹

Type IIs were still mounting inshore patrols and, at 0720/3 August, *U-57* sank the Swedish *Atos* (2,126T) off Islay.¹² The Type VII and IX boats were positioned astride the route into the North Channel. Early on 4 August, the Type VII *U-52* sank *Gogovale* (4,586T), *King Alfred* (5,272T) and *Geraldine Mary* (7,244T) from HX60 then, as



Her cargo of newsprint and sulphide spilling out and three of her crew dead, *Geraldine Mary*, inbound for Manchester in HX60, sinking west of the Hebrides after being torpedoed by *U-60*.

HX60 approached the North Channel that evening, the Type IIC *U-58* on inshore patrol sank the Greek *Pindos* (4,360T).¹³ OB193 was outbound west of Islay the following morning when *U-56* torpedoed *Boma* (5,408T).¹⁴ The trooper *Mohammed Ali El Kebir* (7,290T), Avonmouth for Gibraltar in HX61 with 607 troops and 162 crew, was sunk in 5522N 1318W at 2025/7. Ten crew and 50 troops were lost.¹⁵ *U-30* sank the Swedish *Canton* (5,779T) near Tory Island on 9 August and, at 0012/10 some 60 miles west of Islay, yet another AMC, *Transylvania*, was torpedoed by *U-56*.¹⁶ On 13 August, *U-60* sank the Swedish *Nils Gorthon* (1,809T) 40 miles west of Islay.¹⁷ At 2200/14 August, 30 miles to the

⁹ All 32 aboard *Vinemoor* were reported safe. Twelve crew and 12 passengers were lost from *Accra*. Twenty-five died from *Thiara*. ADM 199 372. Slader : 1988. Rohwer : 1999. *Lloyds War Losses* vol. 1.

¹⁰ ADM 199 372.

¹¹ ADM 199 372. Rohwer : 1999. Robertson : 1981. *Lloyds War Losses* vol. 2.

¹² Six died. ADM 199 372. Rohwer : 1999.

¹³ *Vanoc* sank the stern half of *King Alfred* by gunfire after picking up all but seven of her crew. At 2152/5 *Sandwich* had 31 survivors from *Geraldine Mary*, another four were in *Vanoc*. A boat from *Geraldine Mary* landed on Lewis at 2030/8 August. Two engineers and a passenger died. ADM 199 372. Rohwer : 1999. *Lloyds War Losses* vol. 1.

¹⁴ Three of *Boma's* crew died. ADM 199 371. Rohwer : 1999. Slader : 1988.

¹⁵ ADM 199 372. ADM 199 377. Slader : 1988. Rohwer : 1999. *Lloyds War Losses* vol. 1.

¹⁶ *Englishman* and *Salvonia* sailed but *Transylvania* sank at 0438/10. Fifty of her crew were lost and her Captain, 42 officers and 229 ratings were rescued by *Havelock*. ADM 199 372. Wynn : 1997. Rohwer : 1999.

¹⁷ The naval trawler *St Keenan* picked up nine from *Nils Gorthon*. A raft with eight aboard was sighted by an aircraft and *Anthony* picked them up. Four of *Nils Gorthon's* crew died. ADM 199 372. Rohwer : 1999. *Lloyds War Losses* vol. 1.

south, *U-59* sank *Betty* (2,339T).¹⁸ The tanker *Sylvafield* (5,709T) reported a U boat shadowing HX62, then, at 2230/15, that she had been torpedoed.¹⁹

There were clear signs that aircraft were becoming the most effective U boat deterrent. *Empire Merchant* (4,864T) was sunk by *U-100* at 0740/16 in 5521N 1340W.²⁰ At 1415/16 Sunderland H/210 from Oban was escorting OA198 and searching for boats from *Empire Merchant* when a conning tower was sighted in 5635N 1255W and Flight Lieutenant Baker dropped two depth charges which appeared to blow the U boat right out of the water. A further attack was made with four 250lb bombs and *U-51* rolled over and sank. The aircraft alighted Oban 1849/16 and Baker was awarded the DFC. *U-51*, clearly damaged, was returning to Lorient on 20 August when she was sunk by the British submarine *Cachalot*.²¹

The first coordinated wolf-pack attack in the North Western Approaches began when the Swedish collier *Hedrun* (2,235T) and *Alcinous* (6,198T) in OB197 were hit by *U-48* and *U-46* respectively shortly after the convoy dispersed south-west of Rockall at 1100/16 August.²² Lemp's *U-30* then moved in on OB197 and, at 1906/16, torpedoed *Clan Macphee*.²³ At 2030/20 the Greek *Leonidas M. Valmas* (2,080T), a straggler from HX64, was torpedoed by *U-46* west of the Bloody Foreland and left derelict.²⁴ *U-57* attacked the 28-ship OB202 some west of Islay at 2310/23, torpedoing *Cumberland* (10,939T), *Havildar* (5,407T) and *St Dunstan* (5,618T), all within five minutes.²⁵

The tanker *La Brea* (6,665T), Aruba for Dundee in HX65 with fuel oil, was torpedoed by *U-48* in 5720N 1115W at 1233/24 and two of her crew died.²⁶ An Oban-based Sunderland spotted *U-48* on the surface astern of the convoy at 1919/24 and dropped three bombs which missed. The convoy split off the Butt of Lewis, HX65A heading for east coast ports, and HX65B making for the Clyde and Mersey. At 0145/25 *U-48* attacked HX65A, sinking

¹⁸ *Betty's* Chief Officer, Second Engineer, Radio Operator and one Chinese crewman, the only survivors from her 34 crew, were landed at Belfast on 18 August. ADM 199 371. ADM 199 372. Rohwer : 1999. Wynn : 1997.

¹⁹ *Sylvafield* was sunk by *U-51*. Three of her 39 crew died and 16 were landed at Tobermory by the trawler *Newlands*. Another boat was sighted by an Oban Sunderland. ADM 199 371. ADM 199 372. Rohwer : 1999. Wynn : 1997.

²⁰ Boats from *Empire Merchant* with more than 30 survivors aboard were sighted by an Oban Sunderland that afternoon. Another was sighted the following day and *Salvonia* picked up the five aboard that. Thirty four more survivors were picked up by the Yugoslav *Supetar* and the destroyer *Warwick*. Seven of *Empire Merchant's* crew were lost. ADM 199 13. ADM 199 371. ADM 199 377. Rohwer : 1999. *Lloyds War Losses* vol. 1.

²¹ AIR 28 615. AIR 27 1298. ADM 199 371. Franks : 1995.

²² *Hedrun* sank but *Alcinous* made Greenock at 2050/18. *Salvonia* also carried 17 survivors from *Hedrun*. *Rochester* landed another three from *Hedrun*. ADM 199 371. Roskill : 1962 p. 53-54.

²³ SS *Kelet* picked up '13 Europeans and 38 natives' from *Clan Macphee*, but was herself sunk in 5446N 2030W by *U-4* early on 19 February. Survivors, including some from the *Clan Macphee*, were picked up from two rafts by the destroyer *Wellington*. ADM 199 372. Rohwer : 1999. *Lloyds War Losses* vol. 1.

²⁴ Seven survivors were taken off by *Folkestone* at 1640/23 and two men sighted on a raft by a 210 Squadron Sunderland were picked up by *Arrow*. Sixteen of *Leonidas M Valmas'* crew died abandoning in panic. She was towed to the Clyde but was broken up in Kames Bay. ADM 199 371. Wynn : 1997. Rohwer : 1999. *Lloyds War Losses* vol. 1.

²⁵ *Cumberland* sank off Malin Head while under tow of *Englishman*. *Havildar* was towed in by *Salvonia* and repaired. *St Dunstan* was reported 40 miles west of Islay at 0736/24. Fourteen Lascats from her 63 crew had died while attempting to launch a boat, but the survivors were still aboard. *Schelde* took her in tow, but she sank in 068° Pladda Light 4.25 miles at 0837/27. ADM 199 371. ADM 199 372. ADM 199 2057. Rohwer : 1999. *Lloyds War Losses* vol. 1.

²⁶ One boat with 14 survivors from *La Brea* reached Loch Boisdale at 2100/25. The other landed at Islig on the west coast of Lewis at 2100/26. ADM 199 371. ADM 199 372. Rohwer : 1999. Wynn : 1997.

Empire Merlin (5,763T) and the tanker *Athelcrest* (6,852T). That evening, at 1848/25, U-57 sank the tanker *Pecten* (7,468T) from HX65B,²⁷ then U-124 attacked HX65A off the Butt of Lewis torpedoing *Stakesby* (3,900T) which stayed afloat on her timber cargo. *Godetia* counter-attacked at 2307/25 but U-124 still managed to torpedo *Fircrest* (5,349T) and *Harpylyce* (5,196T) at 2351/25.²⁸ HX65A continued through the Pentland Firth and, as described in Chapter Three, came under air attack north of Kinnaird's Head. Meanwhile, U-100 was west of the Hebrides and, at 1820/25, 140 miles west of Barra, torpedoed the *Jamaica Pioneer* (5,471T).²⁹

WOLFPACKS IN THE NORTH WESTERN APPROACHES 1940-41

The first SC convoy, SC1, was approaching the Hebrides at 1530/27 August when U-28 torpedoed the Norwegian *Eva* (1,599T), inbound for Sharpness with timber, in 5750N 1115W. One crewman died. *Leith* reported another ship torpedoed at 0332/28, then picked up 28 crew from the Finnish *Elle* (3,868T), inbound for Ardrossan with spoolwood, which had been torpedoed by U-101. *Leith* sighted a periscope in 5702N 0953W at 1613/28 and the destroyers *Hurricane*, *Witch*, *Sabre* and *Scimitar* were sent to sweep the area.³⁰

U-101 intercepted OA204 west of Islay at 2330/28, damaging *Hartismere* (5,498T) and sinking *Dalblair* (4,608T), *Astra* (2,393T) and the Swedish *Alida Gorthon* (2,373T). Schepke's final victim in OA204 was the *Empire Moose* (6,103T), sunk at 0330/29.³¹ *Baltisan* (6,803T) was damaged when the convoy came under air attack at 1203/29.³² Meanwhile, at 2007/28, HX66 was attacked by U-28 in 5806N 1434W and *Kyno* (3,946T) was sunk. The convoy split west of Barra Head at 1200/29, then U-32 fired a torpedo through the North Channel section, HX66B. *Mackay* counter-attacked, but U-32 escaped and, at 0130/30, torpedoed *Mill Hill* (4,318T), *Chelsea* (4,804T) and the Norwegian *Norne* (3,971T) from HX66A 25 miles north-west of the Butt of Lewis.³³

²⁷ ADM 199 372. ADM 199 377. Rohwer : 1999. Wynn : 1997. *Lloyds War Losses* vol. 1.

²⁸ *Godetia* stood by *Stakesby* until the tug *Thames* arrived and took her in tow for Stornoway where she was beached still ablaze in four holds on 27 August. *Fircrest* sank immediately and all 40 of her crew were lost. ADM 199 372. ADM 199 377. Rohwer : 1999. Wynn : 1997. *Lloyds War Losses* vols 1 and 2.

²⁹ *Jamaica Pioneer* sank at 0100/26. At 1256/26 an aircraft from Oban sighted two lifeboats in 5648N 1018W, signalled the lifeboats their position and gave them a course to nearest land. *Anthony* picked up 11 officers and 29 crew from two boats. One boat with 15 survivors was still missing but, at 1400/27, *Wanderer* found this boat which contained *Jamaica Pioneer's* master and 13 crew in 5609N 0839W and took the survivors to Belfast. The only casualty had been the Chief Officer lost when the ship sank. ADM 199 371. Rohwer : 1999. Wynn : 1997. *The U boat War in the Atlantic*.

³⁰ ADM 199 372. Rohwer : 1999.

³¹ *Hartismere* suffered no casualties and reached the Clyde two days later under her own power. Five of the *Astra's* 26 crew were lost. From *Dalblair's* 42 crew, three were killed in the initial explosion and 24 were picked up by *Alida Gorthon*. When she too was sunk, 11 of her crew died along with 20 of the survivors from the *Dalblair*. All 36 aboard the *Empire Moose* were saved. ADM 199 371. ADM 199 372. Rohwer : 1999. *Lloyds War Losses* vols 1 and 2.

³² *Ibid.*

³³ *Chelsea* and *Mill Hill* were both afloat at 0300/30 but the tugs *Thames* and *Superman* found nothing due to dense fog and were recalled at 1701/30. Eleven survivors from *Chelsea* were landed at Thurso by the trawler *Lord Cecil* on 31 August, leaving 24 missing. All 34 aboard *Mill Hill* died. ADM 199 377. Rohwer : 1999. *Lloyds War Losses* vol. 1.



Escorted by a 210 Squadron Sunderland from Oban, troop convoy TC6 inbound for the Clyde from Halifax on 31 August 1940. Nearest the camera is *Duchess of York*, leading the centre column is *HMS Revenge* and furthest from the camera, from left, are *Empress of Australia*, *Monarch of Bermuda* and *Samaria*.

U-59 and *U-60* had attacked OB205 west of Tiree the previous evening, *U-59* damaging two freighters and *U-60* damaging the liner *Volendam* which was carrying, among 884 passengers, 317 evacuee children. Also off the North Channel were *U-38*, which sank *Har Zion* (2,508T) from OB205 on 31 August, and *U-46* which sank *Ville de Hasselt* (7,461T) west of Lewis. *U-101* was off the Bloody Foreland. *U-47* and *U-32*, the latter having damaged the cruiser *Fiji* on 1 September, were west of the Butt of Lewis. *U-100* had just left the area after sinking four ships totalling 15,277 tons and damaging *Hartismere* (4,608T).

That night, OB205 was attacked 130 miles west of Islay, *U-59* torpedoing the tanker *Andarra* (8,009T) at 2100/30, the Greek *San Gabriel* (4,934T) at 2130/30 and the Dutch liner *Volendam* (15,434T), outbound for New York with 884 passengers, including 317 seavacs, at 2330/30. The British *Har Zion* (2,508T) was sunk by *U-38* at 0100/31 and the Greek straggler *Efploia* (3,876T) was picked off by *U-101*. Meanwhile, the Belgian *Ville de Hasselt* (7,461T), independent at 14 knots for New York, was sunk 100 miles to the west by *U-46*.³⁴ *Ville de Hasselt's* sister ship *Ville de Mons* (7,463T), inbound independent west of the Hebrides at 1500/2 September, was torpedoed by Prien's *U-47*.³⁵ At 0215/3 *U-60* sank the Gibraltar-bound collier *Ulva* (1,401T) 180 miles north-west of Inistrahull.³⁶ Prien then torpedoed Holt's *Titan* (9,034T) in OA207 in 5814N 1515W at 0028/4.³⁷

Four days earlier, on 30 August, B-deinst had decoded details of the rendezvous between the

³⁴ *Andarra* reached Greenock on 1 September. *Thames* beached *San Gabriel* at Cardross, but she was later declared a total loss. Two of her 24 crew had died. One died in *Volendam* which was towed to the Clyde by *Salvonia*. All but one of the 37 aboard *Har Zion* died, but 27 from *Efploia* were aboard *Anthony* and the Belgian trawler *Transport* picked up 13 from *Ville de Hasselt*. The Icelandic *Hilmir* picked up another boat and the rest of the *Ville de Hasselt's* crew were aboard Fleetwood trawlers. ADM 199 371. ADM 199 372. ADM 199 377. Rohwer : 1999. Wynn : 1997. *Lloyds War Losses* vols 1 and 2.

³⁵ Twenty-one crewmen from the *Ville de Mons* were landed at Roag, Lewis, by the trawler *Ben Aden* at 0700/7. Another boat with 14 survivors landed on Lewis the following morning and 17 were picked up near Cape Wrath by the trawler *Quercia*. One man died of exposure. ADM 199 372. ADM 199 377. *Lloyds War Losses* vol. 1.

³⁶ Three of *Ulva's* crew died and 17 survivors were landed at Castlebay. ADM 199 372. Rohwer : 1999. *Lloyds War Losses* vol. 1.

³⁷ *Titan* sank quickly. *St Laurent* and *Godetia* picked up 23 Europeans and 66 Chinese. Prien wrongly claimed to have damaged another 4,000 ton steamer. ADM 199 377. ADM 199 372. Roskill : 1962 p. 54-55. Rohwer : 1999. *Lloyds War Losses* vol. 1.

53-ship SC2 and its eastern escort at 1200/6 September in 5700N 1950W. Dönitz disposed U-47, U-28 and U-65 across the convoy's track and it was first sighted by U-65 late on 5 September. The Western Approaches escorts *Scimitar*, *Skeena*, *Scarborough*, *Periwinkle*, *Apollo*, *Westcott* and *Berkshire* under Commander Arthur Knapp in *Lowestoft* joined on 6 September and Coastal Command patrols were mounted, but five ships were still sunk.³⁸ Von Stockhausen followed the convoy and, despite worsening weather and being briefly forced away by *Skeena* and *Periwinkle*, reported its position until Prien sank *Neptunian* (5,155T), *Jose de Larrinaga* (5,303T) and the Norwegian *Gro* (4,211T) at 0430/7. Just then a Sunderland from Oban forced Prien to dive, but he gave chase and, at 2124/8, sank the Greek *Possidon* (3,840T) in 5642N 0933W.³⁹ At 0345/9, however, U-28 moved in and sank *Mardinian* (2,434T), then headed west until, at 0235/11 in 5534N 1556W, she intercepted OA210 and torpedoed the *Harpenden* (4,678T) and the Dutch *Maas* (1,966T).⁴⁰

Late on 14 September, the 41 ship SC3 was in 5640N 1504W. It was a calm night with a full moon and an oily swell when, at 2328/14, the escort sloop *Dundee's* stern was blown off by a torpedo from Bleichrodt's U-48.⁴¹ Bleichrodt then sank the Greek *Alexandros* (4,343T) and *Empire Volunteer* (5,319T), then left the convoy and, at 0915/15, came across the straggler *Kenordoc* (1,780T) and despatched her with his deck gun.⁴²

Kretschmer's U-99 was closing the North Western Approaches from a sweep out to 5824N 2501W where, at 2053/14, he had torpedoed the Norwegian *Hird* (4,950T), a straggler from HX70. Late the following day he sank another Norwegian, *Lotos* (1,327T), west of Rockall, then, on 17 September, he and Stockhausen attacked HX71 and sank one ship each.⁴³

Prien, having been sent westwards on weather reporting duty, sighted HX72 on 20 September.⁴⁴ Bad weather meant that Commodore Rogers had had great difficulty persuading his 42 elderly charges to keep station even at 8½ knots. HX72's sole ocean escort was the AMC *Jervis Bay* until sunset on 20 September when, with the convoy still 500 miles west of

³⁸ *The U boat War in the Atlantic* p. 40. Padfield 1997 p. 92. Showell : 1989 pp. 40-41.

³⁹ All 36 aboard *Neptunian* were lost. *Jose de Larrinaga* sank quickly and her 40 crew died. Eleven of the 32 aboard *Gro* died. Seventeen of the *Possidon's* crew died and 31 were picked up from rafts. ADM 199 372. Rohwer : 1999. Wynn : 1977. Showell : 1989 p. 41. Van der Vat : 1990 pp. 219-220. Edwards : 1996. *Lloyds War Losses* vols 1 and 2.

⁴⁰ *Maas* sank immediately with the loss of all but two of her crew. *Harpenden* stayed afloat and *Marauder* had her off Ailsa Craig at 1615/15 after a difficult, four-knot tow escorted by *Jason* and *Hibiscus*. All but one of her 29 crew survived. *Harpenden* was moored in the Gareloch and her machinery was fitted to a new ship. Her hull was repaired in Glasgow and renamed *Empire Stour*. ADM 199 372. Rohwer : 1999. *Lloyds War Losses* vols 1 and 2.

⁴¹ *St Laurent* passed a tow but *Dundee* sank at 1250/15 in 5646N 1426W. *Dundee's* Captain and OOW were censured for their 'grave error' in not immediately commencing pumping operations as the inflow could have been controlled while steam was still available. ADM 178 250. ADM 199 372. Rohwer : 1999.

⁴² Five of the 30 aboard *Alexandros* died, as did six of the 39 aboard *Empire Volunteer*. Thirteen survivors from the 21 aboard *Kenordoc* were picked up by *Anthony*. ADM 178 250. ADM 199 372. ADM 199 377. ADM 199 1976. Rohwer : 1999. Wynn : 1997. *Lloyds War Losses* vol. 1.

⁴³ *Hird* was towed in to the Clyde by *Marauder*. All her crew survived. Eight survivors from *Lotos* came ashore at Borve at 1730/20. From HX71 Kretschmer hit sank the *Crown Arun* (2,372T) after allowing her 25 crew to take to the boats. Stockhausen's victim, another straggler, was *Tregenna* (5,242T) and again all her crew were saved. ADM 199 372. ADM 199 377. Rohwer : 1999. Slader : 1988. *Lloyds War Losses* vols 1 and 2.

⁴⁴ Showell : 1989 p. 42.

Ireland, *Jervis Bay* was diverted to a westbound convoy. The Western Approaches escort was not expected to join until the afternoon of 21 September so, for 20 critical hours, HX72 would be undefended.

Prien signalled the convoy's course and speed and Dönitz ordered a wolf pack consisting of *U-29* (Schuhart), *U-32* (Jenisch), *U-43* (Ambrosius), *U-46* (Endrass), *U-47* (Prien), *U-48* (Bleichrodt), *U-65* (Stockhausen), *U-99* (Kretschmer) and *U-100* (Schepke). Prien shadowed the convoy until the next day when he, Kretschmer, Bleichrodt and four other boats formed a wolf pack, later joined by Schepke in *U-100*.⁴⁵

HX72 was still well out to sea at 2024/20 September, when *U-138* (Luth) attacked the outbound OB216. *New Sevilla* (13,801T), *Boka* (5,560T) and *Empire Adventure* (5,145T) were all torpedoed in quick succession ten miles north-west of Inistrahull.⁴⁶ Luth followed the convoy for four hours, then, at 0124/21, *City of Simla* (10,138T), outbound for Bombay, was torpedoed on the starboard side abreast the mainmast. She took on a heavy list to starboard, but righted herself and began to settle rapidly by the stern.⁴⁷ The sloop *Scarborough* dropped three patterns of depth charges on an asdic contact, but Luth escaped unharmed.

Meanwhile, at 22° west, from HX72, 11 ships were sunk, two were damaged and more than 100 merchant seamen died.

Time	Ship	Tons	Cargo	Bound	Crew	Lost	By
0112/21	<i>Invershannon</i>	9,154	13,241 tons of Admiralty fuel oil.	Curacao - Scapa	47	16	U-99
0319/21	<i>Baron</i> <i>Blythswood</i>	3,668	5,450 tons of iron ore.	Wabana - Port Talbot	35	34	U-99
0349/21	<i>Elmbank</i>	5,156	Timber and metals.	Cowichan - Belfast.	56	1	U-99 U-47
0414/21	<i>Blairangus</i>	4,409	1,852 fathoms of pit props.	St John's - Methil.	34	7	U-48
2210/21	<i>Canonesa</i>	8,286	7,265 tons of refrigerated and general cargo	Montreal - Liverpool	63	1	U-100
2210/21	<i>Torinia</i>	10,364	13,815 tons of Admiralty fuel oil	Curacao - Clyde	55	5	U-100
2213/21	<i>Dalcairn</i>	4,608	8,000 tons of wheat.	Montreal - Hull	42	0	U-100
2238/21	<i>Broompark</i>	5,136	5,136 tons of lumber and metals.	Vancouver - Glasgow		1	U-48
2322/21	<i>Empire Airman</i>	6,586	7,000 tons of iron ore	Wabana - Cardiff	37	33	U-100
2330/21	<i>Frederick S. Fales</i>	10,525	13,849 tons of Admiralty fuel oil.	Curacao - Clyde	48	16	U-100
2350/21	<i>Scholar</i>	3,940	5,484 bales of cotton, 2,023 tons of steel, 965 tons of timber and other general cargo.	Galveston - Manchester	42	0	U-100
0114/22	<i>Simla</i> (Nor)	6,013	4,120 tons of scrap and 2,023 tons of steel.	Philadelphia - Tees.		5	U-100

⁴⁵ Ibid.

⁴⁶ *New Sevilla* sent an SSSS at 2025/20, then sank nine miles west of the Mull of Kintyre at 2310/21 while under tow of *Salvonia* and *Seaman*. *New Sevilla* carried 285 crew, two of whom died. *Arabis* picked up 107 survivors and others were aboard *Salvonia* and *Superman*. *Empire Adventure* was taken in tow by *Superman*, but sank west of Islay at 0350/23. Her Second Officer, Second, Third and Fourth Engineers and 16 crewmen were missing, though *Lloyds War Losses* gives 21 killed. Two survivors from *Boka* died after being picked up by *Vanquisher* making eight lost from her 34 crew. ADM 199 372. ADM 199 377. Rohwer : 1999. *Lloyds War Losses* vol. 1.

⁴⁷ One crewman and two passengers died. Thirty-two survivors were picked up by a trawler, others were landed at Lough Foyle by *Vanquisher* and 146 were picked up by the SS *Guinean*. UGD 131/1. ADM 199 372. ADM 199 377. Rohwer : 1999. Allen : 1996. Slader : 1988. *Lloyds War Losses* vol. 1.

At daybreak on 22 September a litter of broken and sinking ships, wreckage and oil marked the track of HX72. *Shikari* was proceeding to Londonderry with survivors from *Torinia* and *Scholar* when, at 0615/22, *Collegian* (7,886T) signalled that she was exchanging fire with a surfaced U boat. At 0749/22 *Collegian* signalled that the U boat, actually *U-32*, had disappeared. *Skate*, *Shikari*, *Lowestoft* and *Heartsease* came up and *Lowestoft* depth-charged a contact, but *U-32* got away.⁴⁸

The survivors of HX72 straggled into the Clyde over the following two days, among the last to reach safety being *Pacific Grove* (7,117T) and *Broompark* which were together in the North Channel on 24 September escorted by the corvette *La Malouine* when they were attacked by an enemy aircraft. *La Malouine* was overcrowded with 118 survivors and was lucky to escape damage. *Broompark* and *Pacific Grove* suffered minor bomb damage.⁴⁹

There was little U boat activity in the North Western Approaches during the ensuing fortnight, though *U-137* did intercept OA219 late on 25 September and sank *Manchester Brigade* (6,042T) with the loss of all but four of the 62 aboard and the tanker *Stratford* (4,753T), and damaged *Ashantian* (4,917T). Finally, at 0310/26, *U-137* sank the Norwegian *Asgerd* (1,308T). In bad weather, *Scimitar* was unable to find any survivors.⁵⁰

At 0520/30, while escorting OA220, the destroyer *Rochester* collided with a lifeboat from *Marbrinton* (6,694T) which had been torpedoed 300 miles west of Islay on 24 September. Seven survivors were picked up, but another boat with 16 aboard had last been seen sailing east on the 26th so air sweeps were mounted to find them. The missing boat was sighted in 5647N 1102W and the survivors were picked up by the sloop *Jason*.⁵¹ *U-58* sank *Confield* (4,956T), a straggler from HX76, in 5648N 1017W at 2030/8 October.⁵² SC6 was attacked at 2110/9 in 5811N 1357W by *U-103* and the Greek *Zannes Gounaris* (4,407T), *Craigwen* (3,697T) and the Greek *Delphin* (3,816T) were torpedoed at intervals of one minute.⁵³

British listening stations picked up a U boat signalling from 5657N 2000W at 1259/11 October and deduced that a U boat had sighted the 32-ship HX77. The signal came from Bleichrodt's *U-48* and his attack on the convoy began at 2050/11 with the sinking of the

⁴⁸ The BdU KTB for 22 September 1940 quoted in Padfield : 1983 pp. 219-220 states, 'Because of accurate shadowing reports, this convoy was attacked altogether by five boats which were originally up to 350 miles away from the point of first sighting... The actions of the last few days have shown that the principles established in peacetime for using radio in contact with the enemy and training the U-boat arm to attack convoys were correct.' This conclusion was wrong, at least in respect of radio communication, which was to prove the U boat's Achilles heel.

⁴⁹ *Broompark* suffered one man dead. ADM 199 372. *Lloyds War Losses* vol. 2.

⁵⁰ ADM 199 372. Rohwer : 1999. *Lloyds War Losses* vols 1 and 2.

⁵¹ *Marbrinton* had been torpedoed by *U-32* (Jenisch) and sank in about 30 minutes. The boat run down by *Rochester* was overcrowded with 19 men. Ibid. ADM 199 142.

⁵² Thirty-one survivors from *Confield* were picked up by *Periwinkle*. At 1210/9 *Weston* reported *Confield* still afloat on her timber cargo and with Captain Sage and four men aboard, but awash as far aft as amidships. The men were taken off at 1330/9 and *Confield* was despatched. ADM 199 372. ADM 199 1707. Wynn : 1997. Rohwer : 1999.

⁵³ *Delphin* was last seen drifting towards Rockall by *Hastings* at 1230/12. All of her crew survived. *Craigwen* carried 34 crew of whom seven were lost. She stayed afloat until despatched by a torpedo from *U-123* late on 10 October. One man was lost from *Zannes Gounaris*. ADM 199 372. Wynn : 1997. Rohwer : 1999. *Lloyds War Losses* vol. 1.

Norwegian *Bradanger* (4,624T). Another Norwegian, *Emma Bakke* (4,721T) was torpedoed and sunk at 2100/11, then *Port Gisborne* (8,390T) was sunk nine minutes later. The Norwegian tanker *Davanger* (7,102T) was torpedoed at 2314/11, and, at 2340/11, the Commodore ship *Empire Audacity* signalled that she too was being attacked, but she survived and was found proceeding alone in 5622N 1154W by *Periwinkle* at 1515/13.⁵⁴

Bleichrodt's sighting report brought more U boats towards HX77 and, at 1919/12, *Pacific Ranger* (6,856T) was sunk in 5620N 1143W by *U-59*. *U-101* torpedoed and sank the Canadian *St Malo* (5,779T), a straggler from HX77, at 2225/12. *U-103* sank the Estonian *Nora* (1,186T) at 0746/13, *U-138* torpedoed and damaged the Norwegian *Dagrun* (4,562T) at 1432/13 and *U-37* sank *Stangrant* (5,804T) at 1957/13.⁵⁵ The AMC *Cheshire* (10,552T) sighted oil and wreckage from HX77 some 120 miles west of the Bloody Foreland at 2000/14 and began searching for survivors. From D/F fixes it was known that U boats were in the vicinity, so she steered a zig-zag course, but was torpedoed at 2028/14. The torpedo from *U-137* tore a 36-foot hole in her starboard side, but *Skeena* and *Gladiolus* escorted her safely into the North Channel.⁵⁶

That night, OB227 was attacked west of the Butt of Lewis by *U-93* (Korth) and *U-*

138 (Luth). Korth sank *Hurunui* (9,331T), then Luth sank *Bonheur* (5,327T) and hit the tanker *British Glory* (6,993T) at 0410/15. *Pirouette* picked up 43 survivors from *British Glory*



In addition to their anti-submarine duties, in fine weather the Oban-based Sunderlands undertook air-sea rescue operations.

Stangrant was inbound for Belfast with steel and scrap in HX77 when she was torpedoed and sunk by *U-37* on 13 October 1940. A Sunderland found 21 of her crew in a boat west of the Hebrides on 15 October and, as seen above, brought them to Oban.

⁵⁴ Six of *Bradanger's* crew were lost, 24 survivors were picked up by *Clarkia*. *Salvonja* searched for the *Emma Bakke* but found only wreckage. *Port Gisborne* carried 64 crew, 26 of whom died. Survivors were picked up by *Salvonja* on 21 October - see below. Twelve were picked up from *Davanger*, 17 died. ADM 199 372. *Lloyds War Losses* vol. 1.

⁵⁵ *Pacific Ranger's* 53 crew were picked up, 19 of them by *Antelope* escorting OB230. Sixteen of *St Malo's* 44 crew were picked up, along with survivors from *Port Gisborne*, by *Salvonja* on 20 October. *Nora's* Master and 18 of her crew were picked up by *Leith*, which was escorting SC7, on 18 October. *Dagrun* reached the Clyde under her own steam. *Leith* also found 17 *Stangrant* survivors while the action around SC7 was at its height. Another 21 were picked up by an Oban Sunderland, but a boat with 16 aboard was lost despite having been sighted by a Sunderland on 16 October. ADM 199 59. ADM 199 372. Rohwer : 1999. Wynn : 1997. *Lloyds War Losses* vol.s 1 and 2.

⁵⁶ Rohwer : 1999. Wynn : 1997.

and the trawler *Sphene* picked up *Bonheur's* crew of 39. Later that afternoon, at 1615/15, the convoy was attacked by *U-103* and the *Thistlegarth* (4,747T) was sunk.⁵⁷

At 0003/16 October, half way between Iceland and the Hebrides, *Leith* gained a contact 1,200 yards ahead of SC7, then sighted a hastily submerging U boat and fired three patterns of depth charges before Asdic contact was lost. *Leith's* target had been Bleichrodt's *U-48* and, on the basis of her sighting report, Dönitz ordered *U-38* (Liebe), *U-46* (Endrass), *U-99* (Kretschmer), *U-100* (Schepke), *U-101* (Frauenheim) and *U-123* (Moehle) to converge on the convoy.⁵⁸ SC7 had comprised 35 ships but, while *Leith* was attacking *U-48*, *U-124* had found the straggler *Trevisa* (1,813T), a 25-year-old Canadian Laker unsuited to the North Atlantic. Fourteen survivors were picked up at dawn by *Keppel*.⁵⁹ That afternoon, another U boat was D/Fd west of Shetland in 60N 15W, in the track of OB228. Later, at 2020/16, an air patrol reported a U boat in 5956N 1500W. This was Korth's *U-93* and, at 0217/17, he sank the Norwegian *Dokka* (1,168T) and *Uskbridge* (2,715T).⁶⁰



Leith, a Grimsby class sloop under Commander Roland Allen, was part of the escort for SC7 in October 1940. Capable of 20 knots and well armed, these 1,000 ton ships appeared to be ideal convoy escorts. But they proved too fragile for the North Atlantic in winter and were employed thereafter on more temperate stations.

Bleichrodt, meanwhile, followed the 34 ships and four escorts of SC7 past Rockall until, at 0400/17, he torpedoed the tanker *Languedoc* (9,512T), *Haspenden* (4,678T) and *Scoresby* (3,843T).⁶¹ At 0817/17 a Sunderland attacked *U-48* in 5911N 1750W with two depth-

⁵⁷ Hit by one torpedo, *Hurunui* sank in 18 minutes, one man dying in the explosion, another drowning while abandoning ship. The other 72 were picked up by SS *St Margaret* before being transferred to Fowey. *Englishman* and *Schelde* sailed Greenock to *British Glory* then 30 miles west of Barra Head. The tanker was beached in Kames Bay on 18 October, then dry-docked for repairs. *Heartsease* picked up nine survivors from *Thistlegarth* on 18 October. The survivors said that another boat containing 29 crew and one gunner was making for the shore. ADM 199 59. ADM 199 372. ADM 199 377. ADM 199 397. ADM 199 1707. Rohwer : 1999. Wynn : 1997. *Lloyds War Losses* vols 1 and 2.

⁵⁸ Flotillenadmiral Otto Kretschmer recalled the attack on SC7 for the *World At War* television series, part 10: *U Boats in the Atlantic 1939-1944*.

⁵⁹ HMCS *Ottawa* sank *Trevisa* by gunfire. The survivors were landed at Greenock at 1705/17 by *Keppel*. ADM 199 372. *Lloyds War Losses* vol. 1. Rohwer : 1999.

⁶⁰ Ten died in *Dokka* and seven survivors were picked up by *Folkestone*. *Uskbridge's* boiler exploded and her crew abandoned shortly before she sank. ADM 199 1707. Rohwer : 1999. *Lloyds War Losses* vol. 1.

⁶¹ *Languedoc's* 79 crew got away in boats after firing a distress rocket and were picked up by *Bluebell*. *Scoresby's* crew got away in four boats and were picked up at dawn by *Bluebell* which then closed the still-floating *Languedoc* which was beyond saving and, at 1127/17, *Bluebell* sank her. ADM 199 121. ADM 199 372. ADM 199 377. ADM 199 1707. Rohwer : 1999. Lund & Ludlam : 1973. Slader : 1988. *Lloyds War Losses* vol. 1.

charges and a 250lb bomb, and a patch of oil was seen five minutes after the second attack. The aircraft signalled the position to *Scarborough* but the response by the escorts was muddled and *U-48* got away. The pack attack on SC7 began that evening and first to be hit was *Matheran* (7,653T), torpedoed and sunk by *U-38* (Liebe). Second to go was the Dutch *Bilderdijk* (6,856T) immediately astern of *Matheran* and hit as she altered course to avoid her. Five minutes later the *Uganda* (4,966T), Montreal for Milford Haven with 2,006 tons of steel and 6,200 tons of lumber, and immediately astern of *Bilderdijk*, was also torpedoed by *U-38*.⁶² As *Whitehall* and *Arabis* swept down the starboard side of the convoy and *Jason* swept down between the eighth and ninth columns, the convoy made two emergency turns, first 40° to port, then, at 2155/19, the original course of 080° was resumed. By 2150/19, however, a steady drizzle had reduced visibility and the tanker *Shirak* (6,023T) did not see the signal to resume 080° and became separated from the convoy and, at 2235/19, was torpedoed by *U-47*. *Blackfly* was picking up *Shirak*'s crew from three boats at 2326/19 when *Shirak* was hit by another torpedo, this time from Bleichrodt's *U-48*. Lieutenant Commander George Cooper in *Sturdy* wrote that, '...the torpedoed tanker suddenly blew up and lit up the whole of the western and northern sky for miles.'⁶³

Meanwhile, to the south-east, two tankers, the Swedish *Caprella* (8,230T) and *Sitala* (6,218T) had been torpedoed by *U-100*. *Sitala* was Manchester-bound with 8,444 tons of fuel oil and one of her 45 crew died. *Caprella* carried 11,300 tons of fuel oil and the explosion near the main pumproom on her starboard side amidships broke her back. The starboard lifeboat was hurled across the deck and smashed, sheets of flame shot up over the bridge and her bow and stern began to rise as she settled. The Chief Officer was lost, but 52 others were picked up by *Lady Elsa*.⁶⁴ The convoy made another emergency turn 40° to port but *Wandby* (4,947T) was torpedoed by *U-46* (Endrass) at 2322/19. A minute later, another of Endrass' salvo found the *Ruperra* (4,548T). Lieutenant Commander Russell in *Whitehall* heard a heavy explosion at 2326/19 and reported that *Ruperra* burned fiercely for four hours, 'making the firing of star shell unnecessary'. At 2337/19 *La Estancia* (5,185T), Methil-bound with 8,333 tons of sugar, was sunk by two torpedoes from *U-47*.⁶⁵

Following SC7 inbound was 48-ship HX79 which was joined early on 19 October at 20° W by the escort from OB229. The convoy was attacked that evening by *U-38* which sank *Matheran* (7,653T) and *Uganda* (4966T) in quick succession. By 0620/20 attacks by four U boats including Prien's *U-47* and Schepke's *U-100* saw twelve ships torpedoed, eleven of

⁶² Rohwer credits Prien with the *Bilderdijk*, but the KTB derived timings given in Rohwer : 1999 do not correspond with the convoy report. In addition, her position in the convoy and the fact that the attack came from the same side and general area, would tend to indicate that Liebe was responsible. ADM 199 2057. Rohwer : 1999.

⁶³ Cooper's report and *Blackfly*'s actions in ADM 199 59. Rohwer : 1999. *Lloyd's War Losses* vol. 1.

⁶⁴ The trawler *Angle* put a crew aboard the *Sitala* at 1200/21 and she got under way, then sank at 0700/22, the volunteer crew being rescued by catley float. ADM 199 59. ADM 199 1707. ADM 199 2057. Lund and Ludlam : 1973.

⁶⁵ Ibid. ADM 199 2057. Rohwer : 1999.

which, totalling 65,104 GRT and including four tankers, sank. Meanwhile, the escorts were once again reduced to the role of lifeboats, picking up survivors. Counter-attacks were impeded by the inclusion of the Dutch submarine *O-14* as part of the ocean escort and Lieutenant Commander Russell, SO escort in *Whitehall*, wrote that her presence astern of the convoy, 'hindered the escort vessels considerably'.⁶⁶ One rare counter attack began at 0005/20 when the corvette *Hibiscus* sweeping down the starboard side of the convoy gained asdic contact. Depth charges were dropped, but contact was lost.⁶⁷ Lieutenant Commander Cooper in *Sturdy* wrote, 'Further attacks were expected on 20th October, but none materialised. A large diversion to the S.E. after dark was an effective counter-measure.'⁶⁸

Operational difficulties meant that only one more large-scale attack was mounted in the North Western Approaches in 1940. This pack attack, on HX90 between 1 and 3 December, left 12 ships totalling 78,316 GRT sunk and one ship of 3,862 tons damaged. Among the losses with HX90 were two tankers and the AMC *Forfar*. A week later, Kapitanleutnant Lehmann-Willenbrock in *U-96* mounted a lone attack on HX92 west of the Hebrides, sinking four ships totalling 26,111 GRT and damaging the tanker *Cardita* (8,237T).⁶⁹

Throughout this period, while B-deinst, the German decryption service, had provided excellent intelligence of British sailing schedules, U boats were still spending too much time looking for convoys. And open-ocean reconnaissance was something for which U boats, unstable platforms while surface running and with poor height-of-eye, were singularly ill-suited. This wasteful deployment of scarce assets was only necessary as cooperation from the Luftwaffe in the reconnaissance role was negligible.

⁶⁶ *Sturdy's* Lieutenant Commander Cooper wrote that, early in that night's attack, he had seen a submarine off to starboard of the convoy. 'This looked like *O-14*,' he wrote, 'but there were doubts at the time.' It is likely that this was indeed *O-14* as, after the *Shirak* was torpedoed, the submarine had turned 90° to starboard and narrowly missed being rammed by the SS *Induna* who thought her hostile. *O-14's* inclusion as part of the ocean escort was ill-advised. ADM 199 59. ADM 199 1707.

⁶⁷ At 1402/21 *Whitehall* signalled survivors accounted for from HX79 were, *Uganda*: three in *Whitehall* and 38 in *Jason*; *Bilderdyk*: 39 in *Jason*; *Whitford Point*: three in *Sturdy*; *Ruperra*: 35 in *Coreopsis* and two in *Courtier*; *Caprella*: 52 in *Lady Elsa*; *Sitala*: 43 in *Lady Elsa*; *Janus*: 33 in *Hibiscus*; *La Estancia*: seven in *Courtier*; *Matheran*: two in *Loch Lomond* since torpedoed. It was separately reported that 37 survivors from *Shirak* were in *Blackfy*. ADM 199 59. ADM 199 372. ADM 199 1707. ADM 199 2057. ADM 234 372. Rohwer : 1999. Wynn : 1997.

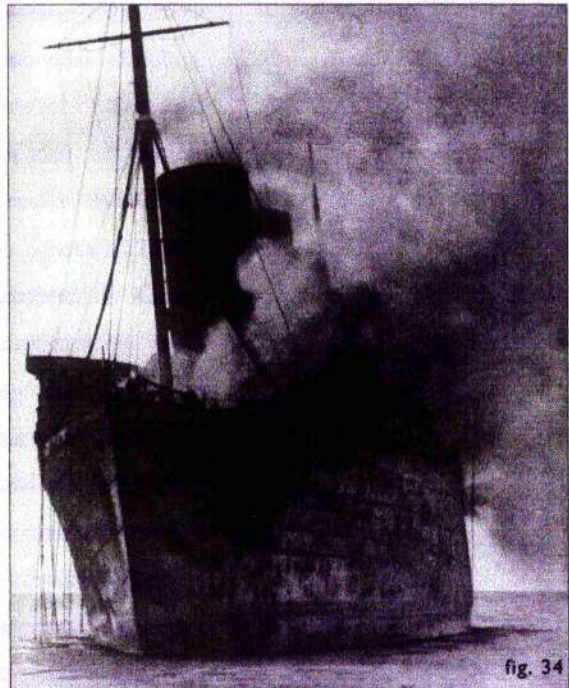
⁶⁸ Cooper's report is in ADM 199 59. *Sturdy* did not long outlast HX79. On 26 October she sailed Londonderry to escort SC8. *Shikari* and *Sturdy* searched for the convoy but were unable to find it in appalling weather. During the night of 28-29 October the two destroyers lost sight of each other and *Sturdy* was low on fuel, so Cooper turned for home. With a full gale blowing, and the ship light, speed was reduced to 5½ knots. At 0420/30 *Sturdy* ran ashore on the west side of Islay. Distress signals were sent, giving the wrong position, and Tobermory Lifeboat found nothing. Five men died taking lines ashore. Cooper was initially cleared of blame by C-in-C Western Approaches but Their Lordships disagreed stating that he should have established an echo sounder watch and should have requested a D/F fix. An acrimonious exchange of letters led to a Court Martial at which Cooper was found guilty. ADM 1 11542. Moir & Crawford : 1994 p. 194.

⁶⁹ ADM 199 377.

LUFTWAFFE OPERATIONS OVER THE NORTH WESTERN APPROACHES

On 6 January 1941, the Luftwaffe reluctantly handed over control of the Focke Wulf 200s of 1/KG40 to the Kriegsmarine. In an uncanny parallel with the British dispute over Coastal Command, the Luftwaffe's maritime capability had, by then, been the subject of a six-year wrangle between Göring and Raeder, with maritime interests invariably coming off worst. Early Luftwaffe interventions against shipping targets around Britain, and Scotland in particular, were poorly directed and little more than irksome. Then a long-range reconnaissance wing, 1/KG40, was formed at Merignac in Brittany in July 1940 with the fragile FW200 *Kondors*, albeit still firmly under Luftwaffe control.

Two *Kondors* appeared over the North Channel early on 16 September, one setting the trooper *Aska* on fire off Rathlin Island, the other damaging *City of Mobile*.⁷⁰ At 1000/8 October a KG/40 *Kondor* sighted five ships north-west of Malin Head and attacked the largest of these, the trooper *Oronsay*, with four 250kg bombs, one of which hit. *Oronsay* eventually made the Clyde with four dead and 12 injured. Three weeks later, on 26 October, a *Kondor* scored one of the most significant anti-shipping victories during the Battle of the Atlantic when it set the Canadian Pacific liner *Empress of Britain* (42,348T) as she approached the North Channel.⁷¹ OB234 was attacked outside Belfast Lough the following day by another *Kondor*, one ship being damaged, and this aircraft reported that the *Empress* was still burning fiercely throughout her length as it passed.⁷²



Empress of Britain, first bombed and set on fire, then torpedoed and sunk, off the North Channel, was the largest Allied merchant ship lost in the war.

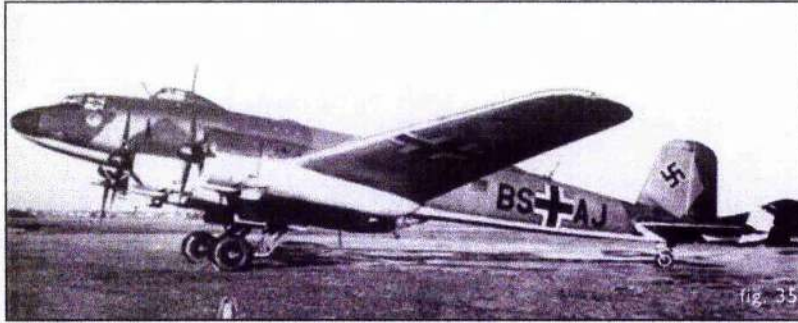
A *Kondor* attacked HX84 west of the North Channel on 8 November, damaging the *Empire Dorado* (5,595T) which made the Clyde safely, and the Swedish *Vingaland* (2,734T) which was sunk the following day by the Italian U boat *Marconi*. The coaster *Sandra* (1,028T) was

⁷⁰ Eleven of *Aska's* 186 crew died along with 19 of the 358 French Colonial troops aboard. Survivors were picked up by *Hibiscus* and *Jason*, the Dutch MV *Princes Irene* and several trawlers. The abandoned *Aska* drifted ashore on Cara Island, still burning, the following day. ADM 199 372. *Lloyds War Losses* vol.1. Laxon and Perry : 1994 p.174.

⁷¹ Twenty five crew and 20 passengers died, then the gutted derelict was torpedoed and sunk while under tow for the Clyde. ADM 199 372. Seamer : 1990. *Lloyds War Losses* vol.1.

⁷² *Lloyds War Losses* vol. 2. Allen : 1996.

missed by bombs from a *Kondor* near Rathlin on 16 December and the *Trevarrack* was badly damaged by another *Kondor* on 29 December. The rescue tug *Englishman* and the steamer *Temple Mead* were bombed and sunk near Tory Island on 21 January, all 18 aboard the tug and 14 of the crew of the *Temple Mead* died.⁷³ Two convoys were attacked west of Islay on the morning of 28 January and the steamers *Pandion* and *Baron Renfrew* were damaged. A Coastal Command Sunderland engaged this *Kondor* and both aircraft retired damaged. Further west, the *Grelrosa* (4,574T) was sunk by two near misses from another *Kondor* and five of her crew were lost.⁷⁴



I/KG40's Fw200C *Kondors* ought to have played a more significant role in the Battle of the Atlantic, but they were all but neutered by a turf war between Dönitz and Göring over who should have operational control over these valuable aircraft.

The sinking of the *Grelrosa* at 15° west was possible only because the *Kondors* were by then operating from France and Norway, thus affording them a considerably increased operating range over the Atlantic. This combined with the transfer to Kriegsmarine control meant that the aircraft could be used to gather effective intelligence for U boats in the North Western Approaches. An early example of this new coordination of effort came when, at 1206/22 February 1941, a *Kondor* attacked OB288 in the Minch shortly after the convoy had left Loch Ewe. The destroyer *Malcolm*, leading the escort, reported that no ships were damaged, but the sighting report from the aircraft led to a patrol line of six U boats being established across the convoy's expected line of advance. OB288 lost seven ships sunk in the ensuing battle. Prien's *U-47* returned the complement four days later, homing *Kondors* onto OB290. Two ships were damaged and Holt's *Anchises* (10,000T) was sunk with the loss of 13 crew and three passengers.⁷⁵

Then, at 1435/2 March 1941, Hurricanes of 3 Squadron claimed to have damaged a *Kondor* east of Sumburgh. But this aircraft reported OB292 west of the North Channel and *U-70*, *U-47*, *U-95*, *U-99*, *U-108* and *U-552* were directed to form a patrol line west of Rockall across its expected line of advance. At 1350/4 a JU88 was intercepted by 253 Squadron six miles south west of Sumburgh and claimed as damaged. This aircraft reported OB292's latest position, leading to the repositioning of the U boat patrol line formed on 2 March,

⁷³ ADM 199 658. *Lloyds War Losses* vol. 1.

⁷⁴ ADM 199 658. Military Archives, Freiburg, RL7 Ic 28/1/41 quoted in Allen : 1996. *Lloyds War Losses* vol. 1.

⁷⁵ *Ibid.*

but the convoy was routed away and not sighted. The U boats did find the following convoy OB293, sinking three ships from that convoy and damaging three more.⁷⁶

Cooperation between the Luftwaffe and U boats in the North Western Approaches was never properly exploited and, from April 1941, losses of fragile *Kondors* began to mount. On 18 April *Kondor* F8+AB attacked OB346 and hit *Pilar de Laranga* with one bomb, but the ship's gunners returned fire and the aircraft crashed. 1/KG40's Staffelfapitan Fleigel was a serious loss as he had been continuously in action against Allied shipping since the unit moved to Bordeaux in July 1940.⁷⁷

BALANCE SHEET IN THE NORTH WESTERN APPROACHES 1940

The first table below gives sinkings, due to enemy air and U boat activity, in Scottish coastal waters and the North Western Approaches, of ships of all nations during the last seven months of 1940 when the trade war was at its most intense off the Hebrides. It includes data on sinkings of AMCs, principally as the loss of these ten large liners, ideal troopships as they were, would have serious consequences in 1942 and thereafter.

1940	Merchant Ships of all nations		Royal Navy AMCs	
	Number sunk	Gross Tonnage	Number sunk	Gross Tonnage
June	8	30,274	3	51,273
July	19	100,343	-	-
August	42	211,559	2	31,930
September	53	265,772	1	10,552
October	65	336,970	-	-
November	35	147,431	3	44,202
December	23	142,298	1	16,402
Total	245	1,235,347	10	143,807

Included in the above are 67 non-British flagged vessels weighing in at 250,753 GRT sunk in Scottish coastal waters and the North Western Approaches during this period, among them 17 Norwegians, 14 Swedes, 10 Dutchmen and 13 Greek vessels. This table gives data on British-flagged tonnage only.

1940	British flagged ships sunk in NWA	Total of British flagged ships sunk	%age of total sunk lost in NWA	British tonnage sunk in NWA	Total British flagged tonnage lost	%age of British tonnage sunk lost in NWA
June	7	67	10%	25,168	283,400	9%
July	16	68	23%	92,259	275,700	33%
August	28	59	47%	166,742	279,100	60%
September	41	66	62%	221,120	324,800	68%
October	45	68	66%	250,758	302,400	83%
November	25	76	32%	115,298	313,100	37%
December	16	63	25%	113,249	257,400	43%
Total	178	467	38%	984,594	2,035,900	48%

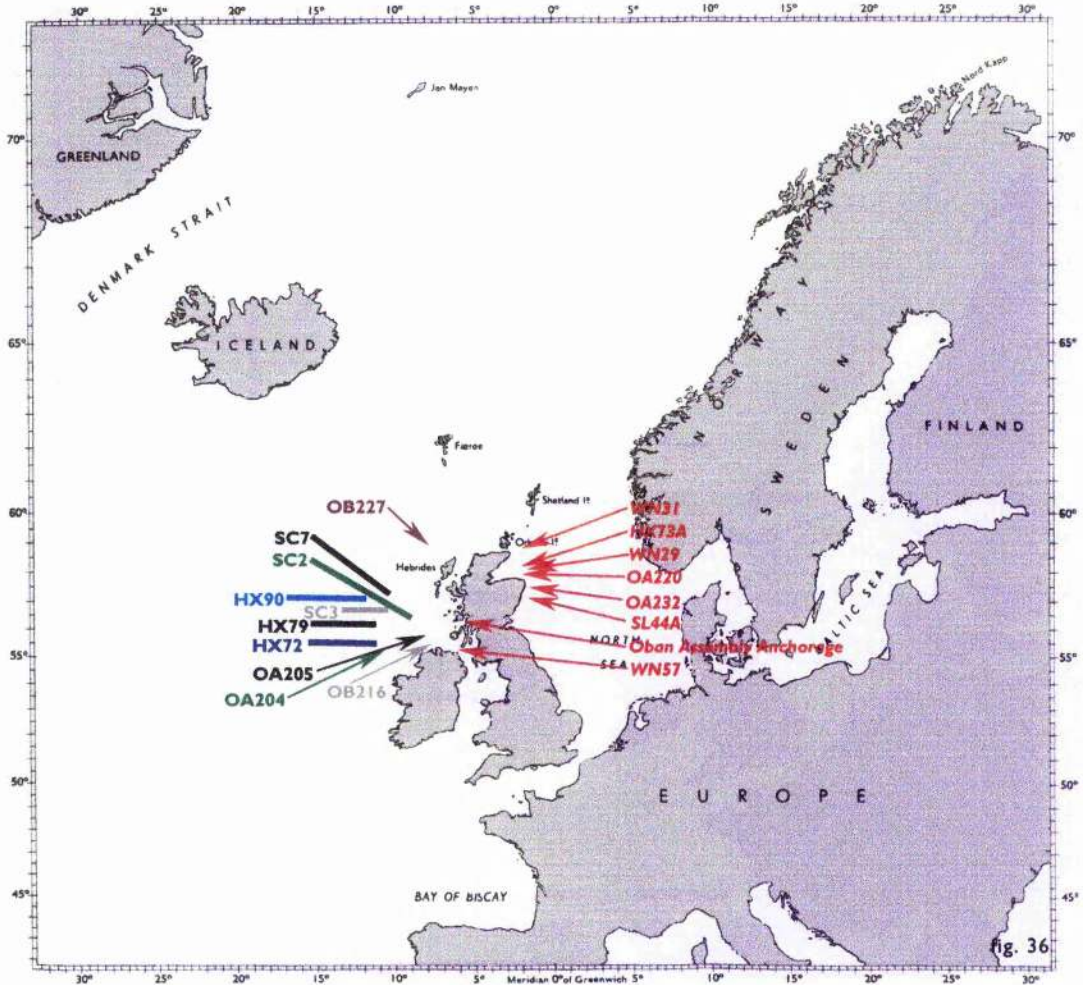
Principal sources: Various ADM and AIR series files. Rohwer : 1999. *Statistical Digest of The War* HMSO 1955 table 158. *Lloyds War Losses* vols 1 and 2.

Both tables demonstrate the intensity of the trade war off Scotland and in the North Western Approaches that followed on the German acquisition of French U boat bases

⁷⁶ AIR 25 250. ADM 199 397. Rohwer : 1999. Dunnett : 1960 p. 77. *Lloyds War Losses* vols 1 and 2.

⁷⁷ Ramsay *et al.* : 1985.

and Norwegian air bases. During the last seven months of 1940 almost half the total sinkings of British shipping due to enemy action took place either in Scottish waters or west of the Hebrides and North Channel. This war of attrition peaked in October with the battles around HX77, OB227, SC7 and HX79 when over 80% of total British tonnage sunk was lost in the North Western Approaches.



The principal convoy attacks off Scotland and in the North Western Approaches, September to December 1940. Sustained actions against convoys are shown as solid lines along its general line of advance. Air attacks are shown in red and italic type.

Losses at this level could not be sustained, but neither could the level of effort put in by the U boats in that month. November gales, crew exhaustion and poor U boat serviceability brought a respite for the British. Then, perceiving that convoys were being routed further north and that the British seaborne and airborne A/S forces were becoming more of a threat in the North Western Approaches, from November 1940 Dönitz began moving the U boat operational area north and then west, first beyond 15°

west and then, in April 1941, to the Newfoundland Bank.⁷⁸ But this brought its own problems. By early 1941 there were fewer operational U boats available than there had been at the outbreak of war and, when these went to sea, they were operating further from base and in far more inhospitable conditions. Then there was the difficulty of finding convoys when Luftwaffe co-operation was minimal.⁷⁹

For the British, pack attacks, and the resultant shipping losses at the end of 1940, came as a severe shock, but, as Padfield observes, ‘...in November 1940 a minor revolution in method was in train.’⁸⁰ Lessons were being learned, or, more to the point, expensively re-learned. There was a clear need for more effective central control of the anti-U-boat war to ensure the best use of scarce resources both in hardware and intelligence. Ports had to work more efficiently, turnaround times had to be reduced and ships, once at sea, had to be properly protected. Aircraft capable of longer range and armed with effective radar and weapons were needed, though had there been a staff history of the 1914-18 trade war, the effectiveness of aircraft against submarines would have been readily apparent.

In the intelligence field, and thanks to the work of its Submarine Tracking Room which had begun hypothesising future U boat dispositions using direction-finding and traffic analysis of then still undecrypted Kriegsmarine signals⁸¹, by the end of 1940 the Admiralty Operational Intelligence Centre had begun diverting convoys away from known concentrations of U boats.⁸² It was also apparent that, to counter the wolfpack, escort vessels must be trained and organised to operate as a group, using synchronized tactics that whenever possible, should also involve aircraft. ASV and surface ship radar, albeit primitive and unreliable, was coming forward, as was VHF radio equipment which allowed greater coordination between escort vessels themselves and between escort vessels and aircraft.

The first escort groups began forming at Greenock, Londonderry and Liverpool in October 1940 and, as we shall now see, Scotland’s role in working up the new escort groups, and in developing new A/S tactics, was crucial. Further, as will be demonstrated later in this chapter, Scotland played a significant role in the naval intelligence war and in the air war against the U boats, and the role of her main port complex on the River Clyde was crucial to the eventual Allied victory.

⁷⁸ Roskill : 1960 *The Navy at War* p. 93.

⁷⁹ *The U Boat War in the Atlantic* HMSO vol. 1 pp. 57-58, 62-64 and 73. Padfield : 1995 p. 101-120. van der Vat : 1988 pp. 254-259.

⁸⁰ Padfield : 1995 p. 104.

⁸¹ German Naval Enigma signals were not decrypted with any useful currency until April 1941. See section below entitled *Scotland’s Part in Breaking Enigma*.

⁸² Padfield 1995 pp. 103-104.

HMS *WESTERN ISLES* – ESCORT GROUP TRAINING

Losses in the Atlantic convoys at the end of 1940 had exposed serious shortcomings in the training and tactics of the naval escorts which, as described above, often found themselves reduced to the role of lifeboats, picking up survivors from sunken merchant ships they were seemingly powerless to protect. But the interwar years had seen the Royal Navy's anti-submarine warfare branch starved of resources. Excessive faith was placed in Asdic and A/S personnel were derided as 'Pingers' a soubriquet derived from the heterodyne pinging employed in Asdic to make the system audible to the human ear. Restrictions on fuel consumption had meant that A/S warfare exercises were conducted around well-rehearsed fleet manoeuvres rather than ill-disciplined merchant convoys. A/S attacks practised then were designed to counter the established British submarine tactics and British submariners who proposed night attacks on shipping were ignored.

Such was the shortage of escorts and trained personnel to man them when war broke out, at first there was no time to develop effective countermeasures to the U boat threat. In April 1940, First Sea Lord Dudley Pound instructed 62-year-old retired Admiral Gilbert Stephenson to set up a training establishment for British and French escort vessels at Lorient in France. By July, however, with the enemy lodged across the English Channel, too close for comfort to existing naval establishments in southern England, Stephenson set up shop at Tobermory on the Isle of Mull.⁸³ Tobermory offered a large, sheltered anchorage close to the railhead at Oban, with easy access to the sea. Above all, however, there the business of training could be conducted well away from possible enemy interference.

While elements of the Tobermory syllabus would be instantly familiar to present-day Royal Navy sea trainees, from the first Stephenson had to adapt pre-war sea training to take account of dilution by hostilities-only personnel. Nothing was taken for granted and every aspect of the newly commissioned ship's capability from machinery, navigation, ship-handling and administration to weapons and sensor systems came under scrutiny. In the case of a corvette, for example, Stephenson and his staff had just 16 days to turn the ship into an effective fighting unit capable of working as part of an escort group. So there was no time, as Baker notes in his biography of Stephenson, for emphasis on Naval traditions so much a part of peacetime training.⁸⁴ Stephenson said,

I decided we must have priorities – and my number one priority was *Spirit*: this was the first essential, the determination to win. Next came *Discipline*: it is no good being the finest men in the world if you are not going to obey orders. Third – *Administration*: making sure the work of the ship was evenly di-

⁸³ Signal in ADM 1 13255 dated 11 July 1940 from Admiralty to Cs-in-C, Captain A/S/W *et al*

Arrangements have been made for the A/S working up practices of newly commissioned ships to be carried out at Tobermory under the orders of Commodore Stephenson, who will be accommodated on shore at first and shortly in HMS *Western Isles* which has been fitted out as an A/S training ship. Hunt class destroyers will however continue to work up at Scapa for the present.

⁸⁴ For *Western Isles* syllabus, see ADM 199 1729.

vided; that meals were in the right place at the right time; that the whole organisation of the ship was both stable and elastic. Then, lastly – and this may surprise you – lastly, *Technique* – how to use the equipment. That would have been quite useless unless the spirit was right in the first place.⁸⁵

The first full day began with an inspection of the ship by Stephenson and his staff, then as many of her crew as could be spared went ashore for a film, aptly titled *Escort Teams At Work* to reflect the teamwork-based approach, and a pep-talk by Stephenson. The rest of that day, and the ensuing four days were taken up with intensive training in basic seamanship, boatwork, signalling, gunnery, depth charge and hedgehog drills, radar and A/S warfare instruction. On day six, ships sailed from Tobermory for two days of exercises with a submarine which had been relegated to training duties or a newly commissioned boat itself working up. Boarders were repelled, navigators worked out search patterns, engineering staff reacted to a series of notional disasters and seamen practised HAGGIS, the Tobermory-devised drill for boarding a surfaced U boat, trapping her crew inside and towing it to port.⁸⁶ Two further days of harbour training were followed by three days of A/S exercises in the Minches, the ships anchoring for the night in Loch Lathaich, then three more days at Tobermory which included night firing practice.

His staff may have missed little, but Stephenson's primary concern throughout was the basic procedural training of the men who would fight the ship, namely the A/S warfare command team and specialist weapons ratings. The programme was intensive, though not to the point of crew exhaustion, and one who went through the Tobermory scheme recalled how:

...every moment was packed with tension and exertion. Damage control crews learnt the position of every valve so that they could be located blindfolded in the total darkness of a closed compartment below the waterline. Gun's crews learnt to get off six broadsides in thirty seconds, on a rolling wet deck with another turret firing over their heads.

Towing warps were rigged and taken over to 'damaged' flotilla mates in sea boats under oars. Steering engines broke down. All electrical circuits failed. The cypher officer lost his cypher books. The galley stove was put out of action. High pressure hoses knocked ammunition parties off their feet. The ship's boats fell off their davits. Heavy depth charges were manhandled from ship to ship. Ladders between decks went missing.

...Fire in the Transmitting Station. Fire Number One thrower set to shallow. Torpedo starboard! Lower the port seaboat. Rig scrambling nets. Clear lower deck, hoist the starboard whaler. Wire round the port screw. Ship not answering her helm, - head paying off to starboard. Stream a fog buoy. Echo-sounding broken down, take a sounding with lead line and report the nature of the bottom. Depth charge adrift on the port side aft. Doctor required for an emergency operation on another ship. Rum jars broached by a near miss, what's your first action? Periscope to starboard. How far? Thirty yards. Open fire! Five rounds bearing green five-oh...And when you've done that lot and are climbing into your hammock – Get out and do it again, but this time faster. You heard the pipe, get fell in...

For the young recruit who had just completed his three months' shore training, it might have seemed that the instructors were being unnecessarily bloody-minded, but at this stage of the war there were enough people around who had seen and heard a tanker go up in a sheet of flame, or had been picked out of a freezing bog of oil fuel on a dark Atlantic night, to convince him that the effort was worthwhile.⁸⁷

By early 1943, with the convoy battles in the Atlantic and Arctic reaching a crescendo, To-

⁸⁵ Baker : 1972 p. 121.

⁸⁶ Operation HAGGIS described in Burn : 1998 p. 192 fn. 17.

⁸⁷ Burn : 1998 pp. 13-14.

bermory was working at full capacity. That January, the Director of Anti-Submarine Warfare noted that, while Fleet destroyers were working up at Scapa Flow and Western Approaches destroyers were working up at Londonderry;

Tobermory is the only working-up base available for new construction and recommissioned sloops, corvettes, trawlers, whalers and yachts and it is considered that, in general, these are in more need of concentrated working up than are destroyers.⁸⁸

Sloops and frigates were coming forward in large numbers, then destroyers began arriving at Tobermory due to a lack of facilities at Londonderry and Scapa but a lack of berthing space and staff meant that Stephenson had to turn them away. As Stephenson wrote on 2 February 1943,

If, for instance, Tobermory has a full complement of vessels working up, including trawlers and whalers, and a signal is received requesting that a destroyer be accepted for a week's work up, Western Isles has no option but to decline. This means that time, energy and space is being devoted to the working up of a trawler or whaler whose duties may be confined to escorting coastal convoys or the defence of Reykjavik harbour, in preference to a destroyer or corvette who may be required for the escort of ocean convoys, on the safe arrival of which our victory in this war is so largely dependent.⁸⁹

First Lord A. V. Alexander suggested cutting the training programme but the reaction of the Director of Minesweeping was typical. He wrote that he,

...would view with horror any relaxation of the already scanty training of A/S and M/S vessels.⁹⁰

Stephenson suggested that Loch Lathaich on the Ross of Mull some three miles east of the Sound of Iona, already in use by *Western Isles* as an anchorage, should be developed with facilities ashore at Bunessan. While Tobermory could deal with 240 vessels annually, the addition of Loch Lathaich would increase this to 350. But the scheme was abandoned in August 1943 when it was found that it would cost £100,000 and take nine months to complete. A former Coastal Forces establishment at Stornoway was about to be vacated and offered facilities in place. HMS *Mentor*, the Stornoway base, commissioned on 14 December 1943 under Commander D. M. Cann whom Stephenson seconded from Tobermory. *Mentor* was mainly to work up corvettes and smaller craft, leaving *Western Isles* free to concentrate on corvettes, frigates and Western Approaches destroyers.⁹¹

In addition to existing exercise areas west of Mull, two new exercise areas, necessarily also submarine sanctuaries, were established in the Minch. Area A for daylight exercises lay between Stornoway and Lochinver and Area B for night exercises stretched south from Rubha Reidh into the Sound of Raasay. Here ships exercised their AA guns in close range work against kite targets towed by an ML, submarines acted as radar and asdic targets and

⁸⁸ ADM 1 13255.

⁸⁹ Ibid.

⁹⁰ Ibid.

⁹¹ There were teething problems at *Mentor* as, when the base commenced operations on HMS *Plucky* on 16 December, there was no Gunnery Officer, other key personnel had not arrived, only two obsolete radar sets were available for instruction and ammunition was in short supply. ADM 1 13255.

MLs played the part of E boats.⁹²

As Coastal Command's Sunderlands began operating from Lough Erne in Northern Ireland in 1941 and long-range, shore-based aircraft began operating from airfields in the Outer Hebrides in 1942, so RAF Oban was relegated increasingly to a training role. On 17 May 1942 Wing Commander Tom Moseley met Stephenson at Tobermory to set up a programme of joint exercises involving aircraft from Oban and ships from *Western Isles* and *Mentor*. The first exercise took place two days later when 228 Squadron Sunderlands carried out radar approaches and dummy attacks on a submarine and escort vessels west of Iona.⁹³

The diminutive Stephenson was a larger than life character and his dynamism and eccentricities are legendary, so perhaps it was inevitable that his personal achievements at Tobermory would be overshadowed by anecdote. *Western Isles* and *Mentor* were in a difficult position in that, geographically at least, they came under Flag Officer Greenock, but in many respects Stephenson was directly responsible to the Director of A/S Warfare at the Admiralty, and C-in-C Western Approaches. Stephenson used this to his advantage, gaining a great deal of independence as a result, but his unconventional, forthright approach exasperated fellow officers and often got him into hot water.⁹⁴

At 2201/20 October 1944, Stephenson signalled C-in-C Western Approaches Max Horton:

HMS *Claver* the thousandth vessel to be worked up at Tobermory sailed at 2200 today.

Horton replied:

Hearty congratulations on the thousandth vessel. The unique methods of training employed and the high standards you have set have been of the utmost value in defeating the U-boat and preserving the old traditions. HELEN OF TROY's historic achievement was no greater although possibly gained with considerably less effort.⁹⁵

Mentor had to pay off on 15 November 1944 when the submarine sanctuaries in the Minch were closed after U boats began operating close inshore off the west of Scotland.⁹⁶ But training at Tobermory continued after the end of the war in Europe with sloops and Bay class frigates being prepared for service in the Pacific. In all, 911 ships had passed through *Western Isles* by the time it closed, some of them more than once. *Start Bay*, her crew the last of 1,139 to work up at *Western Isles*, sailed on 30 September 1945 and the base paid off on 5 November. By that time Stephenson had gone, his departure marked by 560 signals of thanks from ships that had worked up at Tobermory and Stornoway.

⁹² Ibid.

⁹³ Two months later, on 25 August 1942, Moseley died when a 228 Squadron Sunderland taking the Duke of Kent from Invergordon to Iceland crashed in Caithness. All aboard the aircraft except for tail gunner Sergeant Andrew Jack were killed. AIR 15 656 for the joint exercises. *After The Battle* magazine no. 37 for the Sunderland crash.

⁹⁴ ADM 1 12817 for successive interventions by Admirals Noble and Horton in 1942 and 1943 respectively.

⁹⁵ ADM 1 13255.

⁹⁶ The closure of *Mentor* did not take place due to a fall-off in demand, as stated by Goldrick in his paper (Chapter 12 *Work Up*) on Tobermory and other training in *The Battle of the Atlantic 1939-1945 - 56th Anniversary International Naval Conference*. Stephen Howarth and Derek Law (ed.s) published by Greenhill Books in 1994.

Tobermory and Stornoway provided sea training designed to weld an escort's crew into an effective fighting unit, and worked escorts together in groups under conditions as close as possible to those they were to meet with the convoys. Meanwhile, at Campbeltown, the A/S Training Flotilla based at HMS *Nimrod* gave officers and specialist ratings training in the use of asdic and radar equipment. The *Nimrod* syllabus was biased towards tactical A/S training in the most effective deployment of sensor arrays and weapons systems and the Campbeltown training staff establishment at 49 officers and 442 ratings was considerably larger than that at Tobermory.⁹⁷ In late 1943, the Campbeltown flotilla comprised 14 vessels including the large, modern A/S yacht *Shemara*, two elderly ex-French torpedo boats and several ancient trawlers. But the older vessels did not behave like modern escorts, having neither the turning circle, speed, acceleration or layout, and all but *Shemara* and the yacht *St Modwen* were fitted with obsolete A/S equipment. The older vessels were also unreliable, being defective as much as 60% of the time.⁹⁸ The flotilla was re-equipped early in 1944 to include two destroyers fitted, like *Shemara* and *St Modwen*, with Type 145 asdics and up-to-date radar, and four corvettes. Six trawlers fitted with earlier Type 123 and Type 127 asdics were retained for RN Patrol Service training.⁹⁹

A steady stream of worked-up ships and trained personnel were coming forward from Tobermory, Stornoway and Campbeltown, and escort and support groups based at Greenock, Londonderry and Liverpool were practising new tactics developed at sea and at the Western Approaches Tactical Unit in Liverpool. From late 1941 there was an ever-increasing emphasis on group training, that is training the escort group to operate as a team, all doing the same thing at the same time in response to an attack and with the minimum of signalled instructions. But, as we shall see later in this chapter, arguably the principal weapon in the A/S armoury would always be air cover.

SCOTLAND'S PART IN BREAKING ENIGMA

As Sebag-Montefiore rightly points out in his book on Enigma, the cryptanalysts at Bletchley Park who broke the German Naval codes could have done little without the British seamen who, at great risk to themselves, captured manuals and codebooks. And, from February 1940, Naval forces based in Scotland played a central role in successive 'pinches' of Enigma intelligence material.¹⁰⁰

⁹⁷ The Tobermory establishment was 230 all ranks. ADM 1 12918. ADM 1 13255.

⁹⁸ This meant that numerous extra engineering staff were required to keep the ships at sea, thus contributing to the high complement maintained at Campbeltown. The two French TBDs *La Cordelière* and *L'Incomprise*, though 40% and 30% defective, still required 66 personnel each to keep them available for day running. This was at a time when, for example, Combined Operations was desperate for such personnel to man its assault craft and it was this need to release manpower that principally drove the decision to modernise the flotilla. ADM 1 12918.

⁹⁹ *Ibid.*

¹⁰⁰ Sebag-Montefiore : 2000.

U-33 was laying mines in the Clyde at 0300/12 February 1940 when lookouts in the minesweeper *Gleaner* spotted her on the surface south of Arran. Kapitänleutnant Hans von Dresky dived but *Gleaner* gained asdic contact and fired a pattern of four depth charges. Von Dresky ordered *U-33* to the bottom and Lieutenant Commander Hugh Price in *Gleaner* turned figure eights overhead while the throwers were reloaded. At 0501/12 *Gleaner* dropped a pattern at slow speed and, at 0522/12, the badly damaged *U-33* was seen on the surface. Price ordered gun action and turned to ram in position 150° Pladda 4.8 miles. Five rounds were fired then, at 0530/12, the U boat scuttled. *Gleaner's* boats rescued nine and the naval trawler *Kingston* picked up 22, of whom 20 later died. Fishing trawlers picked up ten, two of whom died. Survivors revealed that *U-33's* first lay of five mines had been completed near the Mull of Kintyre.

Von Dresky, who did not survive, had distributed rotors for *U-33's* Enigma encyphering machine among his crew with orders that they be ditched when the sailors went over the side. But three rotors were discovered in the pocket of one survivor and sent to Bletchley Park. *U-33's* rotors gave British cryptanalysts the wiring pattern for two of the eight rotors used by Kriegsmarine signallers, but they did not provide the decisive breakthrough that would allow Naval Enigma to be read. Documents taken from the German patrol trawler *Polares* off Norway on 26 April 1940, and brought back to Scapa Flow, provided a limited break into Enigma, but a breakthrough would not come for almost a year.¹⁰¹

During CLAYMORE, the March 1941 Combined Operations raid on the Lofoten Islands launched from Scotland and described in detail in Chapter Five, a boarding party from the destroyer *Somali* took Enigma settings for the Home Waters network valid for February 1941 from the German trawler *Krebbs*. These allowed February messages to be decrypted, and, consequentially, the reconstruction of the all-important bigram tables which indicated message settings to the recipient.

On 9 May 1941, in what has become arguably the most famous naval operation of the war, *U-110* was captured along with a complete Enigma and a treasure trove of supporting documents. *U-110* sank under tow, but the hoard of Enigma material, which filled two packing cases and included a full set of bigram tables and an *Offizier* officer-only coding manual, was brought back to Scapa Flow on 12 May in the destroyer *Bulldog*. Meanwhile, on 10 May, three cruisers and four destroyers led by Admiral Holland in *Edinburgh* had sailed Scapa Flow for Operation EB, an expedition to capture the German weather-reporting trawler *München* known to be operating north-east of Iceland. The boarding party, once again from *Somali*, found manuals containing Home Waters rotor settings for

¹⁰¹ For *Gleaner's* report, see ADM 199 371. A detailed account of the sinking and the recovery of the Enigma wheels is in Sebag-Montefiore : 2000 ch. 6 *The First Capture*. See also Smith : 1998 p. 82. Drummond : 1960. Kahn : 1991.

June 1941. On 21 May *Bismarck* and *Prinz Eugen* sailed Bergen for the sortie that would lead to the destruction of both *Hood* and *Bismarck*, then on 4 June, one of *Bismarck*'s supply ships, *Gedania*, was captured along with cypher material and brought back to Scapa Flow.

These captures, in particular that from the *München*, allowed Enigma messages to be read currently for the first time. In mid-June, however, new bigram tables were introduced. Earlier tables, vital to the decryption process, had been reconstructed following the capture of Enigma wheels from *U-33* and *Polares*, but reconstructing the new 1941 tables would take time. A possible short cut would be to capture another weather trawler carrying the new tables, so Operation EC was mounted from Scapa Flow on 25 June 1941 by the cruiser *Nigeria* and the destroyers *Tartar*, *Bedouin* and *Jupiter*. The target was *Lauenburg* (344T) which had sailed Trondheim on the night of 27-28 May to relieve the *Sachsen*. From the movements of her predecessors, it was deduced that she would be at sea at least until the end of June and would thus be carrying Enigma settings for both June and July. *Lauenburg*'s signals were monitored and showed that, obligingly, she was maintaining a steady position near Jan Mayen Island. Then, in thick fog on 28 June, D/F bearings from *Tartar* and a home station brought the EC force within sight of her. *Nigeria* opened fire with 6" practice rounds and the trawler's crew took to their boats as the second salvo landed. A boarding party from *Tartar* searched the trawler, then she was sunk to avoid the possibility of her capture becoming known to the enemy. Among what Sebag-Montefiore describes as a, 'mass of charts and signalling papers,' were found the hoped for Enigma plug, rotor and ring settings. Taken together with previous pinches, the haul from *Lauenburg* allowed Bletchley Park to read naval messages almost concurrently until the end of July 1941, and time to reconstruct the all-important new bigram tables.¹⁰²

New bigram tables were introduced in November 1941, but, by a happy coincidence, Combined Operations were planning two Commando raids from Scotland against the coast of Norway, Operations ANKLET and ARCHERY. These raids are described in detail in Chapter Five, but before they sailed Scapa at the end of December 1941, a Naval Intelligence team was attached to the ARCHERY force in the hope of finding the new bigram tables. A small convoy was discovered in Ulvesund and, under fire from enemy troops ashore, the boarding party left the destroyer *Onslow* bound for the armed trawler convoy escort *Föhn*. The trawler's commanding officer was shot dead from *Onslow* in the act of throwing confidential books over the side, but a complete set of the new bigram tables was found in his cabin along with five Enigma rotors. Also during ARCHERY, the destroyer *Offa* captured a complete Enigma machine and another set of bigram tables from the armed

¹⁰² Sebag-Montefiore : 2000. Naval Intelligence report dated 19 June 1941 on *Lauenburg* in ADM 223 2. Winton : 1988 p. 182. Smith : 1998.

trawler *Donner*. Meanwhile, further north, during ANKLET, another Enigma machine, bigram tables, rotors and coding manuals were captured from the trawler *Geier* by a party from the destroyer *Ashanti*.¹⁰³

A fourth rotor was introduced to the Triton net used by the Atlantic U boats in February 1942 and this led to blackout that lasted until the end of the year when it was broken using material taken from *U-559* but, as Sebag-Montefiore writes:

The captures made during Operations ANKLET and ARCHERY helped to usher in a golden period for the Bletchley Park codebreakers. The Home Waters Naval Enigma settings used by Germany's surface ships, and by the U boats in the Arctic, were broken every day for the rest of the war... It was a codebreaking feat which was to save countless lives, especially in the Arctic.¹⁰⁴

Since the publication of the *The Ultra Secret* (Winterbotham : 1976) and the mass of titles that have followed, the Bletchley Park codebreakers have acquired almost mythical status being, in the eyes of some, almost single-handedly responsible for the Allied victory. But this has disguised the fact that Allied decryption successes were actually achieved through a partnership between Bletchley Park and the Royal Navy. And naval units operating from in Scotland played a central role in securing the vital intelligence and hardware that led to the breakthroughs in 1941 and 1942.

It would be quite wrong, however, to present the timeous decryption of German naval messages as the decisive factor in winning the Battle of The Atlantic. Many factors combined to bring about the defeat of the U boats, but Professor Rohwer deduced that, between June and December 1941, some 300 Allied merchant ships were saved by decrypt-derived intelligence which allowed effective evasive routeing.¹⁰⁵ This may be something of an exaggeration, but the loss of anything approaching that number of additional merchantmen would have significantly slowed the Allied build-up in Britain and had a knock-on effect on wider military operations. And, as will be seen in Chapter Six, decrypt-derived intelligence did much to ensure the success of Allied naval operations in northern waters, notably in the sinking of *Scharnhorst* in December 1943. There were blackouts when Home Waters Enigma could not be read, or only read after a considerable delay, but a powerful example of the value of the Scottish 'pinches' lies in the diversion of the Arctic convoy PQ12 away from the German battle group led by the *Tirpitz* in March 1942. Sadly, one blackout would coincide with the sailing of the ill-fated PQ17 that July.

¹⁰³ Sebag-Montefiore : 2000 pp. 185-197.

¹⁰⁴ Ibid p. 198.

¹⁰⁵ *The Operational Use of Ultra in the Battle of the Atlantic*. Paper by Dr. Jurgen Rohwer for the Medlicott Symposium, Edinburgh 1985 p. 19 ref. 2.

COASTAL COMMAND'S U BOAT WAR FROM SCOTLAND

As noted in Chapter One, Coastal Command went to war in 1939 hopelessly ill-equipped for the range of tasks it was presented with. Saddled with largely obsolete aircraft and a failed procurement programme, Coastal also spent much of the war playing second fiddle to Bomber Command's insatiable appetite for the latest equipment. But, as Buckley writes, Coastal was not initially expected to play a major role in the U boat war as the Admiralty held the view that Asdic and convoy would suffice to protect trade and the Air Staff wanted to concentrate on developing its heavy bomber force.¹⁰⁶

The efficiency of the few remotely modern operational aircraft and trained aircrew available in 1939 would be dramatically increased by radar, but the early ASV sets in service from January 1940 were scarce in number and, while they had a nominal range of 12 miles, they were only really capable of detecting large vessels at a range of up to four miles in favourable conditions. The much improved centimetric LRASV mk. III set, capable of detecting a convoy at 40 miles, and a surfaced U boat at 12 miles, was delayed until 1943, in no small measure due to Bomber Command's insistence that the landplane version, H₂S, should have priority. And even if they did find a target, until 1942 Coastal's A/S weaponry was wholly inadequate, most of its aircraft only carrying the useless 100lb Cooper bomb. One of these, dropped in error, hit a British submarine, the total damage amounting to four burst light bulbs.¹⁰⁷

Between September 1939 and May 1940, Coastal Command aircraft reported 102 U boat sightings and carried out 72 attacks, though, as the staff history acknowledges, many sightings, particularly in the early days, were 'extremely doubtful.'¹⁰⁸ But, from the first, and despite manifest shortcomings in aircraft, weaponry and training, Coastal exercised a disproportionate influence over the trade war, at least during the hours of daylight. From the moment when, on 31 July 1940, a Sunderland from Oban arrived over convoy OB191, forcing U-99 to break off its attack, and time and again thereafter, the arrival of aircraft over a convoy was enough to force a U boat to submerge, thus denying it speed and manoeuvrability and rendering it vulnerable to attack by the escorts. From late 1940, this led Dönitz to move the U boat operational area gradually westwards, away from the North Channel where a concentration of U boat activity would have proved most effective.¹⁰⁹

But the Admiralty remained greatly concerned at the lack of resources being made available to Coastal Command. Coastal's Air Officer Commanding wrote on 16 July 1940 of the

¹⁰⁶ *Air Power and the Battle of the Atlantic 1939-45*. Paper by John Buckley *Journal of Contemporary History* vol. 28 (1993).

¹⁰⁷ *The Battle of the Atlantic 1939-1945 - 56th Anniversary International Naval Conference*. Ch. 20 *Allied Land-based Anti-submarine Warfare* p. 373. Also Terraine: 1985 pp. 401-457.

¹⁰⁸ AIR 41 73 p. 377 appendix III.

¹⁰⁹ ADM 199 372. AIR 27 1298

need for an immediate increase in strength of three flying boat squadrons, one general reconnaissance squadron and two long-range fighter squadrons.¹¹⁰ The Whitleys of 102 Squadron had been lent from Bomber Command for A/S duties over the North Western Approaches in September 1940, but had been reclaimed by Bomber Command on 8 October, just as the U boat war was beginning in earnest. Not including 16 Group covering the Channel and southern North Sea, Coastal Command's order of battle on 1 November 1940 (Scottish bases shown in red) demonstrates how particularly its Sunderlands, the only long range aircraft it possessed, had been concentrated to cover the northern exit from the North Sea and the North Western Approaches:¹¹¹

15 Group HQ, Plymouth.		
Heston	PRU	Spitfire/Hudson
St Eval	217 Squadron	Anson/Beaufort
	236 Squadron	Blenheim
	B Flight PRU.	Spitfire/Hudson
Mount Batten	10 Squadron RAAF (part of)	Sunderland
Pembroke Dock	209 Squadron (part of)	Lerwick
Carew Cheriton	321 (Dutch) Squadron	Anson
Aldergrrove	502 Squadron (part of)	Anson/Whitley
	224 Squadron (part of)	Hudson
	48 Squadron (part of)	Anson
	236 Squadron (part of)	Blenheim
Limavady	502 Squadron (part of)	Whitley
Hooton Park	48 Squadron (part of)	Anson
Oban	210 Squadron	Sunderland
	10 Squadron RAAF (part of)	Sunderland
	201 Squadron (part of)	Sunderland
Stanraer	240 Squadron	Stranraer
	209 Squadron (part of)	Lerwick
Port Ellen	48 Squadron (part of)	Anson

18 Group HQ, Pitreavie Castle		
Sullom Voe	201 Squadron (part of)	Sunderland
	204 Squadron	Sunderland
	700 Squadron FAA (part of)	Walrus
Sumburgh	248 Squadron	Blenheim
Wick	42 Squadron	Beaufort
	269 Squadron	Hudson
	A Flight PRU	Spitfire/Hudson
Dyce	612 Squadron (part of)	Anson
	254 Squadron	Blenheim
Leuchars	233 Squadron	Hudson
	224 Squadron (part of)	Hudson
	320 (Dutch) Squadron	Hudson (in training)
Stornoway	612 Squadron (part of)	Anson
Thornaby	220 Squadron	Hudson
	608 Squadron	Anson/Botha
Kaldarnes	98 Squadron	Battle
Gibraltar	202 Squadron	London

Source: AIR 41 73

Including 16 Group, Coastal had seven flying boat squadrons with 36 aircraft, 22 general reconnaissance squadrons with 402 aircraft and one and a half squadrons comprising 12

¹¹⁰ The Sunderland had a still-air endurance of 1,700 miles, or approximately 12.4 hours, at its economical cruising speed of 137 knots. AIR 41 73 p. 372.

¹¹¹ Ibid. appendix 1.

aircraft lent by the Fleet Air Arm. Average serviceability from this total of 450 aircraft was, however, just 14 flying boats and 196 of all other types.¹¹²

First Lord A. V. Alexander wrote on 4 November 1940 that Coastal Command's strength should be, 'nearer to 1,000 aircraft in operation at the earliest possible moment.'¹¹³ In March 1941, the Blenheims of 53 and 59 Squadrons, which had been lent from Bomber Command to patrol the North Sea in June 1940, thus allowing Coastal to reinforce its squadrons covering the North Western Approaches and the Bay of Biscay, were permanently transferred.¹¹⁴ Long range, and subsequently very long range, aircraft would become available from mid-1941 onwards, but initially only in penny packets. It has been argued by Buckley and others that the Atlantic Gap could have been closed by mid-1942 had aircraft been diverted in sufficient numbers from the bombing campaign, yet;

Despite the near total disaster of 1940-41, when Britain came closest to losing the war because of the Battle of the Atlantic, the Air Staff, backed by Churchill, continued to refuse Coastal Command the aircraft it needed to maintain its defence of British trade.¹¹⁵

To 'British trade,' Buckley might have added the military build-up in Britain that would have to take place ahead of an invasion of Europe, but, for Churchill, Portal and others, among them many influential Americans, Coastal Command aircraft were merely being used defensively. Arthur Harris, single-minded and stubborn in his advocacy of strategic bombing, believed that wars should not be fought defensively. Indeed Harris, who took over at Bomber Command in February 1942, famously held that he could win the war by bombing alone and that Coastal was, 'An obstacle to victory.'¹¹⁶ This was all very well, but if the Allies were to win the wider war, they must first hold the line in the Battle of the Atlantic.

The British, and subsequently Allied, strategic bombing campaign was, as Jones suggests, 'an emotional certainty,' in part as a response to the Luftwaffe blitz on British cities, and in part because it was the sole means by which, between 1941 and 1944, the war could be carried into Germany.¹¹⁷ But Professor Jones presents the debate over equipment allocation between Bomber and Coastal Commands as polarised, when it was really a question of degree. As Price points out, three squadrons totalling around 40 VLR aircraft, 'would have gone – and later did go – a long way towards nullifying the threat to convoys in mid-Atlantic.' After all, it was far from uncommon for Bomber Command to lose that many aircraft, and more, in a single night over Germany.¹¹⁸

¹¹² Ibid.

¹¹³ Alexander quoted in Air Historical Board Narrative *The RAF in the Maritime War* vol. 2 *Home Waters September 1939 to June 1940*. AIR 41 73. Buckley : 1995 p. 120.

¹¹⁴ Ibid.

¹¹⁵ Buckley : 1995 p. 115.

¹¹⁶ Terraine : 1985 p. 426.

¹¹⁷ Jones : 1978 p. 388.

¹¹⁸ Price : 1980 pp. 54-58 and p. 78.

While it had a vital anti-shipping role from its Scottish bases (which is examined in Chapter Six), Coastal Command's principal task throughout the war remained countering the U boat threat to trade. One of its first units to take up a war station was 209 Squadron at RAF Oban early in October 1939, though Oban was a backwater for the first nine months of the war, and the base saw little action. This was just as well as, with its two Stranraers and two Lerwicks subject to constant breakdowns and a chronic shortage of spare parts, serviceability ran at less than 50%.

The enemy's arrival on the Channel coast meant that the Atlantic convoy route had to be moved north. This led to a reorganisation of Coastal Command and, on 17 July 1940 RAF Oban passed from 18 Group to 15 Group. New aircraft arrived that same day when 210 Squadron replaced 209 Squadron, and complement rose to two Lerwicks, four Stranraers and, most importantly, six Sunderlands. Further reinforcements in the form of the Sunderlands 10 Squadron, Royal Australian Air Force, arrived on 30 July.¹¹⁹

Operations over the North Western Approaches had begun in earnest on 16 July with a search for the U boat that sank a tanker from HX55 west of the Hebrides. On 18 July a Sunderland attacked a possible U boat and, on 16 August, a 210 Squadron Sunderland engaged a *Kondor* over the convoy lane, returning to Oban with battle damage. Two days later, another 210 Squadron Sunderland escorting OA198 west of the Hebrides and searching for survivors from a sunken merchantman sighted a U boat. Depth charges and bombs blew the U boat onto its side, and a kill was claimed. *U-51* survived only to be sunk by the British submarine *Cachalot* in the Bay of Biscay while trying to make Lorient.¹²⁰

On 2 August 1940, a Sunderland forced *U-99* to break off its attack on OB191, on 12 August a Sunderland sighted a U boat close to HX52 off Islay and directed destroyers to the spot. The arrival of a Sunderland over SC2 early on 7 September helped break up the attack on that hard-pressed convoy. On 25 September, two Oban Sunderlands were responsible for one of the most famous air-sea rescues of the war, sighting, dropping supplies to, and guiding rescue ships to 46 survivors from the evacuee ship *City of Benares*.¹²¹ On 17 October 1940 a Sunderland from Oban escorting the beleaguered SC7, depth charged *U-48*, forcing it to dive, then guided the sloops *Scarborough* and *Fowey* in for further, albeit unsuccessful, attacks. SC7 was decimated, and Oban aircraft played a vital role in the rescue of survivors, but at least one U boat had been forced away from the convoy.¹²²

U-32 was bombed off the North Channel on 29 October, then escaped only to be sunk by

¹¹⁹ AIR 27 1293. AIR 28 615. AIR 28 618.

¹²⁰ AIR 28 615. AIR 27 1298. ADM 199 371. ADM 199 372. Rohwer : 1999. Wynn : 1997.

¹²¹ AIR 27 1298. ADM 199 371.

¹²² ADM 199 121. ADM 199 372. ADM 199 377.

destroyers the following evening.¹²³ Sunderland B/210 attacked a U boat, probably *U-104*, in the Atlantic convoy lane at 0930/19 November, but the depth charge failed to explode as the U boat crash-dived. It seems probable that this was the same U boat claimed as sunk by the corvette *Rhododendron* during an attack on OB244 two days later.¹²⁴ Then, in a tragic end to 1940, all but one of the 12 aboard a 210 Squadron aircraft died when it crashed on landing at Oban on 27 December after hitting a horsebox from the wreck of the steamer *Breda*, bombed and sunk nearby four days earlier.¹²⁵

At 1044/6 January 1941 the steamer *Empire Thunder* (5,965T) in OB269 was torpedoed and sunk by *U-124* some 180 miles west of Cape Wrath. HX99 was diverted clear of the area and a 210 Squadron Sunderland left from Oban to search for survivors. Thirty survivors were picked up by an escort, but the Sunderland sighted a U boat on the surface thirty miles to the east. Two depth charges were dropped and a large steel plate was thrown into the air from the crash-diving submarine. The damaged Italian U boat *Marcello* was sunk shortly afterwards by HMS *Montgomery*.¹²⁶

Operational control of Coastal Command passed to the Admiralty on 17 February 1941 with the opening of the new Western Approaches Command Headquarters at Derby House in Liverpool, a move that reflected the change from the pre-war orientation towards the North Sea to the Atlantic. As Richards writes:

...a strong force was concentrated in the north-west under 15 Group. The effect was almost instantaneous. In April the U boats began withdrawing to mid-Atlantic. By June they were scoring nine-tenths of their successes beyond the limits of our air patrols. So profound a transformation was, of course not merely a change of battleground. To reach their new patrol areas the U boats to spend far longer on patrol, and when they got there they found no such wealth of targets as in the narrower waters nearer home.¹²⁷

The first Coastal Command squadron of five VLR Liberator mk. 1 aircraft, 120 Squadron, formed at Nutts Corner in County Antrim in June 1941. These aircraft were stripped and lightened to give them a range of 2,300 miles at 4,000 feet, though it would be some months before they were operational, and even longer before they acquired effective ASV radar and weaponry. With shipping losses in the North Western Approaches running at perilously high levels in October 1940, a series of meetings had led to the development of the more effective ASV mk. 2 set, aerial depth charges and wireless sets that allowed inter-communication between air and surface escorts.¹²⁸ Throughout 1941, however, Coastal Command remained critically short of aircraft, not least because, as Terraine notes, 'six

¹²³ ADM 199 1159.

¹²⁴ AIR 27 1298. AIR 28 615. ADM 199 372. ADM 199 1139.

¹²⁵ AIR 28 615.

¹²⁶ ADM 199 397. ADM 199 658. Rohwer : 1999. *The Defeat of the Enemy Attack on Shipping 1939-1945* - Naval Staff History, Second World War CB3304 appendix 2.IV.

¹²⁷ *The Royal Air Force 1939-1945* vol. 1 *The Fight at Odds* Denis Richards (ed.) p. 344.

¹²⁸ *Ibid.* p. 271.

Stirlings could be manufactured with the same effort as three Sunderlands.¹²⁹ In October 1941 Churchill, perhaps kite-flying but more probably demonstrating a woeful ignorance of maritime air power, suggested transferring some 60 Whitley and Wellington aircraft from Coastal to Bomber Command, citing the fact that U boats were confining their activities to, 'more distant waters,' without seeming to understand why this was so. And all this was against the background of a *growing* U boat menace.¹³⁰ One of the most powerful advocates of the continued existence of Coastal Command was First Sea Lord Dudley Pound.

Advances in training, weaponry and technology began to improve Coastal's performance against U boats from mid-1942. On the afternoon of 15 September 1942, Whitley Q/58 sighted *U-261* on the surface in a rough sea 150 miles north-west of Cape Wrath in 5949N 0928W. Sergeant Snell approached through cloud and dropped three depth charges from just 20 feet, one hitting the conning tower and, when the explosions subsided, the bows of the U boat were sticking up out of the water. More depth charges were dropped and it sank leaving debris in a large patch of oil.¹³¹

Every newly commissioned U boat outbound from Norway for its first patrol had to pass through the so-called Northern Transit Area between Iceland and Shetland and the need to stretch the land-based air cover westwards to meet that from Iceland led to the development of airfields for long range aircraft in the Outer Hebrides. In July 1942, 206 Squadron arrived at RAF Benbecula and re-equipped with American Flying Fortresses to begin a series of FLORA patrols which interlocked with PORT patrols being flown out of Iceland.¹³² On 27 October 1942, Flying Officer Cowey of 206 Squadron was escorting SC105 south of Iceland when he sank *U-627* and, on 15 January 1943, Fortress G/206 attacked *U-632* south of Iceland but did no damage. Again south of Iceland, on 3 February 1943, a 220 Squadron Fortress sank *U-265* and, on 9 February, a 206 Squadron Fortress escorting SC118 damaged *U-614* which was shadowing the convoy.¹³³

In February 1943, while ordinary long-range aircraft were available in greater numbers for the Bay of Biscay, there was still just one squadron of VLR Liberators. Bomber Command had all but rejected the Liberator, thus making it the only aircraft Coastal Command could hope to get in numbers, but now Coastal was up against both the US Navy and Air Force who needed aircraft for the Pacific. In its efforts to secure increased allocations of aircraft

¹²⁹ Terraine 1985 p. 411.

¹³⁰ *Ibid.*

¹³¹ *U-261* was on her first war patrol and had left Kiel on 8/9/42. Franks : 1995. Wynn : 1997.

¹³² AIR 41 48.

¹³³ At 1030/9 Fortress Mk.IIA L/206 FK195 on patrol in support of SC118 sighted the destroyer *Vimy* with corvette *Lobelia* in tow in 5617N 2039W. The destroyer asked for air cover and the aircraft began a square search to a radius of 31 miles. At 1242/9 a U boat was sighted in 5612N 2059W and a stick of six depth charges was dropped which straddled it forward of the conning tower. The U boat was lifted bodily out of the water and slewed round. It then sank straight down leaving an uprush of bubbles. *U-614* (Kapitanleutnant Wolfgang Sträter) out of Kristiansund was heavily damaged but put in to St Nazaire on 26 February for repairs. Wynn : 1998. Smith : 1983. Franks : 1995.

from America, Coastal even attempted subterfuge, suggesting that the aircraft should first be sent to Canada in an effort to disguise their eventual destination from the Americans. This idea was dropped as it would inevitably lead to trouble.¹³⁴



From its introduction with 59 Squadron in August 1942, the American B 17 Fortress, like the Liberator a Bomber Command reject, proved effective on Long Range, though not Very Long Range, Coastal Command patrols.

Coastal Command patrols over the Northern Transit Area were sparse during early March, partly due to Iceland-based aircraft being preoccupied with convoy battles in mid-Atlantic and partly to 18 Group concentrating on anti-shipping sweeps along the Norwegian coast.¹³⁵ Patrols from Benbecula by 15 Group's 206 Squadron continued and but only four of the 24 U boats known to have transited the Northern Transit Area during March 1943 were sighted. U-384 was sunk south-west of Iceland on 19 March by Fortress B/206. L/206 attacked a U boat unsuccessfully on 25 March and, at 1130/27 March, the same aircraft manned by a different crew depth-charged a U boat in 6054N 1525W. The U boat was seen to heel over to starboard, submerge, and then reappear bow high. More depth charges were dropped, and, as men could be seen scrambling out of the conning tower, it went down, Flying Officer Samuel reported, '...like a dose of Eno's'. U-169 had been outbound to join the Seewulf group and all 54 of her crew were lost. At 1730/24 April, D/206 escorting ONS5 sighted U-710 at periscope depth in 6130N 2010W. Flying Officer Cowey wrote:

We were flying in clear conditions and saw the U boat fully surfaced some ten miles away. We dived immediately to the attack, expecting the craft to crash-dive before we reached it. However, it remained on the surface and opened fire on us. This was something of a surprise, as at that time we had not heard of U boats behaving in this way. Fortunately we were not hit and were able to continue our attack. There was ample evidence of a successful kill. My rear gunner saw the U boat rise out of the water vertically and then sink, leaving much debris and about 25 survivors in the water. We were unable to do anything about them as, by this time, the weather at our home base had closed in and we were diverted to Iceland as we were also a little short of fuel.¹³⁶

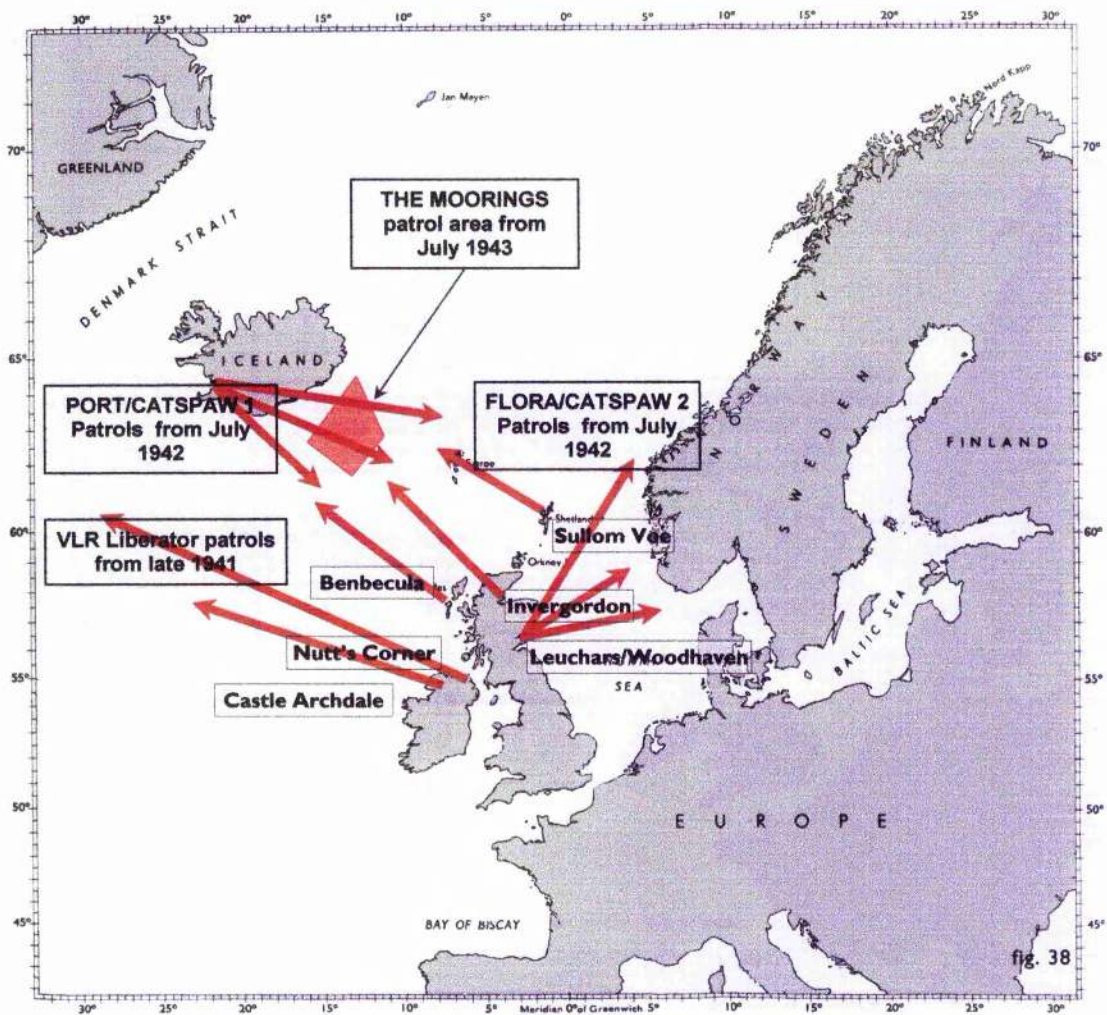
The ratio of sightings to U boats traversing the Northern Transit Area improved in April,

¹³⁴ AIR 41 48.

¹³⁵ Ibid. p. 143.

¹³⁶ Franks : 1995.

18 sightings being made of 21 boats known to have passed through, mainly by Hudsons from Iceland. Then, in May 1943, the U boat packs were withdrawn from the Atlantic, thus permitting an increase in patrols over the Northern Transit Area. R/206 sank *U-417* south-east of Iceland on 11 June with all 47 hands, but the *Fortress* was forced to ditch after one of her starboard engines was shot away. The first attempt at rescue of its crew went badly wrong when an American Catalina from Iceland hit a wave while attempting a landing in very bad weather. The Americans' dinghy drifted away, but food and water were dropped to the RAF dinghy on 14 June and the survivors in that were picked up by a 190 Squadron Catalina from Sullom Voe. The American dinghy was found two days later, but only one man survived when picked up by a US destroyer.¹³⁷



As with other maritime operations in Northern Waters, Coastal Command's war against U boats in the Northern Transit Area was almost wholly dependent on the availability of Scottish bases.

¹³⁷ AIR 41 48.

U boats had begun sailing for the Atlantic in groups via the Northern Transit Area and the Bay of Biscay. The first group of three, the *Monsun Gruppe*, was sighted in the Northern Transit Area by a Hudson from Iceland and two of their number were sunk, one, *U-194*, by a 120 Squadron Liberator from Ulster. In response to the group sailings, new Coastal Command patrol patterns, CATSPAW 1 between Iceland and the Faroe Islands and CATSPAW 2 between Scotland and the Faroe Islands, concentrated on known passage routes. The loss of two *Monsun* boats and the increase in air patrols between Iceland and Norway forced the cancellation of further U boat sailings via the Northern Transit Area until the end of July 1943.¹³⁸

THE MOORINGS patrol area between Iceland and the Faroe Islands, instituted on 6 July 1943, was a refinement of the CATSPAW 1 patrol based on known sightings and it was planned that, in this area and when available, destroyers would cooperate with aircraft. THE MOORINGS was subdivided into six strips running north-west to south-east to which aircraft from Iceland or Scotland were allocated. The destroyers *Onslow*, *Opportune*, *Obdurate* and *Orwell* took part in Operation SF, the first joint operation in THE MOORINGS, between 10 July and 19 July 1943, but no U boat was sighted.¹³⁹

There were other sinkings in the North Western Approaches by Coastal Command aircraft based outwith Scotland, among them *U-489* depth charged and sunk south of the Faroe Islands on 4 August 1943 by a Sunderland of 423 Squadron from Lough Erne.¹⁴⁰ Late on 10 February 1944 a Wellington of 612 Squadron based at Limavady sighted *U-545* west of the Butt of Lewis and straddled her with depth charges. *U-545*, which had been part of the *Igel 1 Gruppe* south-east of Iceland, was heavily damaged in the attack and unable to move, so another *Igel 1* boat, *U-714*, took off her crew, then *U-545* was scuttled.¹⁴¹

From mid-May 1944, as there had been a clear reduction in U boat activity in the Atlantic, and with D Day looming, much of Coastal Command's strength was concentrated in the southern North Sea, Channel and Biscay areas. Meanwhile, off Norway, a reconnaissance line of 21 U boats, the *Mitte Gruppe*, was stationed against the possibility of an Allied landing. Only five of the *Mitte* boats were equipped with the *schnorchel* breathing apparatus so the rest were highly vulnerable during the long summer daylight hours.¹⁴²

On the morning of 16 May 1944, a 330 (Norwegian) Squadron Sunderland from Sullom Voe sank *U-240* west of Kristiansund North. The aircraft was badly damaged by return fire, and one crewman was killed, but returned safely. Two days later, a 210 Squadron

¹³⁸ Ibid.

¹³⁹ Subsequent operations in THE MOORINGS involved the 15th Minesweeping Flotilla. AIR 41 48.

¹⁴⁰ Ibid.

¹⁴¹ Ibid.

¹⁴² *The U boat War in the Atlantic* HMSO vol. 3 pp. 55-56, 59 and 69. Padfield : 1985 p. 424-431. Rohwer and Hummelchen : 1974 p. 415.

Catalina, also from Sullom Voe, sank *U-241* west of Stadlandet. Leuchars-based Mosquitoes and Woodhaven-based Catalinas of 333 (Norwegian) Squadron were also operating against *Mitte* boats and *U-668*, one of a pair of outbound boats, was surprised on surface at 0007/18 May by Catalina C/333. The aircraft was seriously damaged and one of the blister gunners killed. Lieutenant Hartmann had to drive the sinking Catalina straight onto the beach on returning to Woodhaven. The U boat put in to Skjommenfjord the following day.¹⁴³ *U-476* was damaged by a 210 Squadron Catalina on 18 May and had to be scuttled off Trondheim, her crew being picked up by *U-990*.¹⁴⁴ Also on 24 May, a Sunderland of 4 OTU sank *U-675* west of Trondheim and, on 27 May, Liberator S/59 Squadron sank *U-292* off Trondheim.¹⁴⁵

Thirteen *Mitte* boats sailed between 8 and 10 June and, on 11 June, *U-980* was sunk north-west of Alesund by a Canso of 162 Squadron RCAF.¹⁴⁶ Mosquito H/333 shot up and damaged *U-290* on 14 June, then, on 16 June, *U-998* was damaged by rockets and cannon fire from the same Mosquito north-west of Bergen. *U-804* was sent to *U-998*'s assistance but was herself attacked by Mosquito R/333 which strafed the conning tower, injuring eight crewmen. *U-804* and *U-998* put into Bergen on 17 June.¹⁴⁷ On 24 June a 162 Squadron Canso engaged *U-1225* on the surface north-west of Bergen. Four depth charges straddled the boat and sank it but the aircraft was hit by return fire and forced to ditch.¹⁴⁸ Liberator N/86 from Tain sank *U-317* on 26 June and Catalina C/333 attacked but missed *U-478* some 100 miles north of Shetland on 28 June, just as Catalina Q/210 was damaging *U-396* some sixty miles to the north-west, forcing her to return to Bergen. *U-478* was sunk north-east of the Faroes on the evening of 30 June by Canso A/162 and Liberator E/86.¹⁴⁹

Coastal Command's success against the *Mitte Gruppe* led to the recall of all but six U boats from this patrol. Eight of the older type VII boats were laid up and their crews transferred to the new type XXI and XXIII boats.¹⁵⁰ By then, it was clear that the Allied advance in France would soon force U boats out of their Biscay bases. As predicted, U boats began concentrating on Norwegian bases in September 1944 and operations were increasingly concentrated on coastal waters around Britain, particularly in focal points for shipping. The *schnorchel*-equipped *U-247* heading for the Butt of Lewis was one of the first boats out.

¹⁴³ For the *Mitte Gruppe* see *The U boat War in the Atlantic* HMSO vol. 3 pp. 55-56, 59 and 69. See also Padfield : 1985 p. 424. For 333 Squadron, see AIR 27 1731 and Wynn : 1998.

¹⁴⁴ *U-990* was sunk by a 59 Squadron Liberator west of Trondheim on 5 June. Fifty-one survivors from both crews were picked up by *V-5901*. Wynn : 1998 p. 207. Rohwer and Hummelchen : 1974 p. 415.

¹⁴⁵ *U-675* and *U-292* both carried crews of 51 and all were lost. Wynn : 1998. Roskill : 1960 vol. p. 261.

¹⁴⁶ Flight Lieutenant Sherman was immediately awarded a DFC on his return to Wick. Two days later, again on patrol from Wick, his crew reported a U boat, then were never heard from again.

¹⁴⁷ *U-998* was in such a bad way that she had to be scrapped. AIR 27 1731. AIR 41 74. Wynn : 1997.

¹⁴⁸ Two airmen had died by the time they were picked up by an HSL 21 hours later. Flight Lieutenant Hornell was awarded a posthumous VC. The five survivors were awarded one DSO, two DFC and one DFM. Wynn : 1998.

¹⁴⁹ Around 30 seamen were seen swimming, but all 52 aboard *U-478* were lost. AIR 41 74. Wynn : 1998.

¹⁵⁰ BdU KTB quoted in AIR 41 74.

But passages were slow as, armed with excellent and early intelligence of enemy movements, Coastal Command responded by giving close air support to shipping in danger areas, flying patrols over areas where U boats were known to be operating and patrolling the Northern Transit Area which gave access to the Atlantic from Norway. From 27 June, all U boats on *Mitte* patrol, in the Northern Transit Area and off British shores were ordered to submerge by day and only *schnorchel* by night, thus greatly slowing their progress.¹⁵¹

To meet the increased U boat threat in the north, a gradual reinforcement of 18 Group, which included the transfer of Scottish airfields to Coastal Command, had begun early in July 1944, with the arrival of 206 Squadron Liberators at Leuchars and detachments of 59 and 120 Liberators Squadrons at Tain. While some aircraft were subsequently transferred back to 15 and 19 Groups to deal with attempted U boat incursions to the South Western Approaches, Coastal Command's U boat war would now principally be fought in the area bounded by Shetland, Iceland and Norway, and controlled from the Combined HQ at Pitreavie. And, in a move presaged by the patrols in THE MOORINGS in 1943, Western Approaches Command allocated surface Support Groups to Pitreavie to work with aircraft. By the end of 1944, 18 Group had eight squadrons with 107 aircraft to cover the Northern Transit Area and inshore patrols around Scotland. For convoy escort duty and A/S patrols around Ireland and west of the Hebrides, 15 Group had seven squadrons with a total of 111 aircraft. And, with the largest volume of ocean traffic by then restored to the South Western Approaches, 19 Group covering this area had 10½ squadrons with 147 aircraft.¹⁵²

U-771, inbound from *Mitte* duty, was unsuccessfully attacked off Bergen by Liberator Q/206 on 13 July, then, off Bergen at 0900/15 July, *U-317* was attacked by Liberator E/206. Both aircraft and U boat were lost in this action at a total cost of 60 lives. *U-299* was damaged by R/206 that same night, then Mosquito L/333 strafed and damaged *U-994*, again off Bergen and, on 18 July, K/333 damaged *U-286* close inshore off Stadlandet. With the vulnerability of the *Mitte* boats all too clear, BdU bowed to the inevitable and began withdrawing the patrols. Three non-*Mitte* U boats, *U-863*, *U-244* and *U-865* were also damaged by patrols from Scotland in July, the first two by 333 Squadron Mosquitoes from Leuchars, the latter by an 86 Squadron Liberator from Tain.

Unable in 1955 to give credit for its efficiency to Enigma decrypts, the staff history notes:

Considering that, during July, only 18 U boats were at sea in No. 18 Group's area, it speaks well for the efficiency of air patrol that ten of them were sighted and eight attacked resulting in one being sunk and six damaged sufficiently to compel a return to harbour. Only one U boat (*U-855*) cleared through into the Atlantic.¹⁵³

¹⁵¹ A daily run of 30-40 miles was average under *schnorchel* conditions. AIR 41 74 p. 19.

¹⁵² AIR 41 74 pp. 192-193.

¹⁵³ Ibid. p. 55.

Further reinforcements to 18 Group in August 1944 included 311 (Czech) Liberator Squadron moved to Tain, 422 and 423 Squadron Sunderlands to Sullom Voe along with a detachment of 202 Squadron's Catalinas. The Wellingtons of 407 Squadron moved to Wick while 162's Cansos went to Iceland, and 58 Halifax Squadron moved to Stornoway. During August, some 4,373 hours were flown in the northern area, but only nine U boats were sighted, six were attacked and one was damaged. One aircraft, Mosquito E/333, was lost.

By 31 August, eight U boats had passed through the Northern Transit Area unscathed, and another 11 were then passing through. The *schnorchel* was proving its worth in open waters, particularly now that U boat crews were learning how to use it in relatively bad weather. Meanwhile, BdU's response to the Normandy invasion had been a costly and demoralising failure for its increasingly inexperienced crews. Nineteen U boats were lost in the English Channel and 16 in the Bay of Biscay by the end of August when the Biscay bases, and Channel operations were abandoned.¹⁵⁴ But the *schnorchel* allowed BdU to place U boats close inshore off the Scottish coast, into the area patrolled jointly by Coastal's aircraft and the Navy's Support Groups under the Combined HQ at Pitreavie.

THE SCHNORCHEL AND THE END OF SCOTLAND'S U BOAT WAR

Sufficient *schnorchel* boats were coming forward by the end of August to mount patrols north of the Minch, in the North Channel and in the Moray Firth.¹⁵⁵ First in this new series and one of the first boats equipped with *schnorchel*, Kapitänleutnant von Matuschka's U-482, reached the North Channel on 27 August 1944 and, at 1544/30, attacked the five-ship Loch Ewe section of CU36 west of Islay. The convoy had no air escort and, hit by a torpedo, the American tanker *Jacksonville* (10,448T) with 14,300 tons of petrol was instantly a mass of flame.¹⁵⁶ An A/S sweep was mounted by Coastal Command and Force 33 from the Clyde led by the frigate *Helmsdale* with the destroyer *Ambuscade* and the corvettes *Oxford Castle* and *Hurst Castle*. Early on 1 September, Liberator Q/120 reported the dim outline of a surfaced U boat in poor visibility off Islay. Force 33 closed the area and, at 0825/1, *Hurst Castle* was hit by an acoustic torpedo from U-482 and sank in just six minutes. One hundred and five survivors were picked up by *Helmsdale*.¹⁵⁷

U-482 stayed west of Islay and, at 0020/3, sank the Norwegian collier *Fjordheim* (4,115T) in ONS251, killing three of her 38 crew.¹⁵⁸ At 0355/8 September lookouts in HMCS *Dunver* escorting HXF305, sighted two flashes in the convoy. Once again, Matuschka had waited

¹⁵⁴ Padfield : 1995 p. 431.

¹⁵⁵ *The U boat War in The Atlantic* HMSO vol. 3 p. 80.

¹⁵⁶ Two of her 78 crew survived and were landed at Lisahally by the destroyer USS *Pool*. Rohwer : 1999. ADM 217 685. ADM 199 1392. Information from Theron P. Snell.

¹⁵⁷ AIR 41 74. ADM 217 685. ADM 199 1392. Wynn : 1997. Rohwer : 1999.

¹⁵⁸ *Ibid.*

until the convoy was at its most vulnerable while splitting into Loch Ewe and North Channel sections before attacking. Hit by two homing torpedoes, the tanker *Empire Heritage* (15,702T) sank in minutes. The rescue ship *Pinto* (1,346T) stopped to pick survivors, but was herself torpedoed and sunk. *U-482* got clear and was detected homeward bound on 11 September.¹⁵⁹ Matuschka's sinkings stirred up a hornet's nest of A/S activity in the North Channel and, early on 4 September, Sunderland H/330 had just left convoy UR134 off the Butt of Lewis to return to Sullom Voe when it picked up a radar contact. The dim outline of a surfaced U boat appeared, then the aircraft came under fire and the U boat, probably *U-484* which followed *U-482* into the North Channel, disappeared. On 9 September, the frigates *Porchester Castle* and *Helmsdale* found *U-484* and attacked with squid and depth-charges until oil, wreckage and human remains surfaced at 1145/9.¹⁶⁰

In the Northern Transit Area, 18 Group flew 8,526 hours during September, but U boat traffic was slight. Two U boats were lost and one damaged. *U-867* was attacked by a 248 Squadron Mosquito on 18 September, and probably damaged, as the next day she was caught on the surface off Stadlandet, apparently unable to dive, by a 224 Squadron Liberator and appeared to scuttle.¹⁶¹ *U-1228* was damaged by a 224 Squadron Liberator on 18 September and *U-855* disappeared, possibly having struck a mine in the Iceland-Faroe Islands passage.

U boat pens at Bergen were attacked by Bomber Command on 4 and 28 October and four U boats were wrecked. *U-1006*, first reported by Coastal Command patrols north of Shetland on 13 and 14 August while bound for the North Channel, was caught on the surface and sunk by the Canadian frigate *Annan* and EG6 west of Shetland on 16 October. *U-1004* was strafed in Bergenfjord by Mosquito E/333 on 23 October, but escaped undamaged and, early on 29 October, two 311 Squadron Liberators wrecked *U-1060* which had been run ashore during an attack by FAA aircraft the day before. *U-1061* was heavily damaged in attacks by 407 and 224 Squadron aircraft on 31 October. On 1 November, the British frigate *Whittaker* was damaged by a torpedo from *U-483* north of Malin Head.¹⁶² West of Shetland, a U boat was reported by Sunderland G/330 from Sullom Voe at 2157/24 November. EG17 was di-

¹⁵⁹ One hundred and thirty-four died in the double sinking. This incident generated controversy when it was discovered that *Pinto* had D/Fd a transmission from *U-482* at 2259/7. This had been reported to SO Escort Group C5 Commander George Stephen RCNR in *Dunvor*; but he omitted to pass this on to Western Approaches Command. When the attack took place, Stephen ordered a 'Pineapple' counter attack but Max Horton condemned this as unsuitable, being designed to deal with a pack attack rather than a single U boat. Horton wanted Stephen sacked, but Commodore (D) George 'Shrimp' Simpson at Londonderry spoke up for him. *U-482* is believed to have been lost in a deep minefield off the North Channel on or around 7 December 1944. ADM 1 16168. *The Battle of The Atlantic and Signals Intelligence* p. 450. Wynn : 1997. Rohwer : 1999. See also Schofield : 1968.

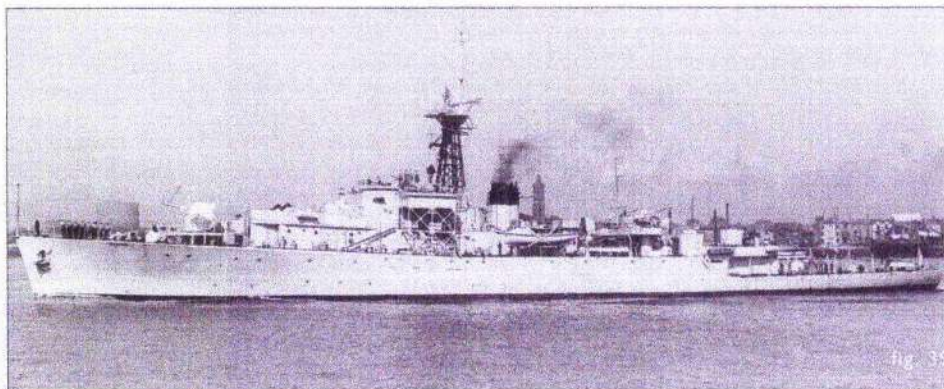
¹⁶⁰ AIR 41 74 p. 86. ADM 199 1392. ADM 199 2062. *The Battle of The Atlantic and Signals Intelligence* p. 450-452.

¹⁶¹ AIR 41 74. Wynn : 1998.

¹⁶² Wynn : 1998. *The Battle of The Atlantic and Signals Intelligence* p. 469.

rected to the area and, at 0300/25, HMS *Ascension* sank *U-322* with all her 52 crew.¹⁶³

In an effort to deal with the Allied carriers sweeps that had been causing considerable disruption to German coastal convoys off Norway (see Chapter Six), BdU ordered U boats to Scapa in the hope of sinking the carriers as they passed in or out. *U-775* was sailed Bergen on 18 November and was ordered to Hoy Sound, but the 19th Escort Group were already on an A/S sweep of the area. The destroyer *Bullen* was seven miles north of Strathy Point at 0948/6 when a torpedo from *U-775* broke her back.¹⁶⁴ Assisted by Sunderland *Y/201*, *Goodall*, *Loch Insh* and *Antigua* swept along the coast and attacked a contact north of Tongue, bringing up splintered wood, wreckage and oil at 1130A/6. Initially thought to mark the end of *U-775*, it was discovered post-war that *U-297* had also been ordered to the Hoy Channel only to blunder into the A/S sweep.¹⁶⁵



The prefabrication of Loch class frigates, like *Loch Insh* (above) which was involved in the destruction of *U-297* off Cape Wrath, was pioneered on the Clyde. A specialist team of 30 naval architects was installed in Glasgow and created designs based around 1,300 composite parts which could be prepared outside the shipyards, thus easing the demand for yard space. The lead yard was John Brown's at Clydebank and ship sections were prefabricated off site by, for example, Motherwell Bridge Engineering Ltd.

Cheap to produce, seaworthy and well-armed, these modern escorts were manpower efficient. This was welcome as, from 1943, the Royal Navy, like the other services from 1944, was coming up against a manpower shortage at all levels.

None of the 50 U boats passing through the Northern Transit Area in December 1944 were sighted by Coastal Command. The only confirmed sighting in coastal waters came on 31 December. *U-1021* had been ordered south to attack convoys in the Moray Firth and, at 1030/11 January, Liberator A/224 sighted smoke and the wake of a *schnorchel* north of Banff. The wake and smoke stopped as the aircraft turned to attack, so no attack could be

¹⁶³ AIR 41 74 p. 103. Wynn : 1997. *The Battle of The Atlantic and Signals Intelligence* p. 496.

¹⁶⁴ *Goodall* dropped her whaler to pick up survivors, but it was swamped and two *Goodall* ratings and at least two of *Bullen's* survivors were lost. Four officers and 93 ratings survived. The Enquiry criticised disorganisation in *Bullen*, in particular the fact that, despite U boats being known to be in the area, all her officers with the exception of the Sub Lieutenant OOW were in the wardroom for a conference about a forthcoming inspection. The Enquiry also noted poor damage control and that injured men were abandoned below in the rush to abandon ship. ADM 1 18039.

¹⁶⁵ *U-775* escaped and returned to Bergen on 21 December. BdU listed *U-297* as missing on 3 January 1945. Her wreck was found and identified by divers in May 2000. ADM 199 1392. Roskill : 1961 vol. 2 p. 164.

made.¹⁶⁶ As the Coastal Command staff history notes ruefully:

The U boat war had gradually changed since August 1944 into a condition of stalemate in the inshore operational areas and a state of frustration in the transit areas...Both sides had made technical advances which tended to cancel each other out. The U boats had adopted the *schnorchel* and possessed an efficient search receiver which together nullified the improved airborne radar and the increased concentration of flying. Although the *schnorchel* undoubtedly lowered the capacity of U boats to sink ships, it was the ace of trumps against visual and radar location except in flat calm weather...Sinkings due air action dwindled to one in the last quarter of 1944.¹⁶⁷

Thanks to the *schnorchel*, U boats were, by late 1944, almost immune from detection while on passage and, when they reached their inshore billets off the British Isles, they were largely safe as long as they did not attack. Aircraft, once the prime weapon for sinking U boats, were, by then, acting as little more than scarecrows, ensuring that U boats stayed submerged. In January 1945, Naval Intelligence estimated that 32 U boats had passed through the Northern Transit Area outbound and 16 had made the passage inbound. 18 Group aircraft flew 2,656 hours during the month, but there was only one genuine sighting when, on 11 January, Wellington P/172 homed in on a radar contact and Leigh Light illuminated a *schnorchel* west of the Hebrides in 5715N 1030W. The subsequent attack, carried out in bad visibility, was not a success.¹⁶⁸

U-1172 was passing through the North Channel southbound for the St George's Channel when, at 1300/15 January, she torpedoed the Norwegian tanker *Spinanger* (7,429T) and the escort carrier *Thane* with *zaunkonig* acoustic torpedoes.¹⁶⁹ At 0846/16 the EG22 sloops *Starling*, *Peacock*, *Hart* and *Amethyst* and the frigate *Loch Craggie* carried out 37 attacks, 13 of them with squid, on a contact west of Machrihanish. Some oil surfaced, though this was analysed as furnace oil.¹⁷⁰ U-1014 sailed Bergen on 18 January 1945 for the North Channel and was found on the bottom off Lough Foyle by the frigate *Loch Scavaig* on 4 February. *Loch Shin*, *Nyasaland* and *Papua* joined the attack and a two-mile slick of oil surfaced along with a German sailor's cap, clothing and German forms.¹⁷¹ U-989 was depth charged and sunk north of Shetland on 14 February by the EG10 frigates *Bayntun*, *Braithwaite*, *Loch Dunvegan* and *Loch Eck*.¹⁷² U-1019 was damaged by Wellington Q/304 some 130 miles west of

¹⁶⁶ AIR 41 74 p. 208. Wynn : 1997. *The Battle of The Atlantic and Signals Intelligence* p. 496.

¹⁶⁷ AIR 41 74 p. 109.

¹⁶⁸ This was probably either U-1051 or U-1199, both of which were outbound for patrols off the English coast from which both failed to return. The other two boats then in the North Western Approaches, U-825 and U-1017, reported no such attacks on return from patrol. AIR 41 74 p. 208. Wynn : 1998.

¹⁶⁹ Three died in *Spinanger* and she was beached in Kames Bay. Ten died in *Thane* which had a 30-foot hole in her starboard quarter. U-1172 continued her patrol into the Irish Sea, sinking three ships including the SS *Viknes* and the destroyer *Manners*, then was herself sunk in St George's Channel on 27 January 1945 by EG5. All 52 of her crew were lost. ADM 199 1443. *Lloyd's War Losses* vol. 2. Drummond : 1960. Rohwer : 1999.

¹⁷⁰ A further investigation of the site was carried out by HMS *Bentinck* on 8 March and more depth charges and squid were fired, but no wreckage surfaced. It was thought that EG22 had sunk Matuschka's U-482, but recent research by Wynn and others disproves this. *Amethyst* was to write her own chapter in Naval history with her role in the Yangtze Incident in 1949. ADM 1 17668. Wynn 1997.

¹⁷¹ All 48 in U-1014 were lost. ADM 199 1443.

¹⁷² Wynn : 1998.

the Hebrides on 16 February, this being Coastal's only U boat attack in February. *U-309* sailed Horten for the Moray Firth on 8 February and had just arrived there on 16 February when she was sunk with all hands by the Canadian frigate *St John* of EG9 after attempting to attack WN74.¹⁷³ *Bayntun* and *Loch Eck* were in action again on 17 February, sinking *U-1278* north of Shetland.¹⁷⁴

The Icelandic *Dettifoss* (1,564T) was sunk off Corsewall Point at 0721/21 February and 12 of her passengers were lost. *U-1064* had been spotted in the area the previous afternoon by an aircraft and EG19 attacked a contact nearby immediately after the sinking. Air attacks on *schorchel* sightings were carried out on the three following days but *U-1064* got clear and was sent into the Atlantic on weather-reporting duty where, possibly due to the air attacks, her *schnorchel* gave constant trouble.¹⁷⁵

One feature of this period was the first operational sailing of the new Type XXIII coastal U boat. Streamlined and fitted with quiet 'creeping' motors, these *Elektro* boats were exceptionally difficult to detect submerged. Naval Intelligence had been monitoring the development of the Type XXIII and its larger cousin, the Type XXI, since early summer 1944, largely through decrypts of messages between Berlin and Tokyo. More recently, information had come from Norway on trials being conducted there.¹⁷⁶ The Type XXIII *U-2324* operated undetected in the Firth of Forth for much of February before firing two torpedoes at a ship on the 18th of the month. The torpedoes failed to run and, having used up her only armament, *U-2324* left patrol. On 25 February, the *Egholm* (1,317T) was sunk off Eyemouth by *U-2322* while Leith for London in FS1739. From her 23 crew and three gunners, five died.¹⁷⁷

Also off the east coast, the Norwegian minesweeper *Nordhav II* was torpedoed and sunk off Montrose on 10 March by *U-714*.¹⁷⁸ *U-714* sank the Swedish *Magne* (1,226T) off Eyemouth on 14 March, but was herself sunk off St Abbs Head that afternoon. The new South African frigate *Natal* sighted rafts and a lifeboat from *Magne* and then made two attacks on a bottomed contact in 111° St Abbs Head 7 miles, bringing up large quantities of oil before contact was lost.¹⁷⁹

The Admiralty believed there were six U boats around coast between the Tyne and the Clyde in mid-March and one, *U-722* sank the steamer *Inger Toft* (2,190T) three miles south west of

¹⁷³ ADM 234 416. Wynn : 1998.

¹⁷⁴ ADM 199 1443. *The Battle of The Atlantic and Signals Intelligence* pp. 541-543. Wynn : 1998.

¹⁷⁵ Rohwer : 1999. Wynn : 1998. ADM 199 1443.

¹⁷⁶ ADM 1 16848. Padfield : 1995 p. 456. Roskill : 1961 vol. 2. p. 292.

¹⁷⁷ Rohwer : 1999. *Lloyd's War Losses*. vol. 1. Baird : 1993. *The Battle of The Atlantic and Signals Intelligence* p. 547.

¹⁷⁸ Five men were lost and 17 survivors were picked up by the sweeper *Syrian*. The seven-ship Norwegian 1st Mine-sweeping Flotilla had been operating from Dundee since late 1942 and was responsible for much of the sweeping carried out off the east coast. Rohwer : 1999. Bård Helle in *Salmør* (ed) : 1995 p. 79.

¹⁷⁹ ADM 234 417. Baird : 1993.

Neist Point, Skye, at 0920/16 March.¹⁸⁰ Late on 20 March 1945, an 86 Squadron Liberator dropped sonobuoys on a radar contact north of Cape Wrath, then attacked unsuccessfully with two acoustic torpedoes. At about the same time, a lookout in the Canadian frigate *New Glasgow*, in bright moonlight off Inistrahull sighted a *schnorchel* on a collision course. Three feet of the *schnorchel* was protruding above the surface partly obscured by a cloud of exhaust smoke and it struck *New Glasgow* on her port side immediately below the bridge. In *U-1003* water rose to knee-height in the control room before the flow could be stopped. Oberleutnant Strübing bottomed *U-1003*, then surfaced at dusk on 22 March to charge batteries and replace the air in the boat, but approaching ships forced him to dive again. Soon afterwards, the pumps which had been running constantly since the collision failed and, with the batteries exhausted, Strübing surfaced and ordered his crew to abandon.¹⁸¹

The 1st Division, EG21, were patrolling the North Minch at 0918/27 March when *Conn*, the centre ship, obtained an Asdic contact. The echo was lost, regained, classified as fish, lost again, then regained. The sounder trace showed an object 220 feet long at 226 feet depth with the bottom clearly visible underneath and, at 1015/27, *Conn* attacked with hedgehog. The set missed and exploded on the bottom. Depth-charge attacks at 1046/27 and 1104/27 and another hedgehog set at 1134/27 brought large quantities of air and oil to the surface. Further attacks brought more wreckage including a German rubber dinghy and pieces of flesh which were picked up for analysis. *U-965* and her crew of 50 were all lost.¹⁸² That afternoon, at 1630/27, *Byron*, *Fitzroy* and *Redmill*, the 2nd Division of EG21, were off Loch Seaforth when *Redmill*, the starboard wing ship, obtained an asdic contact and attacked with hedgehog. A stream of small bubbles and oil was seen coming to the surface which continued for some hours. In all, five hedgehog attacks and 15 depth-charge attacks were made during the night and, by dawn, the oil slick extended for several miles, but no echo sounder trace or material wreckage were obtained. Further depth charge and squid attacks were made at the site on 1 April brought up some wreckage from *U-722*.¹⁸³

EG21 was escorting EN83 through the Minch on 30 March when, at 1710/30, *Rupert* obtained asdic contact off Lochinver and attacked with a 10 charge pattern. Once the contact was clear of the convoy, *Rupert* attacked again, this time with hedgehog. Two were heard to explode after four and five seconds, and the rest exploded on hitting the bottom seven seconds later. A small streak of light was seen and oil bubbles surfaced. At 1808/30 *Conn*

¹⁸⁰ The estimate of six U boats was close to the truth: four were on patrol, three were passing homewards and two were heading for the west coast of Scotland. *The U Boat war in the Atlantic* HMSO diag. 28. *The Battle of The Atlantic and Signals Intelligence* p. 559. Baird : 1995 p. 236. Rohwer : 1999.

¹⁸¹ Thirty one survivors were picked up 16 miles north of Inistrahull on 23 March by HMCS *Thetford Mines*. Eighteen died, including Strübing. Wynn : 1998. ADM 199 2056.

¹⁸² Also recovered were a locker lid, a German flag, a German jacket, an identity disc with the name Hans Fischer, a woollen sock, a box of matches made by Niteldals of Oslo, a tin of 100 Avus cigarettes, some cigars and packets of Orient cigarettes. ADM 1 17608. Wynn : 1998. Roskill : 1961 vol. 2 p. 296.

¹⁸³ All 44 crew aboard *U-722* were lost. Five bodies later floated to the surface and were buried at Portree. Ibid.

missed with another hedgehog set then, at 1849/30, *Conn* made a hedgehog attack which brought a large air bubble and much oil. Further attacks at 1440/31 and 1700/31 produced wreckage including a locker door, a tin of Nescafé, two brushes and 11 photographs of a U boat crew. *U-1021* and her 43 crew were lost.¹⁸⁴

U-1206 was on the bottom ten miles east of Peterhead on 14 April while the forward heads were being repaired. An inboard valve was removed and, as the outboard one either had not been closed properly or was faulty, the U boat began to flood. Tanks were blown and all tubes fired to lighten the boat, and she surfaced long enough for the crew to abandon in four dinghies.¹⁸⁵ Two days later, on the evening of 16 April, *U-1274* sank the tanker *MV Athelduke* (8,966T) off Berwick and was then herself sunk by the destroyer *Viceroy*.¹⁸⁶ On 20 April the trawler *Ethel Crawford* (200T) was lost to one of a field of magnetic mines laid off the entrance to Loch Ryan by *U-218* on 18 April. The first indication of the sinking was the discovery of floating fish boxes and a kitbag belonging to one of the crew. Skipper Scales and his nine crew were all lost.

German minelaying off Scotland all but ceased in March 1941, though *U-218* did lay a field of magnetic mines off Loch Ryan on 18 April 1945. The Ardrossan trawler *Ethel Crawford* was the only victim, sinking two days later with the loss of her ten crew.¹⁸⁷

U-636 was sunk west of the North Channel on 21 April by ships of EG4 and, at 0729/23 April, Liberator V/86 picked up a radar contact immediately on reaching its patrol area west of Shetland, but lost it after closing to within half a mile. A sonobuoy pattern was laid but neither it nor the torpedoes dropped indicated a positive result. *U-396*, on her way home from weather reporting duty, had however been destroyed.¹⁸⁸ A 120 Squadron Liberator from Tain sank *U-1017* west of the North Channel at 1650/29 April.¹⁸⁹ As the war ended, several U boats were known to be making a bid to pass through the Kattegat and reach Norway. An 86 Squadron Liberator caught *U-534* on the surface in the Kattegat on 5 May 1945 and sank it, then another 86 Squadron aircraft sank the new Type XXI *U-3523* north east of Skagen on 6 May.¹⁹⁰

With Hitler dead, Dönitz was appointed Führer on 1 May and immediately began negotia-

¹⁸⁴ ADM 1 17608. Wynn : 1998.

¹⁸⁵ Two of the dinghies were spotted and the occupants landed at Aberdeen. Another dinghy with ten survivors and one dead rating was driven ashore two miles south of Buchan Ness lighthouse, where two of the ten who had survived thus far were drowned. Near Dunbuy Rocks, Captain Schlitt and 12 of his crew were picked up from the fourth dinghy by the Peterhead fishing boat *Reaper*. ADM 199 2056.

¹⁸⁶ Five died in *Athelduke* and 44 in *U-1274*. *Viceroy's* attacks brought no immediate proof of success, but she returned to the area eight days later and made further attacks on the bottomed contact which produced wreckage of German origin, including, '...a dinghy container in which were stowed six dozen of good brandy, fortunately none of them broken.' ADM 199 2056. Wynn : 1998. Rohwer : 1999.

¹⁸⁷ Rohwer : 1999. *The Scotsman* 23 April 1945. ADM 199 1443.

¹⁸⁸ ADM 239 416

¹⁸⁹ *Ibid.*

¹⁹⁰ ADM 199 2056.

tions with the Allies. On 4 May he broadcast a surrender order to the U boats, though there was some doubt that all would receive it. Finally, at 0241/5 May, the German surrender was signed at Eisenhower's HQ in Reims. But the convoy system was still operating and, that evening, just after 2000/7, EN91 sailed Methil for Belfast as five merchantmen escorted by the trawlers *Angle*, *Wolves* and *Leicester City*. At 2250/7 the convoy was two miles south May Island when the *Avondale Park* was hit by a torpedo. Three minutes later another torpedo hit the Norwegian *Sneland I*. Despite being unable to gain an Asdic contact, *Leicester City* dropped a pattern of depth charges to deter further attacks, then moved to pick up survivors from the stricken ships. Two died in *Avondale Park*. From *Sneland 1*, a survivor of the SC7 disaster in 1940, seven died. Fifty-five survivors were landed at Methil. The torpedoes had come from *U-2336* and Kapitanleutnant Emil Klusemeier told Allied investigators that he had not heard the surrender order transmitted three days earlier.¹⁹¹

SCOTLAND'S GATEWAY - THE RIVER CLYDE

In 1933, with air attacks on British ports and not U boats or surface raiders seen as the principal threat to supply, the Headlam Committee was established to consider requests from the Royal Navy and RAF that, in the event of war, as much as 75% of shipping should be diverted away from east coast ports vulnerable to aircraft based in Germany or the Low Countries. The committee's report presented in April 1937 was over-simplistic, but it did point to underused capacity both in the west coast ports and on the railways that served them.¹⁹²

The River Clyde, and the principal ports of Glasgow and Greenock, began preparing for war in August 1936 when the provisional Port Emergency Committee was formed to coordinate port operations in time of war.¹⁹³ Design work on the Clyde A/S boom, which would run from the Cloch Point to Dunoon, began in 1937. The boom may have been installed speedily at the outbreak of war, but otherwise little had been done by September 1939 to prepare Scotland's most vital port for the demands of war.

Clyde Navigation Trust, responsible for Glasgow and Clydebank, could boast 360 acres of dock area with 12 miles of quayage, seven 25/175 ton heavy-lift cranes, nine coaling cranes and hoists of at least 32 tons capacity and ninety 5-ton cargo cranes. There were thirty-two 10-ton coaling cranes and three 35-ton coaling cranes privately owned within the port. And

¹⁹¹ *U-2336* and returned to Keil on 14 May 1945. Not until October 1945, after BdU records had been examined, did it become apparent that *U-2336* was responsible. Klusemeier revealed that he had been in the vicinity of the Isle of May between 2000/7 and 0600/8 and that, after the attack, he circled the Isle of May. This caused great consternation as his approach had apparently gone undetected by the indicator loops. The loops to the north of the Isle of May were controlled from the Fixed Defence Station on the Isle of May and those to the south were controlled from Canty Bay. While the records for Canty Bay had, by then, been destroyed, those for the Isle of May revealed that *U-2336* had indeed been detected passing eastwards over No.4 Loop at 0452/8 and No.13 Loop at 0516/8, but her passage had been ignored, or had gone unnoticed in the euphoria surrounding victory. ADM 199 139. Calvert MS IWM Department of Documents ref. 84/36/1.

¹⁹² *Merchant Shipping and The Demands of War*. C. B. A. Behrens. HMSO 1978. p. 24.

¹⁹³ MT 69 32.

there were 71 acres of transit sheds, 58 miles of quayside railway, timber-handling facilities at Shieldhall, a 54,000-ton capacity granary at Meadowside, nine acres of covered animal lairage at Merklands capable of handling 250,000 head of mainly cattle per annum. Govan dry docks could handle vessels of up to 880 feet LOA and 83 feet beam with a best depth over the sill at No. 3 Dock of more than 26 feet.

But the jewel in Glasgow's crown was King George V Dock. Planned as one of a series of deep-water berths at Shieldhall, construction had begun in 1929, partly as a government-subsidised anti-unemployment measure and partly for large new merchant ships planned by Alfred Holt & Co. Building work had however been halted by the economic slump in 1931 when only the half-mile east quay had been completed with sheds, sidings and 16 cranes.¹⁹⁴ While the dock was underused before the war, as Riddell writes '...the value of its construction was realised many times over with the outbreak of the Second World War.' Among King George V Dock's many advantages was the fact that its transit sheds stood 55 feet back from the quay edge, ideal for handling bulky military cargoes such as cased vehicles and aircraft, while, at the older Prince's and Queen's Docks, the sheds were just 15 feet from the quay edge.¹⁹⁵

On the face of it impressive, nevertheless these facilities hid serious shortcomings apparent when small-scale diversions of shipping from the east coast took place in September and October 1939.¹⁹⁶ The Ministry of Transport and others in mid-1940 painted a disturbing picture of port facilities on the Clyde. The port of Glasgow had developed, 'by process of accretion largely directed to immediate needs,' and, as it was largely concerned in servicing industry in west central Scotland, road and rail links to the rest of Britain were poor. There was only one adequate timber berth at Shieldhall and another was urgently required. Principally, however, it was clear that the west side of the 20-acre King George V Dock had to be completed speedily as it was the only dock on the Clyde capable of handling the largest ocean vessels. Liverpool's Gladstone Dock offered similar accommodation on the west coast, as did Swansea Docks, but both were held by locks and therefore both vulnerable and less efficient.¹⁹⁷

At Greenock, controlled by the Greenock Harbour Trust, there were five berths for ships of up to 6,000 tons with adequate shed accommodation. James Watt Dock was, however, vulnerable as it was held only by a single caisson. Great Harbour had good berthing, but a critical shortage of railway sidings. Rothesay Dock at Clydebank, principally used for scrap,

¹⁹⁴ T-CN 16 74/18.

¹⁹⁵ Riddell : 1979 p. 257. Bird : 1963 pp. 83 *et passim*.

¹⁹⁶ The October diversion involved 68 ships, just 25% of those destined for east coast ports, yet it brought near saturation on the west coast. Behrens *op. cit.* p. 80 and Appendix XIII.

¹⁹⁷ MT 63 200.

iron ore and coal, was described as, 'old and inadequate,' and had weak cranes.¹⁹⁸

Headlam had envisaged the diversion of 75% of traffic from east coast ports to the west coast, but failed to adequately consider the transport problems this would pose. How, for example, were the 2,000,000 tons of ore required annually at Middlesbrough to be moved across country, and what was to be done with refrigerated cargoes given that there was nowhere near enough cold storage accommodation on the west coast?¹⁹⁹ Road transport into and out of both Glasgow and Greenock harbours was described as 'chaotic' with a large number of small firms operating without coordination. In Glasgow, there were believed to be between 500 and 600 horse drawn vehicles and between 800 and 1,000 motor vehicles engaged in dock traffic, and, in July 1940, around 4,00 loads were being taken out of the docks daily. But already, goods handled by Glasgow docks had risen by 28.8% from 6,189,158 tons in the year to 30 June 1939, to 7,975,141 in the year to 30 June 1940 with the largest proportion of this increase being in iron, iron ore, steel and coal.²⁰⁰

Initial projections drawn up at the beginning of July 1940, for iron ore, pig iron and steel landings in the Clyde and Mersey were:

Port	Ships	Cargo
Clyde	11	34,192 tons of steel.
	5	13,841 tons of scrap (incl. 1 ship for Ardrossan).
	5	36,257 tons of pig iron
Total	21	84,290 tons (17% of UK total)
Mersey	21	39,041 tons of steel.
	1	4,619 tons of scrap.
	2	10,300 tons of pig iron.
Total	24	53,960 tons (11% of UK total).
UK Total	134	496,260 tons of steel, scrap and pig iron.

These figures were hastily revised on the diversion of shipping away from the south coast. With much tonnage still unallocated, at the beginning of August the new traffic estimates were:

Clyde	21	76,377 tons of steel.
	12	37,683 tons of scrap (incl. 3 ships for Ardrossan).
	5	30,577 tons of pig iron
Total	32	144,637 tons (26% of UK total).
Mersey	43	102,375 tons of steel.
	1	4,205 tons of scrap.
	2	10,361 tons of pig iron.
Total	46	116,941 tons (22% of UK total).
UK Total	150	539,176 tons of steel, scrap and pig iron.

¹⁹⁸ T-CN 16 74/16.

¹⁹⁹ Behrens *op. cit.* p. 81.

²⁰⁰ MT 63 200.

This increase in traffic shoreside would have to be largely moved by rail, and the LMS and LNER reported capacity for an additional 50 trains in and out of Clydeside daily. Rail access to parts of Glasgow harbour was unsatisfactory, however, and Ministry of Transport officials wrote that 500 additional motor vehicles were needed, even in 1940. In part, this was also due to the parlous state of coastal shipping, which meant that high-value cargoes were increasingly being moved by road.²⁰¹

Many of Glasgow and Greenock's operational difficulties arose from the fact that, pre-war, much of their import trade arrived as part cargoes of between 500 and 2,000 tons carried in liners working to a regular timetable. These cargoes were largely intended for use in Glasgow and central Scotland, within the economic distribution zone of the port. Thus, by far the most serious shortage within Glasgow Harbour was in transit shed and warehouse accommodation. The existing facilities were adequate for pre-war conditions, but not for the new demands that would arise out of the near total closure of ports in southern England. Ministry of Transport civil servant Frank Pick wrote:

There is, for the size of the port, exceedingly little warehouse accommodation. What sheds there are single-storey buildings adapted for use as transit sheds.²⁰²

The Kelvin Hall was considered as emergency accommodation, but it was so large that, if full, it would be too great a single risk. Already, by July 1940, the Ministry of Food and other departments were competing for warehousing space, but the real need was to get goods cleared away from the ports, where they were vulnerable to attack, and into distribution centres.²⁰³

Blackout was ever a problem as Ministry of Shipping civil servant S.S. Wilson recalled:

But by the autumn of 1940, the blackout restrictions were becoming increasingly irksome, and although there were not yet heavy raids on the West Coast ports, night working was being constantly interrupted – with consequent effect on the temper and morale of those engaged on the docks.²⁰⁴

The Air Ministry was insisting on a complete blackout on receipt of a 'purple' preliminary alert. The Clyde Navigation Trust pointed out that this was impossible as the alert often caught vessels in the act of docking or undocking, or manoeuvring in the river, and, especially in a tidal harbour, these operations cannot simply be suspended. There had, according to a report dated 25 November 1940, already been several close calls during dry-docking at Govan when the power had been cut without warning, and when ships had arrived at berths only to find nobody there to take their lines. An RAF aerial survey before and after a trial alert on 18 January 1941 revealed:

²⁰¹ MT 63 69.

²⁰² Ibid.

²⁰³ Ibid.

²⁰⁴ PRO 30 92/2.

Blackout area under normal conditions extremely bad. After the warning, considerable lights were showing and [tram]car flashes visible at 12 miles. Dark area round Clydebank extremely bad, also river could be normally traced all the way, while riverside was lit up like a main thoroughfare in peacetime. Shipyards particularly bright. Area round Rothesay Dock particularly bright, King George V Dock plainly visible, Princes Dock and Queens Dock showed considerable light.²⁰⁵

On 21 March 1941, following the first heavy raids on Clydeside, another aerial survey showed that the whole dock area could be clearly seen from 21 miles away at 10,000 feet. The city's street layout, the glass roof of St Enoch's Station and the Corkerhill marshalling yards could be seen from 14 miles, and much light could be seen from transit sheds at the docks as the aircraft passed overhead. A measure of the general ineffectiveness of the blackout, particularly over industrial areas expected to work around the clock, this problem was never fully resolved, though one partial solution lay in the STARFISH decoy sites being set in the hills behind Clydebank and Greenock.²⁰⁶

Another pressing problem that hampered port operations on Clydeside in 1940 was the disorganised state of the labour market. Twenty-five stevedoring and master portering firms operated in Glasgow and, while other major ports operated a voluntary registration system, here there was no organised method of getting dockworkers to where they were needed most. Indeed, the Ministry of Transport found that nobody knew how many dockworkers were available. The unions reported that they had some 3,600 members, of whom 2,800 worked on the docks. Employers' records suggested that there were at least another 2,800 casually employed. At the time of the investigation in July 1941, there was a growing shortage of labour in the docks, largely due the call-up which was taking away the best men. Despite this, there were still about 250 dockers unemployed, 'largely due to the clumsy and inadequate means of recruiting daily labour.' This situation was set to improve with compulsory registration, but immediate steps were taken to coordinate the, 'ill-managed business,' of calling-on.²⁰⁷

Recruitment was not the only labour-related problem to bedevil port operations on Clydeside in 1940. As Behrens writes:

In contradistinction to the shipping industry, where industrial relations had always been unusually good, industrial relations in the port industry before the war had, in the main, been unusually difficult.²⁰⁸

On 8 August, with the invasion scare at its height, Port Emergency Committee Secretary Robert Tolerton wrote that:

²⁰⁵ D-TC 8 10/96.

²⁰⁶ D-CD 9 17.

²⁰⁷ MT 63 32. MT 63 200. Behrens *op. cit.* p. 83.

²⁰⁸ Behrens *op. cit.* p. 16.

Dockers have not shown a general disposition to give improved output. Probability is that they are ruled by a small minority.²⁰⁹

A dogged resistance to the introduction of new technology was allied to an equally stubborn refusal to do away with restrictive working practices. Greenock was said to have a 'lamentable' rate of discharge, notably in sugar cargoes, and a comparison of mean average discharge rates for full cargoes of grain, ore and scrap at Glasgow, Liverpool and on the Tyne between 1 June and 27 July 1940 painted a depressing picture:

	Grain		Ore		Scrap	
	vessels	tons	vessels	tons	vessels	tons
Glasgow	8	1228	18	1259	3	483
Liverpool	14	1618	-	-	2	608
Tyne	-	-	13	1472	-	-

This thesis is not the place for a detailed consideration of socio-political attitudes during the Second World War, but left-wing militancy held great sway in industrial areas of Scotland, particularly on Clydeside, and fundamentally affected attitudes in the workplace. Scottish working class attitudes had been conditioned by the so-called Red Clydeside confrontation of 1915 to 1922, the depression years, unemployment and events on the international stage such as the Spanish Civil War.

As Britain went to war in 1939, the British Communist Party, which had considerable influence on Clydeside, was deeply divided. The Party had initially supported the war, but there were the small matters of the Nazi-Soviet pact and the Red Army's invasions of eastern Poland and Finland. Intent on its own predatory agenda, Moscow instructed the British party to take an anti-war line, despite the strong misgivings of senior CP figures like Harry Pollitt and Willie Gallacher who remained doggedly anti-fascist. CP membership grew steadily, the Soviet Union was held to be an egalitarian paradise and Stalin was portrayed as wise and kindly. These views persisted into 1941 when the Scottish Mineworkers Federation passed a motion praising the Soviet Union's 'policy of peace' and the Communist-led Apprentices Committee on Clydeside organised a series of strikes which ended with a spontaneous return to work on 14 March 1941, the day after the first heavy air raids on Clydeside.²¹⁰

Anti-war sentiments and seemingly bizarre political naiveté pervaded the attitudes of the Left generally. The Labour Party had been strongly pacifist between the wars. Many on the Left were dismayed by the retreat from human values, others despaired of the fact that a war would, they believed, long delay the institution of a socialist state in Britain. Stafford Cripps, influential on the Labour Left, defended the Soviet invasion of Poland and wrote

²⁰⁹ MT 65 200.

²¹⁰ Jeffrey : 1996 pp. 176-177.

in *Tribune* that the Soviet invasion of Finland was, 'a necessary defensive move'.²¹¹ From its stronghold on Clydeside, the tiny Independent Labour Party remained committed to a 'stop the war' line, even after the German invasion of the Soviet Union. As Calder writes:

...there is clear evidence that the Independent Labour Party's virtual pacifism did not make its members electoral pariahs. Even in April 1940, its candidate got a quarter of the poll in Renfrew East, near Glasgow.²¹²

The Scottish National Party too was opposed to the war, campaigning against conscription from 1937 (unless, of course, it was carried out by a Scottish government). One of its senior figures, academic Douglas Young, notable for his lack of common sense, expressed himself willing to work with the enemy in the event of Scotland making a hoped-for separate peace with the Nazis. The SNP's position held wide appeal as demonstrated by the result of a by-election in Argyll in April 1940 when their candidate polled 37% of the vote.²¹³ For the Left, purist zealots apart, the war ceased to be imperialist and became a just crusade once Germany invaded the Soviet Union. In fairness, however, the Right was also deeply divided with many in the Scottish Conservative Party strongly pro-appeasement and some openly expressing pro-fascist sympathies, notably during the Perth and Kinross by-election in 1938. Several prominent Scottish politicians, landowners and industrialists aligned themselves with quasi-religious and extreme right organisations active in Scotland and opposed to the war.²¹⁴

Matters on the port management side were scarcely less happy or efficient during 1940. It had been realised before the war that the ports were likely to form a bottleneck, not least because they were the focus of so many different interests. In the case of the Clyde, as elsewhere, the Ministries of Shipping, Transport, Home Security, Supply, Food, Works and Labour, the Admiralty, the Air Ministry and the War Office all sought to influence port operations formerly the province of the Clyde Navigation Trust. The Port Emergency Committee, formed in an attempt to reconcile competing interests, were, as one report puts it:

...made ad hoc from persons who were a bit flattered at being invited to represent a Government Department. Most had little idea of the organisation of which they now formed a part, and even less of the other organisations impinging on the port...Some of those in uniform were a bit tactless.²¹⁵

Behrens writes of both the breakdown of the Port Emergency Committees and of the congestion that hampered west coast port operations in 1940, notably after heavy raids closed the Port of London in early September.²¹⁶ Wilson agrees, but also points to the turf war

²¹¹ Ibid p. 79.

²¹² Calder : 1991 p. 72.

²¹³ Ibid pp. 72-73.

²¹⁴ See Jeffrey : 1992 ch. 3.

²¹⁵ PRO 30 92/2.

²¹⁶ Behrens *op. cit.* p. 126 *et passim*.

that arose between the Ministries of Transport and Shipping.²¹⁷ In the case of the Clyde, Wilson could have added the complete lack of cooperation between Glasgow and Greenock. Following a typically Churchillian intervention at the end of 1940, Regional Port Directors were appointed, initially for the Clyde and Mersey, with all but dictatorial powers. Robert Letch (former Assistant General Manager of the Port of London initially sent north to organise overside discharge on the Clyde) was appointed Clyde Regional Port Director in January 1941 with responsibility for the whole river, Greenock included, and recorded:

...a state of affairs worse even than in the other west coast port areas, for in the existing confusion it had proved impossible to distribute the ships diverted from the east coast ports in equitable proportions and the Clyde had received a much heavier burden than either the Mersey or Bristol Channel.²¹⁸

He wrote that the situation was exacerbated by Glasgow being a port designed mainly to serve the immediate area, and was thus lacking in essential storage facilities and transport links. Letch was a dynamic and effective figure and, rather than try to create order out of existing chaos, in just three months he installed an entirely new port organisation and, by March 1941, was able to write that:

Glasgow is now one of the two most important ports in the country and is the importing and distributing centre for a large proportion of the vital needs of the country.²¹⁹

The Clyde Navigation Trust only controlled navigation down river as far as Newark Castle at Port Glasgow and central to the efficiency of Glasgow as a port would be the establishment of a Clyde Anchorages scheme, which stretched from Newark Castle to the boom and included all the sea lochs, where convoys could assemble and from where vessels could be fed upriver to the docks in an organised fashion.²²⁰

In September 1940 it had become apparent to FOIC Greenock, Admiral Bertram Watson, that facilities at the Tail o' the Bank were already coming under severe strain as increasing numbers of ships used Glasgow. A Naval anchorage had been established east of Rosneath Patch and degaussing ranges were being set up along with new bunkering facilities. But the Lower Clyde was almost devoid of organisation, there were not enough tugs, water boats, tenders, compass adjusters or medical facilities, berthing was disorganised and storing facilities were insufficient. Princes Pier at Greenock was in a poor state and there was almost no office or residential accommodation.

The rarely compatible demands of cargo handling and trooping mean that the Clyde was changing from a port where ships simply called for convoy to being a convoy port, a repair port, an overside discharge port, an embarkation and disembarkation port and a salvage port.

²¹⁷ PRO 30 92/2.

²¹⁸ *Ibid.* p. 134. See also Riddell : 1979.

²¹⁹ MT 63 69. For a discussion of the role of the Regional Port Directors, see also Behrens *op. cit.* pp. 131-138.

²²⁰ The Clyde Pilotage Authority was responsible for pilotage as far down river as the Cumbraes.

Watson suggested, particularly in view of the increasing use by the Navy and other services, that the Anchorages should be made a Naval port. Captain H. Digby-Beste, a retired Indian Navy officer, was appointed King's Harbour Master in October 1940, though this had to be downgraded to Admiralty Berthing Officer when the request to make the place a Naval port was refused. In a report dated 12 March 1941, Digby-Beste wrote that, 'The trouble has been that the increase of continually outstripped the organisation and machinery necessary to cope with it,' and offered these statistics as evidence.

	Total ship days per month
July 1940 (12 days only)	1165
August 1940	2585
September 1940	5109
October 1940	5658
November 1940	6807
December 1940	6076
January 1941	4828
February 1941	2454
March 1941 (12 days only)	1045

Thus, for the 237-day period to 12 March 1941, there had been a daily average of 152 vessels in the Clyde Anchorages.²²¹ Behrens offers a comparative analysis of monthly average port performance between April to June 1940 (prior to the fall of France), and subsequent three-monthly periods to June 1941:

	A (4 - 6/40)	B (7 - 9/40)	C (10 - 12/40)	D (1 - 3/41)	E (4 - 6/41)
	'000 net tons	'000 net tons	'000 net tons	'000 net tons	'000 net tons
Glasgow and Greenock	321.3	371.7	421.0	401.0	395.7
Liverpool and Manchester	992.0	1,072.3	809.3	628.3	664.3
Swansea, Cardiff and Newport	227.0	190.3	171.7	123.7	131.0
Bristol	176.7	190.0	171.7	122.0	169.7
Total foreign trade tonnage in UK ports	3,613.3	2,822.3	2,313.7	1,995.3	2,183.0

Giving a percentage net variation on period A as follows:

	A/B	A/C	A/D	A/E
Glasgow and Greenock	+15.7	+31.0	+24.8	+23.2
Liverpool and Manchester	+8.1	-18.0	-36.7	-33.0
Swansea, Cardiff and Newport	-16.2	-24.4	-45.6	-42.3
Bristol	+7.8	-2.8	-30.9	-4.0
Total foreign trade tonnage in UK ports	-21.9	-35.9	-44.8	-39.6

In period A Clyde port facilities were heavily committed to the Norway campaign. In period E, Liverpool's performance was affected by heavy bombing. Yet the Clyde was the sole port facility to show a consistently higher performance on the period A index.²²²

Thanks to a remarkable, effective partnership between Regional Port Director Robert Letch, the Royal Navy, Clyde Navigation Trust and Trades Unions, by late 1941 Glasgow Docks were operating at much improved efficiency, handling 8.7 million tons of cargo an-

²²¹ T-CN 16 74/24.

²²² Behrens *op. cit.* p. 147.

nually, an increase of 2.6 million tons (23.8%) on the 1939 figure.²²³ Dock labour had been effectively organised and the west side of King George V Dock was being completed, the facilities there including rail platforms for large-scale troop movements. With a minimum depth of 32 feet at LWOST, King George V Dock allowed very large vessels to dock in Glasgow and it was close to Renfrew Airfield, thus convenient for moving aircraft both in and out. Nearby, at Braehead and Deanside, 80 acre storage and distribution depots with four 500 foot by 100 foot transit sheds and 18 miles of sidings were being constructed, the first such depots in Britain.²²⁴ Riddell writes that:

King George V Dock and the surrounding area was quite rightly claimed to be the most important shipping accommodation in the country during the Second World War.²²⁵

The river was being widened at Meadowside, a new elevator was being installed at the 54,000 ton capacity Meadowside Granary and coal-handling capacity was being increased, particularly at Rothesay Dock. In all, 48 new cranes were installed and 15 older cranes upgraded, £2 million being spent on handling improvements alone in Glasgow during the war.

Downriver, tanker berthage at Dungallass was being extended westwards, much progress had been made with merchant ship anchorages in the Gareloch for vessels laid up or under repair, off Kilcreggan for ships awaiting orders or convoy, in Loch Long for tankers and any overflow from Kilcreggan, in the Holy Loch for wiping and overside discharge, and off Rothesay and Port Bannatyne for salvage. Merchant ship anchorages and the Naval anchorage were run by the Naval Control Service operations room in 33 Barrhill Road by Digby-Beste and the NCSO, Captain J. M. Begg. Navy House in Clarence Street housed several departments including the Maintenance Captain, the Sea Transport Office, the Boom Defence Office and the Drafting Office. Admiral Watson's headquarters was in HMS *Orlando*, Bagatelle, Eldon Street.²²⁶

Princes Pier was being redeveloped with Naval offices and its landing facilities trebled.²²⁷ Moorings for RAF flying boats, oiler barges and other small craft had been laid in Cardwell Bay, close to Admiralty Pier. Small boats had been requisitioned to form a ferry service, the storing of merchant ships had been systemised and a waterboat pool had been formed.²²⁸ Defensive armament of merchant ships (DEMS) was administered from HMS *Carrick* at James Watt Dock, a Dome AA teacher had been set up inside St Andrews Church, Carnock Street, the ammunition ship *Jacynth* was moored at a safe distance off

²²³ Clyde Navigation Trust's revenue rose in line with increasing business, rising from £955,000 in 1939 to £1,255,216 in 1942. Revenue for the year 1944-45 was £1,339,799, some 25% higher than in 1939 and, in 1945-46, revenue fell away by £156, 675. T-CN 6 5/6. D-CC 2 1/74.

²²⁴ *The Port of Glasgow*. Clyde Navigation Trust (1947).

²²⁵ Riddell : 1979 p. 257.

²²⁶ ADM 116 4539. MT 63 69.

²²⁷ T-CN 58/9.

²²⁸ ADM 1 11713.

Princes Pier and the gunnery school firing ship *Cardiff* operated from either Greenock or Lamlash in practice areas east and south of Arran. Degaussing ranges had been set up off Helensburgh Pier and off Ardnadam, with experimental stations at Stroul Bay in the Gareloch and south of Portkil Point. A hydrophone station off Innellan had been set up to analyse underwater sound signatures and there were signals stations in Loch Long, at Limekiln Point and at Princes Pier.²²⁹

The Port Security Office was in the requisitioned Ferry Café at Gourock and the boom was controlled from Custom House in Greenock with boom defence vessels operating from Colintraive. The Clyde Extended Defence was controlled from an Observation Post was above the Cloch Light, there were controlled minefields at Colintraive and on either side of Cumbrae, and A/S detection loops between Wemyss Bay and Toward Point.²³⁰ Overlooking the boom were gun batteries at Cloch Point and Castle Hill, Dunoon. Two 4.7" quick-firers were mounted at Toward Point and Ardhalow Fort held two 6" guns and one 9.2" gun, though the latter was never fired as the concussion would have shattered windows over a wide area. The heavy anti-aircraft gunsites around the 'Tail o' the Bank, light anti-aircraft batteries and searchlights were controlled from Gun Operations Room at Aikenhead House in Glasgow. Fighter cover was provided from RAF Prestwick and RAF Ayr, minewatching posts were set up, Coastwatchers perched on headlands and a network of Observer Corps posts spread across central Scotland and Argyll.²³¹

In the Holy Loch, five moorings were laid for the Clyde Anchorages Emergency Port Scheme which began operating in September 1940 to provide additional cargo handling facilities. Large merchant ships moored off and transferred their cargoes, using their own derricks, to coasters for onward passage to other ports, or into barges for landing in the Clyde, a type of working hitherto only practised extensively in the by then closed Port of London. Thames barges, Dutch *schuyts* and 600 men were brought north by the London stevedoring firm Scruttons Ltd and the piers at Fairlie and Craigendoran were equipped with cranes to transfer smaller goods to railway trucks. Later, as the emphasis on the Clyde changed to trooping, much of Princes Pier was laid aside for handling large numbers of personnel and Admiralty Pier in Cardwell Bay was taken over for storing troopships.

The emergency port quickly proved highly efficient and, in April 1941, when the discharge rates elsewhere on the Clyde were averaging 560 tons per ship working day, at the emergency port 760 tons per ship-working day were being handled. The size of the emergency port operation was restricted by the number of coasters available, never exceeding the five

²²⁹ For the full establishment in the Clyde, see ADM 116 4539. T-CN 16 74/18. T-CN 16 74/24.

²³⁰ ADM 1 9851.

²³¹ WO 166 2129. AIR 25 233.

moorings laid in 1940, but some 1,885 vessels were handled and 2,056,830 tons of cargo was transhipped along with more than 6,000,000 smaller packages of mails, stores and equipment. The piers within the Clyde handled 289,931 tons of cargo and more than 4,000,000 packages, thus giving a total of 2,343,761 tons of cargo and more than 10,000,000 packages handled by the scheme.²³² Barges were also employed in carrying cargo both within Glasgow Docks, and between there and the Lower Clyde, some 580,516 tons being moved in this way.²³³

Another scheme to relieve pressure on the established ports, first mooted in June 1940, was the construction of deep-water ports, primarily intended for military embarkation. Sites for No.1 Military Port at Faslane in the Gareloch and No. 2 Military Port at Cairnryan (left) had been selected by November 1940 and work began the following month. Construction was a purely military affair carried out by Royal Engineers with numerous ATS as clerks, cooks and drivers to save manpower. Faslane was close to the West Highland Railway from which a 2¾ mile spur was laid. As the port would be handling only outgoing traffic, this could be at a relatively steep downhill gradient of 1 in 49, and thus shorter. At Cairnryan, a seven-mile extension from the Stranraer line was constructed.

The wharves at Faslane were designed to take 38 cranes from Southampton and London, and 31 cranes for Cairnryan came from Parkeston Quay and London. Being export-only ports, there was no need for transit sheds or external storage areas at either site. When completed in 1942, Faslane had 3,000 feet of deep-water wharf, 900 feet of



No. 2 Military Port, Cairnryan.

lighterage wharf, MT wharfage and a berth for a 150-ton floating crane brought from Southampton. Cairnryan had 2,750 feet of deep-water wharf and 1,360 feet of lighterage wharf. Shandon Hydropathic Hotel was requisitioned for Faslane and additional camps were constructed to provide accommodation for 4,000 men at each site.

Faslane, with its higher level of local back-up, was the busier of the two ports and large part of the tactical loading for TORCH, the 1942 Allied landings in North Africa, was handled there. It was heavily involved in subsequent operations, notably HUSKY, the 1943

²³² MT 63 193. MT 63 194. MT 63 195. *Souvenir of the Clyde Anchorages Emergency Port Scheme*. Privately published by Scruttons Ltd in 1947. Behrens *op. cit.* pp. 134-135.

²³³ T-CN 74 17.

landings in Sicily and, in 1944, before Overlord, the battleship *Malaya* was re-gunned there by the floating crane. And Faslane, with its powerful cranes, was in continuous demand for heavy lifts such as locomotives carried as deck cargo in ships which would then discharge the rest of their cargo elsewhere. Tankers carrying up to 30 American aircraft at a time as deck cargo would unload them at Faslane before proceeding to oil berths. The aircraft were then taken by lighter to King George V Dock and towed along Old Renfrew Road to Renfrew Airport. There they joined other aircraft that had been landed direct at King George V Dock from freighters, were reassembled and flown out.²³⁴

Aside from essential supply convoys, the most vital cargoes to be handled in the Clyde were human. One of the first large arrivals was BRACELET, 15,000 Anzac troops who landed at Greenock in June 1940. This was followed, later in June 1940, by the departure of the first reinforcement WS convoy for the Middle East, a series that continued on a six-weekly basis. Two large troop convoys arrived from Canada in late 1940. The siege of Malta began in spring 1941 and, in April and May, three of the Navy's fast minelayers were loaded with vital supplies for the island. Also in May 1941, loading WS8C, the assault convoy for PUMA, the abortive landing on the Canary Islands, was badly interrupted by heavy air raids (see Chapter Five). September 1941 saw the loading of the first convoys to the Soviet Union and, later that month, the departure of WS12 carrying the 1st Armoured Division and other troops for CRUSADER, Auchinleck's offensive in North Africa. This departure involved three large store ships and nine liners with 20,000 troops who had arrived at Greenock in 55 trains.²³⁵

CRUSADER failed, and the next sizeable departure from the Clyde in October, the 18th (East Anglian) Division, fared even worse, arriving in Singapore just before the Japanese. On 13 December 1941 Churchill arrived at Princes Pier to embark in HMS *Duke of York* for the first conference with the new American ally. As the war in North Africa intensified, so troop movements increased and the principal departures during 1942 were:

1942	Convoy	Formation
March	WS17	59,231 troops including the 5th Division and the Madagascar invasion force.
April	WS18	44,953 troops including the 2nd Division.
May	WS19	41,491 troops including the 8th Armoured Division.
May	WS19W	9,502 Middle East reinforcements in <i>Queen Mary</i> .
May	WS19X	60,285 troops including the 44th Division.
May	WS19Y	10,718 Middle East reinforcements in <i>Queen Elizabeth</i> .
June	WS20	54,386 troops including the 51st Division.
August	WS22	50,770 troops including the 56th Division.

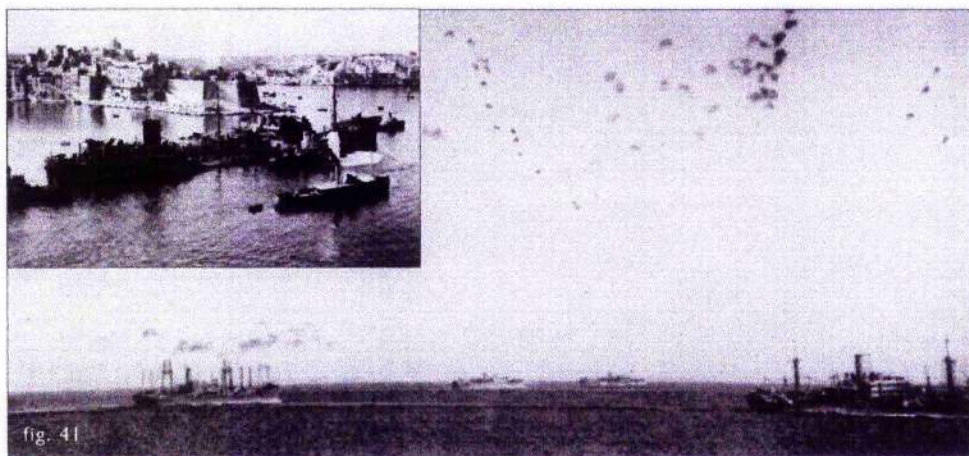
Sources: Yeo MS IWM ref. 96/6/1. Behrens *Merchant Shipping and the Demands of War* HMSO 1978 p. 244.

²³⁴ Cameron : 1990 p. 68-72.

²³⁵ Yeo MS. IWM ref no 95/6/1.

The fitting out of the west side of King George V Dock with transit sheds, cranes and sidings was complete by early 1942.²³⁶ The new facilities soon proved their worth when, in April 1942, it was used to load Spitfires aboard the carrier USS *Wasp* for Operation CAL-NDAR, the flying of 47 fighters into Malta. *Wasp* sailed on 14 April escorted by the battle-cruiser *Renown* and six destroyers and flew off her Spitfires at extreme range from Malta, but just 17 of them remained undamaged after two days on the beleaguered island. *Wasp* returned to the Clyde on 30 April along with the British carrier *Eagle* and, when the two ships sailed on 3 May for Operation BOWERY, they bore another 62 Spitfires for Malta.²³⁷

The best known Malta relief convoy, PEDESTAL, made up of 14 fast, modern merchantmen, sailed Greenock at 1800/7 August. The close escort comprised *Nigeria*, *Kenya*, *Amazon*, *Dervent* and *Zetland*. *Argus*, *Sardonyx* and *Buxton*, joined later by *Victorious*, *Sirius*, *Foresight*, *Fury*, *Intrepid* and *Icarus* from Scapa. Force H, the heavy escort, had sailed Scapa at 1600/3 as *Nelson*, *Rodney*, *Ashanti*, *Tartar*, *Eskimo*, *Somali*, *Pathfinder* and *Quentin*. *Penn* was delayed by boiler defects but caught up. Also to join the convoy were, from Freetown, *Indomitable*, *Phoebe*, *Laforey*, *Lightning* and *Lookout* and, from Gibraltar, *Eagle* with escorting destroyers, the oilers *Brown Ranger* and *Dingledale*, and the tug *Jaunty*.



One of the most vital convoys to sail from the Clyde was the PEDESTAL Malta relief operation in 1942. Inset, in one of the most famous images of the war, the tanker *Ohio* is towed into Grand Harbour. One of the few tankers with sufficient laden speed to have a chance of reaching Malta, the Texaco-owned *Ohio* was taken over by a British and loaded at Dunglass before joining the rest of the PEDESTAL ships off Greenock on 31 July 1942. The convoy left the Clyde on the evening of 2 August and just five merchantmen, including the heavily damaged but indispensable *Ohio* reached Malta two weeks later. But it was just enough to save that beleaguered island.

²³⁶ The cost of completing the dock was £192,000 for which, under the Civil Defence Act 1939, Clyde Navigation Trust qualified for a 65% grant. This was just one of many capital projects carried out in Glasgow docks during the war under government schemes or at the behest of the Admiralty. In 1948, after the Admiralty had removed such plant as it needed for its own dockyards, the rest was sold off to the Trust at a knockdown price. T-CN 16 74/16.

²³⁷ Jeffrey : 1993 pp. 117-118. Cameron : 1990 p. 68.

Despite this massive show of force, just five merchantmen reached Grand Harbour; *Port Chalmers*, *Melbourne Star*, *Brisbane Star* and *Rochester Castle* got in under their own steam and the tanker *Ohio* limped in, kept afloat by the destroyers *Bramham* and *Penn*. The cost to the Navy was heavy indeed with *Eagle*, *Manchester*, *Cairo* and *Foresight* sunk and *Indomitable*, *Nigeria*, *Kenya*, *Ithuriel*, *Wolverine* and *Penn* all damaged. Thirteen FAA aircraft had been shot down and another 16 Sea Hurricanes had been lost with *Eagle*. The RAF had lost one Beaufighter and four Spitfires after the convoy came within range of Malta-based aircraft. More than 300 men had died.²³⁸

BOLERO, the US build up in Britain, was initially dogged by American over-estimates of the numbers of troops that could be brought over and accommodated in Britain. The US Army wanted piers and docks allocated for their sole use and manned by so-called Docks (Negro) Battalions. No account had been taken of the effect that the diversion of shipping this would entail would have on other UK-bound traffic. One estimate put the consequent reduction in UK food and supply imports at 266,000 tons per month. This, and the need to make increased tonnage available for convoys for the Soviet Union, led to a reduction in US expectations. And, with dock space at a premium, the allocation of piers solely for American use would not have been efficient. Major General John Lee led an American delegation to Britain in May 1942 proclaiming, much to the alarm of the Ministry of Transport, that shipments of vehicles would begin at the rate of 12,000 a month from July. It had to be pointed out to the Americans that there were nowhere near enough cranes available to handle that number of cased vehicles, indeed the existing cranes were fully extended handling exports of vehicles from Britain, then running at about 1,000 per month.

Canadian troop convoys had run since mid-1940 and inward movements of American troops to the Clyde began with the arrival of the fully-laden *Aquitania* on 12 May 1942. The Americans went on to Northern Ireland where they relieved British garrison troops for service in North Africa. Large liners were unable to discharge at Belfast, so the GIs were transferred to the former pleasure steamers of the 'Butterfly Fleet' for onward passage to Northern Ireland, and their MT was driven to Stranraer from where it crossed by ferry. The Cunarder *Queen Mary* sailed from New York on 11 May 1942 with 9,880 GIs and 875 crew, the first time more than 10,000 had travelled aboard a single ship. She and *Queen Elizabeth* were joined by *Nieuw Amsterdam* and *Ile de France* and all kept up a regular service, in between which ran mixed US and British convoys of smaller ships. *Queen Mary* left New York on 2 August 1942 with 15,125 troops, the first time an entire US Division had been transported in a single ship. All the liners reduced their capacity in winter, the *Queens* carrying around 10,000 troops. But the record for a single crossing was the 15,740 troops and

²³⁸ Smith : 1987. See also Roskill : 1956 pp. 302-308.

943 crew who left New York in *Queen Mary* on 23 July 1943 and arrived at Greenock on 30 July still stands as the largest number of people ever embarked on a single ocean crossing. Some 86 special trains were needed to clear the troops from Greenock.

TORCH, at the end of 1942, involved by far the largest tactical loading operation then carried out. The logistical effort involved in assembling the assault and follow-up formations in west coast ports from the Bristol Channel to the Clyde was immense and, between 7 and 26 November, some 373 troop train movements took place as follows;

Entraining Area	Ports of embarkation			
	Clyde	Mersey	South Wales	Avonmouth
London	3	4	2	-
Salisbury Plain	10	34	3	2
South of England	11	9	-	-
West of England	2	1	-	-
South West England	-	30	-	2
South East England	8	3	-	4
South Wales	1	4	-	1
East of England	14	6	1	-
Midlands	5	15	4	2
Scotland and North of England	115	67	9	1
Total	169	173	19	12

Source: Nock : 1971.

And, once the ships loading in the Mersey and Bristol Channel had completed, they steamed north to join convoys in the Clyde. At Greenock and Glasgow, loading started on 27 September 1942 and supply ship sailings from the Clyde for Gibraltar had begun in mid-October. When the fast assault convoys KMF(A)1 and KMF(O)1 sailed on 25-26 October, they alone carried 31,000 men, 3,800 tons of assault stores, 1,600 vehicles and 112 guns. KMF2, the first follow-up convoy to leave the Clyde carried 36,500 men, 11,000 tons of stores, 1,600 vehicles and 70 guns. The second follow-up convoy comprised 33,000 troops in 27 ships. Sailings on a smaller scale continued every 14 days into November, as did regular AT convoy arrivals of US troops from America.

HUSKY, the 1943 invasion of Sicily, the Clyde element of which involved 41,000 mainly Canadian troops brought to Clydeside in 96 trains and loaded aboard 63 ships, among them 17 LSTs which loaded vehicles off specially constructed hards at Wemyss Bay. Total movements through the Clyde in June 1943 alone amounted to 114,000 men and 86,000 tons of stores. Among the inward moves that month were 14,000 POWs from North Africa.

On 16 January 1944, a special meeting of the Clyde Navigation Trustees had just one item on the agenda, 'Berthing for Invasion Ships'. More land for open storage was to be taken up, the 4,500 workforce was to be augmented by 'US coloured troops' and three companies of Royal Engineers, ships awaiting repairs were to be cleared from berths and Glasgow's tug fleet was to be kept 'on top form' in case any of them had to be withdrawn for invasion duty. Two tankers delivered aircraft to King George V Dock on 12 and 15 Febru-

ary, another 74 aircraft were due there by lighter from Faslane immediately afterwards and eight US troopships were to arrive at the dock on 20 and 21 February. South coast ports were closing to allow the assembly of the invasion fleet, and an additional 12 arrivals monthly would have to be accepted in the Clyde. An emergency programme of conversion and fitting out of ships for Normandy was also under way.²³⁹

More than 250,000 personnel came to the Clyde in March and April 1944, some 75,000 of them British, the rest American. Such was the pressure on the railway system, many of these arrivals were moved south by coaster. On D Day itself, *Queen Elizabeth* was disembarking GIs at the Tail o' the Bank, but the Clyde played little direct part in the assault operation, notable departures for Normandy being the battleship *Rodney* and the 10th Cruiser Squadron led by *Belfast*. Large-scale inward movements of American troops ended with the arrival of 10,905 aboard the *Queen Mary* at Gourock on 23 March 1945 and, from July, US troop movements, by then outwards, moved to Southampton.

In 1947, Clyde Navigation Trust published the following statistics showing activity in Glasgow Docks (results for war years in blue):

To 30/6	GRT vessels	Tons goods	Revenue vessels (£)	Revenue goods (£)	Other revenue (£)	Total revenue (£)
1938	15721920	7264775	338277	349167	325027	1012741
1939	15758478	6189184	329499	304246	322186	955932
1940	16321741	7975141	300821	339300	387233	1027354
1941	15201002	8744364	285975	398057	469743	1153775
1942	14331716	7989315	258849	445884	550433	1255216
1943	16051714	8797694	265207	469787	600070	1335064
1944	18140522	9219589	296634	478668	611673	1386775
1945	16233116	8949343	272705	462238	604885	1339799
1946	11253516	6226630	255410	371593	553121	1180124

Source: *The Port of Glasgow*. Clyde Navigation Trust (1947)

To this must be added the 2.34 million tons and 10 million packages handled by the Clyde Anchorages Emergency Port Scheme and at least 3.18 million tons of military stores that passed through Glasgow and Greenock. A further half million tons of various cargoes were handled by lighterage between the military port at Faslane and Glasgow. Thus the grand total for known non-oil cargoes handled in the Clyde comes to 57,695,446 tons, though this is incomplete as figures for non-military cargoes handled at Greenock do not appear to have survived. Nor are there consolidated figures for the military ports, in particular Faslane, and nor are there figures for cargo handling at minor ports in the Clyde such as Ayr, Ardrossan and Irvine.²⁴⁰

Thus giving the following totals (including coastwise shipping) with comparative figures for the Mersey, as given by the Mersey Docks and Harbour Board in 1946 shown in red:

²³⁹ T-CN 16 74/25.

²⁴⁰ For example, in 1936 Ayr was handling 1.6 million tons of cargo and the 40-acre Troon Harbour was handling almost 600,000 tons. Owen : 1939 p. 293 *et passim*.

Total tonnage of vessels 1938-1946	112,001,731	
Total cargo tonnage 1938-1946	71,356,035	
Total tonnage of vessels 1940-1945	96,279,811	143,000,000
Total cargo tonnage 1940-1945	57,695,446	75,150,100

And some 4.9 million movements of military personnel took place on the Clyde, among the most significant outward movements being the 41,000 troops, mainly Canadian, who arrived at Greenock in 93 special trains and were embarked for HUSKY, the 1943 Sicily invasion. But the largest single assemblage of shipping in the Clyde was ahead of TORCH, the 1942 invasion of North Africa, when 54 ships with 31,000 men, 3,800 tons of stores, 1,600 vehicles and 112 guns sailed Greenock on the night of 25-26 October for the KMS2 assault convoy (another 12 ships joined from Loch Ewe). KMS2 must not be seen in isolation, as it was but one of 11 major outward movements from the Clyde between 2 October and 1 November 1942 in support of the assault phase of TORCH. Clyde pilots undertook over 200,000 pilotage operations, moving more than 500 million tons of shipping. And the Clyde's main shipbuilding concerns fulfilled 27,590 large contracts, building 1,549 naval vessels, 354 merchant ships and repairing 25,687 ships of various types. Eighteen small yards within the Clyde constructed 791 minor vessels.²⁴¹

Placing the Clyde's contribution in perspective invites comparison with the Mersey as here was another large west coast river port with distinct advantages over the Clyde. With a wet area of 658 acres as opposed to Glasgow's 360 acres, and 38 miles of lineal quays as opposed to Glasgow's 12 miles, the twin ports of Liverpool and Birkenhead were very much larger. They had far better transit shed and warehouse capacity, they were considerably closer to the industrial heartland of Britain and they had better transport links. They were used to handling larger quantities of cargo than the Clyde and had excellent ship repair facilities including 20 graving docks, one being the largest dry dock in Britain (though this is only an advantage when required for the largest ships).

But there were structural difficulties that favoured the Clyde. The tidal range at springs in the Mersey is 9 metres while at Greenock it is just 3 metres. Thus, port working in the Mersey was almost entirely dependent on enclosed docks held by gates only operable at half-tide and above. The Clyde may be narrow, but it was at least capable of all-tide working for all but the largest vessels. And the Clyde also offered sheltered anchorages for overside discharge, not an option in the strong tidal streams of the Mersey.²⁴²

Liverpool was also far closer to enemy airfields in northern France and in heavy raids mainly concentrated between December 1940 and May 1941 harbour works were badly damaged and some 91 merchant vessels were sunk or seriously damaged. Following par-

²⁴¹ T-CN 16 74/25. *The Port of Glasgow*. Clyde Navigation Trust (1947).

²⁴² Owen : 1939 pp. 74, 285, 293. Bird : 1963 ch. 3.

ticularly heavy raids in May 1941, thirteen ships had to be diverted away from Liverpool.²⁴³ Raid damage certainly caused havoc on Merseyside, but Regional Port Director J. Gibson Jarvie had been appointed in 1941 without suitable experience. This led to what Behrens euphemistically describes as the break down of 'arrangements' in the port and Gibson Jarvie's replacement by Robert Letch from the Clyde at the end of 1942. While Mountfield refers to this only fleetingly in his authoritative account, Behrens alludes to obstruction, rivalries and intrigues, and to Gibson Jarvie's inability to control the work force. Clearly, by 1942, Liverpool Docks were in disarray.²⁴⁴

And there is some disagreement about the actual performance of the Mersey. Mountfield and Hyde both give the tonnage of non-oil cargo handled on the Mersey as 70 million tons and Ritchie-Noakes gives the figure for personnel passing through Liverpool as 4.7 million.²⁴⁵ Scarth offers the higher figure of 75 million tons of cargo and states that the Mersey maintained 'vital coastal traffic to the extent of two and a half million tons per year.' He cites no reference for the 7% variation in the overall cargo figure and nor does he make it clear whether the coastwise traffic figure represents tonnage of ships or cargo, whether that is in addition to the 75 million tons or indeed whether that figure applies every year.²⁴⁶ In fact, according to the Mersey Docks and Harbour Board, some 23 million tons GRT of coastwise shipping was handled by the port during the war in addition to 120 million tons of ocean-going shipping. Scarth's figures, along with the questionable assertion that 'most of the supplies' for TORCH were sent from Merseyside, are quoted by Merseyside Maritime Museum who cite Behrens as the source, though no such figures are given therein. In fact, it would appear that the Museum's figures are based on those in the Mersey Docks and Harbour Board's *Port At War* (1947).

Yet incomplete and, in some respects, unreliable raw statistics such as are available for the Clyde and the Mersey are an untrustworthy measure of relative performance (though they do highlight the need for a new study of Britain's ports in the Second World War). They take no account of differences in the roles of the two ports, in their infrastructure or in the types of cargoes handled and for whom. The Clyde, for example, contributed much more from shipbuilding and, in particular, its integrated naval armaments industry. What can safely be deduced is that the two ports were of broadly equal importance to the Allied war effort. The Clyde showed a greater propensity to expand its activities, notably in the 1940-41 period and again in 1943-44, albeit from a lower base. And there is evidence to suggest that the Mersey under-performed in the middle years of the war.

²⁴³ Behrens *op. cit.* p. 141.

²⁴⁴ *Ibid.* p. 132-133.

²⁴⁵ Mountfield: 1965 p. 174. Hyde: 1971 p. 179.

²⁴⁶ *Battle of the Atlantic 50th Anniversary (1943-1993)*. (Brodie Publishing 1993) p. 69.

SCOTLAND'S ROLE IN RETROSPECT

Once Axis forces were established on the west coast of France, the South Western Approaches were effectively closed to Allied shipping and east and south coast ports were only able to operate at reduced capacity, if at all. The North Western Approaches became the only means by which Atlantic supply convoys could reach the two principal west coast port complexes in the Clyde and the Mersey. As a result, particularly in late 1940, it was the waters off the west coast of Scotland that saw the most intense convoy battles of the Battle of the Atlantic. In October and November of that year, with the U boat campaign in the North Western Approaches at its most intense, defeat in the trade war was a real possibility.

But, at this, the only time when the U boats could realistically have forced issue on the Atlantic route, and the when the Battle of the Atlantic was predominantly being fought off Scotland, the German effort proved unsustainable. There were, in late 1940, too few operational ocean-going U boats, and too few trained crews to man them. And, from early 1941, increasingly numerous surface escorts and aircraft operating from Scotland and Northern Ireland began forcing the U boats westwards into mid-Atlantic where shipping was less concentrated, convoys had greater room to manoeuvre in response to improving Allied intelligence and where U boat operations were inevitably less efficient, not least because so much time and fuel was wasted on long passages to and from the operational area.

The close-escorting of ocean convoys in late 1940 was the responsibility of destroyers, sloops and corvettes based at Greenock and, latterly, Londonderry. But it was apparent from the outset that, not only were there nowhere near enough escorts to go round, but there were also were fundamental shortcomings in the Navy's anti-submarine tactics and training. Thus, one of Scotland's most vital contributions to victory in the Battle of the Atlantic lay in the escort group anti-submarine training establishments at Tobermory, Stornoway and Campbeltown.

Scotland made two other highly significant contributions in the battle to beat the U boat. First, there were the 'pinches' of Enigma cypher intelligence by Naval forces based in Scotland. And secondly, Scotland provided vital bases for the Coastal Command aircraft, initially Sunderlands based at Oban, Islay and Scapa Flow, then Catalinas and finally VLR landplanes operating from, for example, Tiree and Benbecula and, on the mainland, Tain. All these assets came together to close the Atlantic Gap in 1943, and to beat *schorchel*-equipped U boats once they returned to British and, in particular, Scottish, coastal waters in 1944-45.

Finally, the contribution of the Clyde, as one of the two principal British port complexes at the eastern end of the Atlantic supply chain, was fundamental to the Allied victory. Had the Clyde not offered port facilities capable of rapid expansion and had it not operated

with increasing efficiency, the remaining British ports still capable of operation could not have absorbed 8 million tons of cargo per annum. And, even were that remotely possible, many of these cargoes would have been landed far distant from where they were required, that is in the industrial belt of Scotland. Also, as the next chapter will demonstrate, only the Clyde and the Mersey could have handled the troop movements, almost 5 million in either case, and supply convoys that supported the desert war including the decisive victory at El Alamein, that allowed major distant-water amphibious operations like TORCH, HUSKY and, ultimately, OVERLORD.

Put simply, while there could have been no Normandy invasion without the Clyde, it is also true that, without the Clyde, Britain could not have brought in the resources to continue the war beyond the early months of 1941.

Chapter Five

SCOTLAND'S COMBINED OPERATIONS BASES

The Dunkirk evacuation ended on 4 June 1940 and, four days later, the last British and French troops withdrew from Norway. With the exception of the Rock of Gibraltar, the entire European littoral between the North Cape and the Adriatic was, by the end of June, either in enemy hands or neutral. This left those planning to take a land war to the enemy with just two options. One was by disruptive operations by small teams of agents and saboteurs organised by the Special Operations Executive and MI6. But the only way in which the enemy could be fully engaged on land, and finally defeated, would be by amphibious operations in which all three services would co-operate fully.

Combined Operations as a science of war was nothing new; the Greeks, the Romans and the Normans had all practised it. Serious reverses in the Seven Years War brought Pitt the Elder to power advocating a distant-water amphibious strategy and Wolfe's brilliant assault at Quebec in 1759 was a model of the art. And, after the Boer War revealed grave shortcomings in the British Army, Admiral Fisher had incensed the generals with his assertion that, 'The Regular Army should be regarded as a projectile to be fired by the Navy.'¹ More recently, in 1915, there had been the attempt to force the Dardanelles and take Constantinople. Here, however, the Turks were expecting the assault, intelligence gathering was inadequate, planning was haphazard and hamstrung by meddling politicians, inept commanders dithered in the face of determined opposition, troops were landed without equipment and, as a result, massacred.

But the Dardanelles concept was not intrinsically wrong-headed. It was driven by a need to take pressure off the Russians and, had it succeeded, as it came close to doing, it would also have eased pressure on the Western Front and shortened the war. The reasons for its failure lay in the manner of its execution and two men who played key roles in that campaign were Winston Churchill and the then Commodore Roger Keyes. Both were, in different ways, haunted by 1915, but they were to be heavily involved in Combined Opera-

¹ Fisher quoted in Padfield : 1993 p. 454.

tions in the Second World War.

Scotland played a central role in Combined Operations, providing training establishments and operational bases at which the landing techniques that would ultimately see the Allies ashore in Normandy were developed and perfected. Here, the establishment of the Directorate of Combined Operations is examined and the significance of the Combined Training Centre at Inveraray is considered for the first time, along with its operational history from the first tentative raids in 1941 to amphibious landings like TORCH, HUSKY and OVERLORD.

Combined Operations in the Second World War suffered an inauspicious genesis in Scandinavia during 1939 and 1940. And it is there that this study of Scotland's role must begin.

RIGHT OF PASSAGE – SCANDINAVIAN DEBACLE

*England and France have demanded right of passage through Norway and Sweden.
The Fuhrer will act.²*

In September 1939 the Soviet Union and Germany partitioned Poland along lines agreed in the Nazi-Soviet pact signed the previous month. A secret protocol to the agreement allowed the Soviets to annexe Estonia, Latvia and Lithuania by early October. Then, on 30 November, following four days of fabricated border incidents, the Red Army invaded Finland. The Finns fought back with fierce determination and Soviet losses in both men and *materiel* were heavy. Unwilling to pick a fight with the Soviet Union, Britain wavered in the face of pressure to aid Finland. But the Finns' stand caught the imagination of the world and, as in the Spanish Civil War, foreign volunteers joined the fight. The Lord Nuffield backed British Committee to Aid Finland opened recruiting offices in London and Glasgow.³ A British company of 145 volunteers joined Hungarians, Belgians and French aboard the *Meteor* which sailed Leith on 3 March 1940 for Bergen.⁴

Limited, discreet military assistance was given, however, and intelligence officers went to Bergen to supervise the unloading of 30 Gladiator fighters. RAF ground crew posing as employees of the Gloster Aircraft Co. flew from Perth to Stavanger by BOAC airliner. The crates ostensibly contained farm machinery as they had to pass through neutral Norway

² Diary of General Franz Halder for 6 March 1940 quoted in Andenaes, Riste and Skodvin : 1966 p. 43.

³ Some 1,390 volunteers were interviewed, though many, like the one-eyed marksman with a wooden leg, were hopelessly unfit. Tacit government approval was signalled by the involvement of MI5 in weeding out communists and other 'undesirables'. Brooke : 1990.

⁴ After the Finnish-Soviet armistice in March 1940 there were 717 foreign volunteers serving, mainly with the *Ostann Sion* (Tough Detachment), including 341 Hungarians and 158 British. Few had arrived in time to take part in military action. Many tried to get home via Norway and Scotland but were trapped by the German invasion. Others were stuck in Finland and Sweden and drifted home by circuitous routes, some via South Africa, others by air from Stockholm to Leuchars. Ibid. p. 38.

and Sweden, but they were too big for the Bergen-Oslo railway and had to be modified, a delicate task given their contents.⁵

On 19 December 1939 the Allied Supreme War Council decided that, provided Norway and Sweden were prepared to offer free passage, a large British and French force would go to Finland.⁶ But there was an all-too-obvious subtext: since September Churchill's Admiralty had been pursuing a series of what one historian called 'slapdash' plans to interdict Swedish iron ore shipments to Germany from Narvik and the Swedish port of Luleå.⁷ Allied plans were evolving into little more than an invasion of Norway with the primary aim of severing the iron ore supply line, thus perhaps forcing Germany to give up Poland and bringing about Hitler's downfall. For the Allies, and Britain in particular, the same fundamentals applied as in the imposition of naval blockade discussed in Chapter One - almost any attempt at a quick-fix solution was preferable to facing the Wehrmacht where it was strongest, in a land war in continental Europe.⁸ So, concurrently with their agonising over Swedish ore shipments, they were also examining ways in which Rumanian oil supplies, arguably far more important to Germany, could be halted.⁹

On 5 February 1940 the Supreme War Council authorised British plans christened STRATFORD and AVONMOUTH, first considered in Spring 1939, in which territorial units would occupy Stavanger, Bergen and Trondheim, and a regular formation would land at Narvik then march overland to the ore fields at Gällivare and Luleå.¹⁰ But the operation was conditional on Scandinavian consent and planning was dogged by vacillation, so little had been achieved by 1 March when the Finnish Minister in London told Foreign Secretary Lord Halifax that Allied help would arrive too late. Unsurprisingly, Norway and Sweden had refused free passage to Allied troops and, on 4 March, the British Chiefs of Staff concluded that an operation to help Finland had become impracticable though, as Movements Officer Colonel H. E. Yeo records, troops movements to the Clyde only really began after this conclusion had been reached and continued for another ten days.¹¹ To the relief of many, the Finns signed a peace accord with the Soviets on 12 March and Allied forces earmarked

⁵ The MI(R) mission to Finland included Andrew Croft and Malcolm Munthe who would play a leading role in Special Operations Executive operations mounted from Scotland to Norway and who learnt much from the Finns about Arctic warfare. Cruickshank : 1986 p. 50.

⁶ Brookes : 1977 p. 18. Roskill : 1977 p. 97.

⁷ A. J. P. Taylor: *English History 1914-1945* (OUP 1965) quoted in Calder : 1991 p. 91.

⁸ Derry : 1952 p. 12. Brookes : 1977 p. 19. Moulton : 1966 p. 49.

⁹ See *British plans for economic warfare against Germany - The problem of Swedish iron ore*. Prof. Patrick Salmon in *The Journal of Contemporary History* vol. 16 (1981) pp. 53-71.

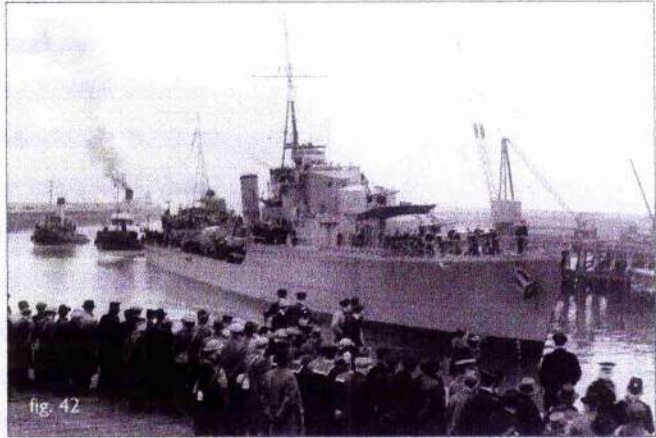
¹⁰ The 49th Infantry Division, a Territorial formation, would secure the ports and the 5th (Regular) Division, another two Territorial Divisions and six and a half squadrons of RAF fighter aircraft would proceed via Trondheim to Sweden. Chamberlain, with an eye to the Committee to Aid Finland volunteers, told the Council that the regular troops going to Finland should go as 'volunteers' as, he averred, that would mean that the Soviet Union would not have to declare war on Britain and France. After many changes had been made, the plan was effectively abandoned on 14 March. Salmon *op. cit.* Moulton : 1966 pp. 49-50. Gilbert : 1989 pp. 188-189. Lamb : 1993 p. 31. Derry : 1952 p. 13.

¹¹ See Yeo MS, IWM Department of Documents ref. 95/6/1.

for Scandinavia were stood down.¹² Taking on the Soviet Union would have been folly, though British policy was not solely driven by military considerations; peace feelers to Germany were being pursued through neutral governments, most notably Sweden.

An earlier incident had crystallised Allied and Axis intentions towards Scandinavia. The *Graf Spee* supply ship *Altmark* was sighted off Norway on 14 February 1940 so the cruisers *Penelope* and *Arethusa* and the destroyers *Cossack*, *Maori*, *Sikh*, *Ivanhoe* and *Intrepid* sailed Rosyth that afternoon to release British POWs known to be aboard.¹³ *Altmark* was tracked into Norwegian territorial waters by Leuchars-based Hudsons on 16 February and, at 2200/16, on Churchill's order,

Captain Philip Vian in *Cossack* entered the fjord and, after a brief firefight, released 299 British seamen.¹⁴ Norway protested, but the action did much for the Admiralty from where Churchill renewed his efforts to gain Cabinet approval for an expedition to stop the Swedish ore traffic. His biographer writes:



Cossack at Leith with the released POWs from *Altmark*.

Churchill wanted to go on with the plan to seize Narvik: 'Our real objective', he said, 'was, of course, to secure possession of the Gällivare ore fields, which would certainly shorten the war and save great bloodshed later on.' Up till now, he added, Britain had, 'had assistance to Finland as "cover" for such a move on our part, but we had now lost this justification for intervention in Scandinavia.'¹⁵

Churchill was not alone in casting warlike eyes towards Scandinavia. Prompted by Admiral Raeder, who wanted bases on the Atlantic seaboard, and banking on his pact with Stalin giving him a largely free hand in Scandinavia, Hitler began planning an invasion of Norway and Denmark in December 1939. Yet, as one staff officer wrote, 'Inasmuch as both Hitler and Jödl allowed us to work in peace, I was under the impression that they were not firmly resolved to execute the operation.'¹⁶ Hitler believed that nothing should divert the Wehrmacht from a decisive strike into France and the Low Countries, but then came the *Altmark* incident and, suspicious of British intentions, Hitler ordered intensified prepara-

¹² Chamberlain dispersed the STRATFORD force, including the Scots Guards ski battalion, as he believed that, should Hitler hear of it, this would provide him with an excuse to invade Norway. Chamberlain's inadequacy as a strategist is clear, but both Churchill and Ironside, the CIGS, remained fixated on the iron ore traffic. Moulton : 1966 p. 57. Derry : 1952 p. 12.

¹³ *Penelope* had to drop out due to machinery problems.

¹⁴ ADM 199 280. ADM 199 281. AIR 28 459. See also Vian : 1960 pp. 24-31. Wiggan : 1982 and Moulton 1966 pp. 52-55, though the latter wrongly gives the date as 16 April 1940.

¹⁵ Gilbert : 1989 p. 188.

¹⁶ Admiral Theodor Krancke quoted in Kersaudy : 1990 p. 44. See also Roskill : 1977 p. 96-99 and *Nuremberg Trial Proceedings* vol. 3 for Friday, 7 December 1945.

tions for a pre-emptive strike at Denmark and Norway, now codenamed WESERÜBUNG. General Nikolaus von Falkenhorst was appointed to lead the assault and, on 29 February 1940, the go-ahead was given for it to take place ahead of the attack in the west.¹⁷ On 2 April, Hitler ordered that WESERÜBUNG should begin on 9 April.

Churchill, meanwhile, was advocating mining Norwegian territorial waters to force ore shipments out into international waters and into the arms of the Royal Navy. WILFRED, Churchill's mining scheme, had little military value, but from 21 March he had an unexpected ally in French Prime Minister Paul Reynaud who seemed eager to cement his shaky domestic political position with resolute military action. Reynaud also believed that a Scandinavian campaign would divert German attention from the Western Front, thus moving the focus of the war away from France. The Supreme War Council on 28 March agreed that WILFRED should proceed on 4 April, though, to assuage public opinion at home and abroad, notably in the United States, it was to be preceded by a diplomatic warning to Oslo on 1 April.¹⁸ Muddled planning and French chicanery brought a postponement until 8 April, a fatal delay as events were to prove. But, on 4 April, a buoyant Chamberlain felt able to offer his infamous, banal reassurance that Hitler had 'missed the bus'.¹⁹

Force WS comprising the minelayer *Teviot Bank* escorted by *Inglefield*, *Ilex*, *Isis* and *Imogen* sailed Scapa on 5 April with a distant escort of *Renown*, *Glowworm*, *Greyhound*, *Hyperion* and *Hero* to lay mines off Stadlandet. The minelaying destroyers *Esk*, *Impulsive*, *Icarus* and *Ivanhoe* escorted by *Hardy*, *Hotspur*, *Havock* and *Hunter* of the 2nd Flotilla followed as Force WV to lay mines off Vestfjord. A dummy field was also to be laid off Molde. *Rodney*, *Valiant*, *Repulse*, *Sheffield*, *Penelope* and ten destroyers sailed Scapa at 2015/7 as a covering force and *Manchester*, *Southampton* and five destroyers were nearby covering a Norwegian convoy. Before dawn on 8 April, 234 mines were laid inshore off Vestfjord, but RAF reconnaissance reports of enemy heavy units at sea led to the cancellation of the minelay off Stadlandet.²⁰

On 7 April, in anticipation of a German reaction to WILFRED, remnants of the STRATFORD force, now known as R4, assembled at Rosyth and Greenock.²¹ At Greenock, with orders to land at Trondheim and Narvik, were the 1st Scots Guards in the trooper *Batory* and the Hal-

¹⁷Falkenhorst encountered the same problem that would confront Allied planners in April 1940: a chronic lack of intelligence about Norway, a country which had hitherto been of little military significance. When he was appointed on 20 February, he left Hitler's office and, 'Once outside, I went into town and bought a Baedeker, a tourist guide, in order to find out what Norway was like...' Ibid. pp. 44-45.

¹⁸The warning, long winded and symptomatic of Allied disarray, is reproduced in Cowie : 1949 pp. 141-144. That the Supreme War Council, an unwelcome legacy of the First World War, had not met since 5 February, and before that since 1939, serves as a measure of both Allied irresolution and French political instability. For an illuminating account of the French political scene in 1940 see Alastair Horne's *To Lose A Battle - France 1940* (Macmillan 1969).

¹⁹See *British Strategy and Norway 1939-1940* paper by Prof. Patrick Salmon in Salmon (ed.) : 1995 pp. 3-14.

²⁰Brookes : 1977 pp 31-32. Roskill : 1954 pp. 156-158. Winton : 1986 p. 100.

²¹Much of the STRATFORD force had gone to France, thus a British force of eight battalions, mostly ill-trained, poorly equipped Territorials, was being sent against a German force of six divisions (51 battalions). The Luftwaffe deployed

(Cont'd overleaf)

Lincolnshire Battalion of the Yorks and Lancs Regiment in *Chrobry*. Embarking in *Devonshire*, *Berwick*, *York* and *Glasgow* at Rosyth, and bound for Bergen and Stavanger, were the 1/4 Royal Lincolns, 1/4 King's Own Yorkshire Light Infantry and the 1/8 Sherwood Foresters.²² The R4 troops were never intended as an assault force, it being assumed that they would make unopposed landings and garrison the ports, so they had, for example, no armour and no artillery.

Then a Coastal Command Hudson sighted a German naval squadron steaming north in the Skaggerak at 0805/7. Assuming they were only exercising, the aircrew did not report the ships until they landed at Leuchars at 1100/7.²³ The Admiralty concluded that the German ships were heading for the North Atlantic. The Home Fleet sailed north-east from Scapa by 2015/7 and, just after 1200/8, the four cruisers assigned to Force R4 were ordered to 'March Troops Ashore' and join the fleet. The Lincolnshires returned from the Rosyth sports field to find *Berwick's* crew dumping their stores and weapons on the jetty. The Leicesters and Yorkshires were bundled ashore from *Devonshire* and *York* in under an hour, then watched the cruisers pass under the Forth Bridge with much of their equipment.²⁴ The troops at Greenock were left without escort when the cruiser *Aurora* and six destroyers were ordered to join the Fleet. The R4 plan had been abandoned, and with it the last chance to gain a secure foothold in Norway.

Glowworm had detached the previous evening to look for a man lost overboard and, at about 0815/8, encountered the cruiser *Hipper* waiting to enter Narvik with troops. *Glowworm* was overwhelmed and sunk, but not before she had rammed *Hipper* and torn away 150 feet of her starboard bulge. Thirty-eight of her crew survived.²⁵ *Glowworm's* enemy reports faded at 0855/8 but were enough to persuade the Admiralty to send the destroyers of Force WV to join *Renown*. Vestfjord and Narvik were thus left completely unprotected.²⁶ German warships were sighted in Oslofjord and off Trondheim, Bergen and Stavanger in the early hours of 9 April. At 0337/9 *Renown* sighted the battlecruisers *Scharnhorst* and *Gneisenau* north of Vestfjord and, in a brisk action, scored four damaging hits on *Gneisenau* before the German ships used their superior speed to escape. But German troopships had already swept past the Vestfjord minefield bound for Narvik and, at 0430/9, MI6 handed

over 1,000 aircraft for *Weserübung*, 571 of them JU52 transports, against which the pitifully small RAF contribution could make little impression. Jeffrey : 1992 p. 110. Brookes : 1977 pp. 21-22. Terraine : 1985 p. 115.

²² Winton : 1986 pp 102-103. Adams : 1989 p. 13.

²³ Roskill blames the Admiralty for the delay, but the fault lay with the aircrew. Roskill : 1954 p. 159. AIR 28 459. AIR 28 465. Derry : 1952 p. 28.

²⁴ Believing that another surface fleet action was imminent, and thus demonstrating the outdatedness of his strategic thinking, Churchill took it upon himself to order the R4 troops ashore. Quoting General Sir Ian Jacob, Roskill writes of the War Cabinet's astonishment at the First Lord's unilateral decision which was telephoned to Rosyth by the First Sea Lord. Neither Churchill nor Pound saw fit to consult or even inform C-in-C Home Fleet Admiral Forbes. Roskill : 1977 pp. 98-99. Jeffrey : 1992 p. 114.

²⁵ Moulton : 1966 pp. 76-77.

²⁶ Roskill : 1954 p. 160.

the Admiralty an intercepted telegram from Norwegian Foreign Minister Halvdan Koht to their Legation in Spain stating that the German Minister in Oslo, Kurt Bräuer, had demanded the surrender of Norway. The surrender demand was refused.²⁷ At 0630/9 MI6 told the British Chiefs of Staff that the Norwegian Government was evacuating Oslo.²⁸

The War Cabinet met at noon and learned that a small German force was ashore at Narvik. Churchill said that naval forces had been ordered to force their way into Narvik and Bergen, but that Trondheim would be left until the situation clarified.²⁹ Then the assault on Bergen was cancelled as the British force would be too small to deal with two German cruisers reported there.³⁰ Allied planning became ever more muddled and British commanders, following the uncertain lead given by both War Cabinet and Admiralty, changed tack on the most important objective three times in twelve hours. First Trondheim was the priority, then Narvik and Bergen, then Narvik alone - but worse was to follow. The Supreme War Council decided late on the 9th that two British battalions should sail for Norway that night. A further five battalions and French Alpine troops would sail within three days and four more battalions were to be ready within two weeks. Churchill pushed for these forces to be directed towards Narvik while others promoted Trondheim and Bergen. In the face of disagreement, the Council dithered, ordering merely that the troops should be sent to Norwegian ports without specifying what these were to be.³¹

That night the British Military Co-ordination Committee decided unilaterally that the Allied forces available would be unable to dislodge the Germans from more than one point on the Norwegian coast, and that the attack must be concentrated on Narvik. The Chiefs of Staff were ordered to prepare an attack on Narvik, although they were also to examine the possibility of securing a foothold at Namsos and Aandalsnes with a view to mounting a pincer attack on Trondheim. Churchill, having driven this decision through in the face of the Supreme War Council's hesitancy, appealed for the 'utmost expedition'. Late on 10 April, the 1/4 Lincolns and the 1/4 Yorkshires entrained at Dunfermline for the Clyde where, with little more than they stood up in, they embarked in *Empress of Australia*. Troop convoy NP1 comprising *Empress of Australia*, *Monarch of Bermuda* and *Reino del Pacifico* was joined off Cape Wrath by *Batory* and *Chrobry*. Escorted by *Manchester*, *Birmingham*, *Cairo* and five destroyers, NP1 was initially bound for Narvik, but, as minimal opposition was expected at Narvik, the force was then split with *Chrobry* and *Empress of Australia* making for

²⁷ ADM 116 4471 quoted in Gilbert : 1989 p. 217.

²⁸ MI3/6519 in PREM 1 419 quoted in Gilbert : 1989 p. 217

²⁹ CAB 65 6 Minutes of War Cabinet No.85 at 1200/9 April 1940.

³⁰ Recollections of Eric Seal quoted in Gilbert : 1989 p. 219

³¹ CAB 99 3 Supreme War Council No.7 quoted in Gilbert : 1989 p. 221.

Namsos with 146 Brigade. The assault on Trondheim was on.³²

At dusk on 14 April, seamen and marines from *Sheffield* and *Glasgow* were landed by destroyers at Namsos, the first British force to land in Norway. They secured the quays and the road to Trondheim ahead of the arrival of the troops from the Clyde. But Namsos harbour was too small for troopships, so when 146 Brigade arrived in *Chrobry* and *Empress of Australia* on 16 April, it had to be transhipped under air attack off Lillesjona, then brought to Namsos by destroyers. A further 300 tons of equipment was lost in the process.³³ French reinforcements arrived on 20 April and a week of heavy fighting followed as General Carton de Wiart attacked south towards Trondheim. The Luftwaffe reduced Namsos to ruins, and de Wiart signalled that holding the town without air cover would be impossible.³⁴

Meanwhile, on 14 April, another scratch force of 680 marines and 45 officers had sailed Rosyth in *Auckland*, *Black Swan*, *Flamingo* and *Bittern* to land at Molde in support of a larger landing at Aandalsnes.³⁵ A gale drove the overloaded sloops into Invergordon and, by the time they sailed again on 16 April, they had been diverted to Åndalsnes itself. They landed successfully the following night as the remaining elements of R4, renamed SICKLEFORCE, were being loaded into the transport *Orion* and *Galatea* and *Arcthusa* at Rosyth. These troops were to follow the Marines into Åndalsnes, then someone realised that *Orion* was too large to enter the harbour so the Territorials had to disembark again, this time in the pitch darkness and a gale, and board the cruisers *Curacao* and *Carlisle*. Colonel Dudley Clarke described the scene:

The hatches were off now and the scene below decks had become a sort of storeman's inferno, with shadowy figures burrowing in the semi-darkness of shaded lamps and torches. In the original haste to get off to a quick start, goods of every kind had been stowed in the holds in the order in which they arrived, with each following consignment piled in on top. Now reserves of food and ammunition were mixed with unit equipment and skis for the Norwegians; bicycles and sappers' tools lay with medical provisions, while such things as long-range wireless equipment as often as not was split between two holds. There was never a chance of sorting this out in the dark and getting it into the ships in time, so the plan was being adopted of skimming the top layers from every hold and loading them in turn into each warship as she came alongside.³⁶

SICKLEFORCE sailed at 0700/17 and only when they were at sea did the full extent of the

³²The rest of NP1 continued north to Vestfjord and landed troops at Harstad. The planned assault on Narvik had to be abandoned due to deep snow and the fact that the ships had not been tactically loaded. Roskill : 1954 p. 190.

³³General Adrian Carton de Wiart wrote that, 'The officers had little experience of handling men, although they had an able commander in Brigadier G. P. Phillips.' In fairness, though, the Brigade could be excused a certain amount of confusion. Movements Officer Colonel H. E. Yeo describes the chaos that attended their embarkation on 14 April:

One lot of MT drivers arrived from Leith that morning, but before it embarked at KGV was ordered back to Rosyth...Plans were amalgamated, scrapped and then fresh plans erected for the same parties. Large liners could not get in, and troops taken in small lots off to them [had] to go to Norway in warships so that these liners became floating hotels. Smaller liners (particularly the three splendid Polish ships *Chrobry*, *Batory* and *Sobieski*) still went to and fro, till a stand-still set in on 27th April.

Yeo MS, IWM Dept. of Documents ref. 95/6/1. Carton de Wiart : 1950 p.168. Moulton : 1966 p. 168.

³⁴Carton de Wiart : 1950 p. 174.

³⁵This force was drawn mainly from the refitting *Hood*, *Barham* and *Nelson*. Also included was a searchlight regiment which, due to yet another slip-up, sailed without its searchlights. Winton : 1986 p. 111.

³⁶Clark : 1948.

chaos become apparent. Half a battalion had been left behind along with much of the communications equipment, all the range-finders and searchlights for the anti-aircraft guns, all the mortar shells and most of the vehicles. The brigade would land with one truck and three motorcycles. There were no maps of Åndalsnes, only three of the officers had been in action and the men had received only the most cursory training, usually around 30 hours of evening courses. SICKLEFORCE began landing at 0300/19 with orders to move 60 miles inland from Åndalsnes to Dombas, block the railway there, link up with Norwegian forces in the Lillehammer area and then attack north towards Trondheim - a tall order indeed for Brigadier Morgan's 1,000 ill-trained, poorly equipped Territorials. Even were SICKLEFORCE to reach all its objectives, it would be spread desperately thinly and would be at the mercy of the Luftwaffe.³⁷

At Dombas, Morgan was told that marching on Trondheim would be suicidal, so SICKLEFORCE was deployed in waist-deep snow near Lillehammer railway station. More than a hundred men were captured and the survivors, along with three companies of Norwegian dragoons, retreated to make a stand at Tretten, 19 miles north of Lillehammer, but were again heavily defeated and the nine officers and 300 men who remained were evacuated to the coast. Meanwhile, like Namsos, the Luftwaffe was bombing Åndalsnes almost daily.

Reinforcements for SICKLEFORCE were sent, notably on 22 April when *Galatea*, *Sheffield*, *Glasgow* and six destroyers sailed Rosyth with 2,200 men successfully landed the following day at Åndalsnes and Molde. Another 1,600 men were carried across from Rosyth on 24 April. What Morgan and de Wiart had not been told was that HAMMER, the direct naval assault on Trondheim, which they were to support, had been effectively abandoned on 19 April largely because air cover could not be provided.³⁸ *Galatea*, *Arethusa*, *Sheffield*, *Southampton*, *Somali*, *Mashona*, *Sikh*, *Wanderer*, *Walker* and *Tartar* and the transports *Ulster Prince* and *Ulster Monarch* arrived off Åndalsnes late on 30 April and, by 0200/1, around 2,200 men, survivors of SICKLEFORCE and General Paget's 15th Brigade were taken off. A similar number were taken off the following night by *Manchester*, *Birmingham*, the destroyers *Inglefield*, *Delight*, *Diana*, *Somali* and *Mashona*.³⁹ Some 5,400 men of de Wiart's Namsos force were evacuated after dark on 2 May by three French ships, the cruisers *Devonshire*, *York* and *Carlisle*, the French destroyer *Bison* and four destroyers of the 5th Flotilla. *Bison* was bombed and sunk on the morning of 3 May and the destroyer *Afridi* took off her survivors. But that afternoon *Afridi* too was bombed and capsized with the loss of 49 officers and men, around 30 *Bison* survivors and 13 men of the Yorks and Lancs Regiment.⁴⁰

³⁷ Kersaudy : 1990 pp. 114-115. Roskill : 1954 p. 183.

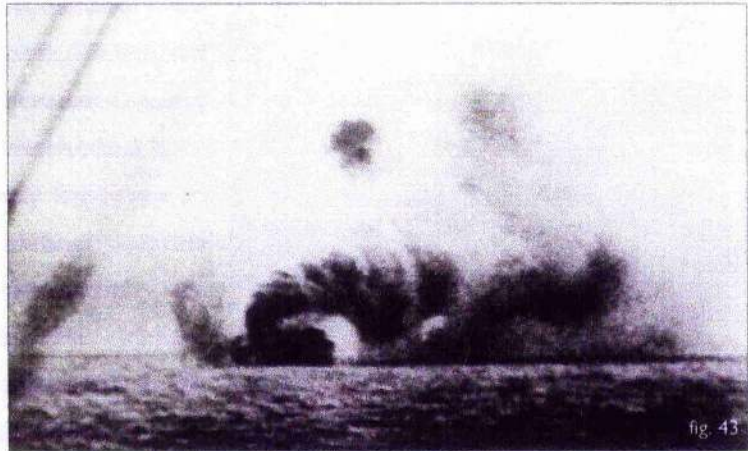
³⁸ Derry : 1952 pp. 78-82.

³⁹ Roskill : 1954 : pp. 188-189. Kersaudy : 1990 p 179. Brookes : 1977 pp. 134-135

⁴⁰ Vian : 1960 pp. 47-49. Roskill : 1954 : pp. 189-190.

The wretched campaign in Norway dragged on until June 1940. On 8 June the Group One evacuation convoy was escorted into Clyde with 15,000 troops.⁴¹ *Valiant* and a screen of destroyers had escorted the convoy to a point abeam of Shetland, then turned north to meet the following Group Two convoy comprising *Oronsay*, *Ormonde*, *Arandora Star*, *Duchess of York*, *Royal Ulsterman*, *Ulster Prince* and *Ulster Monarch* escorted by *Southampton*, *Ark Royal* and five destroyers which had sailed from Harstad on 8 June with 10,000 men. Unwittingly, however, the convoy was steaming right into the path of *Scharnhorst*, *Gneisenau* and *Hipper*.⁴² The German ships had earlier sunk *Oil Pioneer*, the trawler *Juniper* and the almost empty trooper *Orama*, then allowed the hospital ship *Atlantis* to proceed.

At 1545/8, some 300 miles west of Narvik, *Scharnhorst* sighted the carrier *Glorious*, which, deplorably, had been detached early for Scapa so that her martinet Captain could court-martial his Commander (F). *Valiant*, some 250 miles away to the south-west, received the carrier's signal reporting an enemy force shortly after



The entirely avoidable destruction of *Glorious* ranks as one of the worst naval disasters of the war

1600/8.⁴³ *Glorious* and the destroyers *Acasta* and *Ardent* were sunk with the loss of 1,519 lives; a disaster only marginally exceeded by the 1,523 believed lost with *Titanic*.⁴⁴ But *Acasta* had torpedoed *Scharnhorst*, flooding her centre and starboard engine rooms and putting a turret out of action.⁴⁵

Valiant learned of the loss of *Orama* from *Atlantis* on the morning of 9 June, then hurried north to rendezvous with Group Two at 2200/9. But *Scharnhorst* had made for Trondheim to repair the damage inflicted by *Acasta*, otherwise she and *Gneisenau* could well have inter-

⁴¹ ADM 199 363. ADM 199 371.

⁴² For the evacuation convoys see Brookes : 1977 pp. 171-172.

⁴³ ADM 199 371.

⁴⁴ Controversy has surrounded the loss of *Glorious* ever since. She was an unhappy ship and had detached to return to Scapa so that Captain D'Oyly-Hughes could court-martial his Commander (F) with whom he had had a dispute over tactics. D'Oyly-Hughes' failure to fly off patrols is, at best, inexplicable and was probably linked to the dispute. The Admiralty had ignored warnings from Bletchley Park that German heavy units were leaving the Baltic. It was alleged that the distress signal, also received by *Devonshire* was garbled, but it was clearly heard in *Valiant*. Admiral John Cunningham in *Devonshire* was handed a complete copy of the signal, but his orders regarding safe conduct of the Norwegian Royal Family meant he was unable to respond. ADM 199 371. Winton : 1986 for the state of *Glorious* and the sinking. Smith : 1998 p. 56. Macintyre : 1971 pp. 41-42. Roskill : 1960 pp. 69-70.

⁴⁵ Derry gives the number of lives lost in the three ships as 1,515, Roskill gives 1,470 but does not appear to include RAF aircrew lost, and the figure of 1,519 is the author's to include those who died after being picked up. ADM 199 363. ADM 199 371. Derry : 1952 p. 225. Roskill : 1977 pp. 107-108. Brookes : 1977 pp. 175-176.

cepted Group Two ahead of the rendezvous with *Valiant*. The carnage would have been appalling.⁴⁶

WITS AND LOW CUNNING

*Enterprises must be prepared with specially trained troops of the hunter class, who can develop a reign of terror first of all on the 'butcher and bolt' policy. The passive resistance war, in which we have acquitted ourselves so well, must come to an end. I look to the Chiefs of Staff to propose me measures for a vigorous enterprising and ceaseless offensive against the whole German occupied coastline.*⁴⁷

Many eminent historians have discussed the failure in Norway, and most point to the Luftwaffe having established air superiority from the outset, thus countering British sea power.⁴⁸ Moulton cites a 'national complacency' that the strength of the Royal Navy could make up for the known weakness of the other two services and suggests that the root cause lay in the inability of the three services to understand the need for an integrated land, sea and air strategy.⁴⁹ Another historian has lamented, 'From beginning to end the Allied operations in Norway...display an amateurishness and feebleness which to this day can make the reader alternately blush and shiver.'⁵⁰

Ultimately, though, the real lesson was that it is unwise to make military commitments that cannot be followed through with sufficient force to ensure success. Nor is it prudent to signal one's intentions to the enemy with such clarity as was offered by the British and French in 1939-40. And, in the conduct of the campaign, one need look no further than impatient politicians ignoring military advice, divided command, muddled planning, inadequate intelligence assessment and dissemination, contradictory orders and ill-trained troops being sent into action in an environment for which they had been neither prepared or equipped. All this has to be set against the fact that the Allies had months in which to prepare for their Scandinavian adventure. The lessons of Gallipoli and countless other campaigns were having to be relearned.

During the momentous Norway debate on 8 May, which ushered Churchill into power, Admiral Sir Roger Keyes delivered a devastating indictment of the campaign. The MP for Portsmouth and a national hero following his exploits in the First World War, Keyes was regarded as a specialist in Combined Operations. His ire was chiefly directed at the Admiralty, and it is true that the Home Fleet was wrong-footed in the early stages. Sir Charles Forbes had to bear the sobriquet 'Wrong-Way Charlie' even if much of the blame did lie

⁴⁶ Winton : 1986 p. 183. Brookes : 1977 p. 175.

⁴⁷ Churchill minute of 5 June 1940 quoted in Messenger : 1985 pp. 26-28.

⁴⁸ Notably Roskill : 1960 p. 62 *et passim*.

⁴⁹ See Moulton : 1966 pp. 291-298.

⁵⁰ Terraine : 1985 p. 115.

with Naval Intelligence, but the Navy had got the troops to where they were supposed to be, then brought them out again, all with minimal air cover.⁵¹

There were some aspects of the Norway campaign from which the British could take comfort in June 1940. Independent Companies of 20 officers and 275 men had been formed as self-sufficient, ship-borne units in April 1940 to be taken to and from operations in their floating base. The five companies that reached Norway were told their mobility depended on requisitioning local craft and that they should, 'Use wits and low cunning'.⁵² They were to prevent the Germans occupying Bodo, Mo and Mosjøen. No. 5 Independent Company ambushed an enemy column near Mosjøen on 9 May.⁵³ Nos. 1, 2, 3 and 4 Companies were involved in a firefight on 22 May near Mo, but, by then the Germans had reached so far north that there was little for the Independent Companies to do and they returned to Scotland.⁵⁴

The Independent Companies had promise, and, on 9 June, the War Office began seeking volunteers to form new Army Commandos.⁵⁵ Initially envisaged were operations 'of the Zeebrugge type downwards' and irregular, cloak and dagger operations. While the Independent Companies were trained to fight as individuals, Commandos were to operate as self-contained units.⁵⁶ The Independent Companies remained in being and 2 Commando was raised as a parachute unit with volunteers from all commands. 3 and 4 Commandos were raised from Southern Command, 5 and 6 Commandos from Western Command, 8 Commando from the Household Division and 9 and 11 Commandos from Scottish Command.⁵⁷

Lieutenant General Alan Bourne, Adjutant General Royal Marines, was appointed Commander (Raiding Operations) on 12 June and Captain L. E. H. Maund RN, Captain Nevill Garnons-Williams RN and Major Alan Hornby RA were appointed to his staff. Bourne was 'double-hatted' as Director Combined Operations and Adjutant General and asked to relinquish the latter post, but Churchill appointed Keyes as DCO on 17 July, asking Bourne

⁵¹ General Carton de Wiart recalled that, after reaching Scapa on 5 May and hastening to London, one of his first visitors was Roger Keyes who was gathering evidence for his Commons speech and was under the impression that the General felt let down by the Navy. Carton de Wiart assured him that the opposite was the case. Carton de Wiart : 1950 pp. 174-176.

⁵² Equipment included Arctic clothing, snowshoes, 30 days' rations and five days' emergency ration of pemmican. The companies were each given £4,000 in sterling and Norwegian currency to help them live off the land. Moulton : 1966 p. 237. WO 106 1944.

⁵³ The ambush was carried out in classic Pathan style. Eight Indian Army officers had been flown home to join the Independent Companies at Gourock on 4 May. Moulton : 1966 fn. p. 237.

⁵⁴ Messenger : 1985 p. 23 quoting Lieutenant Colonel J. R. Paterson. See also Adams : 1989 pp. 65-89.

⁵⁵ Ibid. p. 26.

⁵⁶ Ibid. pp. 26-28.

⁵⁷ CAB 106 3. In October 1940 an attempt was made to reorganise these Commandos into Special Service Battalions within a Special Service Brigade, but this proved unwieldy and the Commandos reverted to their former status.

to continue as his deputy.⁵⁸ Churchill was eager for raiding to begin and wrote to Keyes on 25 July asking for four amphibious raids employing between 5,000 and 10,000 men, the first to take place within three months.⁵⁹ But there were neither the men nor the ships to carry out the Prime Minister's request.

GROWING PAINS

One of Bourne's first concerns had been finding suitable bases for training the Army and the Navy in landing operations. South coast bases were vulnerable to air attack from occupied France so, as Maund writes:

We had now to find a place as far distant as possible from attack but yet within the umbrella of some fighter organisation. It was finally decided that the only possible place was Inverary [sic]. Here the rains might fall almost continuously, but it gave sheltered water and was, as it were, behind the defences of the Clyde.⁶⁰

The first reconnaissance of Inveraray had taken place on 6 July and the decision to set up a Combined Training Centre there had been reached by 10 July.⁶¹ There was some discussion over the name to be given to Inveraray, but, immediately on his appointment on 17 July, Keyes insisted on *Quebec*, a reference to the successful combined assault on the Heights of Abraham in 1759.⁶² A Combined Operations memorandum written just after Keyes' appointment notes that Inveraray CTC;

...will be the training centre for Combined Operations on a large scale and the LCA and LCM carriers will be stationed there. In addition LCA, LCS and LCM not required for carriers will be housed two miles from Inveraray. It is intended to train as many Brigades of the Army as possible in landing attacks beginning as soon as the carriers arrive at Inveraray.

9. The base and the landing craft carriers will be under the command of Vice Admiral Hallett... He will live ashore in Inveraray (Tigh-na-Rudha) and will have on his staff Naval and Military staff officers for instructional purposes.
10. The base will consist of the following:- The War Office is constructing a camp for 1200 men in Inveraray Park. The Admiralty is building a canteen at Inveraray for about 1500 men and a camp for 400 Naval ratings near the boatshed (see (d) below) 2 miles from Inveraray... A boatshed, workshops and slipways for 60 LCA and LCS two miles south of Inveraray. Also a tubular pier and a trot for the use of craft. A trot for LCM not hoisted in a carrier in Loch Gair.⁶³

Training began with 475 officers and men of 3 Commando and 391 officers and men of 8 Commando on 11 October 1940.⁶⁴ Captain Peter Young commanding H Troop, 3 Commando wrote;

⁵⁸ Bourne interview quoted in Messenger : 1985 p. 32-34. See also *The Keyes Papers* vol. III, Paul G. Halpern (ed.), pp. 86-88 for the Directive to Bourne, a document drawn up in the heat of the moment and one that was to cause no end of trouble during Keyes' tenure as DCO.

⁵⁹ Fergusson : 1961 p. 55.

⁶⁰ Maund : 1949 p. 75.

⁶¹ DEFE 2 815.

⁶² Ibid.

⁶³ DEFE 2 698.

⁶⁴ DEFE 2 814. DEFE 2 1317.

On our first morning in Inveraray we were introduced to the Assault Landing Craft. Sir Roger Keyes had succeeded in producing two of them. Armoured, and with a low silhouette, they could do about six knots - a big improvement on the crash-boats in which we had raided Guernsey. The Colonel soon had each troop in turn rushing in and out of these craft like madmen. Before long thirty men, fully armed, could clear one and double up the beach to cover in about fifteen seconds. Night and day we trained - there was nothing else to do! The long treks over the craggy hills soon broke anyone who was not fit. It was a good way of weeding out the unit.⁶⁵

An early recruit to Keyes' staff was Commander Bill Fell, later to command the midget submarine flotilla that attacked the *Tirpitz*. Fell wrote, 'I had served under Sir Roger in the Dover Patrol in War 1, when he was in his prime, and when we met in Glasgow I was shocked to see how old and ill he looked.' After a landing exercise at Arisaig during which Keyes fell asleep in the heather and was 'captured' thus by the landing force, the two went on to Inveraray where;

...commando units were living in a swamp in shocking conditions, and doing long, boring training schemes. Here they had no weapons at all, no craft to work with, and no real plan to work to. This first visit to Inveraray was depressing and it was plain that the three services were not working together. In fact the RAF was conspicuous by its absence and the Navy was very thin on the ground.⁶⁶

Fell's first task was to get craft and men to Inveraray to form a Naval training unit to work with the army. Of the 90 landing craft built, or in course of construction in February 1940, some 27 had been lost in Norway and France and just 19 completed craft remained.⁶⁷ Orders for another 74 landing craft of various types were placed immediately and 136 Higgins Eureka boats were ordered from America as a stop-gap. Christened 'R Boats', these wooden vessels were far from ideal assault craft, but they could land 25 men at 12 knots onto a beach and get off again.⁶⁸

Clearly there would eventually be a cross-channel assault, but more immediate operations would involve landing limited forces anywhere on the coast of Europe or in the Mediterranean. R boats and landing craft were capable of only short sea crossings on their own so, if military force was to be projected anywhere beyond a small portion of the French coast, ships equipped to carry both landing craft and assault force would be needed. Three 18 knot, 10,000 ton Glen liners, *Glengyle*, *Glenearn* and *Glenroy* were converted to Landing Ships Infantry (Large) capable of landing a battalion-sized unit of 850 troops by November 1940. The withdrawal of a fourth Glen ship meant it would be impossible to carry an assault

⁶⁵ Young : 1958 p. 23. Maund refers to these two LCAs having been brought to Inveraray from the Tyne via the Caledonian Canal, and having been closely inspected by a German aircraft off Kinnaird Head. Maund : 1949 p. 106.

⁶⁶ Fell : 1966 pp. 72-73.

⁶⁷ *Naval Review* no. 48 p. 443. *The Keyes Papers* Vol. III p. 77.

⁶⁸ Fell writes that the Eureka boats were, 'bad boats, but better than nothing...' Fell : 1966 p. 73. Maund : 1949 p. 63.

force of two brigades, so the 3,000 ton Dutch passenger ships *Queen Emma* and *Princess Beatrix* were taken up, each of which could land a half battalion.⁶⁹

Maund had been impressed by Japanese assault landings in China where landing craft laden



The Landing Ship (Sternchute) *Princess Iris*, a converted cross-channel train ferry, here being demonstrated to the Prime Minister at Inveraray in 1941, was designed to carry light tanks in LCMs which could then be launched down a ramp in the stern. As with several of the early Combined Operations improvisations, she never saw operational service.

with vehicles, stores and men were launched from larger vessels. Two Harwich-Zeebrugge train ferries were taken up, renamed *Iris* and *Daffodil* after the Mersey ferries used at Zeebrugge, and converted to carry landing craft launched down a slipway in the stern. Primarily intended for landing vehicles and stores, these Landing Ships (Sternchute) had a range of just 1,000 miles and were of little use beyond cross-channel operations. Three Admiralty oilers were converted, the latter to carry 14 landing craft.⁷⁰

Operational craft based in the Glen ships were three flotillas of 12 LCAs, two LCMs and one fast launch, one flotilla to each ship. The two former train ferries each carried a flotilla of 13 LCMs and the Dutch ships each carried six LCAs, 4 LCMs and two fast launches. The Belgian cross-Channel ferries *Prince Charles*, *Princess Josephine Charlotte*, *Princess Astrid*, *Prince Leopold*, *Prince Philippe* and *Prince Albert* were substantially if only partially successfully reconstructed, and fitted with davits for eight minor landing craft.⁷¹

Fell brought the first converted Belgian ferries, *Prince Charles* and *Prince Leopold*, to Inveraray in the summer of 1941. He wrote,

Living conditions were better than when I had last seen them, but it appeared to us simple sailors that the confusion in the minds of the three services ashore could never be straightened out. A big fleet of ships now lay in Loch Fyne off Inveraray. It consisted of liners between 12,000 and 20,000

⁶⁹ DEFE 2 698. Fergusson : 1961 p 41 and pp. 55-56. *Naval Review* no.48 p. 443. Maund : 1949 p. 66.

⁷⁰ The shallow-draught 'Maracaibo' oilers were *Dewdale*, *Ennerdale* and *Derwentdale*. *Naval Review* no.48 p. 443. Maund : 1949 p. 67.

⁷¹ Letter from Director of Military Training to Scottish Command, 10 August 1940, in DEFE 2 814. For the Belgian steamers see Fell : 1966 pp. 74-78.

tons. They had been converted to troopships and repair ships, motor transport carriers and assault ships. Ideas for their use were not lacking, but they were conflicting, and changed so often, that co-ordinated training never reached a practical stage. We did, however, embark one commando after another and with them gained experience in handling our landing craft and in teaching the soldiers the elements of boat work.

THE RAIDING PHASE - PART 1 WORKSHOP, CLAYMORE AND HEMISPHERE

Keyes and the Prime Minister first discussed WORKSHOP, a plan for an assault on Pantellaria, in September 1940 and saw it as but the first of series of similar operations to take the Dodecanese Islands and perhaps knock Italy out of the war before the Germans could intervene. WORKSHOP envisaged 2,000 men of 3, 7, 8 and 11 Commandos sailing from the Clyde as part of Malta convoy WS5(a), the assault ships leaving the convoy under the cover of darkness to seize Pantellaria from its Italian garrison. Intensive training for WORKSHOP was carried out on Arran with 7 Commando at Lochranza, 9 Commando at Whiting Bay and 11 Commando at Lamlash.⁷² On 19 November, Keyes' son Geoffrey, a Captain in 11 Commando, wrote to his father of the difficulty of keeping highly trained men motivated:

...the men are longing for a show...One troop has gone away for a boating holiday, and the rest are pretty jealous and excited. If we have to wait until January, we will be a flop, for an absolute certainty. Men are asking to go back to their units so that they can go to the Middle East to fight. It is all disappointing, so fix us up Pop.⁷³

The Chiefs of Staff were unenthusiastic but, for several days at the beginning of December, it appeared that WORKSHOP might take place and Commandos waited aboard ship in Lamlash Bay. Keyes was at the Douglas Hotel in Brodick when, to his evident fury, the Cabinet effectively abandoned the operation on 17 December, the day before it was due to sail.⁷⁴

As his son's letter highlights, troops had trained on the promise, assiduously bolstered by Keyes, of action and the cancellation of WORKSHOP led to a drop in morale. Training continued, in dreadful weather, but much of the zeal had gone. Then, on 31 January, 7, 8 and 11 Commandos sailed from Lamlash for the Middle East aboard the Glen ships, in part as a response to intelligence that a German invasion of Greece or Turkey was imminent.⁷⁵ Those left behind were particularly dispirited and, as Lovat notes, 'It appeared pretty hopeless: good men went back to their regiments and morale at every level slumped accord-

⁷² *Black Hackle - The Story of 11 (Scottish) Commando* paper by Prof Graham Lappin.

⁷³ *Ibid.* p.8.

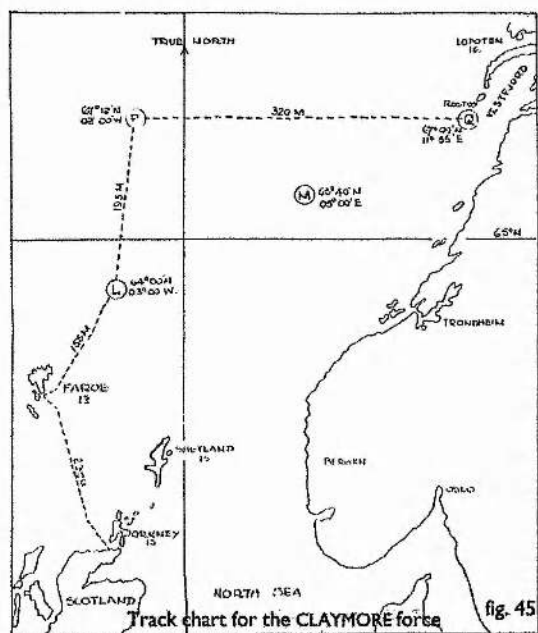
⁷⁴ See *The Keyes Papers* pp. 100-115 and 119-131 for WORKSHOP which was not, as Fergusson, Horan and others suggest, abandoned because Stukas had arrived in Sicily (the aircraft did not arrive there until January 1941). It and concurrent plans to seize the Azores (BRISK) and the Canaries (SHRAPNEL) were killed off by First Sea Lord Dudley Pound, who disliked Keyes, and Naval C-in-C Mediterranean Sir Andrew Cunningham. The latter pointed out that his resources were already over-stretched and that he would be unable to maintain a garrison on Pantellaria. Churchill always regretted having abandoned the operation, believing that many ships in the 1942 Mediterranean convoys could have been saved had an air base been available on Pantellaria.

⁷⁵ Gilbert : 1989 p. 978 and fn. 2. Smith : 1998 p. 69. Decrypts from Getman railway Enigma showed the movement of Luftwaffe signals personnel into Bulgaria. Keyes was not privy to the ULTRA secret.

ingly'. Keyes had lost his only completed assault ships and three of his finest units.⁷⁶

The Mediterranean had become the main theatre of war and, with his best forces tied up there for the foreseeable future, Keyes was forced to look for targets nearer at hand where the short-range assault ships could operate. Norway was the obvious choice and several proposals were examined, among them CASTLE, a return in strength to Jössingfjord. Whatever happened, an operation to Norway would have to wait until the assault ships *Princess Beatrix* and *Queen Emma* completed at the end of February.

Operation CLAYMORE as approved by Churchill on 27 January 1941 involved four landings on the Lofoten Islands off Narvik to destroy fish oil factories which produced, amongst other things, what were believed to be vital supplies of vitamins. Trawlers and fish-carrying ships were to be sunk, though not local fishing craft, and Germans and Quislings were to be rounded up.⁷⁷ Keyes was unenthusiastic about what he deemed a 'side-show', and the plan had been urged on the Prime Minister by SOE head Hugh Dalton who had his own agenda to pursue.⁷⁸ But Norwegian Foreign Minister in London Tryggve Lie was 'most enthusiastic', particularly when told that the Norwegian communities would be provided with sugar, coffee and clothing.⁷⁹



The CLAYMORE naval force was under Commander Clifford Caslon and he and landing force commander Major General J. C. Haydon were in the destroyer *Somali*. *Bedouin*, *Tartar*, *Eskimo* and *Legion* escorted the landing ships *Queen Emma* with 250 men of 4 Commando under Lieutenant Colonel Dudley Lister and *Princess Beatrix* with 250 men of 3 Commando under Lieutenant Colonel John Durnford-Slater. Also in *Princess Beatrix* was a section of 55 Field Company, Royal Engineers and an SOE party of 62 Norwegian troops. The submarine *Sunfish* sailed ahead of the assault

⁷⁶ Lovat : 1978 p. 190. *The Keyes Papers* pp. 137-142. A CTC was established at Kabret in the Great Bitter Lakes but the war in the Middle East turned against the British. 7 and 8 Commandos were disbanded after being badly mauled in Crete.

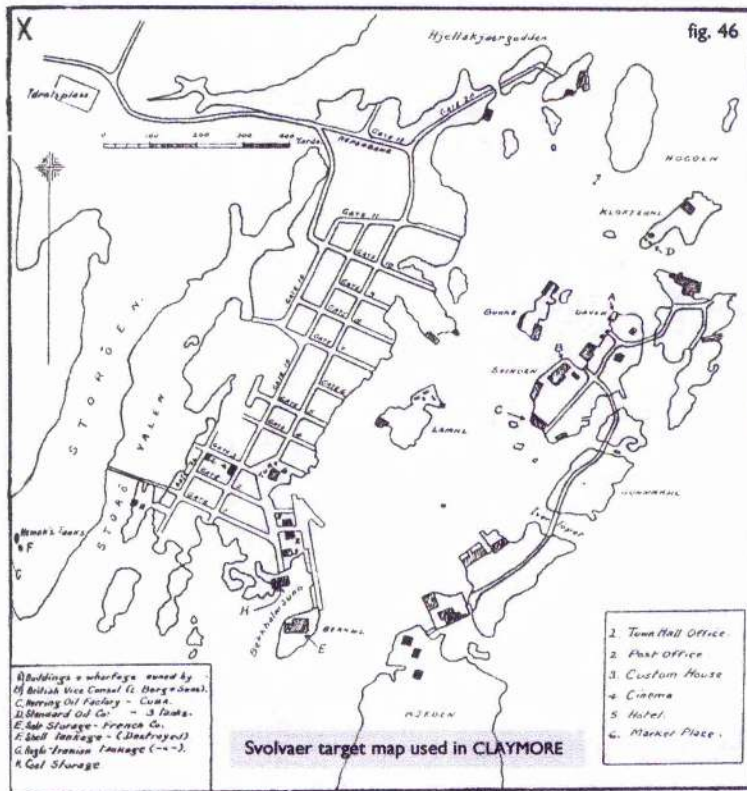
⁷⁷ DEFE 2 140.

⁷⁸ Keyes and Tovey hoped that the CLAYMORE force would tempt enemy heavy units out from Norway, so Tovey put to sea with *Nelson*, *King George V*. Despite his feelings about the value of CLAYMORE, Keyes wanted to command the landing force, but his offer was politely refused. *The Keyes Papers* pp. 153-157.

⁷⁹ DEFE 2 140.

force to act as a navigational beacon.⁸⁰ Troops embarked at Gourock on 21 February and the force sailed for Scapa where practice landings were carried out in bad weather and a number of LCAs damaged. The force sailed Scapa at 0001/1 March, refuelled at the Faroe Islands then reached the Lofotens at 0000/4 March. It proceeded up Vestfjord, then divided with *Queen Emma*, *Somali*, *Tartar* and *Bedouin* making for Svolvær and *Princess Beatrix* with *Eskimo* and *Legion* for Stamsund. According to a naval report,

The weather was ideal for our purpose, a slight sea and overcast sky which cleared at intervals and allowed sights to be taken. This simplified the approach to Vest Fjord and, with the assistance of *Sunfish's* D/F beacon transmission, the entrance was made as planned.⁸¹



The following shipping was destroyed during CLAYMORE:

Sunk By	Ship	Tons
<i>Somali</i>	<i>Krebbs</i>	300
<i>Tartar</i>	<i>Hamburg</i>	9,870
<i>Tartar</i>	<i>Felix</i>	2,047
<i>Tartar</i>	<i>Heumann</i>	1,079
<i>Tartar</i>	<i>Eilenau</i>	1,404
<i>Tartar</i>	<i>Pasajes</i>	1,900
<i>Tartar</i>	<i>Rissen</i>	250
<i>Bedouin</i>	<i>Mira (Nor)</i>	1152
<i>Princess Beatrix</i>	<i>Ando</i>	300
<i>Princess Beatrix</i>	<i>Groto</i>	200
Demolition Parties	<i>Bernhardt Schultze</i>	1,500
	Total	20,002

Sources: DEFE 2 140 and Witthoft : 1971

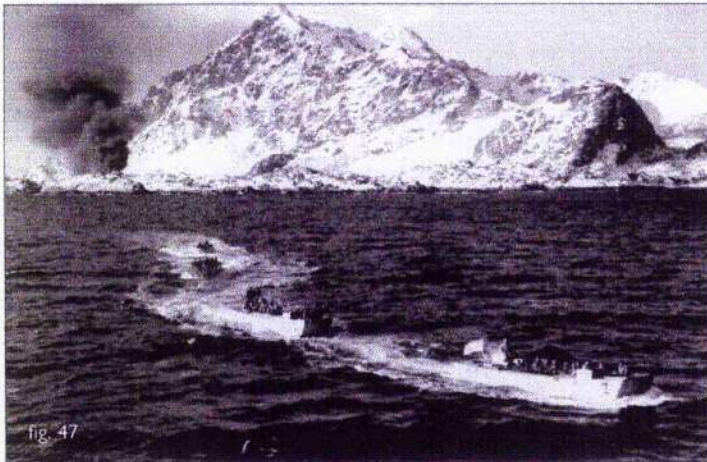
⁸⁰ Ibid.

⁸¹ ADM 234 380.

Eighteen factories were destroyed along with 800,000 gallons of oil, 225 prisoners were taken, and 314 Norwegian volunteers were embarked along with the British manager of Allen & Hanbury's fish oil factory rescued from Brettesnes. Fourteen German sailors had been killed in the engagement between *Somali* and *Krebs*, the only British casualty being an officer in 4 Commando who slipped and shot himself in the thigh.⁸² Valuable experience was gained and many lessons learned. One report describes the difficulties experienced by the LCAs heading for Henningsvaer directly into a head wind:

The effect of the cold on this particular party gave the opportunity to Reuters correspondent Mr J. R. N. Nixon, who happened to be on board this destroyer [*Eskimo*], of recording afterwards that it had so intense that spray breaking over the boats froze as it fell on them. Commander Brunton of *Princess Beatrix* wrote that when the men landed all their guns were frozen up, icicles hung from their caps and beards and the men were so stiff with cold that in the words of an Officer they crawled out like sleepy flies. The Commander doubted whether they would have been able to fight and found it a clear case for some protection for LCAs in a head sea in such temperatures.⁸³

It was indeed fortunate that the landing was unopposed.



LCAs during CLAYMORE and (below, left) some souvenirs.



CLAYMORE had, on the face of it at least, been an operation with, '...an object mainly economic, partly political and only in a very remote degree military'.⁸⁴ A Norwegian historian has written that the British elation at the success of CLAYMORE was not shared in Norway where the factories destroyed were the only source of employment, and where the Germans exacted heavy reprisals following the raid. The Norwegian view, to some extent shared by the Norwegian troops who had taken part, was that the raid

⁸² For narratives of CLAYMORE, see reports by Brigadier Haydon and Lt Col Parkes-Smith in DEFE 2 140, also Lovat : 1978 chapter 12 and Young : 1958 chapter 2.

⁸³ DCO's summary of CLAYMORE in DEFE 2 140.

⁸⁴ DCO's summary of CLAYMORE in DEFE 2 140.

had no military value and had done nothing to restrict the German capacity to wage war.⁸⁵ But CLAYMORE was no stunt as an unstated aim of the operation was to capture German Enigma signalling equipment and intelligence. Documents found in the Harbour Control Office at Svolvær included an appreciation of the political situation in Norway by von Falkenhorst, information on German control over the Norwegian press and details of powers of arrest enjoyed by the Gestapo and Wehrmacht.⁸⁶ Commander Skipworth in *Tartar* came in for criticism for sinking the tanker *Hamburg* before she could be boarded and searched. A party from *Somali* had, however, boarded *Krebbs* and found her wheelhouse wrecked with Oberleutnant Kupfinger and a rating lying dead by the wheel. Caslon wrote that the party searched Kupfinger's cabin and:

...all available documents, official and private, were removed and a locked box discovered in a locked drawer was also retrieved. This was later found to contain spare wheels for a cypher machine... There was no trace in the ship of the cypher machine itself.⁸⁷

The Prime Minister was undoubtedly aware of the material recovered from *Krebbs* when he minuted Keyes on 16 March:

The unqualified success of CLAYMORE says much for the care and skill with which it was planned, and the determination with which it was executed. Pray accept for yourself and pass to all concerned my warm congratulations on a very satisfactory operation.⁸⁸

A month later, 11 *Linge Kompani* men sailed Lerwick aboard the Norwegian destroyer *Mansfield* for HEMISPHERE, the destruction of a herring oil factory at Øksfjord. The objective had been chosen by SOE as it had a large capacity and the Finnmark herring fishery, from which it drew its supplies, was about to start. HEMISPHERE, which was carried out on 8 April, was a success, the only incident of note concerning a Quisling who shot his wife by accident. *Mansfield* returned to Lerwick on 15 April, but the success of the raid was marred by further tension between the British and the Norwegian government in exile who were not informed of the raid, not even as a courtesy after it had taken place.⁸⁹

PILGRIM'S PROGRESS - THE FALL OF ROGER KEYES

British troops were evacuated from Greece at the end of April 1941 and, on 28 April, Enigma decrypts revealed that a German air and sea attack on Crete was imminent. The battle for Crete began on 20 May and 16,500 British troops were evacuated between 27 and 29 May, leaving 13,000 to surrender. The loss of Greece in April and Axis tactical superiority in the Mediterranean compelled the British Chiefs of Staff to consider the vulnerability

⁸⁵ Arnfinn Moland in Salmon (ed.): 1995, chapter 15. See also Cookridge: 1966 p. 528-529 and Baden-Powell: 1982.

⁸⁶ Vansittart papers VNST II 2/30, Churchill College Archives, Cambridge University.

⁸⁷ Report by Caslon in DEFE 2 140.

⁸⁸ This is not to suggest that Keyes was 'in on' the Ultra Secret - he was not. HS 2 224.

⁸⁹ HS 2 224. Baden-Powell: 1982.

of Gibraltar. The Spanish government had been under considerable pressure to allow German troops across its territory to attack the British colony which commanded the western gateway to the Mediterranean.



Demonstrating a wireless set at Inveraray in 1941. Roger Keyes peers over the Prime Minister's shoulder on this, the last occasion on which Churchill and his old friend saw eye-to-eye.

fig. 49

The prospect of losing Gibraltar led the War Cabinet to approve, on 24 April, a plan to seize the Spanish Canary Islands, an objective first promoted by Keyes eight months earlier.⁹⁰ At Las Palmas, the Canaries had the only facilities on any of the Atlantic islands remotely comparable to Gibraltar. The plan, christened PUMA, was to involve a force of 12,000 men, its nucleus being the troops newly returned to Inveraray from CLAYMORE. Rehearsals were carried out in Loch Fyne and shipping was assembled. Loading of the 29th Infantry Brigade, four battalions of Royal Marines, four Commandos, a squadron of tanks and artillery began at Inveraray, Greenock and Troon early in May with a view to sailing on the 17th.⁹¹ Then the schedule was thrown into disarray by the Greenock Blitz and finally, what Fergusson aptly describes as, '...the familiar and heart-breaking business of postponement after postponement,' began.⁹²

On 9 May Keyes lamented that PUMA would not sail until 22 May, and this was followed by further delays, each of a month as the attack could only take place during a no-moon pe-

⁹⁰ Gilbert : 1989 p. 1142 and fn.

⁹¹ Maund : 1949 p. 108.

⁹² Colonel Yeo, Clyde Movements Officer, describes the difficulties experienced with WS8C, the PUMA convoy, thus: Cargo and MT for stores ships had to be loaded in on a pre-stowage plan with almost every commodity in a marked spot; troops on personnel ships had to be embarked on lines similar to those laid down for that prototype of embarkation officers, Noah; and finally the personnel ships had a mixed bag of landing rations, water tins, petrol, ammunition and other small gear to be put on in quantities varying with the number to embark. As these numbers themselves varied, whilst some of the ships were embarking as far off as Inveraray (north) and Troon (south), and the Force HQ thought nothing of changing its tactical plans in the midst of the job, barge loads of equipment floated in all directions all the time... As soon as the work of reconciling paper numbers to bodies got started, a series of air raids on Greenock started (5/6/7 May) that broke the telephone system and cut the railway beyond Port Glasgow; all through the night of 6 May the Committee and Port staff sat round the table with details of train loads, ship allotments and unit compositions...while increasing evidence came in that the rail tables wouldn't work since the lines were cut.

(Cont'd overleaf)

riod.⁹³ The forces allocated to PUMA grew to almost 20,000 with the addition of the 36th Infantry Brigade, the operation was rechristened PILGRIM and a new land force commander, Lieutenant General Harold Alexander, was appointed. Finally, it was decided that PILGRIM would sail in September, but Alexander and Naval Force Commander designate Rear Admiral Louis Hamilton, whose relations with Keyes had soured over the summer, felt strongly that a full-scale dress rehearsal was required. Thus was born Exercise LEAPFROG.⁹⁴ Keyes wanted LEAPFROG held on Arran but Alexander and Hamilton insisted on sailing the force from Inveraray to Scapa and carrying out a landing there. It is a measure of Keyes' waning influence that he was overruled and the exercise did indeed take place at Scapa in bad weather on 10-11 August 1941.⁹⁵ LEAPFROG was a shambles and it was abundantly clear that, as Fergusson writes, 'Against a stubborn Spanish opposition there would have been a disaster.'⁹⁶ Landings were lamentably slow, beaches became clogged with stores, troops failed to move off inland and communications between ship and shore, and within the assault ships themselves, failed utterly.⁹⁷ Keyes wrote that the proceedings, '...disclosed a deplorable lack of organisation to overcome the hazards and difficulties of such a formidable enterprise.'⁹⁸ Lieutenant W. S. Knight, a signaller with 229 Battery, 58 Field Regiment RA, wrote that LEAPFROG:

...proved disastrous, with everything that could go wrong doing so. Landing craft were stuck on the shore with an ebb tide, wireless sets failed to function, motor vehicles got seawater in their engines and failed to move, to mention just a few of the horrors. When it ended and we all got back to Inveraray the Director of Combined Operations, Admiral Sir Roger Keyes, was most caustic about everything. At a large post-mortem meeting he was scathing about our efforts and passed the comment that we were nowhere near the quality of the previous generation whom he had led on the Zeebrugge raid in 1918. There were those present who, while admitting that there were obvious lessons to be learned, felt that a helpful and constructive criticism together with encouragement for the future would have been infinitely preferable.⁹⁹

Few of the deficiencies were actually Keyes', or Combined Operations HQ's, fault. The Navy was preoccupied with the Battle of the Atlantic and accorded Combined Operations low priority. Thus one of the major shortcomings was the poor standard of landing craft crews whom Keyes had long been recommending should be trained at Inveraray alongside the units they were to land. The Army, on the other hand, were less heavily extended and, as Keyes fairly pointed out, Alexander had had PILGRIM Force under his command for two months, yet had refused help from Combined Operations HQ. Hamilton and Alexander submitted a report on LEAPFROG direct to the Chiefs of Staff, by-passing Keyes, in which

Yeo MS, IWM Department of Documents ref. 95/6/1. Fergusson : 1961 p. 79.

⁹³ Letter Keyes to Churchill 9 May 1941 in *The Keyes Papers* pp. 166-167.

⁹⁴ *Ibid.* pp. 82-83, 188-193.

⁹⁵ *Ibid.* p. 191.

⁹⁶ Fergusson : 1961 p. 82.

⁹⁷ *Ibid.* p. 82. Report on LEAPFROG in DEFE 2 869.

⁹⁸ Keyes memorandum of 19 August 1941 in DEFE 2 869.

⁹⁹ Knight MS, IWM Department of Documents ref. 97/7/1.

they exonerated themselves and blamed Combined Operations for the deficiencies. Keyes, meanwhile, recommended that PILGRIM should be dropped in favour of YORKER, a plan to capture Sardinia.¹⁰⁰ After refusing to accept a reduced directive in September, Keyes was replaced by Captain Lord Louis Mountbatten whose revised role of Adviser on Combined Operations reflected the nervousness of the Chiefs of Staff after the divisions that marked Keyes' time.¹⁰¹



King George VI's visit to Inveraray on 9 October 1941 was undoubtedly awkward for Keyes (centre left) who had been sacked five days earlier. Vice Admiral Teddy Hallett (centre right) was appointed Vice Admiral Combined Training on 1 September 1940. Next to Hallett is the Army Commandant at Inveraray, Brigadier Cyrus Greenslade. The photograph was taken outside Hallett's headquarters at Tigh na Rudha, then a Campbell dower house and now (2001) the Loch Fyne Hotel.

Mountbatten told Roskill that he inherited 'absolutely nothing' of value from his predecessor, but this is self-serving nonsense.¹⁰² Keyes' appointment may have been a mistake and evidence of a tendency displayed by both Churchill and Pound to appoint senior officers with reputations earned over 20 years before, but he had achieved a much against the odds.¹⁰³ At a time when military hardware was in desperately short supply and subject to a range of competing demands, Keyes had contrived to set up CTC Inveraray and other training establishments, improvise landing ships and craft, and recruit, train and equip ten Commandos. He established Combined Operations as a separate headquarters, organised a planning staff and mounted operations.

¹⁰⁰ In a Lees Knowles lecture given at Cambridge in 1943 and quoted in Aspinall-Oglander : 1951 pp. 380-409, Keyes castigated those who,

...organised a full scale rehearsal, but declined any assistance from the Directorate of Combined Operations or its Training Centre. A number of shocking miscarriages occurred in the direction and conduct of the exercise which took no account of the realities of modern war. Fortunately the operation never took place... The moral of this unfortunate episode is that it is not sufficient to train and temper and Amphibious Striking Force unless those who are to command, lacking practical experience, closely study former operations and make use of experience already gained.

¹⁰¹ The intrigues that surrounded Keyes' dismissal are discussed in the article *Too Old or Too Bold – The Removal Roger Keyes as Director of Combined Operations* in *Imperial War Museum Review* no. 8 (1993) pp. 72-84. Undoubtedly Keyes' aggressiveness, tactlessness and immodesty were partly to blame, as were the terms of the Directive he inherited from Bourne. But as Fergusson writes, 'Every hesitancy recalled for him the lost opportunities of Gallipoli and the seized opportunity of Zeebrugge.' Then there was the simmering discontent among both the Chiefs of Staff, still seething at Keyes' criticism of them following defeat in Norway and France. And his fellow Admirals disliked the fact that, the First Sea Lord included, they were all technically outranked by him. Ultimately, however, the fault lay with Churchill who hastily appointed a friend as DCO without considering the implications. Fergusson : 1961 p. 84.

¹⁰² Roskill : 1977 p. 111.

¹⁰³ Such appointments presupposed that no younger officers of such calibre were coming forward and thus had a demoralising effect on those passed over.

COMBINED TRAINING (NAVAL)

Keyes may have achieved a great deal but, such was his vanity, he had seen Combined Operations as a private army that would become the means to take the war back into Europe, naturally under his command. Conveniently isolated from the Whitehall machine that he despised so openly, Inveraray was to be the base from where this amphibious force would reach out anywhere on the coast of Europe and beyond. Mountbatten, with his revised Directive, changed the emphasis to developing all-arms assault techniques, equipment and training that would see large formations ashore on enemy-held territory to stay. The training organisation was recast with this in mind.

PILGRIM was finally abandoned in October 1941, not least because it was apparent that the Spanish threat to Gibraltar had receded with the German invasion of the Soviet Union. PILGRIM Force, augmented by the 1st Guards Brigade, moved to Largs. Maund writes,

Being the only trained Combined Operations force in the country, with most of the ships and most of the craft, it very naturally usurped, if such a word can be used, the functions of the CTC and it was this force which discussed technique, tried it out and laid it down.¹⁰⁴

But Combined Operations training had to be standardised and thus the syllabus had to remain the sole responsibility of the CTCs. Command was centralised under Vice Admiral Theodore 'Teddy' Hallett and Major General James Drew who set up shop in HMS *Warren*, the Hollywood Hotel in Largs, where they were joined by Hamilton and Alexander.¹⁰⁵

In February 1941, immediately prior to CLAYMORE, there had been some 20 LCMs and 36 LCAs available, but the PILGRIM Force had left Inveraray for Largs with every available craft, even those allocated for training. When, in October 1941, Inveraray began training the 4th Division by brigades, only the LSI(L) *Ettrick* was available, and not a single landing craft. Folding army boats and naval cutters were pressed into service but, as Maund acknowledges, 'The training was not very realistic...'.¹⁰⁶

Mountbatten, a naval 'communicator', made one of his first tasks dealing with the signal-



LCAs on Loch Fyne. Early in the war, every landing craft was commanded by an officer. This was later reduced to one officer per sub-division of three LCAs. Crews then comprised a Coxswain, usually a Leading Seaman, a stoker to look after the two V8 petrol engines and two seamen.

¹⁰⁴ Maund : 1949 p. 108.

¹⁰⁵ Fergusson : 1961 p. 91.

¹⁰⁶ Maund : 1949 pp. 108-109.

ling failures that had been so apparent during LEAPFROG. An inter-service signals committee that had been addressing the issue, was absorbed into Combined Operations HQ and became the new Combined Operations Signals Staff. One of the most pressing needs was for Beach Signallers and a school for Beach Signals Units of one officer and 32 ratings opened at Inveraray on 1 November 1941. Four Beach Signals Units had completed training by 1 January 1942. Once again, the facilities at Inveraray were soon outgrown and, on 26 April 1942, the Combined Signal School moved to Auchingate Camp, Ayr, then renamed HMS *Dundonald*.¹⁰⁷



Commandos landing under smoke during an exercise at Inveraray in 1941. The Higgins R Boat being used here was an unsuccessful assault craft, not least because it was unarmoured and very noisy. Leading the practice assault is Major Jack Churchill. No relation of the Prime Minister, 'Mad Jack' was nevertheless another of those swashbuckling characters for whom wars might have been invented.

Demand for landing craft was far outstripping the capacity of British shipyards already fully committed to replacing losses incurred in the Battle of the Atlantic. Further, ideas for new types of landing craft, like the LST were coming forward from Inveraray and Largs. Clearly, only American yards could build the craft required so a Combined Operations Mission went to Washington in November 1941, but, by 6 December, just seven LST had been agreed under Lend-Lease. Then the Japanese attacked Pearl Harbor and, overnight, this figure increased to 400 landing craft of various types. The British mission also visited Andrew Higgins, supplier of the Eureka boats ordered in 1940, at New Orleans. Higgins was working on a design, based on a shallow-draught tug built for the Peruvian Government, that would become the 50-foot LCM. Ten thousand of these were built and Maund describes them as, '...one of the best minor landing craft ever built.' The British mission ordered the first 250.¹⁰⁸

¹⁰⁷ Auchingate Camp had been built pre-war and the accommodation was lavish by comparison with Inveraray. The camp was centrally heated, there was running hot and cold water and a 725 seat cinema. It had a capacity of 1,720 men 45 Warrant Officers and Sergeants. Expansion meant that 72 Nissen huts with a capacity of 840 men were constructed on the adjacent golf course, but several were 'blown away and deposited on the barrack square' during a storm in the winter of 1940-41. DEFE 2 814. DEFE 2 856. Fergusson: 1961 pp. 92-93.

¹⁰⁸ Maund: 1949 pp. 82-85. Fergusson: 1961 pp. 110-115. For the development of various types of assault craft see Maund: 1949 Ch. 4. and Ladd: 1976.

Rear Admiral H. E. Horan was appointed Rear Admiral Landing Craft and Bases and Commodore Guy Warren was made Senior Officer Assault Ships and Craft. Both joined the staff at the Hollywood Hotel and, on 21 January 1942, a maintenance and training establishment, *Dinosaur*, opened at Troon with personnel based at nearby *Dundonald*. LCM training bases were established at Castle Toward, which became *Brontosaurus*, and Lamlash.¹⁰⁹

Despite the early shortages, however, hardware was never the greatest problem facing Combined Operations Headquarters. While for the Army and the RAF, combined operations represented a military science, for the Navy it was a specialised branch of the service, and a uniquely unpopular one at that. The Joint Planners had begun considering a future invasion of the continent in October 1941 and a month later the forecast requirement for trained landing craft crews by May 1943 had risen to 1,500 officers and 20,000 ratings. Combined Operations was responsible for landing craft crews though, by February 1942, just 5,200 men had been trained, and most of those had only received basic instruction in craft handling. Then the demands of the wider war meant that many of these trained men were drafted to fill vacancies in the fleet and most were only too keen to go as Combined Operations was seen as a dead-end. Intakes of active service ratings had all but ended by July 1941, so crews were then drawn from the RNVR, the RN Patrol Service and hostilities-only ratings. From February 1942 a regular fortnightly draft brought of 12 officers and 150 seamen from *Northney*, where they received basic training, to *Quebec* at Inveraray for training alongside the Army.¹¹⁰

An acute shortage of officers led to the opening of a further training establishment at Lochailort in 1943.¹¹¹ Candidates were drawn from hostilities-only ratings already selected for officer training in the RNVR, but their commissions were not applicable to general service. The peak requirement was around D-Day and until the French ports fell into Allied hands and, by June 1944, some 5,500 RNVR officers, 500 RM officers, 43,500 naval ratings and 12,500 RM ORs had been trained at the CTCs for landing craft service.¹¹² This was in addition to beach personnel, maintenance staffs, hard parties and sundry other personnel which took the total involved to some 113,000 men and women.¹¹³

¹⁰⁹ Also at Lamlash, based on HMS *Coronia*, Royal Marine Beach Battalions began training in May 1942. DEFE 2 856. Maund : 1949 pp. 103.

¹¹⁰ *Per Mars* spring 1946 article entitled *HMS Quebec* pp. 175-176. See also Maund : 1949 p. 101.

¹¹¹ *Naval Review* no. XXXIII (1945) article entitled *Some Naval Aspects of Combined Training* pp. 29-32.

¹¹² *Ibid.* and Maund : 1949 p. 105.

¹¹³ Maund : 1949 p. 99. For background, see also Edwards : 1946.

COMBINED TRAINING (MILITARY)

From its opening in October 1940, CTC Inveraray continued an unbroken programme of training until it reached a peak of activity early in 1944 as preparations were made for OVERLORD. In addition to training Commandos in their unique amphibious role, the CTC trained Brigade groups in the assault role and other units in the 'follow-up' and 'build-up' roles. Port Operating Companies, squadrons of the RAF Regiment and RAF Servicing Commandos were also trained.

While Hallett and Drew at Largs had overall responsibility for Combined Training, CTC Inveraray was the responsibility of an Army Commandant. The Army organisation was divided into four wings namely a Brigade Group Wing, an Army Tank Wing, an RE Wing and an REME Wing. The Army Tank Wing and the RE Wing carried out their own training and, aside from the allocation of craft and shore facilities, and participation in exercises, were independent of the main Brigade Group Wing. The REME Wing, on the other hand, worked under the Brigade Group Wing.¹¹⁴ The Naval training staff at Inveraray operated under a Captain RN responsible to the Commandant primarily to teach Army formations how to work with the Navy. This was a quite separate establishment from *Quebec* which provided and maintained assault craft, and trained their crews.¹¹⁵

As Fergusson writes, in the early days, the RAF took the view that, 'one bit of air being pretty much like another bit of air, there was nothing particularly tricky in supporting an amphibious operation.'¹¹⁶ Inter-service divisions were not easily broken down and one of the lessons of the ill-conceived Dieppe landing in August 1942 was the need for massive fire support, not only from the sea, but also from the air. But not until the Alamein campaign later in 1942 did true co-operation begin to develop.¹¹⁷ Even in 1944, the RAF presence at Inveraray was small, though co-operation had gone further than this suggests.

Seven camps to accommodate permanent staff and troops under training were laid out around Loch Fyne, the most northerly being Shira Camp which housed an 800-man battalion, up to 250 other Brigade Group troops and was permanent home to the RASC Motor Boat Company. Castle Camp housed another battalion and other small units, Duke's Camp accommodated Brigade Headquarters and Town Camp housed some 1,100 men and women including CTC administrative personnel, the transport pool, REME workshops and other facilities. A building programme initiated in mid-1941 increased capacity to 5,150 ORs and included the new Avenue Camp built next to Town Camp to house the Army

¹¹⁴ DEFE 2 1318.

¹¹⁵ *Per Mare* pp. 175-176.

¹¹⁶ Fergusson : 1961 p. 82.

¹¹⁷ Terraine : 1985 p. 343-344 and 559-562.

Tank Wing. Two requisitioned houses, Tigh na Rudha (Admiralty House), the CTC Headquarters, and Rudha na Craig, normally the home of the Duke of Argyll's ailing sister, provided officers accommodation.

Two and a half miles south of the town were Chamois and Kilbride Camps around the naval establishment at HMS *Quebec* with engineering workshops, boat slips and two steel piers. From 1942 several of the 'lines' in Town Camp were taken over by the Navy for accommodating landing craft crews under training. But the pressure on accommodation during training for the Normandy invasion was such that the old American passenger liners *Northland* and *Southland* were supplied under Lend-Lease as accommodation ships and moored offshore. Additional to the training staff, a small staff was maintained at each of the seven camps for maintenance and hand-overs.

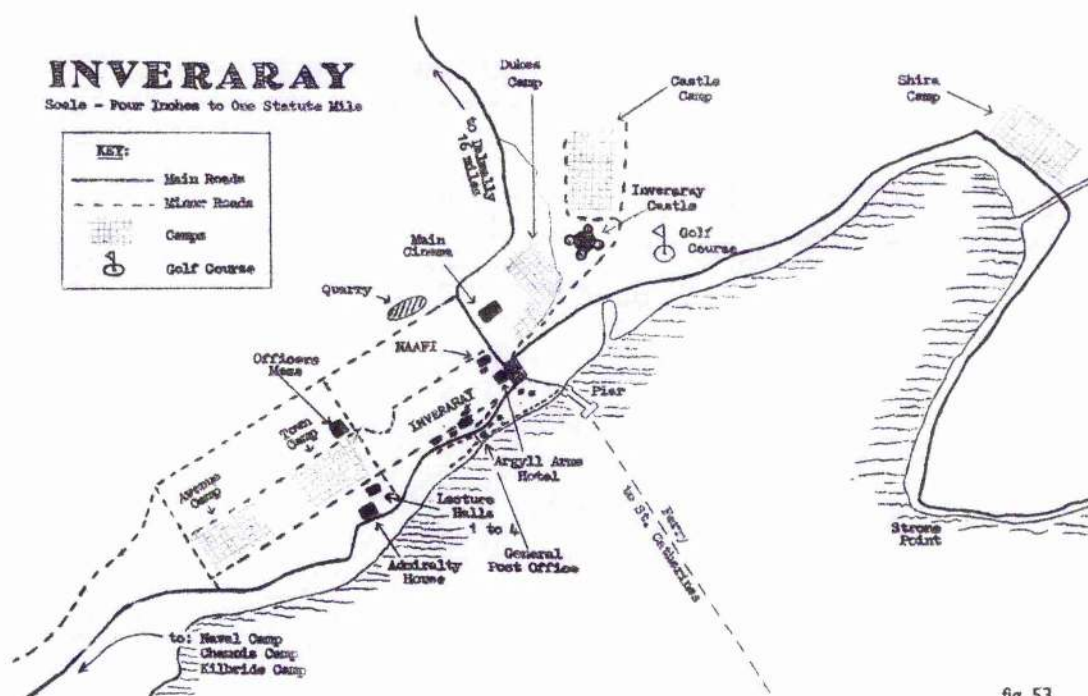
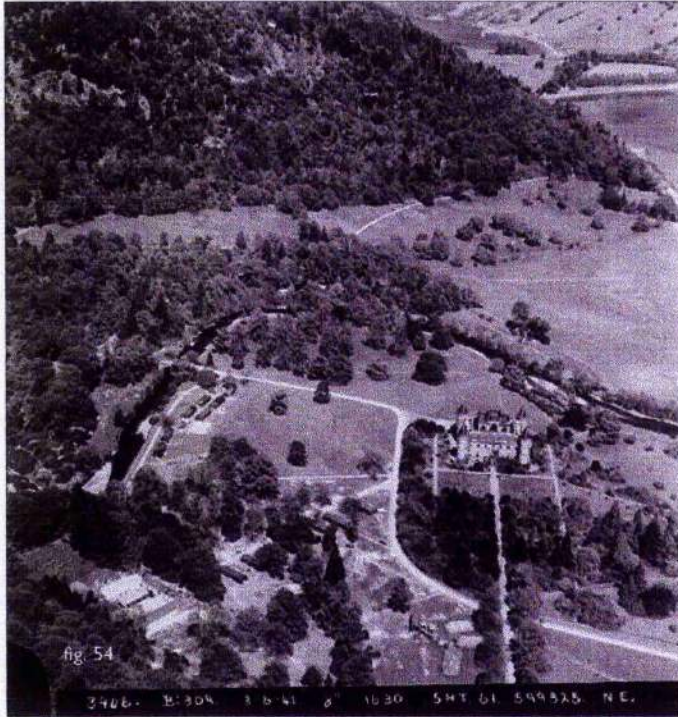


fig. 53

Military camps around Inveraray in 1942 (not to scale). MI5 wanted to declare Inveraray and other training areas in the west of Scotland a Protected Area, thus barring public access. The area extended from Spean Bridge to the Mull of Kintyre and included the Loch Lomond road to Arden, Helensburgh and the Isle of Arran. Keyes suggested this would merely draw attention to the place, and imposing a permit system would be impossible, not least because so many Helensburgh residents travelled to work in Glasgow. So, in July 1941, most of Argyll and Bute was made a 'Controlled Area'. While no permits would be required to go there, the Admiralty or War Office could close the area at a moment's notice. That summer, however, Teddy Hallett wanted the County Council to pass bye-laws that would stop 'picknicking on parts of Loch Fyne-side, charabanc tours to or near Inveraray, steamer trips to Inveraray and loitering by visitors.'

Brigade Groups were moved to Inveraray either by road, rail or ferry. Rail moves were to Arrochar or Dalmally, with vehicles arriving by rail going to Dalmally where there was a ramp for unloading. Moves by ferry generally involved troops being taken to either Greenock, Ardrossan or Wemyss Bay by rail, and from there by sea.



Duke's and Castle Camps next to Inveraray Castle under construction in 1941.

Training facilities ashore included a large lecture room in the Drill Hall which could seat 150 and two smaller lecture rooms in the Drill Hall each fitted with tiered seating and a model of a section of the Loch Fyne coastline. There was another more basic lecture theatre in a hut next door which could seat 80 and the Main Cinema in Duke's Camp could seat 750, though this was primarily a recreation facility. A Briefing Room in a Nissen hut in Duke's Camp was equipped with two scale models of the training

areas. Four 25 foot scrambling towers on the golf course were intended to give troops confidence before they were asked to climb down the side of a ship and, at the quarry behind the town, ropes were set up for practising cliff-scaling. Six wooden dummy LCAs and a concrete mock-up LCT complete with deck, ramp and water-splash were built beside the Main Cinema. At Dubh Loch field firing area there were another five dummy LCAs made of scaffolding and canvas. Ladyfield field firing area was dotted with defence points and miles of dannert wire, as were Hell's Glen and Newton Bay.

Operational requirements meant that the number of ships and craft available for training at Inveraray varied constantly. There was endless competition between the Army and Navy for the use of craft and, in March 1942, and despite the desperate shortage of trained crews, Inveraray's naval wing were complaining that, 'The lack of craft for naval training classes has very seriously affected the training.'¹¹⁸ The CTC could generally rely on there being one LSI(L) with 24 LCA, one LSI(S) with 18 LCA and one LST available for training, though this was subject to operational requirements. At its peak, in 1943, the resident

¹¹⁸ DEFE 2 715.

training flotilla comprised 104 craft, and this was generally made up of 25 LCA or LCV, two flotillas of LCT, one LCI(L), six LCS(M) and two LCA(HR), though again this could change due to training requirements elsewhere.¹¹⁹

The scale and type of training offered at Inveraray varied somewhat with the resources available. In general terms, however, and as the Inveraray training manual has it, assault battalions were given training in:

- (a) General knowledge of what is involved in a combined operation.
- (b) Marching personnel in embarking and disembarking from LSI.
- (c) Infantry company groups in the capture of the assault company objective.
- (d) Infantry companies in the role of reserve companies.
- (e) Drivers in waterproofing and wading their vehicles, in embarking and disembarking from landing ships by day and by night.
- (f) The whole battalion in a battalion group assault.
- (g) Battalion officers and specialists should receive certain additional training...¹²⁰

Training films were used along with lectures using the models in the lecture rooms to give a general knowledge of Combined Operations. All marching personnel were then given 'LSI Drill' involving both lectures and practical exercises. Troops would parade at Inveraray Pier for transport by drifter out to an LSI, then messing arrangements were concluded and a short talk on the landing was given over the ship's address system. The LSI was then darkened and the procedure for boarding the LCAs was rehearsed, often in bad weather, with fully laden troops slipping on wet decks. It was found that, with a LSI(S) carrying six LCAs, to complete this routine with two companies would take a minimum of half a day. With an LSI(L) carrying 24 LCAs a battalion group could be trained in a day. Further practice in LSI Drill was given during each course as, wherever possible, all landing exercises were started from an LSI.¹²¹

Training then moved on to battle drills by company for opposed assault landings. First, officers and senior NCOs were given a demonstration on the beach models, then company groups were given a half day's training in the mock-up LCAs. Practice landings from real LCAs followed over two and a half days, during which bangalore torpedoes, smoke bombs and smoke grenades were used, but not small-arms ammunition. A dryshod landing exercise with all company group weapons and supported by artillery representing LCG(M)s and machine guns was then carried out at the mock-up LCAs. Following this, a wetshod company assault from landing craft was carried out at Newton Bay with full sea and air support. Finally, the company would return to the mock-up LCAs to correct any faults noted during the preceding exercises, they then reformed into Battalion Groups for a battalion-scale landing exercise, and finally into Brigade Groups for full-scale landings by day and

¹¹⁹ DEFE 2 713.

¹²⁰ DEFE 2 1318.

¹²¹ Ibid.

night. (See Appendix 1 for Admiralty chart no. 2382 *Upper Loch Fyne* giving the Inveraray beaches and training areas and notes on their use.)

Equally important to the success of an assault landing were follow-up formations and these too trained at Inveraray. Here, in addition to a general understanding of combined operations and embarking and disembarking from landing ships and craft, they were taught to pass across beaches, through transit areas to the assembly area and on to deployment for attack. The Inveraray training cycle for a follow-up brigade took eight working days:

Training	Time	Remarks
Lecture: <i>General Aspects of Combined Operations.</i>	½ hr.	Officer's Cadre course.
Film: <i>Combined Operations.</i>	¾ hr.	Officer's Cadre course.
Lecture: <i>Naval Aspects</i> (in two parts).	1½ hrs.	Officer's Cadre course.
Lecture: <i>Military Aspects.</i>	1 hr.	Officer's Cadre course.
Lecture: <i>Combined Operations.</i>	¾ hr.	Each Battalion.
Lecture: <i>The Royal Navy.</i>	1 hr.	Each Battalion.
Film: <i>Beach Organisation.</i>	½ hr.	Each Battalion.
Demonstration of landing ships and craft.	1¼ hrs.	Each Battalion.
LSI Drill.		Each Battalion. Similar to the drill given to assault formations as above, but took into account that troops may have to disembark, not only into LCAs, but also into LCI(L)s and LCTs.
LCI(L) Drill.	1 hr.	Each Company.
LCA Drill.	2 hrs.	Each Company.
Demonstration of beach signs and personnel and vehicle transit areas.	2 hrs.	Each Battalion.
Scrambling nets and rope pulling.		Each Battalion as time permitted.
Exercise NOCTURNE.		The object of this Battalion exercise was: (a) To practice troops in embarking in an LSI in the dark. (b) To practice disembarking in the dark. (c) To practice landing on a prepared beach and passing through a transit area by night.
Exercise STRACHUR.		The object of this Company exercise was: (a) To practice each company in landing on a shallow beach. (b) To carry out a field firing exercise after passing through transit and assembly areas. (c) To particularly emphasise the need to take care of weapons and equipment during a wet landing where troops are to go into action shortly after landing.
Exercise FURNACE.		The object of this Battalion exercise was: (a) To practice embarking troops and vehicles from an LST. (b) To practice landing on a prepared beach by day, passing through the transit areas and assembling in the assembly area. (c) To practice moving through the covering position and subsequent deployment for attack.
Exercise HARROW.		Exercise with similar objects to Exercise FURNACE, but for three battalions operating together.
Driving on and off landing craft.	Two ½ days and one night.	Practice for drivers.

Lecture: <i>Landing Tables.</i>	1 hr.	Commanding Officer, Second-in-Command, Adjutant and Intelligence Officer.
Lecture: <i>Beach Organisation.</i>	1½ hrs.	Each Battalion's officers.
Lecture: <i>Landing Ships and Craft.</i>	¾ hr.	Each Battalion's officers. Lecture on all types of ships and craft, including those not available at Inveraray, but which were to be used in, for example, OVERLORD.
Model Demonstration: <i>The Brigade Group in the Assault.</i>	1 hr.	Each Battalion's officers.
Lecture: <i>Air Aspects of Combined Operations.</i>	1 hr.	Each Battalion's officers.

As the 4th Division began training by brigades at Inveraray in October 1941, it was apparent that there was not enough room to train both armoured formations and infantry brigades. Alongside *Brontosaurus*, the LCM training base at Castle Toward, Nissen huts were constructed and the 6th Armoured Division moved in to commence training. CTC Toward was commissioned on 1 June 1942. Newton Bay was too small to allow practice assaults by units larger than one battalion so, by April 1943, as training for OVERLORD gathered pace, CTC Toward had grown to include much of the Ardlamont peninsula for advanced assault training. Sections of the Atlantic Wall were replicated at Kilbride Bay and the exercise area, which included Portavadie and Glenan Bay, stretched almost into Tighnabruich and Kames. The area was evacuated of civilians by 21 June 1943 and here, under live firing conditions, brigade-sized units undertook the final stage of their assault training. Inchmarnock Island was also cleared of civilians on 17 November 1943 so it could be used as a range by Royal Artillery Field Regiments firing from LCTs under way off Tighnabruich.¹²²

On 7 June 1943 the 3rd Division, one of the assault divisions for D-Day, began training at Inveraray, each brigade being given a three-week course, and were followed into Inveraray by the 3rd Canadian Division, another D-Day assault formation. In 1944 CTC Inveraray comprised 370,000 acres of land, with CTC Dundonald taking up another 6,000 acres around Ayr and Troon. At Glen Caladh in the Kyles of Bute a Beach Pilotage School appropriately christened *James Cook* was opened to improve pilotage skills which would ensure landing craft reached the correct beach.¹²³ At Ardentinny on Loch Long a former Forestry Camp became *Armadillo* where Beach Commandos were trained in breaching anti-invasion obstacles.¹²⁴ On Kintyre (9,344 acres) and Arran (960 acres) there were linked ranges used for naval bombardment practice. A 28,400 acre range at Anderside Hill was used for artillery practice and training pilots and observers in artillery co-operation.¹²⁵

¹²² The Admiralty, as did many at Combined Operations HQ, thought the selection of the isolated Ardlamont peninsula a 'blunder'. It was little used and both it and the Inchmarnock range were closed in January 1944 to allow X craft midget submarines which were to act as navigational beacons on D-Day to use Ettrick Bay for training. DEFE 2 1049. Maund : 1949 p. 109.

¹²³ Ferguson : 1961 p. 183.

¹²⁴ *Ibid.*

¹²⁵ DEFE 2 1117.

At the peak of activity in 1943, the principal Combined Operations establishments in Scotland were;¹²⁶

HMS <i>Warren</i>	The Hollywood Hotel, Largs. HQ of Rear Admiral Combined Operations. RACO was responsible for the training and mounting operations like TORCH. He was also responsible for the planning and organisation of large-scale combined exercises. <i>Warren</i> also contained an Aircraft Recognition Section.
Troon Harbour	Operational and Training Headquarters of the LCT organisation. In 1943 some 30 LCTs were held for training and the course consisted of two weeks instruction, partly at <i>Dundonald</i> and partly at sea, in ship-handling, beaching, flotilla manoeuvres, gunnery etc.
HMS <i>Dundonald</i> and HMS <i>Dundonald II</i>	Dundonald Camp was used for an accommodation and instructional centre for LCT crews, the Beach Organisation Course, the Beach Signals Course and the Forward Observation Course. Beach Organisation courses trained officers in movement control so they could act as Military Landing Officers (MLOs). The Beach Signals Course run by <i>Dundonald II</i> trained units from the Army, Navy and Marines in the signals organisation to be set up after a landing. The Forward Observation Course trained Gunnery Officers and NCOs in forward observation and bombardment. Royal Engineers courses in mine clearance and road work, tank training and RAF Instructors courses were mounted as required.
HMS <i>Brontosaurus</i>	Castle Toward, Dunoon. Working up base for LCT flotillas with also a repair and maintenance establishment. Armoured units of the Army were trained in loading and landing vehicles from LCTs. Included much of Ardlamont Peninsula as a combined training area with replicas of sections of German coastal defences in northern France. Inchmarnock used as a gunnery range by gunners in LCTs firing from Tighnabruich.
CTC Inveraray and HMS <i>Quebec</i>	Base for the initial training of minor landing craft crew afloat, a course lasting four weeks and including aircraft recognition, weapon training and anti-gas measures. Also combined training with Army units including full-scale battalion exercises and landings and the training of repair and maintenance parties. RAF Servicing Commandos, Air Formation Signal Units and RAF Regiment Anti-aircraft Squadrons given assault training. Port Operating companies of the Royal Engineers were trained in Loading and unloading ships, the discharge of stores, and manhandling stores and vehicles onto beaches and into craft.
Dorlin House	Special training courses for up to 200 naval personnel at a time who were specially trained and hardened for raiding. Also used for basic assault training at company level.
HMS <i>James Cook</i>	Establishment at Glen Caladh for the training of landing craft officers in beach pilotage. The course lasted 16 days, half of which were spent in instruction ashore, the other half in continuous training afloat. (Instruction in radio navigation aids was given as a separate course at HMS <i>Northney</i> , Hayling Island.)
HMS <i>Armadillo</i>	Centre for the initial training of Naval Beach Commandos at former Forestry Commission camp in Glenfinnart. On completion of their training, Beach Commandos went to <i>Dundonald</i> where they joined up with the Beach Group and Beach Signallers for Beach Group training.
HMS <i>Pasco</i>	Establishment at Glenbranter House (prewar home of Sir Harry Lauder and a former POW cage) for Advanced Signals Training for Landing Craft ratings and senior rates.
HMS <i>Louisburg</i>	Camp and dockyard facilities built at Rosneath by the US Navy under Lend-Lease from March 1941. Originally to be used by USN escort groups which were to have brought convoys right across the Atlantic. Never used as such and handed over to the RN as HMS <i>Louisburg</i> in 1941. Used for afloat training until handed back to the Americans in August 1942 for TORCH. Used by both US Navy and Army and by Combined Operations at intervals for the rest of the war.
HMS <i>Stopford</i>	Assembly and working up base at Bo'ness for LCT Flotillas constructed at yards on the east coast, and on passage to the west coast.

¹²⁶ DEFE 2 714.

THE RAIDING PHASE - PART 2 GAUNTLET, ANKLET AND ARCHERY

While CLAYMORE, the unopposed descent on the Lofoten Islands in March 1941, had little apparent military significance, the raid did convince Hitler that a British attack on Norway would follow BARBAROSSA, the German attack on the Soviet Union. He immediately ordered 160 coastal artillery and anti-aircraft batteries to Norway.¹²⁷ The British had indeed been considering a plan, codenamed DYNAMITE, for a landing by four divisions in the Stavanger area with a view to closing the northern exit to the North Sea and breaking German lines of communication in Norway. Lack of resources meant that this never got beyond the planning stage, but the strategic picture changed radically following BARBAROSSA.¹²⁸

German forces invaded the Soviet Union on the night of 21 June 1941. Churchill, with an eye to the new strategic position, advocated immediate British military reaction. 'Now the enemy is busy in Russia,' he said with customary vigour and, with an eye to the summer weather, 'is the time to, "Make hell while the sun shines."' ¹²⁹ The political imperative was to give visible support, and one area where that could be done quickly was on the Soviet Union's Arctic flank.

On 15 July 1941 Soviet Foreign Minister Molotov suggested to British Ambassador Stafford Cripps that British and Soviet troops should occupy Spitzbergen and Bear Island with a view to eventually expelling German troops from northern Norway.¹³⁰ The Norwegian authorities in London were enthusiastic and, on 27 July 1942, Admiral Vian sailed *Scapa* in *Nigeria* with *Aurora*, *Punjabi* and *Tartar* to investigate. Arriving at Spitzbergen on 31 July, he found the coal mining settlements at Longyearbyen (Norwegian controlled) and Barentsburg (Soviet controlled) free of German occupation though both the Norwegian and Soviet administrators doubted that this would continue. He then sailed for Bear Island, midway between Spitzbergen and Norway, where a party from *Nigeria* destroyed the weather station of value to the Germans.¹³¹

Vian reported that the scheme to use Spitzbergen or Bear Island as a base was impractical as there were no suitable facilities of any kind, and the fjords were, in any case, iced up for much of the year. The islands were well-nigh impossible to defend and the Admiralty, faced with the demands of Arctic convoys, was keen to curtail any responsibility for them.¹³²

¹²⁷ *Ausführungen des Führers auf dem Bergbof am 12.3.41 zur Lage* (US National Archives T-312 reel 993 9186140 and T-77 reel 1432 436.) and Abwehr report 15 March 1941 (T-77 reel 1027 2499058) quoted in *From Neutrality to NATO - The Norwegian Armed Forces and Defense Policy 1905-1955* by David G. Thomson.

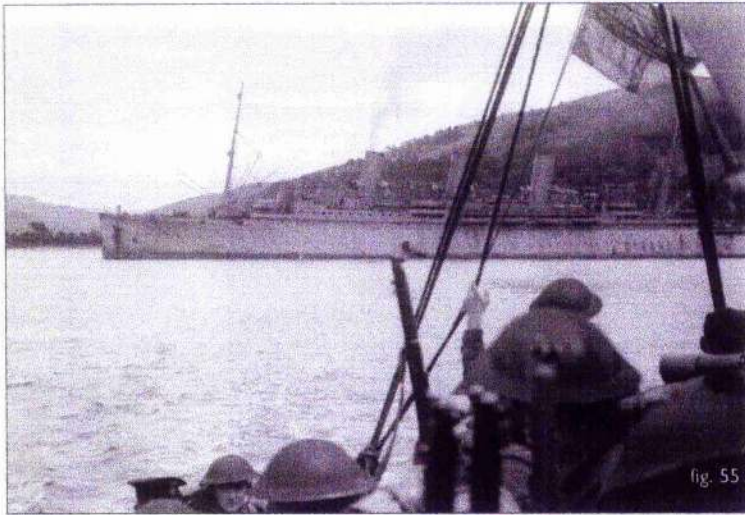
¹²⁸ Thompson *op. cit.* p. 224.

¹²⁹ Gilbert : 1989 pp. 1122-1123.

¹³⁰ DEFE 2 228.

¹³¹ ADM 199 730.

¹³² Vian : 1960 pp. 67-69. Roskill : 1954 p. 488.



Canadian troops boarding *Empress of Canada* at Inveraray for Operation GAUNTLET

Thus, after a false start on 6 August when a force embarked in *Empress of Canada* at Glasgow and sailed to Inveraray for training, the idea of occupation was dropped in favour of evacuation and the destruction of coal mines on Spitzbergen to deny them to the enemy. *Empress of Canada* returned to Glasgow on 11 August and the troops disembarked. A smaller force of 46 officers and 599 ORs, mostly Canadian but including a detachment of 36 Norwegians, re-embarked on 17 August and *Empress* sailed north the following day.¹³³ From Scapa, the liner was joined by *Vian* with *Nigeria*, *Aurora*, *Icarus*, *Anthony* and *Antelope* and, after refuelling at Hvalfjord, entered Gronfjord, Spitzbergen, at 0800/25 August to carry out GAUNTLET.¹³⁴ By the following day 1,969 Russian miners and their families had been taken aboard and, escorted by *Nigeria*, *Icarus*, *Antelope* and *Anthony*, *Empress of Canada* sailed for Archangel where she disembarked her passengers and took on board 192 Free French volunteers.¹³⁵ She returned to Spitzbergen, where demolitions were all but complete, and, after embarking the Norwegian mining community of 570 men, 195 women and children, 500 tons of baggage and 14 dogs, sailed for the Clyde



The power station at Kongsfjord, which supplied power to the Spitzbergen mines, demolished during GAUNTLET.

¹³³ According to a report by landing force commander, Canadian Brigadier Arthur E. Potts, loading of the expeditionary force was completed at Glasgow on 17 August though, 'There was some pilfering of stores by dockworkers at Glasgow...' DEFE 2 228.

¹³⁴ ADM 199 730. *Vian* : 1960 pp. 70-71.

¹³⁵ Loading took place under a cloud of mutual suspicion, the Russians determined to take aboard a large quantity of stores that fell outwith the evacuation plan, even scrap metal. Many Russians looted their own stores and the Soviet Consul at Barentsburg got ever drunker until, during a conference with landing force commander Brigadier Potts, he passed out and had to be stretchered aboard covered with a sheet. DEFE 2 228. ADM 199 730.

which she reached at 0200/7 September.¹³⁶

Meanwhile, the Admiralty signalled Vian with intelligence that a German convoy was at the northern end of the Leads. Vian could not leave *Empress of Canada* unprotected by sending the destroyers, so he took *Nigeria* and *Aurora* and, at 0123/7, *Nigeria's* lookouts sighted two transports carrying the 15th Mountain Division escorted by the former gunnery training ship *Bremse* and several smaller escorts. One ship passed down *Nigeria's* side too close to be fired on, then there was a heavy crash. According to Vian, this was caused by *Nigeria* running down *Bremse* which sank with the loss of all but 37 of her crew. The troopships escaped and Vian's cruisers arrived Scapa on 10 August, *Nigeria* heavily damaged.¹³⁷

During the summer of 1941, as German troops advanced deep into the Soviet Union, London and Washington were debating whether the Russians would be defeated before the United States entered the war. Arctic convoys were begun and, to take the pressure off the Red Army, British forces annexed Persia and its oil fields. In North Africa, Auchinleck was being nagged by the Prime Minister into an early offensive against strengthening Axis forces. Then, in September 1941, Churchill ordered the Chiefs of Staff to start planning a landing by four divisions in Northern Norway. AJAX envisaged the seizing of Tromsø as a naval base to cover the Arctic convoys, though it was also intended to give the impression of a second front. The plan was killed off on 12 October when the Navy insisted that they must have land-based air cover.¹³⁸

Commando raids into Norway had been suspended during the consideration of AJAX so as to avoid drawing German reinforcements into an area where British forces would be operating. But with the demise of AJAX, raids could begin again. A number of proposals were considered during October and early November 1941, among them ASCOT, a landing in force in central Norway. On 17 November, however, this was dropped in favour of two smaller, simultaneous raids, one a return to the Lofoten Islands (ANKLET) and the other a landing on the islands of Vågso and Måløy near Bergen in south-west Norway (ARCHERY).

The raids were to be carried out by Combined Operations with a significant input from SOE. ANKLET has been characterised as merely a diversionary attack to cover ARCHERY, but the Navy's report on the operation offers a different interpretation:

¹³⁶ Ibid. See also Yeo MS, IWM Department of Documents ref. 95/6/1.

¹³⁷ Kemp suggests that *Nigeria* may have hit a drifting Soviet mine. Vian: 1960 pp 71-73. Kemp 1993.

¹³⁸ Given the weakness of the German garrison in Finnmark, AJAX might, as Thompson suggests, have met with initial success. But the Navy's reluctance is hardly remarkable given their losses at Crete in May 1941. Without adequate carrier- or land-based air cover, it is likely that the maintenance of a foothold at Tromsø would have involved heavy losses. The plan, in any case, depended on the intervention of a large Norwegian Resistance Army which was then little more than a figment of Churchill's imagination. See *From Neutrality to NATO - The Norwegian Armed Forces and Defense Policy 1905-1955* by David Thompson p. 225. See also Salmon (ed.): 1995 paper by Einar Grannes, p. 110.

'The intention was to use Skjelfjord as a temporary anchorage and Kirkefjord as a temporary fuelling base for our forces operating against the enemy's lines of communication in North Norway as long as conditions render this possible.' A direct assault by 12 Commando was to be carried out on the towns of Reine and Moskenes, the village of Tind and the hamlet of Napp.¹³⁹

And, in a memorandum written two weeks before the force sailed, the ANKLET naval commander, Rear Admiral Hamilton, wrote,

It is intended during the progress of Operation ANKLET to inflict the maximum possible damage to the Norwegian fishing industry. This industry is force [sic] to supply much fish, fish oil and meal and essential vitamin products to Germany. The policy I intend to adopt is to destroy such fish oil factories as come my way, to capture or sink fish carriers and factory ships and sail such fishing boats as can make the passage back to the United Kingdom.¹⁴⁰

Oddly, in view of the range of targets to be destroyed, Hamilton continues, 'The above should have the effect of causing the least harm to the Norwegians and the most to the Germans.'

Prior to the arrival of the ANKLET force, SOE intended that,

About six Norwegian fishing craft will proceed from the Shetlands to penetrate the fjords from Bodo south to Ranenfjord with the object of destroying the navigational facilities in the inner leads. These operations will be timed to take place on the night previous to the arrival of Force J in Vestfjord. Those fishing craft will subsequently proceed to Reine.¹⁴¹

SOE suggestions for ANKLET included the destruction of ferries, rallying fishermen around Reine, 'to commit every form of nuisance and hindrance to the enemy...to provide guides and thugs for any operations the Force Commander may wish to undertake.' Navigation lights in the Leads and the observation post and the wireless station at Rost were to be destroyed. After the arrival of the ANKLET force, SOE planned to land a wireless operator at Hameroy to report on shipping movements.¹⁴²

Force J for ANKLET comprised the cruiser *Arethusa*, the destroyers *Somali*, *Ashanti*, *Tartar* and *Matabele*, the Hunt class destroyers *Krakowiak*, *Kugawiak*, *Lamerton* and *Wheatland*, the Norwegian corvettes *Acanthus* and *Eglantine*, the sweepers *Harrier*, *Halcyon* and *Speedwell*, the survey ship *Scott*, the tug *Jaunty* and the oilers *Black Ranger* and *Grey Ranger*. The assault force was made up of 223 officers and men of 12 Commando and included 3 officers and 62 ratings of the Norwegian Navy and one British officer and two ORs all under the SOE banner, and six officers and 72 ORs of the Norwegian Army. It was to be carried in *Prince Albert* and *Princess Josephine Charlotte* each of which carried three LCAs, one LCS and four R boats. *Gudrun Maersk* carried supplies including 1,000 tons of naval ammunition, 500 tons

¹³⁹ ADM 116 4381

¹⁴⁰ DEFE 2 73.

¹⁴¹ ADM 116 4381.

¹⁴² HS 2 198.

of victuals, moorings, camouflage and 50 tons of supplies for the locals such as flour, chocolate and cigarettes.¹⁴³

While ANKLET was not expected to meet heavy resistance, Vågso and Måloy islands were known to be defended. The ARCHERY force from 3 Commando was carried in the assault ships *Prince Charles* (Lieutenant Colonel John Durnford-Slater with 14 officers and 190 ORs) and *Prince Leopold* (Major Jack Churchill with seven officers and 132 ORs and Lieutenant R. A. Clement with two officers and 43 ORs). The force was led from the cruiser *Kenya* by Rear Admiral Harold Burrough with Brigadier Charles Haydon, Brigade HQ and a signal section. Captain R. A. Hooper with two officers and 64 ORs were aboard *Kenya* and *Oribi*, one of four escort destroyers, carried a landing party of one officer and 43 ORs. The balance of the escort comprised *Onslow*, *Offa* and *Chiddingfold*.¹⁴⁴ The ANKLET force boarded *Winchester Castle* at Greenock on 12 December and sailed for Inveraray, anchoring in Loch Fyne at 1300/13. The Advance HQ and A, B, and E troops comprising 14 officers and 210 ORs were then transhipped to *Prince Albert* and the Rear HQ and C, D and F troops comprising 10 officers and 176 ORs boarded *Princess Josephine Charlotte*. Also taken aboard *Prince Albert* were one officer and 10 naval ratings from the new Combined Operations Signal School at Inveraray to act as beach signal parties. The assault ships sailed for Scapa the following afternoon, but *Princess Josephine Charlotte* was forced to turn back due to engine trouble and was towed upriver to Plantation Quay for repair while *Prince Albert* continued north.

The ARCHERY force sailed down Loch Fyne aboard *Prince Charles* and *Prince Leopold* on the afternoon of 19 December after a brief period of training at Inveraray. They too were bound for Scapa where landing rehearsals were to be carried out by both forces, but the four days at Scapa were dogged by dreadful weather. The weather was still bad when the ARCHERY force left Scapa Flow at 2100/24 and Captain Bill Fell commanding *Prince Charles* wrote:

West of Orkney we ran into extremely heavy weather, which reduced our speed to 12 knots...The ship was labouring badly and the soldiers were once again reduced to a state of collapse...I felt the ship could easily break her back and accordingly eased down to eight knots. *Prince Leopold* overtook us and, passing along our port beam, happened to roll towards us as we rolled towards her. We were able from our respective bridges to see down each other's funnels to the furnaces below, and it was not a very pleasant sight.¹⁴⁵

Her fore ends filling due to strain on the hull, *Prince Charles* limped into Sullom Voe, the rest of the force following suit in search of shelter. After a two-day delay which threw out the synchronised timetable for the two operations, the ARCHERY force sailed again at

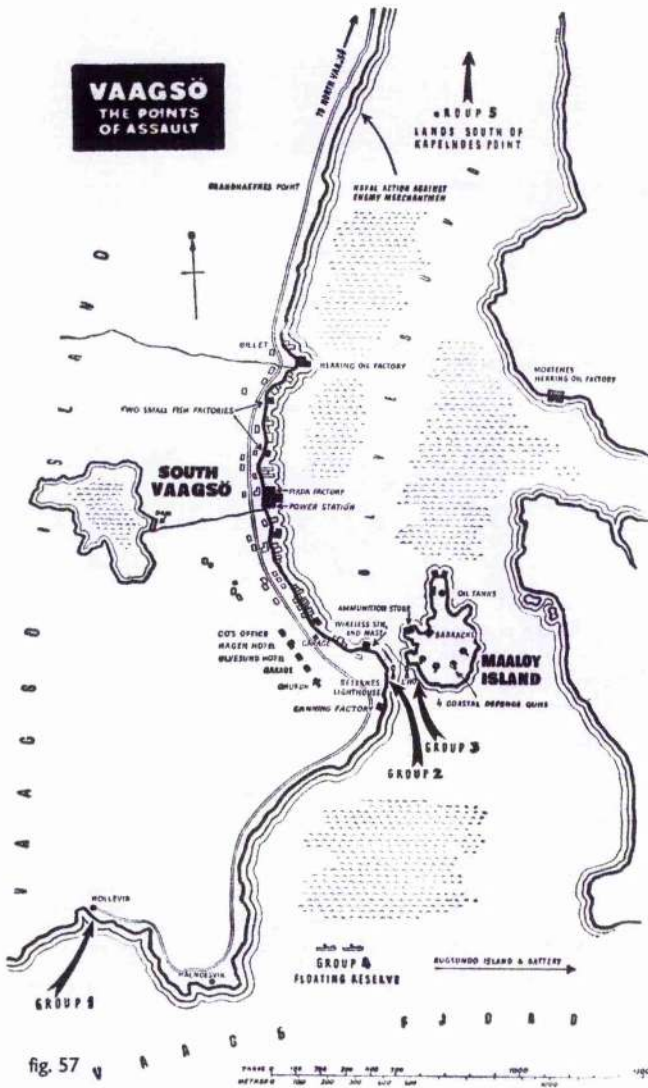
¹⁴³ DEFE 2 73. ADM 116 4381.

¹⁴⁴ HS 2 225. ADM 234 380.

¹⁴⁵ Fell : 1966 p. 84.

1400/26.¹⁴⁶ Ahead of them, from Scapa on 23 December, had gone the submarine *Tuna* which was to act as a navigational beacon off Vågsfjord.¹⁴⁷ *Tuna* commenced transmitting at 0605/27 and, at 0739/27, the OOW in *Prince Charles* sighted her conning tower.¹⁴⁸ *Prince*

Charles and *Prince Leopold* hove to in Hollevik Bay at 0840/27 and, in two minutes, sixteen fully-loaded landing craft were waterborne and under way.¹⁴⁹ *Kenya* and the destroyers bombarded batteries on Måloy and Rugsundoy, though Rugsundoy battery returned fire on *Kenya* just before 0900/27. Brigadier Haydon called in RAF Hampdens to drop 60lb phosphorus smoke bombs ahead of the landing craft, but one fell short, causing 20 casualties in one LCA one of whom later died. One Hampden was shot down in flames close to *Prince Leopold* at 0852/27. Three men were picked up, one conscious, but two died.¹⁵⁰ Måloy Battery of four ex-Belgian 75 mm field guns having been given what Young describes as 'a severe plastering' by *Kenya*, was swiftly taken by Group 3 under Churchill and, following his signal at 0920/27,



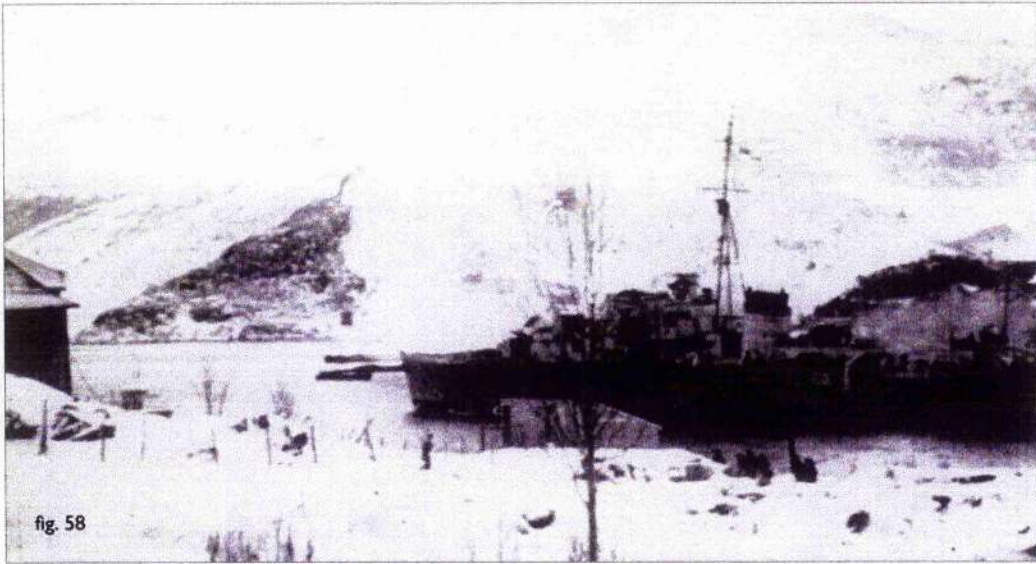
¹⁴⁶ Ibid. p. 85.

¹⁴⁷ *Tuna* carried an American observer, Lieutenant D. G. Irvine USN. Information from the Royal Navy Submarine Museum, HMS *Dolphin*.

¹⁴⁸ ADM 234 380.

¹⁴⁹ Young : 1958 p. 37. Fell : 1966 p. 86.

¹⁵⁰ The part played by RAF aircraft, which provided continuous cover for seven hours, was a model for later amphibious assaults. Aside from the initial wave of Hampdens from Wick, Blenheims and Beaufighters from Wick and Sumburgh mounted sorties over the area during the day and carried out a bombing raid on Herdla airfield. The first sortie of four Blenheims took off from Wick at 0657/27 and lost two 254 Squadron aircraft. One crashed soon after take off and one simply disappeared. The two survivors, both from 404 Squadron, returned to Wick at 1257/27. The second sortie by four 235 Squadron Beaufighters from Sumburgh drove off a JU88 over Vågsø, but was engaged by Me109s which shot one of their number down. The third sortie of three 236 Squadron Beaufighters damaged an Me110 at 1255/27, but lost one aircraft, and the fourth sortie was uneventful. The final sortie by four 248 Squadron Beaufighters took off from Sumburgh at 1321/27 and relieved the third at 1445/27. Ten minutes later it engaged a force of three Me110s escorted by three Me109s, claiming two destroyed. This sortie escorted the naval force out to sea and returned to Sumburgh at 1715/27. HS 2 225. DEFE 2 83. Fergusson : 1961 pp. 106-108.



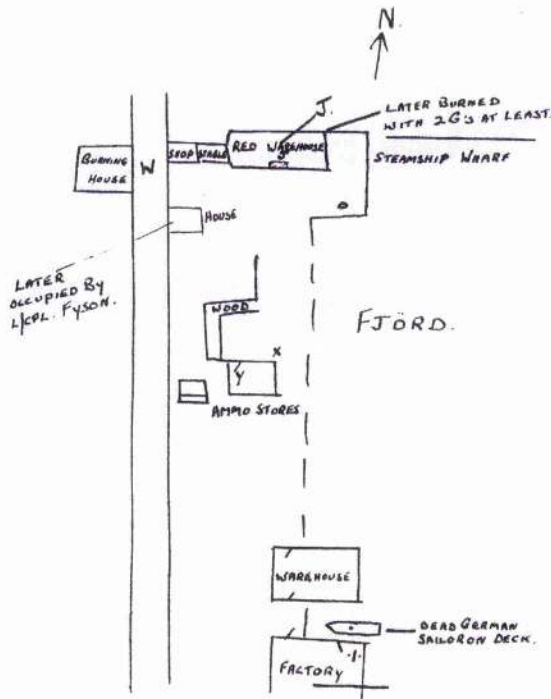
Onslow leading *Oribi*, under fire, through the narrows between Vågso and Måløy. They moved up Ulvesund, landed a party of Commandos north of the town, then engaged the merchant ships *Reimar Edzard Fritzen* and *Norma*, the armed trawler *Fohn* and a former Dutch schuyt *Eissmeer*. And, as described in Chapter Four, under fire from the shore, Bletchley Park cypher specialists carried aboard *Onslow* boarded the armed trawler *Fohn* and retrieved two sackfuls of signals intelligence including two sets of Enigma bigram tables and five rotors.

Oribi and *Onslow* passed through taking Group 5 to land at North Vågso at 1020/27.

Group 2 under Durnford Slater landed at the south end of Vågso and, as they moved into the town, met stiff resistance from infantry in houses and snipers on the hillsides above. Casualties, as usual in street fighting, were heavy and Norwegian Captain Martin Linge was killed while attacking the German HQ in the Ulvesund Hotel.¹⁵¹ Meanwhile, a half-troop under Captain Peter Young were crossing Ulvesund from Måløy in an LCA, ordered by Churchill to help the main body in South Vågso who were taking casualties. Their officers and NCOs killed or wounded, men had taken cover behind houses and the advance into the town had halted in the face of determined opposition. At a hurried conference opposite the burning Ulvesund Hotel Durnford Slater ordered Young to lead an advance through the warehouses between the road and the fjord. Young wrote:

¹⁵¹ Sergeant Ruben Larsen reported that he, Private Vedaa and Linge landed from the LCA that had been hit by the smoke canister. Linge and Larsen took a party towards the German HQ, taking what Larsen described as 'considerable risks' in order to get there before the Germans could destroy documents and other valuable intelligence. Linge ordered his men to throw grenades and rushed the building. Larsen wrote;

Captain Linge was very keen on doing this, but he did not take into consideration that the troops did not like the idea at all. When we reached the hotel we discovered that there were still a lot of Germans there. We retreated and went round a corner where we stopped for a few seconds. Suddenly, without any warning, a bullet hit Captain Linge. I tried to get away when another shot was fired, probably meant for me, which also hit him. I then took cover behind the entrance to the hotel. HS 2 225.



- J. O'Flaherty & Sherington shot.
 i. L/Cpl. Halls and Lewinton, 3rd Floor.
 X. Sgt. Hughes and Tpr. Clark hit.
 Y. 3 Germans taken.
 O. Dead German sailor.
 W. Dead German sailor and wounded German soldier.

fig. 59

[Lieutenant] O'Flaherty warned me to be careful how we crossed the open ground where lay the body of Sgt. Greear for there were snipers covering it from the hill higher up. I now began to realise that this was not going to be a picnic as was the Lofoten raid...¹⁵²

Young's party took the building marked 'Ammo Store' on his map, a sanitised version of which appeared in his book *Storm From The Sea* (Young : 1958), and moved on to the Red Warehouse where they got into a firefight with at least two Germans inside. Grenades were exchanged, but the Germans retreated to the upper floors. Lieutenant O'Flaherty and Trooper Sherington attempted to rush the stairs but were injured by Germans firing from an inner room.

Both men managed to stagger out,

then petrol was thrown in and the warehouse set alight. One German stuck his head out of a window and was immediately shot, another staggered out of the door, then fell dead. A grenade thrown at Durnford Slater's party injured three men seriously, and Durnford Slater slightly.¹⁵³

Meanwhile, *Onslow*, *Offa*, *Chiddingfold* and *Oribi* had sunk or damaged *Anbalt* (5,870T), *Reimar Edvard Fritzen* (2,936T), *Anita L. M. Russ* (1,712T), *Norma* (2,258T), the schuit *Eismeer* (1,000T), a small coaster, two armed trawlers and a tug.¹⁵⁴ Canning factories and other smaller plants had been wrecked, the wireless station was destroyed, the Rodberghe telephone exchange was smashed, the Saternes Lighthouse mecha-



3 Commando troops ashore in South Vågso

¹⁵² Ibid.

¹⁵³ Ibid.

¹⁵⁴ Witthoft : 1971 pp. 222, 223, 313 and 333.

nism was ruined and the telephone cable hut on Måloy was burned as were petrol tanks and vehicles. Guns and ammunition were destroyed, the German barracks and Ulvesund Hotel were burned down and the road between North and South Vågso was cratered.

The ARCHERY force, which sailed at 1600/27, had lost 20 dead and 57 wounded. About 150 Germans were killed and 98 were captured, among them six German merchant navy officers, 36 merchant navy ratings and 15 Kriegsmarine ratings. Four quislings were also taken. Seventy-seven Norwegian loyalists returned with the assault force. Two Heinkels bombed the ships as they left, one bomb bursting about 60 feet ahead of *Prince Charles*, tripping her dynamos, but the ships reached Scapa 24 hours later without further incident.¹⁵⁵

And what of ANKLET? Repairs effected, *Princess Josephine Charlotte* had rejoined at Sullom Voe on 22 December and the force sailed for the Lofoten Islands that afternoon. Once again, *Princess Josephine Charlotte* reported an unserviceable extractor pump and was ordered to return.¹⁵⁶ The submarine *Tigris* had sailed Scapa on 19 December for a position south of Røst Island where she was to act as navigational beacon. Her transmissions were heard shortly before midnight on Christmas Day and the assault force was at the rendezvous off Glåpen Light early on Boxing Day.¹⁵⁷

The non-arrival of *Princess Josephine Charlotte* and the troops she carried led to a hurried re-draft at sea with the attacks on Reine, Sorvaagen and Sund being amended. *Prince Albert* arrived off Reine at 0715/26 and lowered one LCM, two LCAs and one R boat for the attack on the town. The LCM carried Lieutenant Colonel Harrison of 12 Commando, Lieutenant Commander Hugh Cartwright of *Prince Albert*, troops and signallers to act as HQ craft. Each LCA carried half a troop of 12 Commando with Norwegian forces personnel and the R boat held an SOE party of Norwegians under Major Watt Torrance. Close behind was the corvette *Eglantine* ready to give covering fire.¹⁵⁸

At 0815/27 the flotilla crept into the harbour and, while the LCS lay off to give covering fire, one LCA crossed to Andoy Island and the other two LCAs drew alongside the pier and disembarked troops. Complete surprise was achieved and, within 15 minutes, the telephone exchange had been taken over and a sweep of the town had revealed no Germans present. Andoy was likewise free of enemy troops, so the telephone cable was cut and the Commandos withdrew. Meanwhile, escorted by *Acanthus*, two R boats with 23 men of 12 Commando, ten Norwegian Commandos and the Naval Beach party of one officer and

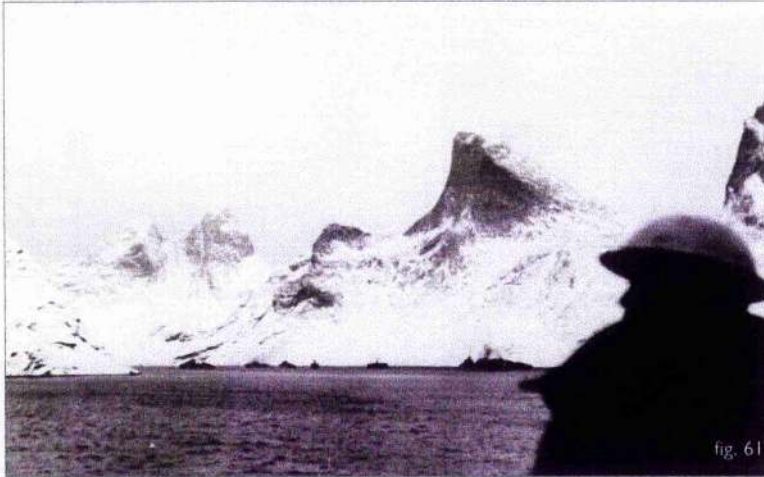
¹⁵⁵ HS 2 199. HS 2 225. DEFE 2 83. Young : 1958 pp. 54-57. Fell : 1966 pp. 92-94 and 96-97.

¹⁵⁶ She had not gone far and reached Scapa at 1733/22. DEFE 2 73. WO 218 28.

¹⁵⁷ DEFE 2 73.

¹⁵⁸ Cartwright's and Torrance's reports in DEFE 2 73.

eight ratings had left *Prince Albert* for the village of Sund which they rapidly secured.¹⁵⁹ Locals at Reine had told Torrance of a party of German troops at Sorvågen so Reine was secured with a small garrison. The LCS and LCAs were then recalled to *Prince Albert* which proceeded to Sorvågen where a half troop of Commandos surrounded Glåpen Lighthouse,



The ANKLET force entering Kirkefjord.

capturing eight Germans without a fight. The destroyer *Bedouin* had meanwhile landed a small party at the village of Napp but discovered it clear of Germans.¹⁶⁰

Arethusa, *Somali*, *Ashanti* and *Eskino* swept up Vestfjord as far as Tranoy and captured the Norwegian coasters *Kong Harald* and *Nordland* and the German patrol trawler *Geier*. The latter was sunk by scuttling charge at 1345/26 after her crew of 4 officers and 13 ratings had been taken prisoner, and she had been successfully searched for Enigma material. The former two were sent into Reine with prize crews.¹⁶¹

But the assault flotilla was clearly visible to Germans in Glåpen Lighthouse and they wasted no time in signalling its presence. The first enemy aircraft appeared on the morning of 26 December, passing over *Lamerton* off Sorvågen, *Prince Albert* off Reine and the sweepers in Vestfjord. Another reconnaissance floatplane appeared shortly after noon the following day and dropped one bomb close to *Arethusa*.¹⁶² The initial Luftwaffe response may have been weak, but that night Hamilton received news that, 'the Germans were sending considerable air reinforcements, including dive-bombers, to Bodø and North Norway. I therefore decided to leave during the coming day.'¹⁶³ The last troops left Reine at 1245/28

¹⁵⁹ WO 218 28.

¹⁶⁰ Ibid.

¹⁶¹ ADM 116 4318. DEFE 2 73.

¹⁶² Ibid.

¹⁶³ The information was in two Admiralty signals sent at 1904/27 and 2256/27 and the Luftwaffe moves were assumed by Hamilton to be the result of ANKLET. See *ANKLET – Narrative of Events* in DEFE 2 73.



Ashanti with the patrol trawler *Geier* alongside. As described in Chapter Four, *Geier* was another valuable source of Enigma intelligence, yielding a complete encypherment machine, the latest sets of bigram tables and other codebooks. This haul, along with the similar material taken during ARCHERY allowed Bletchley Park to read German surface ship signals for the rest of the war. Arguably at least, the real, lasting value of the raids to Norway in 1940-41 lay in these signals intelligence captures, though the historian should beware of any temptation to overstate the importance of Enigma decrypts to the Allied conduct of the war at sea.

and the force sailed shortly afterwards, taking with them 29 German prisoners, six quillings and 266 Norwegian volunteers.¹⁶⁴

The decision to leave was controversial, both among civilians who had committed themselves to the Allied cause and among the troops involved. Disgusted at what they saw as betrayal, 12 Commando Lieutenants Pinkney and Jeffries seized the cameras carried by reporters and threw them overboard.¹⁶⁵ Churchill too was indignant at the seemingly precipitate withdrawal, but the fault lay in the planning of an operation which sent vulnerable ships and men far into enemy territory without air cover. Too many ships had been lost to air attack during the first Norway operation, Dunkirk and Crete to risk a another such debacle. Hamilton and Tovey were entirely correct in withdrawing.¹⁶⁶

Deeply flawed as it was, it would be wrong to characterise ANKLET as a fiasco. Hitler became more than ever convinced, as a result of the raids, that Norway was the 'zone of destiny' for the entire war and reinforcements of men, aircraft and ships were sent there. One direct consequence was the 'Channel Dash' when *Scharnhorst*, *Gneisenau* and *Prinz Eugen* broke through the English Channel from Brest after Hitler ordered a concentration of every available German naval vessel, including the new battleship *Tirpitz*, in Norway (see

¹⁶⁴ WO 218 28.

¹⁶⁵ Lovat : 1978 p. 227.



Chief of Combined Operations Commodore Lord Mountbatten aboard *Prinz Albert* in Loch Fyne during preparations for BITING. That autumn, in nearby Loch Long, Royal Marine canoeists trained for FRANKTON another operation to occupied France in which the Scottish CTCs played a central role. The inspiration behind this raid on German blockade runners in Bordeaux, came from Major Roger Courtney, whose role in the affair has never received the attention it deserves. In 1940, Courtney paddled out unobserved to the assault ship *Glengyle* off Inveraray and painted marks on her side to represent mines. Later, to prove his point that canoes had an operational role, he paddled down Loch Fyne to Strachur, portaged to Loch Eck, paddled to the south end, then portaged across to the Holy Loch where, still unseen, he left painted marks on the side of the depot ship *Forth*.

Chapter Six). He also ordered an anti-invasion patrol of six U-boats between the Hebrides and the Faroes, thus depleting the U boat force available for the Atlantic.¹⁶⁷

For the Norwegians, however, ANKLET proved a bitter pill when German reprisals, denunciations and arrests were visited on the Lofoten islanders. Commander Frank Stagg of the SOE Scandinavian Section wrote;

The population had been told that the British force had come to stay... All these people were hoping that the moment had at last come when the fight would be taken up once more, although the majority were rather sceptical as regards present operations developing. None were, however, prepared for the news that the forces were to flee without even having tried to fight; therefore when the news came about retreat it did not cause only deep disappointment, but also indignation and fury. The general opinion was that once more propaganda had been successfully achieved with nearly 100 per cent security for the military, whereas the landing would once more bring upon the heads of the remaining population the horrors of German reprisals.¹⁶⁸

Combined Operations, meanwhile, wanted a swift return to Norway, so swift that *Prince Charles* was back in Loch Fyne late on 1 January 1942 to embark men of 6 Commando for KITBAG, a raid on coastal targets and shipping at Florö. *Prince Charles* left Inveraray on 5 January and, after pausing in Yell Sound, Shetland, sailed for Norway escorted by *Inglefield*, *Intrepid*, *Wheatland* and *Lamerton*. Owing to a poor landfall, the force arrived too late to at-

¹⁶⁶ Roskill : 1977 p. 125.

¹⁶⁷ Minutes of Fuhrer Naval conferences 29 December 1941, 12 January 1942 and 22 January 1942 in Brassey : 1948 pp. 246-260. Also Wynn : 1998 p. 149.

¹⁶⁸ RVPS report quoted in Cookridge : 1966 p. 531

tack shore targets at Florö. It did penetrate Hellefjord, but found it clear of shipping and returned to Inveraray without engaging the enemy. Then it emerged that Combined Operations and SOE had used Norwegian personnel, including Linge Company commandos, without consulting Prime Minister Nygaardsvold's Norwegian government-in-exile. This caused much resentment but new Defence Minister Oscar Torp created the Forsvarets Overkommando (FO) in February 1942 and military liaison began to improve. Also that month, SOE and the FO began working in closer harmony through the Anglo-Norwegian Collaboration Committee (ANCC).¹⁶⁹

Large-scale raids to Norway ended with ANKLET and ARCHERY, but Inveraray played a central role in the planning and training for other important raids in 1942. Late in 1941, Air Ministry scientists identified a *Würzburg* radar station at Bruneval near Le Havre, and proposed a raid to steal parts of the equipment for analysis. Combined Operations HQ came up with a plan for the 2nd Battalion, the Parachute Regiment, a section of 1st Parachute Field Squadron, Royal Engineers, and an RAF Flight Sergeant Radar Mechanic to drop east of the installation, remove the equipment and make their way down to the beach from where they would be picked up by LCAs from *Prinz Albert*. Major John Frost and the BITING force of 120 men undertook a short course at Inveraray before the raid was launched on the night of 27 February 1942. The paratroopers successfully removed much of the apparatus under fire and took two prisoners, then made their way to the beach and the landing craft. Two were killed and seven wounded.¹⁷⁰

On 17 January 1942, decrypts revealed that the new German battleship *Tirpitz* had arrived at Trondheim. The threat to the Atlantic convoy routes was clear, but this could be significantly reduced if the battleship was denied docking facilities in France. A raid on the Normandie Dock at St Nazaire, the only facility on the French Atlantic coast capable of taking *Tirpitz*, had been considered during Keyes' time as DCO when the threat was *Tirpitz*' sister *Bismarck*, but had been abandoned as, to carry out worthwhile demolitions, the force would have to be several hundred strong and the shoals in the Loire estuary made a night approach by large vessels all but impossible.

Now the new danger posed by *Tirpitz* meant that CHARIOT was born. Combined Operations originally planned a clear-cut operation to ram the outer caisson of the Normandie Dock with a destroyer fitted with a demolition charge. Her crew would then be taken off by another destroyer. The assault force of 257 commandos was mainly drawn from 2 Commando based at Ayr with the addition of specialist demolition teams who trained for

¹⁶⁹ See Thompson *op. cit.* ch. 7 section entitled *The Nygaardsvold Government in Crisis* and ch. 8 section entitled *Commando Raids and Special Operations 1942-43*. Also Stafford : 1980 pp. 83-84.

¹⁷⁰ In September 1944, Frost would lead the defence of Arnhem Bridge during Operation MARKET GARDEN. Frost : 1980 pp. 37-55. Jones :1978 pp 302-321. *Combined Operations In Hitler's War* in *Naval Review* vol. 48 1960 p. 440-453.

the raid at Burntisland and Rosyth. But, while the initial CHARIOT concept was good, the plan grew rapidly to include a complex range of secondary demolition targets in the dock area for which the assault force was neither sufficient nor adequately equipped. And, despite the fact that the raid would be of principal benefit to them, the Admiralty refused to allocate two destroyers, only reluctantly parting with the old, ex-American *Campbeltown*. A second destroyer was refused, so the parties assaulting secondary targets had to rely on inadequate motor launches.

Bomber Command was asked to soften up the defences just before the attack went in at 0130/28 March, but the RAF commitment to Combined Operations in general, and CHARIOT in particular, was less than wholehearted and the small raid that was mounted failed completely, though it did alert the defences.¹⁷¹ Despite this, *Campbeltown* was successfully rammed into the caisson and blew up, putting the dock out of action until 1948. But the secondary assaults by the parties from the MLs failed totally, all but three being sunk, most before landing troops. CHARIOT was a success in that its primary objective, the Normandie Dock, was out of action and *Tirpitz* was thus confined to northern waters. This would, as seen in the following chapter, have a fundamental influence on Allied and Axis naval strategy, but the raid had been a costly affair with 169 of the 611 who took part being killed and another 200 captured. Amid the euphoria at the destruction of the dock and the din of propaganda that followed, alarm bells that should have warned against attacking well-defended ports with inadequate forces and insufficient tactical air support went unheard. This would have terrible consequences at Dieppe.¹⁷²

Singapore had fallen on 15 February 1942 and Rangoon followed on 8 March. These disasters in the Far East led to the revival of a plan for the capture of Vichy-held Madagascar which had been considered, then dropped in January 1942. Operation IRONCLAD, as it was known, was to be carried out by the 29th Infantry Brigade and 5 Commando supported by the 17th Infantry Brigade and the force sailed with WS17 from the Clyde in the assault ships *Winchester Castle*, *Karanja*, *Keren* and *Sobieski* at the end of March. The landings began at dawn on 5 May and were a complete success.¹⁷³

BITING, CHARIOT and IRONCLAD boosted confidence to a dangerous degree and, under pressure from Moscow, Washington and vocal left-wing elements at home advocating a second front to support Russia, Churchill ordered another operation. A large-scale landing

¹⁷¹ Air Chief Marshal Sir Arthur Harris took over at Bomber Command on 22 February 1942. Harris had little time for Combined Operations and was more concerned with strategic bombing and securing the resources to win the war on his own. The night after CHARIOT, 234 aircraft destroyed much of Lubeck. Terraine : 1985 pp. 468-480. Dorrian : 1998 pp. 112-115.

¹⁷² Dorrian : 1998. Roskill : 1956 p. 168-173. Article entitled *The Raid on St Nazaire* in *After The Battle* magazine no. 59, 1988. Horan *op cit*. For German reaction see Brassey : 1948 pp. 269-272.

¹⁷³ Fergusson : 1961 pp. 156-168.

on Alderney was considered, then rejected when Harris refused RAF bomber support. The assault on Dieppe, initially codenamed RUTTER, had its genesis early in 1942 and a meeting just over two weeks after CHARIOT considered two alternative plans, one for landings on either side of Dieppe and one for a frontal assault by, for the first time, troops from the regular army with commandos in support on the flanks. At a subsequent meeting on 25 April, Mountbatten, who was in the chair, came down in favour of the frontal assault.¹⁷⁴ RUTTER was planned for 24 June 1942, but muddled planning and inadequate training led to a postponement until 8 July. Finally, on 7 July, with the assault ships fully loaded in the Solent, and commanders considering a further postponement due to bad weather, four German aircraft attacked the convoy. Two assault ships were hit, though the bombs passed through without exploding. The air raid and the bad weather led to the cancellation of the assault, and the troops, who had been fully briefed, were dispersed.¹⁷⁵

But, even before RUTTER was formally abandoned, Mountbatten, who was eager to make good on his extravagant promise of regular large-scale raids, was arguing for the operation to be remounted.¹⁷⁶ And Churchill was due in Moscow on 12 August when he would have to tell Stalin that there would be no second front in Europe in 1942. He needed to be able to sweeten this bitter pill and at least appear to be taking pressure off the Red Army so, on 27 July, with American encouragement, the Dieppe operation was revived.¹⁷⁷ Security had been compromised by loose talk from troops disembarked a month earlier and Montgomery, originally to command RUTTER but now appointed to relieve Auchinleck in the desert, protested that it should be abandoned.¹⁷⁸ He was ignored, then the already risky plan, now rechristened JUBILEE, was altered in two fundamental and ultimately fatal respects. First the airborne landing to silence gun batteries ahead of the assault was replaced by flank attacks by Commandos, then the air bombardment, which Montgomery had insisted on, was dropped. As the Navy refused to commit cruisers or battleships in the Channel, bombardment would be restricted to the four-inch guns of the eight escorting destroyers.¹⁷⁹

The story of bloody, disastrous Dieppe Raid is well known and needs no recounting here.¹⁸⁰ Of 4,963 Canadians involved, 907 died and 1,874 were captured, and 586 returned wounded. British casualties were 226 killed and 475 missing or captured. Twenty-eight

¹⁷⁴ Roskill : 1954 pp. 239-243. Lovat : 1978 pp. 238-246. Lamb : 1993 pp. 171-172. Horan *op cit*.

¹⁷⁵ *Ibid*.

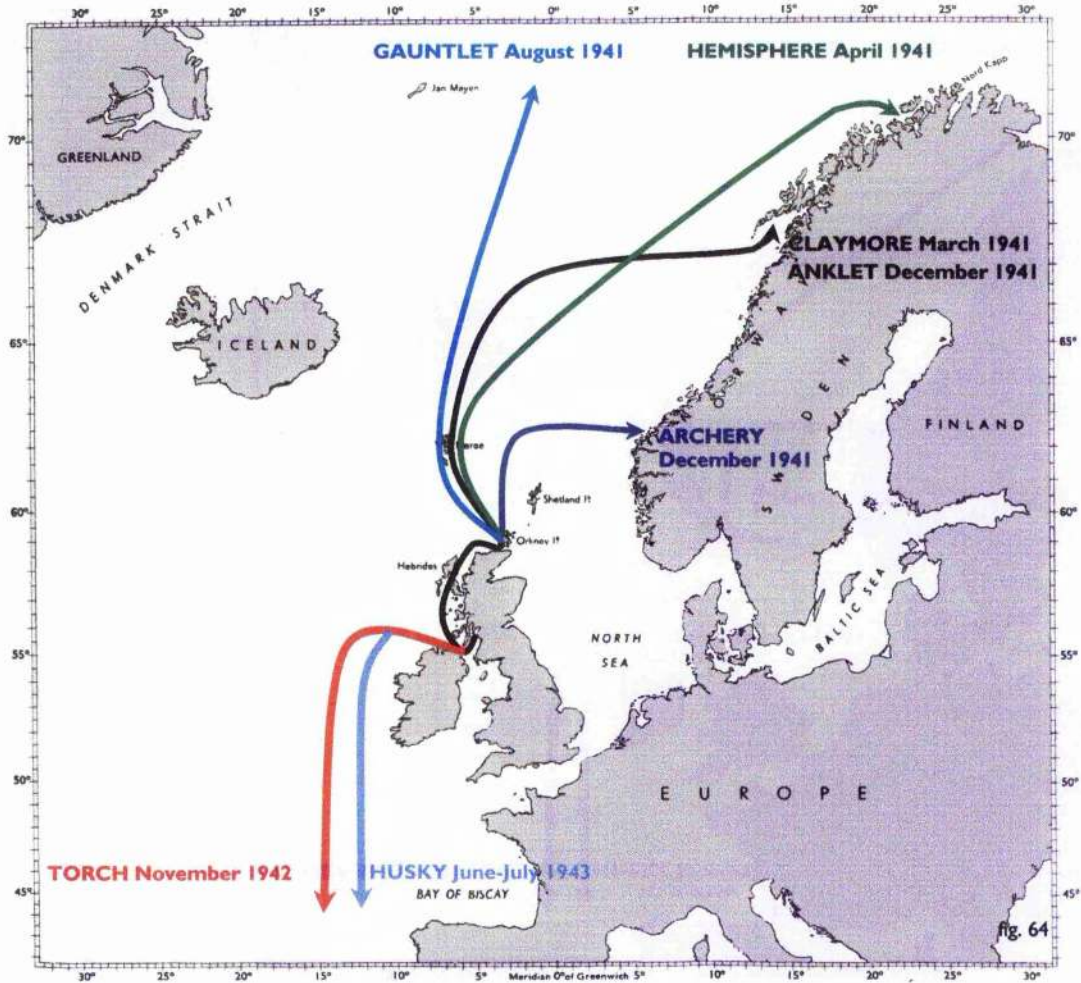
¹⁷⁶ *Prelude to Dieppe. Thoughts on Combined Operations Policy in The Raiding Period*. Paper by Barry Hunt and David Schurman in *Naval Warfare in The Twentieth Century*. Gerald Jordan (ed.) (Crook Helm 1977)

¹⁷⁷ *The British Chiefs of Staff Committee and the preparation for the Dieppe Raid, march – August 1942. Did Mountbatten really evade the Committee's authority?* Paper by Peter J. Henshaw in *War in History* vol. 1 no. 1 (1994).

¹⁷⁸ Lamb : 1993 p. 171.

¹⁷⁹ *Ibid*. Roskill : 1954 p. 243 for naval forces.

¹⁸⁰ Lovat : 1978 has four chapters (15-18) on the Dieppe Raid, the last of which is probably the best analysis of why it went so badly wrong.



Amphibious raids and major landings mounted direct from Scotland during the Combined Operations raiding phase and up to HUSKY, the Sicily invasion. This does not show landings like IRONCLAD, CHARIOT and JUBILEE mounted indirectly by, or heavily dependent on, Scottish based naval and land forces.

Churchill tanks were left behind, at least one in full working order, as were landing craft, radio sets and weapons.¹⁸¹ Despite the efforts of Mountbatten and his apologists, and even with the benefit of hindsight, Dieppe was an eminently avoidable disaster. The raid was never the dress rehearsal for OVERLORD it has since been passed off as, nor did it forestall a potentially disastrous disastrous foray into France in 1943. Churchill had decided to press for the abandonment of American plans for cross-channel assault after RUTTER was abandoned, but before JUBILEE was launched.¹⁸² It was initiated on a whim to appease Stalin, it was badly planned, the lessons of previous operations were ignored and it was expected. The flotilla seen by enemy aircraft in July could only have had one purpose and the enemy

¹⁸¹ Casualty figures from Roskill : 1954 pp. 247 and 250 and from *Dieppe 1942* article in *After The Battle* magazine no 5 1974.

¹⁸² *Prelude to Dieppe. Thoughts on Combined Operations Policy in The Raiding Period.* Paper by Barry Hunt and David Schurman in *Naval Warfare in The Twentieth Century.* Gerald Jordan (ed.) (Crook Helm 1977)

was perfectly capable of divining when and where such a raid might be mounted. Indeed, as Lovat writes, enemy troops were on special alert against possible landings during suitable tides between 10 and 19 August.¹⁸³

But one of the principal failings of JUBILEE lay in the fact that the wrong troops were used. While the established services were reluctant to release their best formations for raids, General McNaughton was eager to prove his 1st Canadian Army in the operation. The Canadians had not, however, been to Inveraray for assault training and many of the failings on the Dieppe beaches arose as a direct result.

THE MAIN EVENT TORCH, HUSKY, THE RATTLE CONFERENCE AND OVERLORD.

As you have been told, I am here incognito – and that is something quite contrary to my usual habit. I just want to tell you that you are the luckiest bunch of guys in the world to have arrived here just now. And, as you well know, not a God-darned son-of-a-bitch could have arrived but for the Navy and Air Force who've brought you across safely. You won't have long to wait before you start to do what you came here for, and that is to kill Germans. My only advice to you at this moment is therefore just to go in and kill the bastards. Thank you.

General George Patton to US 3rd Army officers, Greenock, 28 January 1944.¹⁸⁴

For most of 1941 and, in particular, since BARBAROSSA in June, Churchill had been advocating a risky invasion of Norway under the codename JUPITER to take pressure off the Red Army. But the entry of the United States into the war in December 1941, immediately prior to ANKLET and ARCHERY, changed everything. At the ARCADIA conference in Washington at Christmas 1941, Churchill secured American agreement for a 'Germany first' policy and the creation of a Combined Chiefs of Staff. He also floated JUPITER with the Americans but, much to the relief of their British counterparts who were equally unenthusiastic, the plan attracted no support. GYMNAST, a proposal for an invasion of Vichy North Africa, was also discussed.

Stalin, meanwhile, continued to pressure for a second front and, as protracted discussions between the British and Americans ground on into 1942, two main options emerged. The Americans promoted ROUNDUP, a plan for an invasion of Europe in 1943 which would then allow concentration on the Pacific, and SLEDGEHAMMER, an emergency cross-Channel assault in 1942 should the situation in the Soviet Union deteriorate dangerously. And, as seen above, in scaled-down form, SLEDGEHAMMER became the catastrophic JUBI-

¹⁸³ Lovat : 1978 p. 478. At a Chequers dinner party shortly after Dieppe, and in Churchill's presence, CIGS General Sir Alan Brooke clashed with Mountbatten, telling him that the planning for Dieppe had been all wrong. The row simmered on but was hushed up. In his Lees Knowles lecture given at Cambridge in 1943 and quoted in *The Keyes Papers* part III fn. 88, Keyes was unusually restrained in his comment on JUBILEE. He said:

This generation was taught afresh at Dieppe the lessons which were indelibly impressed on the memories of all who witnessed at Gallipoli, on 25 April 1915, the heroic but unsuccessful and costly efforts to capture in daylight a much less heavily defended beach than that of Dieppe.

¹⁸⁴ Patton quoted in Yeo MS, IWM Department of Documents ref. 95/6/1.

LEE, ostensibly at least a measure to reduce pressure on the Red Army.

There were not enough landing craft to mount an attack in sufficient strength to have any bearing on events in Russia. On the other hand, supply lines to India and the Middle East would be considerably shortened were the whole North African coast to be in Allied hands. Malta would be saved and shipping would be released for BOLERO, the build up of American forces ahead of the invasion of France. The Americans viewed the possibility of German control of West African ports with alarm, not least as this would threaten their eastern seaboard supply routes. Above all, though, Roosevelt wanted his inexperienced forces in action as soon as possible. Ignoring the advice of military chiefs who believed, correctly as it turned out, that TORCH would make ROUNDUP impossible in 1943, Churchill and Roosevelt pushed the North African operation through in July 1942. Churchill persisted with JUPITER into 1942 but, without American support, the plan was reduced to a deception to cover TORCH, the renamed GYMNAST. As discussed in Chapter 6, the threat to Norway was maintained as a series of deception operations, naval operations and minor raids until OVERLORD in 1944.¹⁸⁵

The Vichy authorities harboured deep resentment against the British for the sinking of French ships at Oran and Mers el Kebir in 1940, but Roosevelt in particular believed that they would offer minimal resistance to an American force. The British thought this naïve, though dressing British troops in American uniforms was considered, then rejected.¹⁸⁶ BOLERO movements of US troops to the Clyde had reached almost 82,000 by July and a further 260,000 were expected by the time TORCH was launched.¹⁸⁷

Three landings were planned and D-Day was set for 8 November. The all-American Western Task Force would come direct from the United States to land on the Atlantic coast near Casablanca. An Eastern Naval Task Force of British and American ships under Rear Admiral Harold Burrough would land 9,000 American troops followed up by two brigades of the British 78th Division and 1 and 6 Commandos to attack Algiers. Military Command of the eastern assault was given to an American, Major General Charles Ryder.¹⁸⁸ The Centre Naval Task Force under Commodore Tom Troubridge was to land 18,500 men of the 18th, 26th, 39th and 168th US Regimental Combat Teams under Major General Lloyd Fredendall at Oran.¹⁸⁹

The GIs had no experience of amphibious operations, so the 168th and the 26th were

¹⁸⁵ Lamb : 1993 pp. 166-168, Salmon (ed.) : 1995 papers on JUPITER by H. P. Willmott and Einar Grannes pp. 97-117.

¹⁸⁶ Sainsbury 1976 p. 132.

¹⁸⁷ MT 63 570.

¹⁸⁸ Fergusson : 1961 p. 201.

¹⁸⁹ The placing of American ships and men under British naval command was done in the face of bitter opposition from the anglophobic American C-in-C Admiral Ernest King who wanted priority for the Pacific

brought to Inveraray, the 168th arriving on 20 August and the 26th on 22 September.¹⁹⁰ The standard assault brigade groups syllabus was followed, though, perhaps in an effort to make the GIs feel at home, the landing exercises were renamed BROADWAY, BRONX and MANHATTAN.¹⁹¹ Despite this faintly patronising gesture, or perhaps even because of it, there was little meeting of minds with CTC staff. According to Morrison, the 39th, 'shoved off for the Mediterranean without having had a real landing rehearsal,' and Captain Campbell Edgar of US Naval Transport Division II found Inveraray 'not well suited for this type of training,' as the Argyllshire coastline had little in common with North Africa. He wrote that all the ships got out of the exercises was badly needed experience in hoisting and lowering assault craft.¹⁹²

Training in Scotland for TORCH culminated in MOSSTROOPER and FLAXMAN, dress rehearsals for the Centre and Eastern Task Forces. The schemes were, 'to exercise fully all ships, units and RAF units taking part in the assault in Combined Operations,' a veiled reference to TORCH, and the exercise orders refer to both the Centre and Eastern Task Forces as such. Special attention was to be paid to communications as, for the first time, British and American forces were to work together. Scotland was 'hostile' territory and Oban and Loch Gilp were heavily defended ports from which U-boats were attacking Allied convoys. 'Enemy' aircraft, actually Lysanders, Ansons and Mustangs, were operating from 'airfields' at Dalmally and Tyndrum.

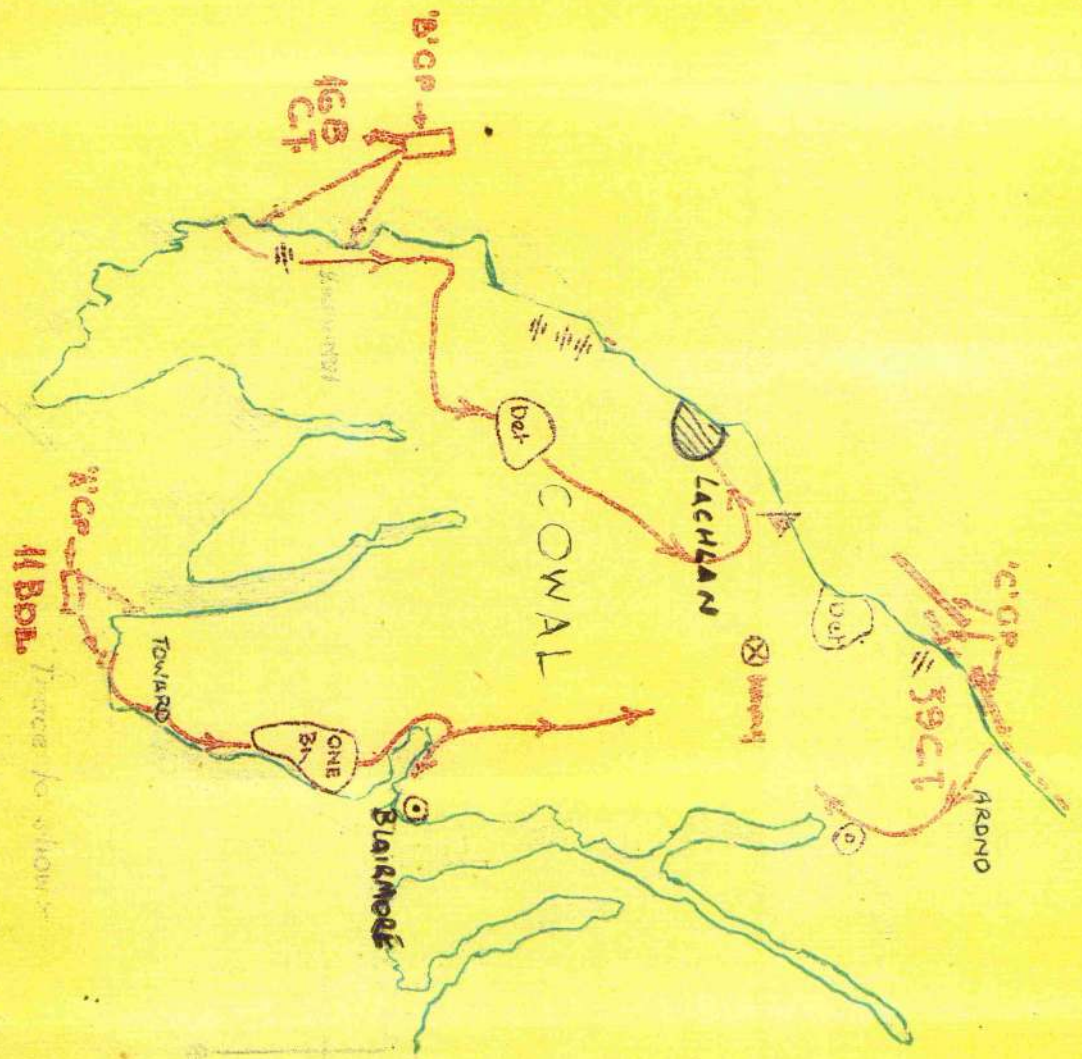
The MOSSTROOPER force was largely made up of units that would form the Centre Task Force for TORCH. An armoured task force was to land on the west side of the Gareloch, then seize airfields at Arrochar, Dalmally and Tyndrum before joining up with other forces attacking Oban. The 26th RCT was to land at Minard and take Loch Gilp, reducing coastal artillery positions on the way. The 18th RCT and a battalion of US Rangers was to land at Duror and march south to Oban, seizing a coastal battery at Port Appin on the way. The 16th RCT and an Armoured Task Force was to land at Kentallen and move inland to join up with the forces attacking Tyndrum and Dalmally. The enemy was believed to comprise two regiments of infantry with battalions disposed at Dalmally, Loch Gilp and in the Appin area and a regimental HQ at Oban which was 'strongly defended'.

The FLAXMAN force was made up of units destined for the Eastern Task Force for TORCH. It included the 11th (British) Infantry Brigade which was to land between Toward Quay and

¹⁹⁰ DEFE 2 713.

¹⁹¹ Ibid.

¹⁹² In fairness, the 39th only reached Belfast in *Samuel Chase, Almaack and Leedstown* on 6 October. There is also evidence that many of the Americans, in particular their officers, were unwilling to learn, and attitude that began to change on the beaches of North Africa. These were the last American formations to pass through Inveraray, though the 1st US Rangers also underwent training at the Commando Basic Training Centre, Achnacarry, and the Combined Operations boatwork school at Dorlinn in 1942. DEFE 2 713. DEFE 2 714. Morrison: 1947 vol. 2 *Operations in North African Waters* p. 193.



Red : Assault Troops.
 Blue : Defending Troops.

Exercise with the general situation PLAXMAN

Reference Map 14 to find details

Place to show
 Course of river
 Position of LACHMAN
 AEROPLANE



LOCH LINNIES

GR
 DIV
 16 CT

BRA
 GR
 18 CT

OBAN
 Regt H.Q.
 R.L.C.Y.L.L.

16 CT

ALND CT.

ACHALLDEN

ALND CT.

ALND CT

ONE BN

INVERARAY

LOCH AVE

ALND CT

X RAY
 X-C

YORKER

DET
 1 DIV
 26 CT
 LOCH GILP
 ONE BN

Port Lamont, capture the supposed airfield at Blairmore, then march north to the Whistlefield Inn from where they were to be ready to link up with the American 39th RCT which was to land at Ardno and march south to capture an airfield at Lochgoilhead. The 168th, meanwhile, was to land between Ardmarnock Bay and Kilfinan Bay and move north via Glendaruel, destroying coastal batteries on the way, then link up with the other assault troops and attack the 'port' of Lachlan in Lachlan Bay. 'Hostile' forces consisted of two battalions and artillery in the Lachlan area with detachments at Glendaruel and Strachur, another battalion near Dunoon and coastal defence batteries at Kilfinan and Lephinchapel. As in MOSSTROOPER, defending forces were provided by the British 4th Division.¹⁹³

Exercise Directors for MOSSTROOPER were Commodore Troubridge and American Lieutenant General Hartle in the Headquarters Ship *Largs*, those for FLAXMAN were Rear Admiral Burrough and British General K. A. N. Anderson in the Headquarters Ship *Bulolo*. The two exercises were co-ordinated by Rear Admiral Harold Baillie-Grohman at HMS *Warren*, *Largs*, and Major General James Drew at Inveraray. Both Eisenhower and Mountbatten visited Inveraray in the days following the exercises to assess results.¹⁹⁴

MOSSTROOPER and FLAXMAN forces began landing at 0100/19 October though the original plans had been curtailed somewhat when it was realised that full-scale landings would result in an unacceptable attrition of scarce landing craft and vehicles. Troops were to go ashore in a limited number of landing craft for an assault exercise lasting around 12 hours. Every effort was to be made to safeguard equipment and only equipment and vehicles for which replacements were available were to be landed. The 26th RCT landing at Minard on Loch Fyne would take just eight trucks across the beach. Speed was not essential and the limitations caused by the lack of vehicles, communications equipment and inadequate beaches had to be explained to the troops.¹⁹⁵

Morrison opines that the TORCH forces, British troops included, lacked adequate training in amphibious operations. He quotes the commanding officer of the 3rd Battalion Landing Team of the 168th which took part in FLAXMAN as reporting that, 'landing crews were somewhat confused,' and that the exercise did more harm than good as different landing craft were used from those to be used in TORCH. In fairness, though, the Americans had much to learn about amphibious operations and both the tight TORCH schedule and the critical shortage of equipment meant that training was always going to be inadequate. A great deal was being left to chance and the hope that the Vichy forces would offer only token resistance.

¹⁹³ DEFE 2 204.

¹⁹⁴ DEFE 2 713.

¹⁹⁵ DEFE 2 204.

Alongside the considerable assemblage of ships for the assault convoys, an even larger number of ships were gathering in the Clyde for the logistics convoys. The first advance convoy, KX1, of five ships and seven escorts sailed from the Clyde on 2 October. Troop and supply convoys during the assault phase of TORCH were as follows, with the assault convoys shown in red:

Convoy	Composition and escort	Sailing date	Departure port	Due Gibraltar	Remarks
KX1	Five ships and seven escorts	2/10/42	Clyde	14/10/42	Incl. three colliers and an A/S trawler group.
KX2	18 ships and 13 escorts	18/10/42	Clyde	31/10/42	Included five ammunition ships, three ships with cased aircraft and four tankers.
KX3	One ship and two escorts	19/10/42	Clyde	27/10/42	Personnel for Gibraltar only.
KX4A	20 ships and eight escorts	21/10/42	Clyde	4/11/42	Included three LSTs.
KMS(A)1 KMS(O)1	47 ships and 18 escorts	22/10/42	Loch Ewe and Clyde	5/11/42 6/11/42	Included 39 MT/Store ships and the escort carrier <i>Avenger</i> – Algiers and Oran sections to divide west of Gibraltar.
KMS2	52 ships and 14 escorts	25/10/42	Loch Ewe and Clyde	10/11/42	Included 42 MT/Store ships.
KX4B	Eight ships and two escorts	25/10/42	Milford Haven	3/11/42	Included tugs, trawlers, four fuelling coasters and cased petrol ships. Slower ships sailed at 6½ knots to join with the 7½ knot KX4A from the Clyde.
KMF(A)1 KMF(O)1	39 ships and 12 escorts.	26/10/42	Clyde	6/11/42	Included HQ ships <i>Bulolo</i> and <i>Largs</i> , the escort carrier <i>Biter</i> and 31 LSIs. Sailed at 11½ knots, Algiers and Oran sections to divide west of Gibraltar.
KX5	32 ships and ten escorts	30/10/42	Clyde	10/11/42	Included 15 coasters, three tankers, five colliers and seven cased petrol ships.
KMF2	18 ships and eight escorts	1/11/42	Clyde	10/11/42	Included 13 personnel ships for Oran and Algiers. Sailed at 13 knots.

In addition, warship movements began with the departure of the carrier *Furious* and three destroyers from the Clyde on 20 October. *Rodney* and her escort sailed Scapa on 23 October and the carriers *Argus* and *Dasher* with the cruisers *Jamaica* and *Delhi* and four destroyers left the Clyde on 27 October. On 30 October the main covering force comprising *Duke of York*, *Nelson*, *Renown*, *Argonaut* and eight destroyers sailed Scapa to be joined by *Victorious*, *Formidable* and eight destroyers from the Clyde. *Norfolk*, *Cumberland* and five destroyers followed from Scapa on 31 October.

Movements for the assault phase involved 31,000 men, 3,800 tons of assault stores, 1,600 vehicles and 112 guns. The follow-up phase, which was largely loaded alongside the assault phase, involved 36,500 men, 11,000 tons of stores, 1,600 vehicles and 70 guns. A gale on 14-15 October stopped embarkation for one day and the Greenock war diary for 27 October laments:

During the last fortnight, the port facilities at Greenock have been severely strained. At times, all berths, including those in Loch Long and the Gareloch, have been occupied and both HM ships and merchant vessels have had to be diverted elsewhere. Ships of KMF1, which were Combined Operations ships, had to remain in their exercise areas until the sailing of KMS1 made berths available inside the boom. The subsequent servicing of KMF1, in order to get them ready to sail for an operation in the short time available, put a heavy strain on the services of the Clyde, particularly on the wa-

ter boats and the boats of the boat pool.¹⁹⁶

And this was only the beginning – convoys to North Africa would run on a 14-day cycle throughout the winter and on through the build up and assault phase of HUSKY, the invasion of Sicily the following summer.



TORCH fast assault convoy KMF1 outbound from the Clyde.

On 4 November, while still 400 miles west of Gibraltar, the slow and fast assault convoys split into sections destined for the landings at Oran and Algiers. Every ship had to pass through the Straits of Gibraltar in a precisely ordered sequence and some warships had to

enter harbour to refuel. The timetable for ships passing Europa Point was tight, some 340 ships passing through in 32 hours. Neither the Germans nor the Vichy French correctly deduced the destination of shipping they knew was passing through the Straits, German intelligence believing this was another operation to relieve Malta, which, in a sense, it was. Axis thinking was influenced by Montgomery's offensive at El Alamein which had begun on 23 October. As a result, the initial landings passed off without interference from Axis air and naval forces which had been held in the central Mediterranean.



TORCH fast assault convoy KMF1 outbound from the Clyde.

Rather than mount frontal attacks on Oran and Algiers, which were thought to be too heavily defended, troops would come ashore on either side of these main ports and attack them from the landward side, the object being to secure their use for the Allies as quickly as possible. Not only was this a re-run of JUBILEE, it also made sense of FLAXMAN and

¹⁹⁶ On 12 November 274 merchant ships were in the Clyde awaiting their place in the TORCH supply train and on 11 December 70 ships and 21 escorts sailed the Clyde for North Africa as KMS5 and KMF5. ADM 199 419. See also Yeo MS, IWM Department of Documents ref. 95/6/1.

MOSSTROOPER schemes as, once again, troops were to neutralise coastal artillery, capture ports and strike inland against airfields.

The landings began in the early hours of 8 November. After a 4,500 mile passage, the Western Task Force landings around Casablanca spread over 200 miles of Atlantic coast but met little resistance.¹⁹⁷ The Eastern Task Force landings around Algiers were the most complex undertaken in TORCH, but met with little resistance, which is just as well as intelligence on the state of the beaches proved inadequate. One beach supposedly 2,000 yards long proved all but useless, yet avoidable congestion elsewhere in the sector led to MT ships being diverted to this beach. A detachment of 1 Commando met friendly Vichy troops and was driven to capture Blida airfield only to find that Fleet Air Arm Martlets from *Victorious* had beaten them to it. Meanwhile, US Rangers who had scrambled ashore at Cape Matifu captured Maison Blanche airfield and RAF fighters were operating from there by 0900/8.

An attempted *coup-de-main* operation to capture Algiers by the Royal Navy destroyers *Broke* and *Malcolm* was repulsed by Vichy gunners. A similar operation to take Oran ahead of the Central Task Force landings by the ex-American Coastguard cutters *Hartland* and *Walney* was again beaten off by artillery, this time with heavy loss of life. And, as Fergusson writes, 'At each of the three Oran landings, something went wrong.' At the westmost beach, the second wave of landing craft reached the beach ahead of the first. At Les Andalouses the 26th RCT found that beach intelligence was again inadequate and did not reveal the presence of a sandbar on which landing craft damaged their sterngear and inside which vehicles landed too soon were drowned. East of Oran, at Arzew, rather than come ashore together, the initial wave of assault craft with the 16th and 18th RCTs arrived over a period of 20 minutes. Then the beach became so clogged with men and equipment that the planned move inland fell hours behind schedule.

Algiers was surrendered to General Ryder at 1900/8 and the port was open for Allied shipping the following morning, one of the early arrivals being Burrough's flagship *Bulolo*. At Oran, where resistance had been stiffer and more prolonged, the harbour was littered with 25 sunken and scuttled ships and three scuttled floating docks.¹⁹⁸ An American Naval Base Unit of 94 officers and 779 enlisted men had trained at the American base at Rosneath to clear and operate Oran, Arzew and Mers-el-Kebir and the *avant port* at Oran was

¹⁹⁷ Maund writes that the Americans, '...learnt by experience many lessons that they had been a bit too proud to learn from us.' One such lesson was the need for a HQ Ship for each landing. Patton disregarded British advice to use a designated vessel for this purpose and searched in USS *Augusta* only to find himself being carried away from his command when Vichy cruisers appeared. He did not get ashore until 10 November. Maund 1949 p. 115. Morrison : 1947 vol. 2 *Operations in North African Waters* part 1. Fergusson : 1961 pp. 206-208. Roskill : 1956 pp. 328-332.

¹⁹⁸ Morrison : 1947 vol. 2 *Operations in North African Waters* p. 251.

operational within hours of its capture, although it took until 7 January 1943 to fully return the harbour to normal operations.¹⁹⁹

On 28 October Churchill was shown an Ultra decrypt that described the German position as 'grave' and, by 3 November, Rommel was signalling that his forces faced 'a desperate defeat'.²⁰⁰ On 5 November the *Daily Mirror* headline read, 'Rommel Routed. Huns fleeing in disorder.' What made TORCH different from previous Combined Operations was that, this time, the troops were going ashore to stay. As one writer put it:

TORCH did not involve a really large-scale landing. The resources for such were not in existence... The vastness of Operation TORCH lay in the follow-up arrangements which were planned, after the capture of Algiers, Oran and Casablanca, to pour ground and air forces into North Africa to establish the Allies firmly on the southern Mediterranean coast and open that sea to shipping.²⁰¹

Two amphibious operations on the grand scale, one direct from the United States and one from Scotland, each involving the landing of more than 35,000 men had been successfully concluded and the Allies were firmly established ashore in Morocco and Tunisia. This was greatly encouraging, but TORCH succeeded to a large extent in spite of itself. Had it not enjoyed total surprise, had it been mounted against sterner opposition, had the Mediterranean been tidal, had it taken longer to get the ports operational, then it would have been a far more costly affair. As with JUBILEE before it, TORCH demonstrated that, while elite assault units such as the British Commandos were well trained, there was a shortfall in amphibious assault training among regular forces. This would have implications for the CTCs on the Clyde and at Kabret. And Maund writes that among the lessons learned was the need for sufficient craft to unload the ships and an efficient organisation ashore to move men and materiel across the beaches. Navigational aids were too few in number and ineffective, beach intelligence was inadequate and an organisation to recover stranded landing craft was needed.²⁰²

The decision to go for TORCH meant that a cross-Channel invasion would be impossible in 1943 and, on the face of it at least, thus prolonged the war by a year. But TORCH also exposed shortcomings in men and materiel that would, in all likelihood, have made a cross-

¹⁹⁹ Construction of the American base at Rosneath had begun in March 1941, nine months before the US entered the war. It was originally envisaged as an eastern terminus for USN destroyers escorting transatlantic convoys and an associated flying boat base was planned for Loch Ryan. Duplicate bases were also under construction at Lough Erne and Londonderry. Facilities at Rosneath included 4,750 feet of deepwater berthing, four submarine slipways, workshops, a 200-bed hospital and accommodation for 4,500 officers and men. The facilities impressed FOIC Greenock who was astonished to see luxuries such as refrigerators and central heating in every hut. Prior to TORCH the Rosneath base had been used by Combined Operations for landing craft repair. It was handed back to the USN for SubRon 50, a squadron of submarines which were to co-operate with the Royal Navy in the Atlantic. Associated with the base were two seven-mile fuel oil supply pipelines which connected with another American-built pipeline between Finnart and Old Kilpatrick serving the safe deep-water tanker berth in Loch Long. This, in turn connected with a British pipeline which ran alongside the Forth and Clyde Canal between Old Kilpatrick and Grangemouth. *Building the Navy's Bases in World War II* (US Government Printing Office, 1947) vol. II pp. 68-71. ADM 199 419.

²⁰⁰ Lamb : 1991 p. 215.

²⁰¹ *London Gazette* 22 March 1949.

²⁰² Maund : 1949 p. 116.

Channel assault in 1943 a disaster. In September 1942, even before the North African landings had taken place, Mountbatten wrote that TORCH was already taking up more landing craft than Combined Operations could produce crews for, and that the standard of training of those crews was, 'not high enough for a tough and protracted assault.'²⁰³ It would not be possible to train an adequate force for another assault before the summer of 1943.

Roosevelt and Churchill may have been optimistic in their belief that Allied forces could mount the North African landings, clear Tunisia of the enemy and recover in time for ROUNDUP in 1943. But the decision in favour of TORCH was entirely correct, even if it did commit the Allies to a Mediterranean strategy in 1943. The two leaders met for the SYMBOL conference at Casablanca in January 1943, Churchill still believing that the Germans could be pushed out of North Africa early that year and that, as he had promised Stalin, ROUNDUP could go ahead that August or September. However, as Lamb writes, '...Montgomery won an historic victory at Alamein, but bungled the aftermath.'²⁰⁴ Chances to wipe out the Afrika Korps at Alamein and El Agheila were missed and they withdrew into Tunisia where they prolonged the North African war into May 1943. Even were the necessary assets available for ROUNDUP in 1943, this alone would have scuppered the plan.

Thus, the 48 divisions US planners believed necessary for a cross-Channel assault were not available in Britain, and disruption to the BOLERO shipping programme caused by TORCH had further aggravated the situation. There was only one way to go and that was further into the Mediterranean and, after protracted debate, HUSKY, the invasion of Sicily, was favoured. This decision, forced on the British and Americans by their limited amphibious capability, had two lasting effects; it poisoned relationships with the Soviet Union, who felt left in the lurch, and it cemented what would become known as the 'Special Relationship'.²⁰⁵

Planning for HUSKY began in February 1943 and the final plan was agreed at a conference chaired by Eisenhower in Algiers in May. Shipping movements had however begun some weeks earlier when Troubridge in *Bulolo* left the Clyde with Force W for Egypt via the Cape of Good Hope. Force W was to carry Major General Dempsey's 13 Corps to land near Syracuse where they would be supported by the British 1st Airborne Division.²⁰⁶ To the west, between Scicli and Licata, the US 5th Army was to land supported by their 82nd Airborne and the British 30 Corps was to land in the middle of the assault area, around Cape Passero.

The Canadian 1st Division under Major General Guy Simmonds and 40 and 41 Comman-

²⁰³ *Combined Operations in Hitler's War* by Rear Admiral H. E. Horan, part 2 in *Naval Review* vol. 49, 1961, pp. 18-29.

²⁰⁴ Lamb : 1993 p. 215.

²⁰⁵ Sainsbury : 1976 pp. 167-171.

dos under Colonel Robert Laycock were to sail from the Clyde to land on the Costa dell' Ambra west of Cape Passero in a sector codenamed Bark West. The 1st Canadian Infantry Brigade was already at Inveraray when the decision to mount HUSKY was taken. They were followed through the CTC by the 2nd and 3rd Brigades in February and March 1943 and then, with HUSKY planning at an advanced stage, the three Brigades returned to Inveraray in May for another short course.²⁰⁷ The HUSKY assault convoy from the Clyde, all bound for Bark West with the 1st Canadian Infantry Division, the 1st Canadian tank Brigade, 40 and 41 Commandos and the 73rd AA Brigade Royal Artillery, were:

Convoy	From	Date	Speed	Composition
KMS18A	Clyde	20/6/43	8 kts	Eight LST, one LSG, one petrol carrier.
KMS18B	Clyde	24/6/43	8 kts	17 MT store ships, one LSG and joined by seven LST from Algiers.
KMS19	Clyde	25/6/43	7 kts	31 MT store ships, six LST, five petrol carriers and one collier, joined by nine MT store ships for the Western Task Force from Algiers.
KMF18	Clyde	28/6/43	12 kts	One HQ ship (<i>Hilary</i> , Rear Admiral Philip Vian), three LST and eight LSI.
KMF19	Clyde	1/7/43	12 kts	Nine troop transports and one LSI. Joined by four troop transports for Western Task Force from Algiers.

Three ships from KMS18B were sunk by U boats, but Vian's force arrived off the assault area at 0100/10 July. There were some difficulties in getting ashore due to difficult sea conditions and the late arrival of LCTs from Tripoli, but the landings met only token resistance and the Canadians speedily secured Pachino airfield, their initial objective.²⁰⁸

At 1000/28 June, as, further up the Clyde, KMF18 was preparing to sail, a remarkable gathering convened at HMS *Warren*, the Hollywood Hotel, in Largs for what was to be one of the seminal conferences of the war. Codenamed RATTLE, it was originally intended as a course for staff officers likely to be involved in an invasion of Europe. But OVERLORD planning was becoming muddled and in urgent need of clear direction, so Air Chief Marshal Trafford Leigh-Mallory, AOC-in-C Fighter Command, suggested that the Commanders-in-Chief designate should attend.



Fast assault convoy KMF18 outbound from the Clyde for HUSKY

²⁰⁶ Fergusson : 1961 pp. 242-243.

²⁰⁷ DEFE 2 1317.

²⁰⁸ Roskill : 1960 *The War at Sea* vol. 3 part 1 p. 123 for the convoys and p. 132 for the assault.

Mountbatten was in the chair and among the senior commanders present were General Sir Bernard Paget who commanded 21st Army Group, senior OVERLORD planner Lieutenant General Frederick Morgan, Leigh-Mallory, Air Vice Marshal Basil Embry, C-in-C Portsmouth Admiral Sir Charles Little, General Humfrey Gale of the 6th Airborne Division, Major General Bernard Freyberg, Commanding General ETOUSA Lieutenant General Jacob Devers and General Andrew McNaughton from Canada. So eminent and numerous were those attending RATTLE, the conference was christened 'The Field of the Cloth of Gold'. In all, there were 20 generals, 11 air marshals and air commodores, eight admirals and numerous brigadiers, among them five Canadians and 15 Americans. Ever the showman, Mountbatten arranged for the delegates to visit *Dundonald* and the dummy HQ ship ashore there and set up 'the best possible beach landing demonstration at Troon.' Having prevailed upon Lord Lovat to bring all the latest German weapons captured by the Commandos, he wrote 'I understand they are prepared to lay on a demonstration of these weapons with men dressed in captured German uniforms...'²⁰⁹

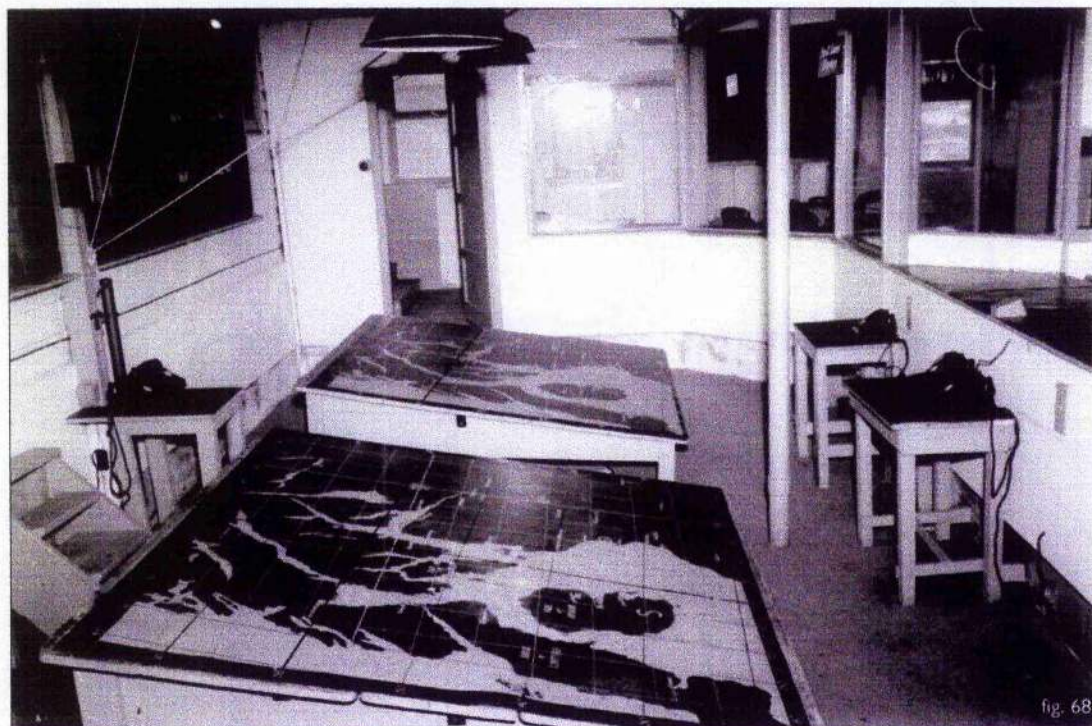
The agenda included discussion of the German defensive system, naval aspects including the availability of forces and navigational aids, air aspects including reconnaissance, softening up, assault craft requirements, the scales of personnel, transport and equipment, the marshalling of naval and air forces prior to D-Day; the training of assault forces; the attainment of air superiority; the use of airborne forces; the pros and cons of a day or night assault, the neutralisation of coastal batteries by naval and air bombardment, fire support, the follow-up phase, signals organisation, artificial harbours, the supply of petrol and training requirements.²¹⁰

The conference room had been the Hollywood Hotel swimming pool, the pool itself having been floored over. It had a tin roof and, as the weather was very hot, the room quickly became thoroughly uncomfortable. The first day did not go well and there were many who thought OVERLORD impossible. But that evening, right on cue, KMF18 steamed past Largs on its way to Sicily and McNaughton signalled his good wishes to the Canadian troops. Perhaps it was the sight of the assault convoy escorted by Vian's cruisers and destroyers that brought about the change, perhaps not, but on the second day a more positive atmosphere prevailed. It began to appear that OVERLORD was feasible and, in the ensuing three days, vital decisions were reached on a wide range of issues fundamental to the operation.

Two crucial questions had to be answered – where should the assault go in and should it be in daylight or at night. Some wanted to go for the shortest sea crossing in the Pas de Calais, but Morgan, as COSSAC, argued cogently and ultimately decisively that the assault

²⁰⁹ DEFE 2 529.

²¹⁰ Ibid.



One item developed on the Clyde for what Fergusson aptly calls the 'Combined Operations Toy Cupboard' was this operations room in the Combined Signals School at HMS *Dundonald*. This was a near replica of those aboard the British headquarters ships *Bulolo* and *Largs* and Mountbatten was keen to show this off to the RATTLE delegates as the Americans in particular had been reluctant to accept the need for such designated vessels. During the TORCH landings, a furious Patton was borne away from the landings he was supposed to be commanding when the American flagship *Augusta* had to deal with a force of French cruisers.

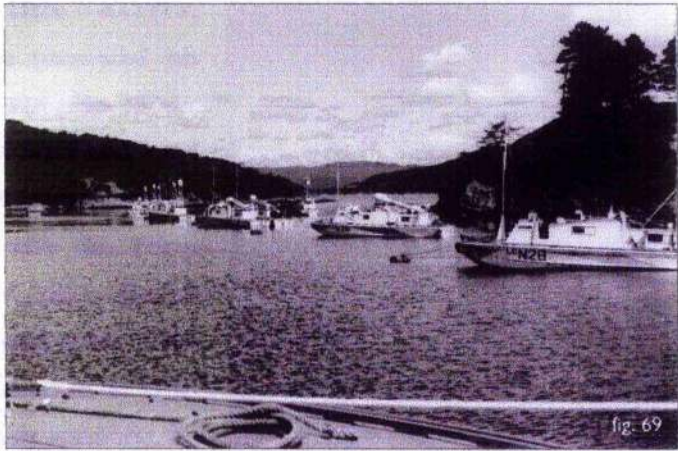
Conferences like RATTLE were normally held in secure location, well away from the public gaze, so trailing a large contingent of senior Generals, Admirals and Air Marshals around Clydeside was, on the face of it, indiscreet. But, while conference was entirely genuine, it was also part of an elaborate deception plan, Operation TINDALL, designed to maintain the impression that the Allies were about to invade Norway.

must go in, 'between the Cotentin Peninsula and Dieppe'. The soldiers, both British, American and Canadian, preferred a night assault, but Admiral Little insisted that the Navy, 'could not guarantee to assemble the force off the beaches and get the men ashore in the right place in the dark.' Once all the issues had been aired, a dawn attack came nearest to meeting everyone's needs. The fundamental decisions had been taken and, as Fergusson writes;

In many ways, RATTLE was the summit of COHQ's achievement. It was at RATTLE that the final selection of the lodgement area was approved to the full satisfaction of those who, at that time, looked like bearing the personal responsibility for the greatest operation ever carried out.²¹¹

²¹¹ Fergusson : 1961 p. 274. DEFE 2 529 and DEFE 2 530 for RATTLE and Morgan : 1950 p. 143 *et passim*.

Two weeks after RATTLE, General Morgan presented his outline OVERLORD plan to the British Chiefs of Staff and, on 4 August, he sailed from Greenock in *Queen Mary* with the Prime Minister and the British delegation bound for the QUADRANT conference at Quebec where, broadly speaking, the plan was accepted by the Americans. The plan evolved into one where there were two main task forces; an American Western Task Force and a British Eastern Task Force. The British Naval Task Force under Vian was to land the British 2nd Army com-



One of the lessons learned at Combined Operations from Exercise LEAPFROG onwards had been that landing craft were apt to land either at the wrong beach entirely, or at the right beach, but late. In particular this had been a feature of the Dieppe landing in 1942. A Beach Pilotage School, fittingly called HMS *James Cook*, was opened that September at Glen Caladh in the Kyles of Bute to train what came to be known as Navigation Leaders. Craft like these LCNs were equipped with the best navigational equipment available including H₂S sets normally fitted to heavy bombers.

manded by Lieutenant General Miles Dempsey consisting of three assault forces, G, J and S, and a follow-up force, Force L. Assault Force S under Rear Admiral G. J. Talbot in the Headquarters Ship *Largs* was to land the British 3rd Division comprising the 8th, 9th and 185th Brigades, which had begun training at Inveraray in June 1943, with Commandos and Free French *Fusiliers Marins* on Sword Beach near Ouistreham at the eastern end of the invasion area. This was considered the most vulnerable assault because of its proximity to enemy shore batteries around Le Havre.²¹²

While the existing combined training areas were working at full stretch, there was a need for beaches where landings could be practised on a much larger scale than in, for example, Loch Fyne. In Scotland, beaches similar to those of Normandy and capable of handling a division-sized assault were found at Tarbat Ness, Culbin Sands and nearby at Burghead Bay. At Tarbat Ness some 900 residents were summarily ordered out of the area by 1 December 1943 when training for Force S and the 3rd Division commenced.²¹³ The official history states:

The training of this force was seriously handicapped by the restrictions in its assault training areas; not until the final exercise at the end of March, for example, could close support fire and the assault be practised at the same beach. Another great difficulty was the stormy winter weather of the Moray Firth, but this Rear Admiral Talbot subsequently considered 'a blessing in disguise.' Putting aside the

²¹² *Operation Neptune – Landings in Normandy, June 1944*. Battle Summary No. 39 reprinted by HMSO in 1994 section 17.

See also Roskill: 1960 *The War at Sea* vol. 3 part 2 pp. 22-23 and 44-45.

²¹³ ADM 116 4736.

cancellation of exercises and the losses of craft and personnel the experience gained under these conditions stood them in good stead in the actual operation. Five full-scale exercises were carried out at Burghead, which, from a hydrographical point of view, closely resembled the beach which was to be assaulted in Normandy.²¹⁴

Captain Gillies of the 1st Battalion King's Own Scottish Borderers describes an assault exercise which began at Burghead Bay on 1 January 1944:

It was abundantly clear that our waiting period was coming to an end. My thoughts were then interrupted by the call to start the assault and I threw myself into the uninviting swell and struggled ashore, followed by my company. During the next three days of the exercise my clothes froze on me, but it illustrates our high state of fitness that I did not even get a cold.²¹⁵

But Brigadier Lord Lovat offers a more pessimistic view:

No. 4 Commando stepped up their training in street fighting. Then they went north on an exercise in the Moray Firth with the 3rd Division, whose 8th Brigade were to land before Robert Dawson on D Day. I sent Derek [Mills-Roberts] as an observer. They both gave gloomy accounts of hesitant and badly led troops.²¹⁶

During this period the combined staffs of Force S and the 3rd Division were based at Cameron Barracks, Inverness, though, in March, the planners moved to Aberlour House, Speyside. Force S moved south to Portsmouth during April 1944.²¹⁷ D Day was originally planned for 5 June 1944 and, led by the battleship *Rodney* and the cruiser *Belfast*, the Eastern Bombardment Force sailed the Clyde three days earlier only to have to loiter in the Irish Sea after the invasion was delayed by 24 hours due to bad weather.²¹⁸ On Sword Beach, the first wave of 32 landing craft touched down at about 0730/6 June and the entire assault brigade was ashore by 0943/6, just 18 minutes behind schedule.²¹⁹ The official history records that considerable opposition was encountered, particularly by the 2nd Battalion, the East Yorks Regiment, but Lovat suggests that progress by the 3rd Division was less than impressive, the poor showing in the Moray Firth being repeated on the battlefield:

The 3rd Division, in spite of the good record before Dunkirk under Monty, proved very sticky throughout the landing. They had become muscle-bound mentally and physically after four years training in the United Kingdom.²²⁰

At Inveraray and elsewhere on the Clyde, the period between HUSKY and OVERLORD had been one of intense activity. The 3rd (Canadian) Division, which landed on Juno Beach, had first formed up with its embryonic naval element in October 1942. Its reserve group, the 9th (Canadian) Infantry Brigade arrived at Inveraray in July 1943 and was followed that August and September by the 7th and 8th Brigades, the assault formations for Juno. On

²¹⁴ *Operation Neptune – Landings in Normandy, June 1944*. Battle Summary No. 39 section 28.

²¹⁵ Gillies MS, IWM Department of Documents ref. 90/26/1.

²¹⁶ Lovat : 1978 p. 295.

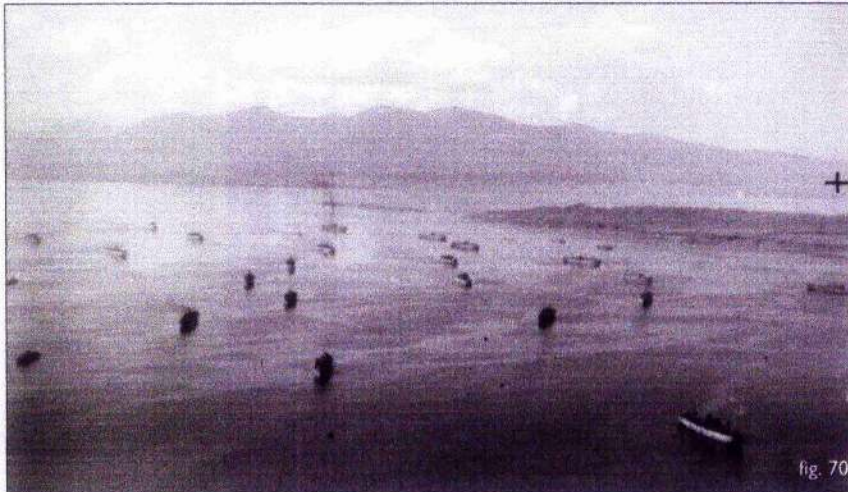
²¹⁷ Fergusson : 1961 p. 324.

²¹⁸ *Operation Neptune – Landings in Normandy, June 1944*. Battle Summary No. 39 sections 20, 39 and appendix F(2).

²¹⁹ Roskill : 1960 *The War at Sea* vol. 3 part 2.

²²⁰ Lovat : 1978 p. 313 fn. See also *Operation Neptune – Landings in Normandy, June 1944*. Battle Summary No. 39 section 55.

Gold Beach, the westmost beach in the British sector, Force G landed the 50th Division comprising the 6th, 231st and 56th Infantry Brigades. This force had only formed on 1 March 1944, when it began training at Inveraray, then moved south and carried out four brigade landing exercises in Studland Bay.²²¹



Shortly before D Day, 70 mainly British and American vessels assembled in the Firth of Lorne. Codenamed CORNCOBS, these ancient ships were to be scuttled to form the GOOSEBERRY breakwaters behind which the MULBERRY artificial harbours would operate. With the greatest distance to travel to Normandy, and thus being among the first ships to sail for the assault, sailing orders for the CORNCOBS had to be issued at D-8. They were already at sea when, at 0515/4 June, D-Day was postponed by 24 hours and the convoy was diverted to anchor in Poole Bay. The sinking of the blockships, among them the redundant battleships *Centurion* and *Courbet* (French) was completed under enemy fire and in poor weather by D+4.

From a peak at the end of 1943, Combined Training in the Clyde had begun to wind down as D Day approached. One of the first training areas to close was the Advanced Assault Training area at Kilbride with its copies of German coastal defences. Culbin Sands, Burghead Bay and Tarbat Ness were all cleared of unexploded ordnance by 24 May 1944 and residents had returned within three weeks.

SCOTLAND'S COMBINED OPERATIONS ROLE IN RETROSPECT

For the disastrous 1940 campaign in Norway and, following defeat there and in France until 1943, it was chiefly from Scotland, and the Clyde in particular, that Allied military power was projected into the European and African theatres of war. And it was principally at training establishments in Scotland, most notably at Inveraray and elsewhere around the Clyde, that amphibious capabilities were developed both to see Allied armies ashore on a defended coastline and sustain them there.

²²¹ *Operation Neptune – Landings in Normandy, June 1944*. Battle Summary No. 39 section 28. Roskill : 1960 vol. 3 part 2 pp. 22-23

Scotland trained the troops and was the base for the first Combined Operations raids to Norway in 1941, it was a Scottish-based and trained force that carried out the St Nazaire raid in 1942 and, later that year, it is no coincidence that troops trained at Inveraray were the only successful element of the ill-fated Dieppe raid. Training and rehearsals for the largest and arguably most vital elements of TORCH, the first large-scale Allied amphibious landing of the war, were conducted in the Clyde and the Centre and Eastern Task Forces sailed from there for the assault. In 1943 it was from the Clyde that a large, mainly Canadian, task force sailed for HUSKY, the invasion of Sicily. Much of the British and Canadian force destined for OVERLORD undertook initial assault training at Inveraray and vital decisions affecting the landings in Normandy were taken at a conference convened in Largs. At the end of 1943 and in early 1944, one of the three main British sector landing forces rehearsed its assault in the Moray Firth.

In June 1944, as the Allies went ashore in Normandy, Inveraray was giving a course to Norwegian mountain troops and, in May 1945, it was giving jungle warfare courses to troops bound for the Far East. Training continued until after VJ Day, then, in October 1945, the CTC ceased to function. Over 130 battalions, among them 29 Canadian and six American had passed through Inveraray by mid-1944 and some 62,000 landing craft personnel had been trained, mostly on the Clyde.²²² In all, at least 250,000 men and women had passed through Inveraray by the end of the war.²²³ Clearing up the 370,000 acres at Inveraray, the 6,000 acres held by *Dundonald*, the 28,000 acre bombardment range at Anderside Hill, not to mention the 150,000 acre Commando Training Centre at Achnacarry would take many months.²²⁴

But perhaps most impressive is that between 1939 and 1945 movements of military personnel in and out of the Clyde totalled 4,963,072 and, in the peak period between 1942 and 1945, some 2,775,703 tons of military stores were handled.²²⁵ It might be argued that these facilities could, at least in part, have been provided elsewhere. But the consequent loss of shipping efficiency, as vast numbers of troops were ferried around the world, would have fundamentally affected strategic decision-making and lengthened the war by years. So, without the facilities offered by the Clyde at a relatively safe distance from enemy-held territory, none of the major amphibious operations in the European and Mediterranean theatres would have been possible within anything approaching their historical timetable, indeed many could not have taken place at all.

²²² Fergusson : 1961 p. 324. Maund : 1949 p. 105.

²²³ Information from the Combined Operations Museum, Inveraray.

²²⁴ DEFE 2 1117.

²²⁵ Yeo MS, IWM Department of Documents ref. 95/6/1.

Chapter Six

OPERATIONS IN NORTHERN WATERS BY SCOTTISH-BASED MARITIME FORCES 1941-1945

Norway's long, deeply indented coastline and poor road and rail communications meant that German occupation forces there were heavily dependent on sea communications. Thus, they were vulnerable to Allied attempts to break their maritime supply lines using submarines, surface craft and aircraft.

The story of the Mediterranean submarines of the 8th and 10th Flotillas is well known. Less well documented are the Scottish 2nd, 3rd, 7th and 9th Flotillas. Operating from the Clyde and Tay, with forward bases at Lerwick and Falmouth, their boats disrupted German seaborne traffic off Norway and in the Bay of Biscay. They also patrolled north of the Arctic Circle to cover Arctic convoys, sank U-boats and damaged heavy surface units.

From SOE bases in Shetland, Norwegian-manned fishing boats and submarine chasers undertook clandestine missions into Norwegian waters. Scottish-based submarines also played their part, closing the enemy coast at night to land personnel and supplies. And based in Lerwick were Norwegian and British MTBs which would hide in the Inner Leads, appear as if from nowhere to attack a German convoy, then dash for home.

But throughout the war, and in particular from the sailing of the first Arctic convoy in August 1941, the primary concern remained the presence of German heavy ships in Northern Waters. *Tirpitz*, that most potent example of the concept of a fleet in being, and her cohorts tied down many of the most modern ships of the Royal Navy at Scapa Flow when they were desperately needed in the Mediterranean and Far East. In the latter stages of the war powerful carrier groups of the Royal Navy based at Scapa swept up the Norwegian coast to attack the *Tirpitz* and coastal convoys.

SCOTTISH SUBMARINE FLOTILLAS ESTABLISHED

During the 1930s, as British naval planners wrestled with conflicting strategic commitments, political interference and forced economies, the surface warship was still seen as the ultimate weapon in naval warfare. In the Atlantic, Mediterranean and Pacific theatres, submarines were principally viewed as the eyes and ears of the fleet, reporting on enemy surface ship movements either against the British east coast ports, the Atlantic trade routes or Singapore. But the submarine was not viewed as a vital weapon of war and the submarine branch suffered to a disproportionate degree during the retrenchment of the 1920 and 1930s. The result was that, at the outbreak of war, the submarine force was far too small, too much of it like the H class was obsolete or inadequate, training and tactics were inadequate and there was a lack of specialist building capacity to provide new tonnage.¹

A powerful flotilla of some of the Navy's most modern submarines was, as noted in Chapter One, stationed at Dundee in August 1939 to close the gap at the Norway end of the Montrose-Obrestad Patrol. Once Hudson aircraft became available in sufficient numbers at RAF Leuchars, the 2nd Flotilla moved to Rosyth and, despite winter weather, undertook patrols off the Skaggerak and Heligoland Bight to warn of an enemy break-out from the Baltic. On the afternoon of 20 November, *Sturgeon* scored the first British submarine success of the war when she sank the A/S trawler *Gaulieter Telschow* (428T) off Heligoland.² On Boxing Day *Seahorse* sailed Rosyth for patrol off the Elbe, but nothing further was heard of her.³ And, on 28 December, *Triumph* limped into Rosyth, heavily damaged after hitting a mine. Three more British submarines were lost in quick succession in the Heligoland Bight in January 1940.

For the submarine branch, it had not been a good beginning. *Salmon's* Edward Bickford who had sunk *U-36* and damaged the cruisers *Leipzig* and *Nurnberg* and George Phillips of the 6th Flotilla's *Ursula* were celebrated as national heroes, but this was not enough to save FO(S) Admiral Bertram Watson who was made scapegoat for the poor state of the submarine service and relieved on 22 December 1939. Mars writes that Watson was 'most dis-

¹ See *British Submarine Policy 1918-1939* paper by David Henry in Ranft *et al.* : 1977.

² Information from RN Submarine Museum. Rohwer : 1997. Witthoft : 1971 p. 263.

³ At 1318/7 (CET) the German 1st Minesweeping Flotilla attacked a contact in 5419N 0730E and their report states; At 1318 a submarine was sighted and the alarm was given. The submarine's location was obtained and nine depth charges dropped. Success not observed. Submarine noises were heard through the echo-ranger and revolving directional hydrophones. Buoy was dropped. After the attack a further clear echo was obtained and three depth charges dropped. *UJ* anchored near the position, but heavy fog prevented further attack. Six depth charges each of the double throws had been dropped on the located position of the submarine, but no proof of success was obtained.

As no such attack was reported by any other submarine, this may well have been *Seahorse*, though the possibility remains that she could have been caught in one of the anti-submarine minefields in her patrol area on or around 30-December. RN Submarine Museum. Evans : 1986 p. 205.

ressed' as he felt that much of the responsibility lay with Sir Charles Forbes. Hamstrung by restrictive rules of engagement, submarines were being ill-used as a reconnaissance arm of a Home Fleet unable to comprehend that there would be no repeat of Jutland. And reporting enemy warship movements was, for older boats with inadequate wireless equipment, all but impossible.⁴

As the German invasion force made its way towards Norway on 8 April 1940, new FO(S) Max Horton read the runes better than his superiors and disposed 19 submarines off Denmark and southern Norway. First contact came when the Rosyth-based Polish submarine *Orzeł* torpedoed the *Rio de Janeiro* (5,261T) of the German 1st Sea Transport Echelon off Lillesand at 1100/8 and Commander Jan Grudzinski watched men in Wehrmacht *feldgrau* being rescued by fishermen. The Germans told their rescuers were on their way to protect Bergen from British aggression but, caught between two super-powers, the supine Norwegian government took no action.⁵ Reuters published news of the sinking of *Rio de Janeiro* at 2030/8, but the Admiralty omitted to tell Sir Charles Forbes who, fooled by the temporary westerly course of *Hipper*, headed north-west and away from the German invasion force. Forbes was only told of *Orzeł*'s success at 2255/8.⁶

Meanwhile, at 1215/8 in the Skaggerak, the German tanker *Posidonia* (8,036T) scuttled when *Trident* from the 2nd Flotilla out of Rosyth, opened fire on her, and another Rosyth boat, *Triton*, missed *Lutzow*, *Blücher* and *Emden* with a salvo of ten torpedoes that evening. *Triton* surfaced to make a sighting report at 1915/8 and the cruisers *Galatea* and *Arethusa* sailed Rosyth with 12 destroyers on an abortive mission to intercept the the German ships.⁷ And three Hudsons fitted with ASV mk.1 radar took off from Leuchars at 1930/8 but failed also to find them.⁸ Off Kristiansand at 1900/9, the Rosyth-based *Truant* sank the cruiser *Karlsruhe*. On 22 May 1940, with the Norwegian campaign at its height, submarine flotilla strength in Home Waters was:

Rosyth: 2nd Flotilla with HMS *Forth*; eight T class, one minelayer and the Polish *Orzeł* and *Wilk*. One of the Ts and *Wilk* were in refit, the latter at Dundee.

Rosyth: 3rd Flotilla with HMS *Maidstone* and six S class boats.

Rosyth: 10th Flotilla with six boats, one of which was in refit.

Blyth: 6th Flotilla at HMS *Elfin* with three S class and one minelayer in commission and one U class in refit.

⁴ Forbes had been Jellicoe's Flag Commander in *Iron Duke* at Jutland. Rear Admiral 'Shrimp' Simpson, no admirer of Forbes, writes of the unreality of pre-war Fleet exercises and of the latter's blind faith in the big gun. Watson, a First World War submariner, was 'charming' but not strong enough to stand up to Churchill, Pound and Forbes and was replaced by Max Horton. The Admiralty relented on the issue of retirement and Watson was a success as Flag Officer Greenock. Simpson : 1972 ch. 6. Mars : 1971 pp. 35-37.

⁵ *Orzeł* had no gun and was thus compelled to sink the German ship with a torpedo. Ibid. p. 87. Roskill : 1954 p. 111. Derry : 1952 p. 30.

⁶ *Hipper* and her consorts were loitering off Trondheim before landing their troops early the following morning.

⁷ Rowher : 1997. Information from the Royal Navy Submarine Museum.

⁸ Air to Surface Vessel radar was then still in its infancy. AIR 28 465.

Dundee: 9th Flotilla at HMS *Ambrose* with two River class and four French boats including the mine-layer *Rubis*.

Harwich: 3rd Flotilla with HMS *Cyclops* and two L class boats.

Portsmouth: 5th Flotilla at HMS *Dolphin* with 15 boats of various classes.⁹

Clyde sailed Dundee on 4 June and, on 20 June, attacked *Gneisenau*, *Hipper* and *Nurnberg* as they left Trondheim, hitting *Gneisenau* with one torpedo.¹⁰ The German squadron returned to port and, as there were no suitable docking facilities in Norway, Home Fleet and submarine dispositions were made to catch *Gneisenau* as she returned to Germany. But *Gneisenau* remained at Trondheim for a month, finally sailing on 24 July 1940. Off Stavanger on 26 July, the Dundee-based *Thames* fired at *Gneisenau* but hit one of her escorts, killing over 100 of her crew. *Thames* failed to return to Dundee on 3 August and was assumed lost in a German minefield.¹¹



Lost while operating with the 9th Flotilla from Dundee, *Thames* was thought to have struck a German mine.

Other Scottish submarines lost during and after the Norway campaign included *Thistle* torpedoed by *U-4* off Skudesnes on 10 April and the Dundee-based Dutch *O-13* which was probably lost in a German minefield.¹² *Salmon* sailed Rosyth on 4 July, but failed to return, *Shark* sailed Rosyth to relieve *Sealion* off Skudesnes and was sunk by an enemy aircraft on 5 July.¹³ *Spearfish* sailed Rosyth on 31 July, but was torpedoed and sunk by *U-34*.¹⁴ *O-22* sailed Dundee on 5 November to relieve *Sturgeon* off Lister and disappeared.¹⁵

⁹ ADM 234 380.

¹⁰ *Clyde's* signal was received by the Admiralty at 0226/21 but it was also intercepted by the Germans who, believing that their counter attack had put *Clyde's* wireless out of action, thought there must be another submarine in the area. They were correct, albeit for the wrong reasons, as *Porpoise* had heard *Clyde's* enemy report at 0045/21 and, when it was not acknowledged, relayed it successfully. ADM 234 380. RN Submarine Museum. Blair : 1997 p. 171.

¹¹ Lieutenant Commander Dunkerley and 61 crew were lost with *Thames*. *Gneisenau* was unfit for service until 18 December 1940. ADM 234 380. Rowher : 1997. Evans : 1986 pp. 241-244. RN Submarine Museum.

¹² It has been suggested, by Rohwer and others, that *O-13* may have been rammed by the Polish *Wilk* at 0025/20 June. But, when *Wilk* returned to Dundee on 26 June, Boris Kamicki and his crew were adamant that they had rammed a boat fitted with a deck gun. *O-13* was not fitted with a gun. Rohwer : 1997. ADM 234 380.

¹³ Her crew were picked up by a German trawler. Evans : 1986 pp. 233-240. Roskill : 1954 pp 266-267. RN Submarine Museum.

¹⁴ Rollmann surfaced and picked up Able Seaman Pester, a lookout and one of the first to reach the bridge when she surfaced. Evans : 1986 pp. 244-246. Jones : 1986 pp. 59-61.

¹⁵ The wreck of *O-22* was discovered off Lister in 1993 and bore no apparent external damage, so it is possible that she succumbed to a technical problem. All 46 aboard were lost. On 8 August, FO(S) Max Horton had written that he believed *Orxel*, *Salmon* and *Shark* were all lost to air attack, *O-13* to surface craft, *Thames* to air attack or mine and *Narwhal* to cause unknown. Post-war research however, suggests that *Orxel*, *O-13*, *Salmon* and *Thames* all fell victim to mines and Horton was placing undue weight on enemy A/S capabilities. These minefields remained unknown to the Admiralty until *U-570* (HMS *Graph*) was captured and her charts revealed their positions. ADM 234 380. Information from Bram Otto, Holland.

As the war moved into the Atlantic, patrols were mounted off enemy-held Biscay ports. *Cachalot* laid mines south of Penmarc'h on 19 August, then sank *U-51* off Lorient.¹⁶ *Tigris* sank a trawler on 1 September, then *Tuna* sank both the Norwegian *Tirrana* (7,320T) off the Gironde on 22 September and the German *Ostmark* (1,280T) off Port Royan on 24 September.¹⁷ *Taku* damaged the tanker *Gedania* (8,923T) off Lorient.¹⁸ *Talisman* captured a tunny boat to be used to monitor U boat movements and, at 0830/15 December, *Thunderbolt* sank the Italian submarine *Tarantini* off the Gironde and *Tuna* sank the tug *Chassiron* (172T) off the Gironde.¹⁹

Dispositions in early 1940 had been influenced by the need to warn of an invasion force breaking out of the Skaggerak, but the dramatically altered strategic position that summer led to a reorganisation of submarine flotillas. After Devonport, Pembroke Dock, even Queenstown (Cobh) had been considered as possible bases, *Forth* transferred from Rosyth to the Holy Loch for the 2nd Flotilla, *Cyclops* was based at Rothesay for the 7th Flotilla, *Titania* was sent to Rosyth to replace *Maidstone* with the 3rd Flotilla and *Maidstone* went to Scapa to act as a destroyer repair ship. *Woolwich*, which had been at Scapa, was released for duty in the Mediterranean. New dispositions around Scotland effective 8 September 1940 were thus:

Holy Loch; 2nd Flotilla depot ship *Forth* (Captain George Menzies) with escort vessel *White Bear* and *Trident*, *Tribune*, *Tuna*, *Tigris*, *Talisman*, *Taku*, *Porpoise* and *Cachalot*. Operational flotilla for Biscay Patrol and Atlantic with forward base at Falmouth. Submarines doing trials and work-up were also attached.

Rothesay; 7th Flotilla depot ship *Cyclops* (Captain Roderick Edwards) with escort vessels *Breda* and *Alecto*, submarines *Oberon*, *Otway*, *H-28*, *H-31*, *H-32*, *H-33*, *H-34*, *H-44*, *H-49* and *H-50*, Dutch *O-9* and *O-10*, and Norwegian *B-1*. Training and A/S flotilla.

Rosyth; 3rd Flotilla depot ship *Titania* (Captain H. M. C. Ionides) with the *Sealion*, *Sunfish*, *Snapper* and *Seawolf*. Operational Flotilla North Sea.

Dundee; 9th Flotilla shore base *Ambrose* (Captain James Roper) with *Clyde*, *Severn*, *L-23*, *L-26*, the Free French *Rubis* and the Dutch *O-21*, *O-22*, *O-23* and *O-24*. Operational flotilla North Sea with forward base at *Ambrose II*, Lerwick, and A/S training flotilla for the Home Fleet.

Forth and four 'T's went to Halifax in early 1941 to protect Atlantic convoys against enemy heavy ships, but returned to the Clyde in December 1941 when the 2nd and 3rd Flotillas were combined at the Holy Loch and sea training was transferred to HMS *Elfin* at Blyth. After acting as navigational beacons for the Western Task Force in TORCH, the American SubRon 50 boats were based at Rosneath. While flotilla strength was continually varied by

¹⁶ At 1415/16 August Flying Officer Ernest Baker in Sunderland H/210 escorting OA198 sighted U boat conning tower in 5635N 1255W. The Sunderland attacked with two depth charges which blew the U boat out of the water and onto her side. A further attack was made with four 250lb bombs, then the U boat rolled over and sank trailing oil and bubbles. The aircraft alighted Oban 1849/16 and Baker was awarded the DFC. AIR 28 615. AIR 27 1298. ADM 199 371. ADM 234 380. Franks : 1995. Rohwer : 1997. Jones : 1986 pp. 67-71.

¹⁷ Rohwer : 1997. RN Submarine Museum.

¹⁸ Ibid.

¹⁹ *Tuna's* victim was originally believed to have been the *Ita* (250T) but Rohwer identifies her as *Chassiron*. Ibid. See also Warren and Benson : 1953.

refits and the demands of other theatres, notably the Mediterranean, this organisation remained in place for much of the war.²⁰

THE *BISMARCK* BREAKOUT - MAY 1941

The Royal Navy had, since 1939, concentrated in northern waters against a possible breakout into the Atlantic by German surface units. While the Kriegsmarine could not contemplate a main fleet action along the lines of Jutland in 1916, both British and German planners were alive to the fact that the small but powerful German surface fleet could, if skillfully handled, be formed into effective task forces for operations against the Atlantic trade routes.

On 2 December 1940, amid indications that a German heavy unit was heading for the Atlantic, the Rosyth- and Dundee-based submarines *O-21*, *Sturgeon*, *Sealion* and *Sunfish* were positioned off Utsire, Utvaer and Stadlandet. But they were too late to intercept *Hipper* which broke through the Denmark Strait, reached Brest on 27 December, then sailed again on 1 February 1941 for the Sierra Leone convoy route. On 18 February 1941 *Tigris* sailed the Clyde to try to catch *Hipper* as she returned to Brest, but did not succeed.²¹ *Hipper* was joined at Brest on 22 March by *Scharnhorst* and *Gneisenau* and North Sea submarine flotillas were denuded to form part of a naval blockade, but *Hipper* sailed on 15 March and reached Keil via the Denmark Strait on 28 March.²²

While *Scharnhorst* and *Gneisenau* were trapped in Brest, the new battleship *Bismarck* and *Prinz Eugen* were ready for operations in the Atlantic and despite this being a far weaker task force than originally envisaged, these two ships were sighted passing out of the Baltic on the morning of 19 May, though advance warning of German movements had come from Swedish intelligence sources.²³ The French submarine *Minerve* out of Dundee missed the German squadron as it passed up the Norwegian coast, but, within two hours of arrival at Bergen, it had been photographed by PRU Spitfires from Wick. From Scapa Flow, C-in-C Home Fleet Sir John Tovey began making dispositions to intercept the German ships if they made for the Atlantic. The cruisers *Norfolk* and *Suffolk*, already patrolling the Denmark Strait were alerted, *Hood* and *Prince of Wales* sailed Scapa for Iceland to fuel and await developments, and the cruisers *Arethusa*, *Birmingham* and *Manchester* were ordered to fuel in Iceland then patrol the Iceland-Faroe Islands strait. The bulk of the Home Fleet including *King George V* and the carrier *Victorious* remained at Scapa.

²⁰ ADM 234 380. RN Submarine Museum. Roskill : 1954 p. 334.

²¹ Rohwer suggests *Tigris* sank the coaster *Jacobsen* (523T) and the *Guilvenec* (3,273T) in 4448N 0310W at 0245/19, but there is no record of this. Rohwer : 1997. ADM 234 380. Roskill : 1954 p. 390.

²² ADM 234 380. Roskill : 1954 ch. XVIII.

²³ McLachlan : 1968 pp 146. Sebag- Montefiore : 2000 p. 200.

The German ships' departure for the North Atlantic late on 21 May went unseen for almost 24 hours until a 771 Squadron Maryland from Hatston in Orkney found them gone.²⁴ Tovey sailed Scapa with the main body of the Home Fleet late on 22 May, *Repulse* was recalled from convoy duty in the Clyde, and *Hood* and *Prince of Wales* were sent south of Iceland. The German attempt to break through the Denmark Strait unseen was foiled by the cruisers *Suffolk* and *Norfolk*, the latter sending a sighting report at 2032/23. Unknown to Admiral Wake-Walker in *Norfolk*, some of his signals were being intercepted, decrypted and retransmitted back to *Bismarck* less than two hours after original transmission. That evening, as *Prinz Eugen* escaped southwards, *Bismarck* rounded on Wake-Walker's cruisers, then contact was lost for about six hours. Another sighting report from *Suffolk* was decrypted and retransmitted back to *Bismarck* at 0421/24, just over an hour before *Hood* and *Prince of Wales* made contact.²⁵

Hood was sunk, then *Bismarck* was lost, found by a Coastal Command Catalina, crippled by aircraft and finally sunk at 1037/27 after being cornered by Home Fleet ships from Scapa, Force H from Gibraltar and other ships including *Rodney*.²⁶ Again, during this stage of the operation, British signal traffic was intercepted and retransmitted back to the German battleship. This was discovered from Enigma decrypts detailed in a 4 July 1941 report by the Naval Section at Bletchley Park:

British activity during the first stages of this operation were known to the Germans from decypher of naval tactical signals... The second stage, the contacting of *Bismark* [sic] by air reconnaissance, was clear to them from decyphered air traffic.²⁷

Rubis and *Tuna* sailed the Clyde on 1 June, but missed *Prinz Eugen* as she joined *Scharnhorst* and *Gneisenau* in Brest where all three were damaged in air raids.²⁸ *Lutzow* was in Keil repairing damage inflicted by *Spearfish* during the Norwegian campaign. Also in the Baltic, and then the only German heavy units in full commission, were *Hipper* and the light cruisers *Emden* and *Leipzig*.²⁹

The oft-told story of the *Bismarck* operation, while it resulted in the loss of *Hood*, had provided a graphic illustration of the insecurity of British naval signalling. And it had been principally naval forces based in Scotland that had brought about the final destruction of the German ship, then arguably the most powerful warship in the Atlantic. But *Bismarck*

²⁴ Lieutenant Goddard's telegraphist was unable to raise anybody on the Coastal Command frequency, so passed his message to the Hatston Target Towing Flight on their frequency. Winton : 1988 p. 27. McLachlan : 1968 p. 149

²⁵ ADM 223 2.

²⁶ See Winklaeth : 1998 for an account of the *Bismarck* chase. See also paper on *Hood* by Paul Kemp in *IWM Review* no.4 1989 pp 96-102. Winton : 1988 p. 28-29. German account, signals and survivor's report of the action in Brassey : 1948 p. 201 *et passim*.

²⁷ ADM 223 2.

²⁸ Information from ex-Sous-Maitre Mechanicien Jean-Pierre Babin.

²⁹ McLachlan : 1968 pp. 158-159. Roskill : 1954 p. 487. Schofield : 1977 pp. 10-11.

had scarcely been sunk when the start of BARBAROSSA, the German invasion of the Soviet Union introduced new strategic imperatives to the naval war in the north, and new naval threat in the form of *Bismarck's* sister, *Tirpitz*.

FIRST ARCTIC CONVOYS

The German invasion of the Soviet Union was followed by an immediate, if perhaps hasty, offer of British assistance. Churchill proposed sending a task force to operate in the Arctic and, on 12 July 1941, Rear Admiral Vian flew to Moscow for discussions with the Soviet Navy. Vian recommended that no ships be sent, not least because there was no fighter cover, but that submarines should be considered. *Tigris* and *Trident* were recalled to the Clyde from Biscay Patrol and sent north to Polyarnoe. In subsequent patrols off the North Cape, *Tigris* sank 1,397 tons of shipping and *Trident* sank 15,403 tons and damaged one ship of 4,713 tons.³⁰

Meanwhile, in a gesture of Allied solidarity, the carriers *Furious* and *Victorious* sailed Scapa on 23 July for Operation EF, attacks on German bases and shipping at Kirkenes, Petsamo and Varengefjord. The force was to fuel at Seidisfjord on 25 July, but that morning the destroyer *Achates* was mined and 65 of her crew killed. EF was delayed by 24 hours, then, just as the carrier strike was about to take off on the morning of 30 July, the force was spotted by enemy aircraft. But the attack went ahead anyway, results were negligible and 16 aircraft were lost. Aptly described by Roskill as 'unprofitable', the operation was a costly setback.³¹

The first Arctic convoy, DERVISH, sailed Liverpool on 12 August and was escorted to Bear Island by *Victorious*, *Devonshire*, *Suffolk* and three destroyers from Scapa. The Naval force then turned back to meet STRENGTH, a delivery of Hurricanes aboard *Argus* which had sailed Scapa with *Shropshire* and three destroyers. DERVISH reached Archangel on 31 August and *Argus* flew off her Hurricanes on 7 September. By the end of 1941, 53 ships had reached north Russia and 34 had been brought back. None had been lost, despite weak escorts, and deliveries included 750 tanks, 800 aircraft and 1,400 vehicles.³²

German reaction had been muted but, on 17 December, a Naval Intelligence report clearly based on decrypts stated that a German 'Admiral Commanding Northern Waters' had been appointed, Luftwaffe reinforcements (II/KG30 with the latest JU88 A4) for reconnaissance of the 'Scotland to East Iceland convoy route' were about to arrive and a German

³⁰ For these patrols by *Tigris* and *Trident* see Rohwer : 1997. Witthoft : 1971. ADM 234 380 . RN Submarine Museum. Kemp : 1993. Lamb : 1993 pp. 129-134.

³¹ Kemp : 1993. Roskill : 1954 p. 486.

³² Schofield : 1977 p. 14.

signals unit had moved north to Kirkenes.³³ On 17 January 1942, decrypts revealed that the new battleship *Tirpitz* had reached Trondheim with four destroyers, though another decrypt on 19 January showed that these destroyers had left for Germany, so *Tirpitz* could only remain where she was. An air watch was kept on the ship as weather allowed.³⁴ Further decrypts revealed that *Kondors* of 7/KG40 reached north Norway at the end of January.³⁵

As *Tuna* and *Unbending* kept watch off Trondheim, convoys QP6 from Murmansk, PQ9 and PQ10 from Hvalfjord and PQ11 from Loch Ewe all got through unscathed.³⁶ But then, in the famous 'Channel Dash', *Scharnhorst*, *Gneisenau* and *Prinz Eugen* passed up the English Channel on the night of 11-12 February with the intention of joining up with *Tirpitz* at Trondheim. The planned German concentration was diminished when *Scharnhorst* and *Gneisenau* struck mines off Terschelling, though *Admiral Scheer* and *Prinz Eugen* still posed a threat.³⁷

QP7 sailed Murmansk on 12 February and, fearing a sortie by *Tirpitz*, Tovey sailed Hvalfjord at 0600/19 with *King George V*, *Victorious*, *Berwick* and seven destroyers. Enigma decrypts warned at 1020/20 that more German units were heading for Trondheim to rendezvous with *Tirpitz* and, sure enough at 1100/20, air reconnaissance found *Prinz Eugen*, *Admiral Scheer* and five destroyers steaming north off Jutland.³⁸ *Trident* and *Minerve* closed the entrance to Trondheim and, at 0551/23, *Trident* sighted the German cruisers and fired seven torpedoes, one of which struck *Prinz Eugen*'s stern. Her rudder jammed, *Prinz Eugen* reached Trondheim at 2200/23.³⁹

PQ12 and QP8 were due to sail, so *Seawolf* and *Junon* sailed Lerwick to reinforce *Minerve* and *Trident* off Trondheim.⁴⁰ PQ12 was found by a 7/KG40 *Kondor* near Jan Mayen Island on 5 March and, at 1730/6, *Tirpitz* was reported leaving Trondheim by *Seawolf*.⁴¹ *Tirpitz* passed between the convoys south of Bear Island and, at 1630/7, one of her destroyer es-

³³ ADM 223 3.

³⁴ *Tirpitz*'s commissioning trials and move to Wilhelmshaven had been monitored by Bletchley Park. Winton : 1988 pp. 54-56.

³⁵ ADM 223 3.

³⁶ Schofield : 1977 app. 1. Roskill : 1956 p. 116.

³⁷ *Gneisenau* played no further part in the war and was stripped of her turrets for shore defence batteries in Norway and Holland. Brasscy : 1948 p. 275.

³⁸ Winton : 1988 p. 56.

³⁹ *Prinz Eugen*'s steering gear was wrecked beyond the scope of the repair facilities at Trondheim, the centre shaft tunnel was split, the armoured deck and 20 transverse frames were badly distorted. Fuel and fresh water tanks were open to the sea. Nine men had been killed and 25 wounded. Emergency repairs were carried out and she left Trondheim for the Baltic on 16 May, but full repairs were not completed until January 1943. ADM 234 380. Rohwer : 1997.

⁴⁰ ADM 234 380.

⁴¹ Ibid. Information from the RN Submarine Museum.

corts sank the QP8 straggler *Izhora*.⁴² Armed with Ultra intelligence of the returning *Tirpitz*' intentions, Tovey had reconnaissance sorties flown off *Victorious* and these found *Tirpitz* west of the Lofoten Islands at 0802/9. But an attack by torpedo-carrying Albacores at 0915/9 failed and *Tirpitz* reached Narvik that evening. Further decrypts showed that *Tirpitz* was to return to Trondheim as soon as possible, so *Seawolf*, *Sealion*, *Junon* and *Trident* were stationed off the fjord and the Norwegian *Uredd* was hurrying north from Dundee. But, while *Trident* heard strong HE at 1549/13, the battleship got past the submarine patrols and reached Trondheim that night.⁴³

Hipper joined the German squadron in Trondheim on 21 March, the day after PQ13 sailed Iceland and QP9 left Murmansk, but there was no further German movement due to a shortage of boiler fuel. The deisel-powered *Admiral Scheer* was sent north to Narvik to cover the iron ore convoys.⁴⁴ PQ13 arrived Murmansk on 31 March having lost five out of 19 merchantmen and QP9 reached Iceland unscathed.⁴⁵ PQ14 sailed Reykjavik on 8 April and, on the same day, *Rubis* sailed Dundee to lay mines off Trondheim while *Trident* patrolled off Fro Havet. The mines and submarine patrols yielded nothing and 16 of the PQ14 ships were forced to turn back due to weather damage. One was sunk and seven reached Murmansk on 19 April.

A close submarine watch on the German squadron in Trondheim was no longer possible due to long hours of daylight so, for the PQ15/QP11 cycle, *Minerve*, *Uredd* and the Polish *Jastrzab* took up patrol areas south of Jan Mayen Island. *Unison* was also diverted from her patrol off Norway. *Tirpitz* and her consorts did not sail, however, and PQ15 arrived Murmansk on 5 May after losing three ships. QP11 was heavily attacked by aircraft, destroyers and U-boats and, on 2 May, the escorts *St Albans* and *Seagull* depth-charged *Jastrzab* which had strayed 95 miles from her allotted area. Five ratings were killed and the survivors were taken off before *Jastrzab* was sunk.⁴⁶

⁴² The one survivor picked up from *Izhora* was the subject of 'very great interest in Abwehr circles' attempting to glean intelligence on the Arctic convoy cycle. ADM 223 3.

⁴³ Raeder briefed Hitler on *Tirpitz*' sortie the following evening. It was agreed that the Kriegsmarine should be more circumspect about using its heavy ships, that the Luftwaffe in Norway should be reinforced for attacks on British carriers, and that work on the carrier *Graf Zeppelin* should be accelerated. Apparently becoming aware of the importance of air power at sea and balanced naval forces, Hitler admitted that, 'Everything must be done toward the early formation of a German task force composed of the *Tirpitz*, *Scharnhorst*, one aircraft carrier, two heavy cruisers and twelve to fourteen destroyers.' *Graf Zeppelin* was never completed, partly because there were no suitable aircraft to operate from her. Two German aircraft carriers were laid down and their on-off construction programme illustrates Hitler's inability to take a decision on naval matters and stick to it. The *Tirpitz* sortie of 6-13 March 1942 is described in Roskill : 1956 pp. 120-123. See also Schofield : 1977 p. 27, Winton : 1988 pp. 57-59 and ADM 234 380 for submarine dispositions.

⁴⁴ Raeder told Hitler on 16 April 1942 that the passage of the Brest Squadron through the Channel in February had consumed 20,000 tons of oil and that reserve stocks amounted to 150,000 tons. Brassey : 1948 p. 274.

⁴⁵ ADM 223 3.

⁴⁶ The difficulty of maintaining position in northern waters was blamed. Lieutenant Commander Romanowski had been unable to obtain any sights for six days. ADM 234 380. Schofield : 1977 p. 37.

The fact that destroyers had attacked QP11 indicated that the Germans were about to base heavy units, in particular *Tirpitz*, in north Norway. Air reconnaissance on 12 May showed *Tirpitz* and *Prinz Eugen* still in Trondheim, then, on 16 May, *Lutzow* was spotted northbound west of the Skaw. *Unbending* sailed Lerwick at 1300/16 to intercept her off Utvaer, but she reached Vestfjord at 1700/25 after a roundabout passage. Earlier, *Prinz Eugen* had been spotted steaming southbound from Trondheim. An attack by 14 Beauforts of 86 Squadron from Wick failed, though air dropped mines slowed her progress and she was located again off Karmoy at 1540/17. That evening, Coastal Command committed its most experienced units to its largest operation of the war to date. Twelve 42 Squadron Beauforts left Leuchars at 1802/17 followed by another twelve 86 Squadron Beauforts from Wick at 1813/17. Escort was provided by four Beaufighters and six Blenheims from Leuchars, and four Beaufighters and 13 Hudsons from Wick. Seven Beauforts and one Beaufighter were lost, but the strike failed.⁴⁷

PQ16 sailed on 21 May with *Seawolf* and *Trident* as part of the close escort to meet the incipient threat of enemy capital ships based in north Norway. *Unbending*, *P-614*, *O-10*, *P-46* and *Uredd* sailed Lerwick for cover patrols but sighted nothing and the patrols were abandoned on 28 May.⁴⁸ There was much debate about the best position for escorting submarines, not least because *Trident* and *Seawolf* had lost the convoy repeatedly in fog, but the reality was that this was an idea that had been tried before in the North Atlantic and failed. *Seawolf* was too slow to deal with anything other than an attack from astern of the convoy and submarines are useless close escorts; they lose tactical advantage and their presence hampers the escorts in counter-attacks on attacking U boats. It is hard to understand why Tovey and Horton persisted with this waste of resources for so long.

The PQ17/QP13 cycle was unable to sail until late June as much of the Home Fleet was in the Mediterranean for HARPOON, an attempt to run a convoy to Malta. When PQ17 sailed Hvalfjord on 27 June, the close escort included *P-614* and *P-615*. Submarine cover was provided by *Ursula*, *Tribune*, *P-212*, *Sturgeon*, *Minerve*, *Unrivalled* and *Unshaken*, which were carrying magnetic torpedoes specially for attacks on *Tirpitz*.⁴⁹ From Polyarnoe, *Seawolf* and *Trident* were to join the covering force, the latter after escorting QP13, which sailed on 26 June, as far as 23°W.⁵⁰ The disaster that befell PQ17 is well known and needs no recounting here other than to consider the part played by Scottish-based submarines.

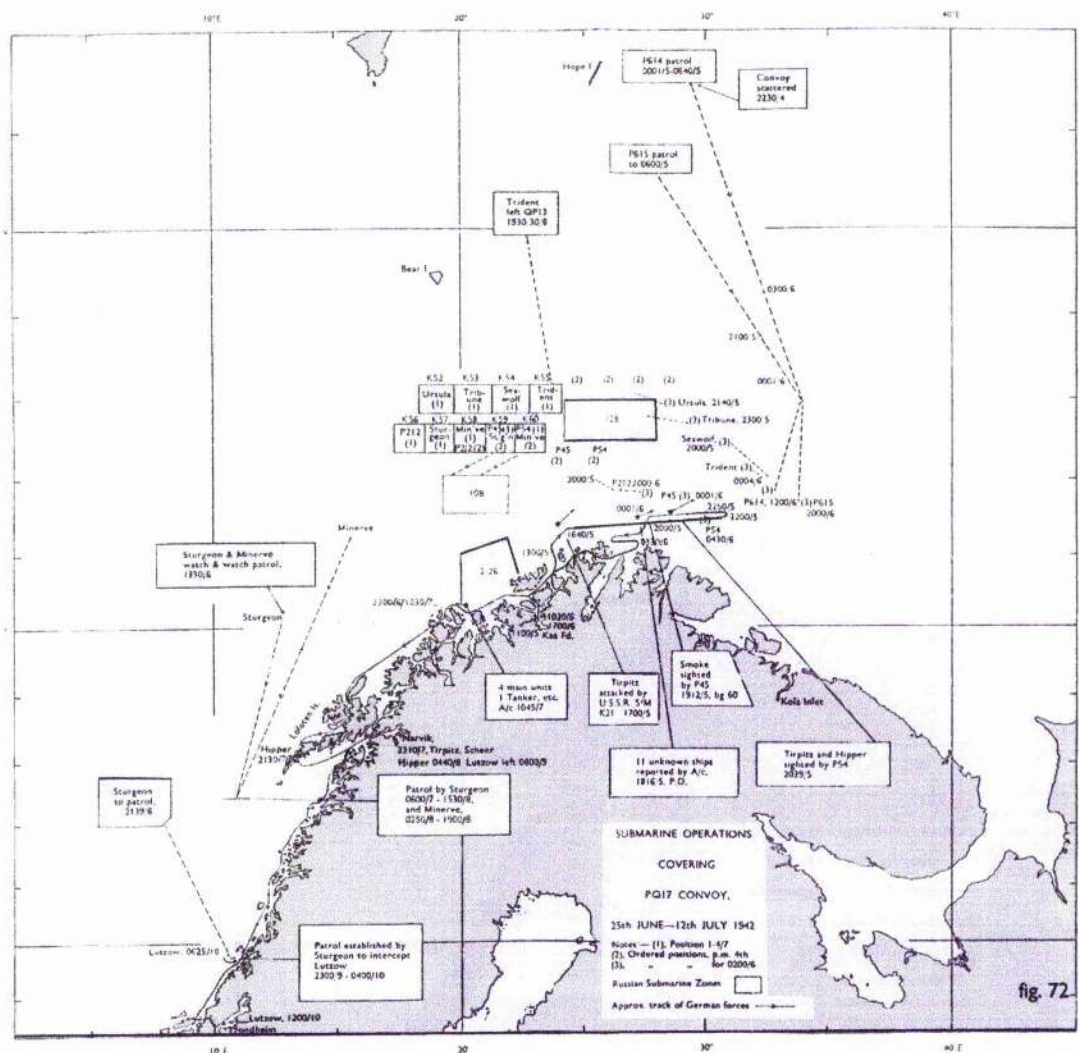
Dispositions were initially made on the basis that the *Tirpitz* group would head north from the Lofotens to intercept PQ17 east of Bear Island. But *Tirpitz* and *Hipper* joined *Scheer* at

⁴⁷ Ashworth : 1992 p. 58.

⁴⁸ ADM 234 380.

⁴⁹ *Convoys to Murmansk* article in *Naval Review* vol. XLV no. 4 (October 1957).

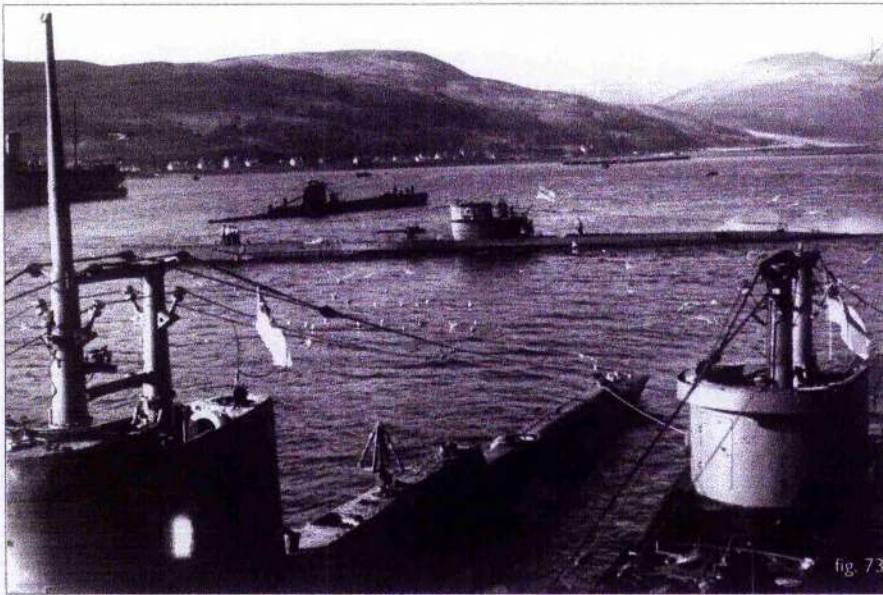
Altenfjord on the morning of 4 July, so *Ursula*, *Tribune*, *Seawolf* and *Trident* moved eastwards to the North Cape.⁵¹



Dispositions by submarines of the 3rd and 9th Flotillas from the Clyde and the Tay for the PQ17 convoy operation.

Believing the German squadron was closing the convoy, Dudley Pound infamously ordered the escort to withdraw and, at 2124/4, the convoy to scatter. *P-212*, *Sturgeon*, *Minerve*, *Unrivalled* and *Unshaken* had begun to move eastwards at 2000/4 but, after the convoy was ordered to scatter, submarines were placed along the likely track of the ships heading for the Soviet coast. At 0700/5 a Luftwaffe aircraft reported the Home Fleet about 500 miles away from the scattered PQ17 and the *Tirpitz* group began putting to sea. Decrypts allowed the Admiralty to monitor the German ships' progress and, at 1517/5, they were able to signal

⁵⁰ ADM 199 1858.



The 3rd Submarine Flotilla early in 1942. Furthest from the camera is *Unbroken* which had a distinguished career with the 10th Flotilla in the Mediterranean. Centre is *Graph*, the former *U-570* captured by a Coastal Command Hudson south of Iceland on 27 August 1941. She arrived at the Holy Loch to begin trials on 19 March 1942 and, that October, carried out a patrol off Finisterre, firing a salvo of torpedoes which narrowly missed her sister, *U-333*. *Graph* was also involved in Arctic patrols, covering the JW51/RA51 series and missing German armed trawlers with torpedoes off Trondheim on 1 January 1943. But there were constant problems with her engines and spares, not surprisingly, were hard to obtain. She hit the entrance to Camperdown Dock, Dundee, in June 1943 and misaligned her submerged foreplanes. Due for destruction in depth-charge tests, *Graph* was being towed bare-boat down the west coast of Scotland in a gale on 20 March 1944 when the tow parted and she was wrecked on Islay. Outboard boat alongside the depot ship *Forth*, from where the photograph was taken, is *Sturgeon* which was transferred to the Dutch Navy in 1943. Renamed *Zeehond*, she then operated with the 9th Flotilla from Dundee.

Tovey that they would reach the western exit from Altenfjord at 1430/5. The Soviet submarine *K-21* attacked *Tirpitz* and her consorts at 1700/5, and claimed two hits on the battleship.⁵² *Unrivalled* sighted smoke at extreme range at 1912/5, but thought it came from a trawler and made no report. *Unshaken* also sighted the smoke and closed sufficiently to identify *Tirpitz* and *Hipper* close astern at 2013/5, but was put down by German air cover. *Unshaken* never got closer than 10 miles and her attempts to send a sighting report were interrupted by enemy aircraft. She could not complete her signal until 2157/5, just as the German squadron was ordered to return to Altenfjord.⁵³

Tirpitz had never been closer than 300 miles to the convoy but she had secured a major victory by inducing Pound to deliver the scattered merchantmen up to the Luftwaffe and U boats. Submarines were in the unusual position of having every signal repeated to them, a

⁵¹ *Convoys to Murmansk* article in *Naval Review* vol. XLV no. 4 (October 1957).

⁵² *Convoys to Murmansk* article in *Naval Review* vol. XLV no. 4 (October 1957). Broome : 1972.

them, a privilege not extended to even the close escort commander, and, when Pound gave his scatter order, it was apparent to them that *Tirpitz* could be no nearer the convoy than 200 miles.



Tirpitz, Hipper and Scheer sailing for ROSSELSPRUNG, the German sortie against PQ17.

There was still the possibility that the German ships would return south to Narvik, or even Trondheim. *Hipper* and *Scheer* could pass down the Leads and were thus beyond submarine attack, but *Tirpitz* would have to pass outside the Lofoten Islands. *Sturgeon* and *Minerve* were already homeward bound as, short of fuel, they had been relieved on the patrol line off the North Cape. At 1157/6 FO(S) ordered them to keep a watch and watch patrol off the south entrance to Vestfjord.⁵⁴ Neither boat sighted anything and when *Minerve* withdrew for Dundee on 8 July, the German ships had reached Narvik. *Sturgeon*, meanwhile, narrowly missed intercepting *Lutzow* inbound for Trondheim.⁵⁵

The dark hours still too short for inshore patrols off Norway, so submarines were sent on anti-U boat patrols across the Northern Transit Area. *Saracen* sailed Lerwick for her first patrol midway between Iceland and Norway on 29 July where, at 2128/3 August, she sighted a surfacing U boat in 6248N 0012W and fired six torpedoes, one of which hit *U-335*. One survivor was pulled aboard and *Saracen* landed her POW at Lerwick on 9 August, then returned to the Clyde.⁵⁶ *Sturgeon* and *Unshaken* had sailed Lerwick on 4 August after decrypts indicated *Lutzow* was about to leave Trondheim for home. The boats were positioned off Egeroy and Lister, but *Lutzow* passed them close inshore in bad visibility early on 11 August. Both boats were then free to attack merchant shipping and, on 12 August, *Sturgeon* sank the *Boltenhagen* (3,335T). *Unshaken* attacked a convoy thirty minutes later and

⁵³ Once again, the poor surfaced speed of British submarines was to blame for *Unshaken's* inability to attack. *Unshaken* was bombed after being forced to dive by enemy aircraft at 2247/5, then the destroyer Z-27 circled her position until 2350/5 but did not mount an attack. ADM 234 380 pp. 140-142. ADM 199 1858.

⁵⁴ Owing to the need to surface and charge batteries, and the almost non-existent hours of darkness in northern latitudes in summer, submarines were unable to operate close inshore within range of enemy airfields. Two boats would thus operate a watch and watch patrol allowing one to move offshore and charge. ADM 199 1858.

⁵⁵ *Sturgeon's* two inshore patrols, mounted with her crew exhausted after a long period in northern waters, were a remarkable achievement and she came within two hours of finding herself in a position to attack *Lutzow*.

⁵⁶ Forty-three died in *U-335*. Jones : 1986 pp. 80-87. ADM 234 380.

sank the *George L. M. Russ* (2,980T). *Sturgeon* and *Unrivalled* returned to Lerwick on 16 August, the same day that air reconnaissance found *Lutzow* alongside at Swinemunde.⁵⁷

THE MEDITERRANEAN EFFECT.

Desperate to keep the Soviet Union in the war, Churchill wanted the PQ18/QP14 cycle to sail in July 1942 but it had become imperative that a relief convoy be got through to Malta and the escort would have to be largely drawn from the same Home Fleet ships that would otherwise have covered the next Arctic convoy. The PEDESTAL convoy sailed the Clyde for Malta on 2 August 1942, so PQ18 was unable to sail Loch Ewe until 2 September. The close escort, including *P-614* and *P615*, sailed on the same day to meet the convoy north of Iceland. Every available submarine was called on for this cycle; *Tribune*, *Tigris*, *Unshaken* and *Uredd* patrolled off Gimsostrommen, Gavlfjord and Andfjord and a covering force of *Shakespeare*, *Unique* and *Unrivalled* sailed Lerwick in 7 September for zones between the North Cape and the convoys. Five further submarines disposed to attack heavy units should they get past the patrol force were also ready to move north and join the covering force should that prove necessary. *Rubis*, in refit at Dundee, would be available to lay mines off the Lofotens in the path of a retreating enemy. Coastal Command mounted Operation ORATOR to provide continuous cover for the convoy off north Norway, 210 Squadron Catalinas flying 18-hour patrols from Invergordon that ended on Lake Lakhta in northern Russia, and Hampdens flying patrols from Soviet airfields.⁵⁸

On 10 September, *Unshaken* and *Tribune* sighted heavy units too far off to attack and surfaced once the coast was clear to pass a sighting report. *Tigris* sighted the German ships off Gavlfjord at 1340/10, but bright sunlight and glassy calm were the worst possible conditions for an attack and five torpedoes fired at long range missed.⁵⁹ *Unshaken* and *Uredd* also sighted the German squadron, but again too far off to attack. Horton ordered *Uredd*, *Unshaken*, *Tigris* and *Tribune* north to join the covering force.⁶⁰ While the reports from *Tribune* and *Tigris* mentioned *Tirpitz*, it was still unclear which enemy ships were on the move, or where they were going. *Tirpitz* had not left Vestfjord and the German squadron had comprised *Hipper*, *Admiral Scheer* and *Köln*. They did not operate, as intended, against QP14 and *Rubis* sailed Dundee on 10 September to lay mines across their probable return track.⁶¹ PQ18 lost 10 ships to air attack and three to U-boats, and the QP14 lost three merchant-

⁵⁷ ADM 234 380. Rohwer : 1997. Witthoft : 1971 p. 232.

⁵⁸ Ashworth : 1992 p. 62.

⁵⁹ This proved to be the last occasion on which Allied submarines were in a position to attack the German heavy ships at sea. ADM 234 380.

⁶⁰ *Uredd's* patrol report in ADM 199 1852.

men, two destroyers and the oiler *Grey Ranger*.⁶² Submarine patrols off the North Cape were withdrawn on 20 September, though *Tigris* and *Tribune* were diverted to patrol off Andoy in case the enemy ships did appear, but sighted nothing and returned to Lerwick on 1 October.⁶³

With longer hours of darkness allowing sufficient time to surface run at night and charge batteries, normal submarine operations off Norway resumed after a short break to refit boats and rest crews. On 12 October, *Uredd* and *Junon* sailed Lerwick, *Uredd* for Stadlandet and Utvaer, and *Junon* for Trondheim. *Junon* claimed successful attacks on 16, 17 and 18 October.⁶⁴ Off Vilnesfjord at 1548/18, *Uredd* hit the German *Libau* (3,713T) which was beached on Araldan Island from where salvage proved impossible.⁶⁵ *Junon* and *Uredd* returned to Lerwick on 24 October and 28 October respectively. Meanwhile, the involvement of Home Fleet ships in TORCH precluded Arctic convoys in October, but independently routed ships had sailed in August and another 13 were to go in the moonless period between 28 October and 9 November.⁶⁶ *Tuna* and *O-15* sailed the Holy Loch and Dundee respectively on 23 October to provide cover off the North Cape.

On 24 October the Soviets reported that enemy radio traffic indicated a move by surface units was likely, so the submarines, with time in hand, were diverted to patrol off Utvaer and Stadlandet for 48 hours, but saw nothing and were ordered north on 27 October. On 26 October the Shetland Bus fishing boat *Arthur* had sailed Lunna Voe with human torpedoes attached for TITLE, an unsuccessful attempt to sink or disable *Tirpitz*.⁶⁷ *Hipper* sortied from Altenfjord on 5 November to attack the Russia-bound independents, but her only success was the sinking of a tanker by one of her escorting destroyers. Bletchley Park and the OIC had been following *Hipper's* progress and, on 7 November, *Tuna* was ordered to Soroy to intercept her, but sighted nothing.⁶⁸

Trespasser and *Seadog* came north from the Clyde to relieve *Tuna* and *O-15*, and *Uredd* sailed Lerwick on 11 November, all three boats to cover the passage of QP15, 28 merchantmen that had to be brought home before they were iced in. QP15 had a weak close escort of

⁶¹ Thirty-one mines were laid at 1040/19 September, and it was claimed that the Norwegian SS *Nordland* (765T) sank after detonating one of these mines, but Rohwer found that *Nordland* was sunk by *Junon* on 19 October 1942. ADM 199 1852. ADM 234 380. Information from the late ex-Sous-Maitre Mechanicien Jean-Pierre Babin. Rohwer : 1997

⁶² Roskill : 1960 p. 230. Schofield : 1977 App. 1 for losses.

⁶³ ADM 199 1852.

⁶⁴ Rohwer was unable to substantiate *Junon's* claims in his research for *Allied Submarine Attacks of World War 2*. Rohwer : 1997.

⁶⁵ ADM 199 1852. ADM 234 380. Valvatne : 1954 pp. 49-50. Withoft : 1971 p. 299. Rowher : 1997.

⁶⁶ Padfield suggests that the break in Arctic convoys allowed Max Horton, the newly appointed C-in-C Western Approaches, to begin forming the Support Groups of frigates and destroyers that would prove so successful in the final stages of the U boat war. But the concept which dated from the time of his predecessor, Admiral Noble. Padfield : 1997 p. 327.

⁶⁷ HS 2 235.

⁶⁸ R.P. Raikes papers. IWM Department of Documents ref no. 96/56/1.

four corvettes, five minesweepers, the anti-aircraft ship *Ulster Queen* and a trawler. A planned reinforcement of the escort in the Barents Sea failed when storms scattered the convoy. Decrypts revealed that *Hipper* and *Köln* were preparing to sail Altenfjord and that U boats were in the Bear Island area, but they also revealed that Luftwaffe bomber units being sent from Norway to the Mediterranean so, denied air cover and reconnaissance, *Hipper* and *Köln* did not sail. Two QP15 ships were torpedoed by U boats near Bear Island and 26 reached Loch Ewe.

The PQ17 debacle had marked the nadir of Allied fortunes in the Arctic, but the relative success of PQ18, QP14 and QP15 was greeted with relief in London and Washington, not least because there was a considerable element of good luck involved on the Allied side. Only in their attacks on PQ17 had the Luftwaffe and Kriegsmarine achieved anything like the level of cooperation needed and the demands of the Mediterranean, particularly after the success of Operation TORCH led to a haemorrhaging of Luftwaffe strength to that theatre. Thus a large-scale amphibious operation launched largely from Scotland, namely TORCH, had combined with a major naval operation in northern waters to inflict what amounted to a double defeat on the Axis. As Roskill writes:

Though the Admiralty could not possibly have realised it at the time, we now know that the success achieved in the passage of PQ18 and QP14 was, in a way, decisive. Never again did the enemy deploy such great air strength in the far north. Before the next pair of convoys sailed, events in North Africa had forced him to send south his entire bomber and torpedo striking forces of Ju.88s and He.111s. Thus did a strategic success obtained thousands of miles away...have favourable repercussions inside the Arctic Circle.⁶⁹

THE BATTLE OF THE BARENTS SEA AND *TIRPITZ* DISABLED

After the enforced break during TORCH, Arctic convoys restarted with the new JW/RA series when JW51A sailed Loch Ewe on 15 December 1942 and *Seanympb*, *Taurus*, *Torbay* and *Sokol* provided cover off the North Cape. *Trespasser*, *Seadog*, *Unruly*, *Graph* and *O-14* sailed Lerwick on 20 December to cover JW51B which sailed Loch Ewe on 22 December. JW51B was joined, from Scapa, by the 17th Destroyer Flotilla on Christmas Day and the cruisers *Sheffield* and *Jamaica* escorted by *Opportune* and *Matchless* had covered the passage of JW51A to Kola and now returned to escort JW51B. Distant cover was provided by units of the Home Fleet from Scapa led by the battleship *Anson*.⁷⁰

From decrypts, the Admiralty was aware that *Tirpitz* was unfit for operations, *Nurnberg* had replaced the refitting *Scheer* as guardship at Narvik and that the repaired *Lutzow* had joined *Hipper*, *Köln* and six destroyers in Altenfjord on 18 December. Ultra signals on 28 and 29

⁶⁹ Roskill : 1956 p. 288.

⁷⁰ ADM 199 77. ADM 234 380.

December gave Rear Admiral Burnett in *Sheffield* the position of the ice edge as reported by U boats and the news that the Germans were expecting the convoy through the Bear Island Channel. *Hipper*, *Lutzow* and six destroyers sailed on 30 December and *Unruly* sighted, but appears not to have reported, three dark shapes leaving Altenfjord at 0142/31.⁷¹ The subsequent failure of the hesitantly led German heavy units at the Battle of The Barents Sea was a disaster for the Kriegsmarine. For the loss of two escorts, JW51A, JW51B and RA51 all got through unscathed, *Hipper* had been heavily damaged by the cruisers *Sheffield* and *Jamaica* before escaping in a snowstorm and the destroyer *Freidrich Eckholdt* had been sunk. A planned Atlantic sortie by *Lutzow* was cancelled, morale plummeted and Raeder was replaced by Dönitz.⁷²

On 5 January 1943, as it was thought *Tirpitz* was about to sail Trondheim, submarines returning from the Arctic were diverted to Norway. *Seadog* and *Unruly* went to Vestfjord and *Graph* and *Trespasser* covered the northern exit from Trondheim. *Unsparring* was already on patrol off Utvaer and *Uredd* sailed Lerwick for Stadlandet on 6 January in case German heavy units in the Baltic sailed north as reinforcements. But, following the Barents Sea debacle, a furious Hitler had ordered that the German heavy ships be scrapped. In February, the damaged *Hipper* and *Köln* made their way south to home ports unscathed despite an intensive effort to find them by Coastal Command Mosquitoes, Hampdens and Beaufighters from Leuchars and Wick.⁷³ When JW53 sailed Loch Ewe on 15 February, *Lutzow* and two destroyers were at Altenfjord, *Tirpitz* was at Trondheim, *Hipper* and *Köln* were in home ports and *Scharnhorst* and *Prinz Eugen* were on the safe side of the Kattegat. *Scheer* was refitting at Wilhelmshaven and *Nurnberg* at Narvik was not a major threat. *Seanymph*, *Sportsman*, *Simoom* and *Truculent* sailed Lerwick for Altenfjord but saw nothing.⁷⁴

Dönitz prevailed on Hitler to withdraw his order that the entire German fleet should be scrapped, not least because this would have placed an intolerable and entirely unproductive burden on German shipyards already overstretched by the U boat building programme. Meanwhile, a concentration of Luftwaffe fighters in southern Norway, noticed by the Allies on 6 March and similar to those that had presaged previous moves by heavy units, was taken to indicate a move by German warships was in the offing. Beaufighters of 235 Squadron from Wick began patrolling between Stavanger and Bergen and, by 7 March, it was known that *Scharnhorst* was moving north. Coastal Command reinforcements came north, then, early on 8 March, the pilot of a BOAC flight from Sweden to Leuchars reported large ships heading north in the Skaggerak. Sunderlands and Catalinas from Sullom

⁷¹ ADM 234 380. Winton : 1988 pp. 75-76.

⁷² ADM 234 369. Roskill : 1956 pp. 292-199.

⁷³ AIR 41 48 PP. 347-350.

⁷⁴ ADM 234 380.

Voe covered RA53 and Beaufighters from Wick searched the Leads but *Scharnhorst* reached Narvik unmolested on 13 March.⁷⁵ By 24 March 1943, *Tripitz*, *Scharnhorst* and their destroyers had moved north to Altenfjord.⁷⁶

The Germans were expecting another Arctic convoy that spring, but the Royal Navy was preoccupied with the U boat war in the Atlantic and the Home Fleet was in the Mediterranean for HUSKY.⁷⁷ These factors, combined with the German concentration in the north beyond the range of regular air reconnaissance, led to the suspension of the Arctic convoys. Dangerous submarine patrols off the German bases in north Norway were no longer necessary but, with a powerful enemy surface force concentrated in Altenfjord evidently capable of breaking out into the Atlantic, patrol zones were established between the Lofotens and Spitsbergen. *Stubborn* and *Severn* sailed the Clyde on 1 April followed by USS *Barb*, one of the SubRon 50 fleet submarines from Rosneath.⁷⁸ At 2105/7 April *Tuna* patrolling a line south-east from Jan Mayen Island sighted *U-644* lying in wait for the next, non-existent, Arctic convoy in 6938N 0540W and sank. *Tuna* unsuccessfully attacked two more U boats before she was relieved by *Stubborn* and returned to the Holy Loch on 22 April.⁷⁹

As the ice edge receded, a new patrol in the Denmark Strait, involving mainly the American SubRon 50 boats from Rosneath, was instituted at the end of April. In addition, an anti-U boat patrol was organised across the general track of U boats outbound for the Atlantic beyond the area covered by Coastal Command, though an RAF signal ordering a bombing restriction had been intercepted by *B-Deinst* and U boats had been warned.⁸⁰ Despite this, *Tuna* missed a U boat with eight torpedoes on 30 May, then *Truculent*, which had

⁷⁵ AIR 41 48 p. 344-345.

⁷⁶ Brassey : 1948 Conferences for 1943, Ch. 1 *Crisis in the German Navy*.

⁷⁷ For the 1943 Atlantic crisis see Gannon : 1998 and *The Defeat of the Enemy Attack on Shipping*, Grove (ed) : 1997 pp. 90-97. ADM 234 380.

⁷⁸ *Barb*, *Herring*, *Blackfish*, *Gurnard*, *Shad* and *Gunnel*, had arrived at Rosneath on 25 November 1942 after acting as navigation beacons for the TORCH Western Task Force. These boats formed Submarine Squadron 50 (SubRon 50) operating under FO(S). They were assigned patrol areas in the Bay of Biscay where they intercepted blockade runners operating between Spanish and French Biscay ports. SubRon 50 boats carried out nine Biscay patrols before they were moved to patrols off Norway and returned to the US late in 1943. ADM 199 1859. ADM 234 380. Roscoe : 1949. Rohwer : 1997.

⁷⁹ The U boat patrol line was moved 50 miles north, but the BDU Norway KTB notes;

The U boats south of Jan Mayen Island have been in this area since 24th March. Since the enemy has [sic] attacked in two cases at least [*U-339* by *Catalina* on 26 March 1943 and *U-302* by *Tuna* on 14 April 1943], he must suspect the convoy route Iceland - Murmansk to be patrolled off Jan Mayen Island. In spite of this, it is the most suitable line for intercepting a PQ convoy. It is the only suitable position besides Bear Island where traffic converges.

U boat Command was unaware of the loss of *U-644* and the sighting of *U-251* until 21 April, and even then the fate of *U-644* could only be guessed at. But this patrol was of great importance to the Germans as a shortage of aviation fuel had led to a temporary cessation of long range air reconnaissance in northern Arctic waters, as well as northern European waters. ADM 234 380

⁸⁰ ADM 199 1859.

sailed Lerwick on 2 June, sank *U-308* in 6428N 0309W on 4 June.⁸¹

The Home Fleet was weakened during the summer of 1943 by operations in the Mediterranean, in particular HUSKY, though on 8 July *Anson*, *Duke of York*, *Malaya*, *Furious*, two cruiser squadrons, three destroyer flotillas along with a US task force comprising *Alabama*, *South Dakota* and the cruisers *Augusta* and *Tuscaloosa* carried out a sweep off Norway to divert German attention from the Sicily landings due on 10 July. The ships were not seen by Luftwaffe reconnaissance, so the deception failed. The operation was repeated at the end of July when *Illustrious* and *Unicorn* also took part and Martlet fighters shot down five BV138s.⁸² Meanwhile, on 11 September 1943, six submarines sailed Loch Cairnbawn, each with an X-craft midget submarine in tow for Operation SOURCE. Secured to the sides of the X-craft were drop charges containing two tons of torpex, then the most powerful explosive available, which were to be laid under *Tirpitz*, *Scharnhorst* and *Lutzow*. *Scharnhorst* had sailed on gunnery trials, but two X-craft attacked *Tirpitz* early on 22 September. Enigma decrypts revealed that damage to *Tirpitz* was serious, though it did not give exact details. Further decrypts in the ensuing months showed that many of her crew had been sent on leave and that repairs would not be completed until March 1944 at the earliest.⁸³

The commitment of Allied naval strength elsewhere also meant that dealing with enemy heavy unit movements off Norway fell to Coastal Command, yet, by their own admission, Coastal's inexperience in anti-shipping strikes meant that they were far from successful.⁸⁴ The light cruiser *Nurnberg*, of little use in the Arctic, moved south from Narvik for the Baltic at the end of April 1943. She was spotted by a 540 Squadron Mosquito from Leuchars and Beaufighter strikes were mounted against her from Wick and North Coates on 1 May. Both strikes were intercepted by ME109s and FW190s and seven Beaufighters were shot down. No hits were scored on *Nurnberg*.⁸⁵

As fighter reinforcements reached Bodø and Bergen towards the end of September, a southward move south by one of the heavy units at Altenfjord was expected. *Lutzow* sailed on 24 September, and once her movements were known, the Home Fleet planned an operation against her with the American carrier *Ranger*, but it was soon apparent that *Ranger* could not reach a flying-off position in time. Coastal Command was short of aircraft, so it was decided to mount an operation with 12 Tarpons of 832 Squadron from the carrier *Victorious* escorted by Coastal's Beaufighters. *Lutzow* and five destroyers were sighted at

⁸¹ Surfacing 11 minutes after the attack, *Truculent* found a large patch of oil and wreckage. *U-308* sailed Kiel on 29 May for her first patrol and her 44 crew were all lost. The Germans attributed her loss to air attack while passing Iceland. Jones : 1986 pp. 136-141.

⁸² Rohwer and Hummelchen : 1974 p. 338.

⁸³ Information from RN Submarine Museum. Roskill : 1961 pt. 1 pp 64-68. Mitchell : 1993.

⁸⁴ AIR 41 48.

⁸⁵ AIR 41 48 p 350 *et passim*.

0624/27 off Kristiansund and 832 Squadron took off from Sumburgh to intercept her but did not sight their target. *Lutzow* avoided mines air-dropped on her expected route and reached Gdynia on 1 October.⁸⁶

Despite her having been disabled in SOURCE, at the end of 1943 repairs to *Tirpitz* were progressing, albeit slowly, under the cover of winter darkness and she remained a potent threat. The JW54A/RA54A and JW54B/RA54B convoy cycles sailed in November, encountering no enemy action, but these were the first Arctic convoys since March. Aside from SOURCE, movements of enemy surface units including ZITRONELLA had gone largely unchallenged by either the Royal Navy, or the RAF. At ranges in Loch Cairnbawn, Loch Striven and elsewhere, Bomber Command were having problems with HIGHBALL, an anti-shipping version of the bouncing bomb to be used against large warships including *Tirpitz*.⁸⁷ In reviewing their contribution, Coastal Command concluded that, 'The results of air action against enemy major naval units...can hardly be called successful.'⁸⁸ *Scharnhorst* had been forced to abort a passage to Norway in January 1943 on being spotted by Coastal Command aircraft, but only one ship had been damaged; *Lutzow* in June 1941.

BATTLE OF THE NORTH CAPE

At the end of 1943, *Scharnhorst* and the damaged *Tirpitz* were the only German heavy units left in the Arctic.⁸⁹ But the disabling of *Tirpitz*, the departure southwards of *Lutzow* and the dissipation of Luftwaffe strength on the eastern front and in the Mediterranean had a dramatic effect on Allied naval strategy. Arctic convoys could resume against a background of a much reduced surface and air threat and the Home Fleet could concentrate more on attacking enemy shipping off Norway.⁹⁰ As if to prove the point, Fraser sailed Scapa on 2 October with *Duke of York*, *Anson*, USS *Tuscaloosa*, three British cruisers, ten British and US destroyers, and the American carrier *Ranger* for LEADER, an air strike on Bodø where decrypts had revealed there was a promising collection of shipping. This was the first carrier attack off Norway since 1940.⁹¹ *Ranger* reached her flying-off position, 140 miles off Bodø, before dawn on 4 October. Twenty Dauntless dive bombers, 10 Avenger torpedo bombers and fighter escorts caught the enemy by surprise. Four ships were sunk and six vessels, among them the troopship *Skramstad* (4,300T), the military storeship *La Plata* (8,056T) and

⁸⁶ Ibid. p. 355 *et passim*.

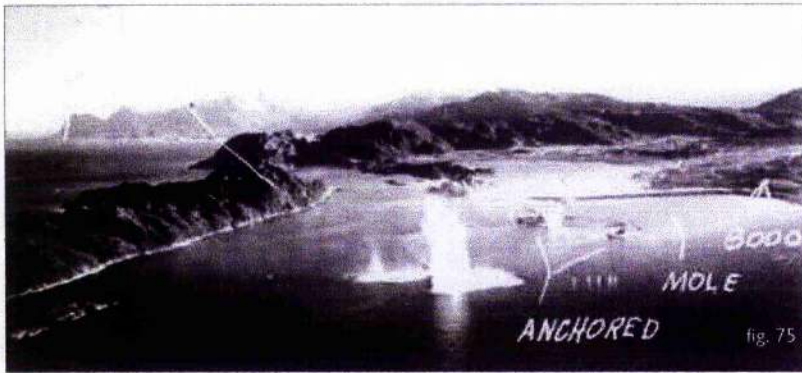
⁸⁷ Sweetman : 2000 p. 51.

⁸⁸ AIR 41 48 p. 368.

⁸⁹ Winton : 1988 p. 78. Rohwer and Hummelchen : 1974 p. 355.

⁹⁰ ADM 234 369. Roskill : 1960 pt. 1 p. 69.

⁹¹ Rohwer and Hummelchen : 1974 p. 359. Roskill : 1960 pt. 1 p. 102.



Operation LEADER

the tanker *Schleswig* (10,243T), which Enigma had identified as northbound with fuel for *Scharnhorst*, had to be beached. Three aircraft were lost.⁹²

JW55A sailed Loch Ewe on 12 December 1943 and, on 18 December, decrypts revealed that the enemy knew a convoy was at sea. Patrol areas had been allocated to U boats, air reconnaissance had been ordered and *Scharnhorst* in Altenford had been brought to three hours notice. Dönitz told Hitler that *Scharnhorst* and destroyers would attack the next convoy if a successful operation seemed assured.⁹³ JW55B sailed Loch Ewe on 20 December and was sighted by a Luftwaffe *Zenit* meteorological flight at 1045/22. Luftwaffe signals about the convoy were decrypted and communicated to Fraser, who had taken the Home Fleet north from Scapa Flow to Iceland, by Ultra signal at 0146/23.

Meanwhile, RA55A was about to sail Kola Inlet with a close escort that included *Belfast*, *Sheffield* and *Norfolk*. Fraser sailed Iceland in *Duke of York* with *Jamaica* and four destroyers at 2200/23.⁹⁴ Over the ensuing 24 hours, he was provided with a stream of Enigma-based intelligence to the effect that *Scharnhorst* had come to three hours notice at 1300/22, that the Germans first suspected that the convoy was a landing force heading for Norway and that eight U-boats had been ordered to a patrol line south-west of Bear Island. An Ultra message to Fraser at 0130/26, based on decrypt of a 1527/25 signal from Admiral Northern Waters to *Scharnhorst*, stated, 'Most Immediate. OSTFRONT 1700/25/12.' This was followed at 0217/26 by another Ultra signal that told Fraser the Admiralty believed *Scharnhorst* had sailed.⁹⁵ Dönitz had taken the bait.

Fraser ordered JW55B to turn north, clear of what would be the battle zone, and at 0834/26 *Norfolk*'s radar picked up *Scharnhorst* just over six miles west of her. Intermittently engaged during the day by Burnett's cruisers, *Scharnhorst* headed south, away from the convoy, but straight into the path of Fraser's battle group. Regular radar plots from *Belfast*

⁹² OIC Intelligence Summary in ADM 223 8. Roskill : 1960 pt. 1 p. 102.

⁹³ Brassey : 1948 p. 374.

⁹⁴ ADM 234 369.



fig. 76

The Kriegsmarine went to war with some of the world's fastest, most modern and best-armed warships, not least among them the *Scharnhorst* (above), but they were too few in number to be decisive. Hitler inherited a naval expansion programme in 1933, including early concepts for *Scharnhorst* and *Gneisenau*, which he expanded into what became known as the Z Plan. This was predicated on a possible war with Britain and France in 1944, by which time it was hoped that the Kriegsmarine would be strong enough to meet the Royal Navy on something like equal terms, at least in the North Atlantic. But the Z Plan took insufficient account of in some measure consequent British naval expansion and almost immediately came up against limits of production and inter-service rivalries.

Two German aircraft carriers were planned and one, the *Graf Zeppelin*, was launched in 1938, but never completed. Naval aviation would have provided the Kriegsmarine with a more balanced fleet and would have made the Royal Navy more circumspect in engagements such as that with *Bismarck*. Ultimately, Germany could not compete with British, and later Allied, warship building capacity. And the crews of the ships she did deploy suffered from a chronic lack of sea time in part due to fuel shortages and in part to the overwhelming superiority of the Royal Navy which forced the Kriegsmarine to fall back on the 'fleet in being' concept, even though this latter was effective in that it tied down a large part of the Royal Navy's strength in Home Waters.

The destruction of *Scharnhorst* can be partly attributed to Enigma decrypts (using intelligence gained by Scottish-based naval units), partly to the German battleship allowing her destroyer escorts to lose touch and partly to poor shiphandling, but it was inexperience that allowed her to be taken completely by surprise.

allowed *Duke of York* to gain contact at 1617/26. *Scharnhorst* was taken completely by surprise, her turrets trained fore and aft, and sank at 1945/26 after sustaining at least thirteen 14" hit, around 12 hits from Burnett's cruisers and eleven torpedo hits, a testament to the strength of her construction. Just 36 of her company survived.⁹⁶

Tirpitz was repairing damage inflicted during SOURCE, but never again would there be a credible surface threat to the Arctic convoys. This was another victory for naval forces based in Scotland.

⁹⁵ Winton : m1988 pp. 80-81.

⁹⁶ Roskill : 1960 pt. 1 pp. 80-89.

CARRIER OPERATIONS AGAINST *TIRPITZ*

Repairs to *Tirpitz* were the subject of close Allied interest, particularly when, on 3 March 1944, an agent at Altenfjord reported the battleship test firing her main armament. On 15 March the SIS agent reported *Tirpitz* had undertaken sea trials and JW58 sailed Loch Ewe on 27 March. A decrypt on 1 April revealed that *Tirpitz* had delayed her full power trials by two days and would sail on 3 April. Fraser was by then aware that JW58 had been a success, the escorts sinking four U boats and shooting down six aircraft, and the weather was favourable, so TUNGSTEN was set for 0530/3 April.⁹⁷

The Fleet Air Arm had trained for this operation at Loch Eriboll where a range representing *Tirpitz*' berth in Kaafjord had been constructed and a full-scale rehearsal was conducted on 28 March. *Duke of York*, *Anson*, *Victorious*, *Belfast* and five destroyers sailed Scapa at noon on 30 March followed by *Royalist*, *Sheffield*, *Jamaica*, *Furious*, five destroyers and the escort carriers *Searcher*, *Emperor*, *Pursuer* and *Fencer*. Early on 3 April the first strike comprised 18 Barracuda bombers from *Victorious* and *Furious* with a close escort of 20 Wildcats from *Searcher* and *Pursuer*, 16 Corsairs from *Victorious* as top cover and ten Hellcats from *Emperor* for flak suppression. The second strike force was made up of 24 Barracudas from *Victorious* and *Furious* with a similar escort. Seafires from *Furious* and Wildcats from *Fencer* flew CAPs over the force and Swordfish from *Fencer* provided A/S cover for the fleet.⁹⁸



Barracudas inbound for Operation TUNGSTEN

The first attack at 0529/3 took *Tirpitz* by surprise as she was shortening in her cable. Fighters strafed her upper decks, nine bombs hit and another near miss caused hull damage. *Tirpitz* had begun to move back into her net defences when the second strike arrived

⁹⁷ The attack on *Tirpitz* was originally scheduled for between 7 and 16 March, but *Victorious* was delayed in dockyard hands. Moore's report in ADM 199 844.

⁹⁸ Ibid.

at 0630/3, and was partly obscured by smoke floats, but another four bombs hit. Fighters also strafed shipping in the fjord and set a tanker on fire. In *Tirpitz*, 122 died and another 316 men, including Kapitan Hans Meyer, were injured. Her upperworks were badly damaged but most of the bombs had been dropped too low and failed to penetrate her vitals. She would be out of action for only three months. One Hellcat and three Barracudas were lost.⁹⁹

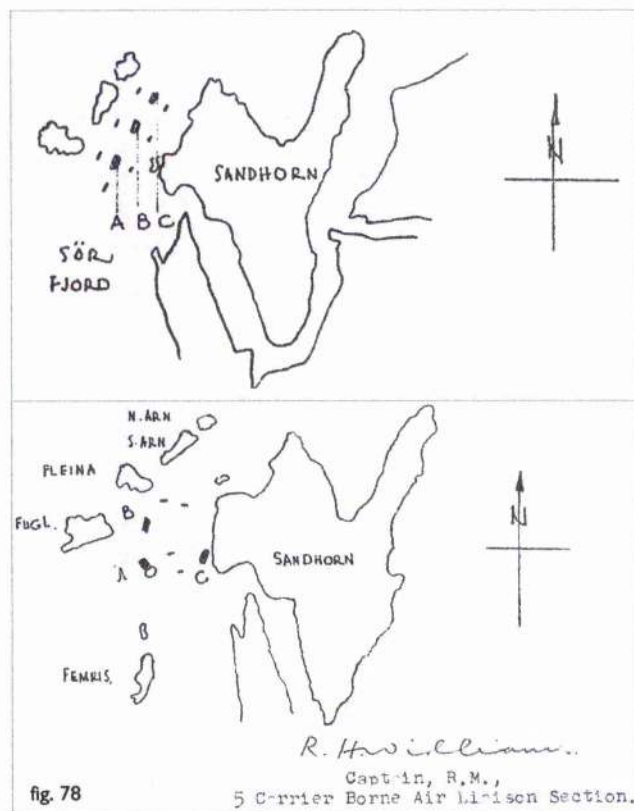


fig. 78

Following the cancellation of PLANET, the carriers attacked Bodø and a convoy off Sandhorn as above. Two ships were sunk for the loss of one Barracuda, two Corsairs, one Hellcat and one Wildcat

Sir Andrew Cunningham, who had taken over as First Sea Lord from the dying Dudley Pound on 15 October 1943, urged Fraser to repeat TUNGSTEN, hitting the enemy when he was already down. There followed an extraordinary spat between two of the Royal Navy's senior flag officers. A 'truculent and obstinate' Fraser, correctly believing *Tirpitz* impervious to bombs then carried by the FAA, wished his carriers to revert to anti-shiping sweeps off Norway and threatened to resign if ordered to carry out another attack. The two men had an uneasy relationship but, as Cunningham wrote, 'wiser councils [sic] prevailed,' and the carriers sailed Scapa on 21 April for PLANET, though the operation had to be cancelled due to bad weather.¹⁰⁰

TIGER CLAW, another strike against *Tirpitz* by *Victorious* and *Furious* on 28 May failed due to bad weather, but the force moved south for a secondary operation, LOMBARD, on the evening of 1 June when a convoy reported by a Mosquito strike earlier in the day was attacked off Ålesund. The ammunition ship *Hans Leonhardt* (4,174T) blew up and the freighter *Florida* (5,542T) and the escort *Sperrbrecher 181* were set on fire.¹⁰¹

⁹⁹ Ibid. Sweetman : 2000 pp. 58-73. Winton : 1988 p. 86-89.

¹⁰⁰ Roskill : 1977 p. 237-238.

¹⁰¹ Winton : 1988 p. 90. Rohwer and Hummelchen : 1974 p. 410.

Victorious left for the Far East with *Indomitable* on 12 June and, two days later, Sir Henry Moore succeeded Sir Bruce Fraser and C-in-C Home Fleet.¹⁰² *Anson* and *King George V* were refitting for the Pacific, so Moore was left with *Duke of York* and, from early July, the fleet carriers *Indefatigable* and *Implacable*. He also had the superannuated *Furious* and the escort carriers. And it was the escort carriers *Striker* and *Fencer* that sailed Scapa with *Royalist*, *Sheffield* and six destroyers on 20 June to steam along the Arctic convoy route until close to known U boat concentration areas, then go into radio silence. Strikes were then flown off in the hope of catching U boats on the surface. Nothing was sighted, so the force made a feint towards Norway hoping to be sighted by enemy aircraft. WANDERERS was intended to encourage the enemy to maintain a large force of U boats in Norway and well away from the invasion area in the Channel, but the enemy failed to take much notice.¹⁰³

On 14 July Moore sailed Scapa in *Duke of York* with *Devonshire*, *Kent*, *Jamaica*, *Bellona*, destroyers and the 20th Escort Group to cover *Formidable*, *Indefatigable* and *Furious* as they carried out MASCOT, an attack by 44 Barracudas, 18 Hellcats, 18 Corsairs and 12 Fireflies on *Tirpitz*. As Winton writes, there is evidence that B dienst was listening to the carrier wireless traffic and had warning of a sweep. But an OP on a hilltop overlooking her anchorage gave *Tirpitz* 15 minutes warning of the attack and she was completely shrouded in smoke when the strike arrived overhead. No hits were obtained and two aircraft were lost.¹⁰⁴

JW59 was to sail Loch Ewe on 15 August and, three days earlier, Rear Admiral (Carriers) Rhoderick McGrigor took his ships north from Scapa for OFFSPRING. Avengers laid mines off Storholm, a radar station was destroyed on Haro Island and Gossen airfield was attacked. After OFFSPRING, McGrigor joined Moore with the main strength of the Home Fleet to cover the passage of JW59 and launch another strike against *Tirpitz*. Decrypts had revealed that the damage inflicted on *Tirpitz* in MASCOT had been minor and that she had carried out sea trials on 31 July and 1 August. *Indefatigable*, *Formidable*, *Furious*, *Nabob* and *Trumpeter* launched a series of attacks, GOODWOOD I-IV, between 22 and 29 August involving up to 60 aircraft at a time, but only one bomb hit *Tirpitz* and that failed to explode. And, while the ships were retiring after GOODWOOD I, *U-354* sank the frigate *Bickerton* and badly damaged *Nabob*. But JW59 had a largely uneventful passage with the escort carriers able to keep the U boats in the Barents Sea at bay. Only the sloop *Kite* was lost to a torpedo from *U-344*.¹⁰⁵

With the failure of GOODWOOD, it was clear that the FAA could not bring heavy enough ordnance to bear to disable *Tirpitz*, so she was left to the Lancasters of Bomber Command

¹⁰² Roskill : 1977 p. 254.

¹⁰³ ADM 199 844.

¹⁰⁴ Winton : 1988 p. 91. Rohwer and Hummelchen : 1974 p. 437. ADM 199 844.

to deal with. On 15 September, in Operation PARAVANE, 27 Lancasters of 9 and 617 Squadrons took off from Yagodnik near Archangel. Twenty-one of the aircraft carried 12,000lb Tallboys and the others carried 400lb Mk. 2 mines. It was known that *Tirpitz* could be covered with smoke in 10 minutes but it was calculated that a surprise approach from the landward side would give the Germans only three minutes warning. *Tirpitz* was almost obscured by smoke when the Lancasters arrived, and only 16 Tallboys were dropped. No definite results could be seen, but one had passed through her foc'sle without exploding, then detonated below the waterline. PRU flights and SIS agents' reports confirmed that she had been seriously damaged.

On 16 October, however, a decrypt disclosed that *Tirpitz* had moved to a new berth off Håkøy Island near Tromsø. This brought her within range of Lancasters from Scotland and aircraft of 9 and 617 Squadrons operating from Lossiemouth, Kinloss and Milltown finally sank her on 12 November.¹⁰⁶ Between 1940 and 1944, either in harbour or at sea, the RAF and FAA had carried out 33 operations against *Tirpitz* involving over 700 aircraft.¹⁰⁷ And, for more than four years, numerous submarines, including the midget X-craft, and much of the Royal Navy's modern warship strength had been tied down at Scapa Flow by the threat of her wreaking havoc among Arctic or Atlantic convoys. As the OIC concluded:

Thus ended the *Admiral von Tirpitz* [sic] just four years and two days after her completion. Throughout the whole of her career she neither sank nor damaged a single British warship. She did, however, succeed by her mere presence in Northern Waters in pinning down important British Naval forces during a critical period of the war.¹⁰⁸

And, as with her ill-fated sister, once again her containment and eventual destruction had principally involved naval and air forces based in, or operating from, Scotland.

SEABORNE SPECIAL OPERATIONS FROM SCOTLAND AGAINST TARGETS IN NORWAY

In 1939 responsibility for Special Operations was vested in three separate organisations; MI(R) at the War Office was responsible for guerrilla warfare, Section D of the Secret Intelligence Service (MI6) for espionage and Department EH at the Foreign Office for propaganda. These were reorganised into one body, the Special Operations Executive (SOE), in July 1940. Churchill, searching for gestures of defiance that would impress, in particular America, with British determination to fight on, famously if melodramatically charged SOE with setting Europe ablaze.

¹⁰⁵ ADM 234 369. Schofield : 1977 pp. 127-128.

¹⁰⁶ Sweetman : 2000 ch. 5. Bennett : 1986 pp. 108-110. Terraine : 1985 p. 674 and f.n. 9.

¹⁰⁷ Sweetman : 2000 p. 161.

¹⁰⁸ ADM 223 87.

SOE's Norwegian Section grew to become the Scandinavian Section in November 1940 under Sir Charles Hambro. At first, as Thomson writes, SOE had a feeble grasp of the realities of occupation;

SOE inherited...a sense of unrealistic optimism regarding the prospects of a general revolt against the Germans in Norway. With virtually no sources of information other than their own imaginations, British planners envisioned co-ordinated uprisings at key points early in 1941 aimed at overthrowing the occupation entirely, essentially unaided by Allied forces. At best the scheme was impractical; and at worst, it threatened to plunge the Norwegian people into a bloodbath for no worthwhile purpose.¹⁰⁹

A steady stream of potential SOE recruits had begun arriving in Scotland within weeks of the Allied evacuation from Norway, small boats bringing patriotic Norwegians keen to continue the fight. *Viking* arrived at Aberdeen in August 1940 with Konrad Lindberg, Fritjhof Petersen and Odd Starheim who were among SOE's earliest recruits. Lindberg and Petersen were sent back to Norway in November 1940, but their indiscretion soon got them arrested.¹¹⁰

In January 1941, with the code name CHEESE, Starheim was landed by the submarine *Sunfish* to organise resistance around Kristiansand South. He monitored German oil stocks in Norway, a contact in Stavanger reported on German shipping and another recorded Luftwaffe movements at Sola airfield. Messages from Starheim's radio post at Flekkefjord began on 25 February and, on 10 June, a signal that German warships had passed up the coast referred to the *Bismarck*, though it was too late to be of value. The CHEESE mission sent around 100 messages in five months and, with the Gestapo closing in on his radio post, Starheim went to Oslo where a courier told him that the Soviet Union was to be invaded on 29 June. Bearing what he believed was vital intelligence, Starheim escaped to Sweden on 27 June and was flown to Leuchars.¹¹¹ Starheim returned to Norway on 3 January 1942 and, on 21 January, escaped from a German patrol by jumping from a window. On 15 March, he led a party that hijacked the coaster *Galtesund* and made for Aberdeen. After a prolonged search in thick weather, a Hudson from Leuchars found the ship at 1315/16 and they secured in Aberdeen at 1230/17.¹¹²

¹⁰⁹ *From Neutrality to NATO - The Norwegian Armed Forces and Defense Policy 1905-1955*. Ph.D. dissertation by David G. Thomson, Department of History, Ohio State University, Columbus, Ohio, USA, 1996, p. 222.

¹¹⁰ Victims of SOE's naiveté, they were executed on 11 August 1941. Cookridge : 1966 p. 508.

¹¹¹ Starheim's account of the first CHEESE mission is in HS 2 150.

¹¹² One of Starheim's party aboard *Galtesund* was Einar Skinnarland from Vermork. Information that the Germans had ordered a considerable increase in the production of heavy water at the Norsk Hydro plant in Vermork had reached London six months earlier, so Skinnarland, with his intimate knowledge of the area, was a considerable find. He went to London and, with SOE Scandinavian Section Head Colonel John Wilson and Professor Leif Tronstad, began planning Operation GROUSE, the attempted destruction of the heavy water plant at Rjukan. He volunteered to return to Norway to prepare for the parachuting in of a party of four saboteurs and, after just 11 days training, he parachuted from a Halifax over the Hardangervidda on 29 March. Less than three weeks after disappearing, he was back at work and explained his absence to the Germans as being due to illness. GROUSE failed when the gliders carrying Commandos crashed in bad weather. An account of the second CHEESE mission is in HS 2 151.

At 1540/16 August 1942 Starheim and Sergeant Andreas Fasting (christened BISCUIT to Starheim's CHEESE) left Dundee aboard the French submarine *Minerve* to reconnoitre the ground for CARHAMPTON, an SOE operation to steal ships from one of the German convoys that anchored for the night at the entrance to Flekkefjord.

They landed by folbot early on 20 August and *Minerve* returned inshore two days later to pick them up.¹¹³ CARHAMPTON proper began on 31 December 1942 when the whaler *Bodo* left Aberdeen with a party of 40 Norwegian Commandos and sailors led by Starheim. *Bodo* reached the coast off Eigerøy on 2 January and the party established themselves in a deserted house at Televik.¹¹⁴ The first hijack attempt having failed, another was made on a convoy on 11 January, but the Germans had been alerted by cut power and telephone lines and mittens and wire-cutters left behind during the first attempt, and had doubled sentries. The Norwegians got into a firefight with some very alert Germans and were fortunate to escape. Sixteen of the CARHAMPTON party including Starheim took another coastal steamer, *Tromsøund*, in an attempted repeat of the *Galdesund* escape, but German aircraft sank her and all aboard were lost. Another 19 of the CARHAMPTON party headed for Aberdeen in fishing boats, but steered an erratic course and made landfall at Redcar. Two others escaped through Sweden.¹¹⁵

CARHAMPTON failed because of poor planning and discipline, and better results could have been obtained at less cost by simply limpeting the ships.¹¹⁶ Earlier, after ARCHERY and ANKLET in December 1941, it had become clear that this unwieldy and costly operations were, 'neither worthwhile for the Allies nor welcomed by the local population who longed for liberation, but not large-scale disappointments with reprisals in their train.'¹¹⁷ The Brit-

131A
 Westma c o t e
 WASS D
 S
 MD
 266
 15/3/42
 1900
 15/3/42
 1930
 U R G E N T
 E L E V E N O F 15 T H M A N C H .
 W E H A V E C A P T U R E D A C O A S T S H I P O F 6 0 0 T O N S O F F E G E R S U N D
 1 8 0 0 G H T T O D A Y .
 T H E S H I P M A K E S 1 1 K N O T S . W E H A V E F O R A B E R D E E N . P L E A S E
 G I V E A I R C R A F T E S C O R T B E C A U S E W E E X P E C T A T T A C K F R O M G E R M A N
 A I R C R A F T T O M O R R O W M O R N I N G .
 E N D S .
 N O T E B Y C O D E S . I D E N T I T Y C H E C K G I V E N .

TP AT 20.50

15/3/42 HC

fig. 79

Starheim's signal notifying SOE of the capture of the *Galdesund*, an incident dramatised in the feature film *The Heroes of Telemark*.

¹¹³ ADM 234 380.

¹¹⁴ *Bodo* set out to return to Aberdeen but struck a mine. Two of her 35 crew survived. Starheim's body came ashore near Göteborg in April 1943. Cruikshank : 1986 p. 109.

¹¹⁵ HS 7 178.

¹¹⁶ Cruikshank : 1986 pp. 107-113.

¹¹⁷ HS 7 178.

ish had operated in Norway without reference to the Norwegian government in exile or the Norwegian military staff. A post-war Norwegian investigation concluded that;

The situation at the end of 1941 was such that the British presumably were making plans affecting vital Norwegian interests, without the Norwegian authorities having any knowledge of, or influence on, the planning. Even more serious from the Norwegian perspective was the fact that several hundred Norwegians belonging to the so-called Linge Kompanie were directly under British command.¹¹⁸

The nascent Norwegian resistance, Milorg, bitterly resented that they and the government in exile were being kept in the dark about SOE operations in Norway, and *Linge Kompanie* Commandos had begun openly questioning their role.¹¹⁹ This could not continue so, in December 1941, Norwegian Defence Minister Oscar Torp and Charles Hambro initiated the Anglo-Norwegian Collaboration Committee and Torp established a unified Norwegian High Command, the *Forsvarets Overkommando*.

The need for greater co-operation between SOE and Combined Operations had been recognised for some time and a joint policy paper was issued on 21 September 1942. First fruit of this new spirit of cooperation was CARTOON, an ambitious January 1943 raid on Litlabø pyrites mine and associated harbour installations at Sagvåg.¹²⁰ In November 1942, shortly after the Norwegian 30th MTB Flotilla had formed at Lerwick for operations in The Leads, a detachment of Norwegian and British Commandos under Captain F. W. Fynn arrived at Voxter Camp as the Combined Operations North Force, Fynnforce for short.¹²¹ The CARTOON force sailed Lerwick in seven Norwegian MTBs at 0800/23 January:

626	Lieutenant Knut Bøgeberg Lieutenant Ragnvald Tamber (Naval Force Commander) Lieutenant Shaw (12 Commando)	12 men of 12 Commando as Force D
627	Lieutenant H Henriksen. Major Francis Fynn (Military Force Commander)	14 men of 12 Commando as Force C
620	Lieutenant Aksel Prebensen (2 nd in-command Naval Force) Major Ian Collins (Combined Operations HQ) Lieutenant Hallet (12 Commando)	13 men of 12 Commando as Force B
631	Lieutenant Erling Matland Captain Harald Risnes	12 men of 12 Commando as Force A.
625	Lieutenant Karl Hjeljestad	Minelaying and Commando Reserve Force A2.
618	Lieutenant Alv Andresen	Target 24
623	Lieutenant A. Håvik	Target 24

The Commandos transhipped for the assault, Forces C and D on 626 and Forces A and B and the A2 reserve, mainly British troops, on 627. These two MTBs took the lead with 620, 631 and 625 following as cover to the south and east. 618 and 623 for the northern flank and a diversionary attack on a coastal battery at Marstenen.

¹¹⁸ Den norske regjerings virksomhet IV.76 quoted in Thomson *op cit*.

¹¹⁹ Joachim Rønneberg, who was directly involved, describes relations between the Norwegians and SOE after AN-KLET/ARCHERY and Linge's death, as being at 'boiling point'. Salmon (ed) : 1995 pp. 152-157.

¹²⁰ Up-to-date information on the German dispositions in the area was essential so the Shetland Bus boats *Gullborg* and *Sjølivet* were sent to land men posing as fishermen. DEFE 2 616. Reynolds : 1998 p. 37.

¹²¹ DEFE 2 617.

Sagvåg harbour was sighted at midnight and, at 0011/24, 626 fired two torpedoes at the quay from 300-400 yards range. One hit rocks below the quay, the other missed. 626 closed the quay and, under fire, Lieutenant Borrighsen went over the side with a rope along which troops reached the shore. 627 landed her troops on the north side of the bay. The quay was cleared of enemy troops, Commandos marched to Litlabø and demolitions were complete by 0230/24. The force had re-embarked by 0320/24 after destroying installations on the quay and the MTBs left to rendezvous with 625, 620 and 631. Meanwhile, 625 had laid mines on the east side of Stord and 620 and 631 entered Leirvik harbour, set the steamer *Ilse M. Russ* ablaze and engaged shore positions. 618 and 623 had been heavily engaged with the battery at Marstenen and set course for home, arriving Lerwick at 1200/24. The main force split at 0930/24 when 620 lost an engine due to battle damage, 626 and 627 proceeding ahead to reach Lerwick 1600/24. The three remaining MTBs were punching into a southerly gale when a JU88 dived to attack. 631 returned fire and shot the Junkers down. The last of the CARTOON force reached Lerwick at 1815/24.¹²²

CARTOON had been well planned and was a notable success. The mine, which had produced 160,000 tons of pyrites in 1942, was out of action for a year, a ship had been gutted and sunk, shoreside facilities had been wrecked and a German watch post burned down. Three prisoners had been taken and a JU88 had been shot down and its crew killed. One Commando had been killed and two others injured along with eight naval personnel, one of whom was seriously hurt. Three MTBs were damaged.¹²³

THE SHETLAND BUS AND SPECIAL OPERATIONS 1942-43

Many Norwegian fishermen had seized the opportunity to escape across the North Sea and several had been persuaded to return to Norway with agents and supplies. In a rare display of cooperation between the two organisations, in December 1940 MI6 officer Major L. H. Mitchell went to Shetland to establish a joint SOE/MI6 base, Base ME7, and six Norwegian fishing boats manned by Norwegian volunteers were formed into the Shetland Naval Unit, better known as the Shetland Bus. Sadly, despite the fact that, between 1941 and 1945 the Shetland base made 41 trips to Norway on behalf of MI6, landing 37 agents and picking up 18, inter-departmental rivalry meant that;

In spite of repeated attempts, the SOE Norwegian Section never succeeded in establishing real co-operation with the SIS Norwegian section.¹²⁴

¹²² Report by Major Collins in DEFE 2 617. Reynolds : 1998 pp. 37-38. Dalzell-Job : 1992 pp. 54-55.

¹²³ Ibid. This raid produced serious reprisals. Around 200 arrests were made by the Gestapo in Bergen including, for some reason, the entire membership of a temperance society. Cookridge : 1966 pp. 544-545. See also Irvine : 1988. Dalzell-Job : 1992. Ladd 1983 p. 48.

¹²⁴ HS 7 178.

In its first season of winter sailings, between December 1940 and May 1941, Shetland Bus boats made 14 trips to take in 15 agents and pick up 18 along with 39 refugees. The 1941-42 winter season saw the boats make 40 trips, landing 43 agents and picking up nine along with 46 refugees. One hundred and twenty-nine tons of stores were also carried that winter but, while enemy patrols were then still inefficient, there was no organisation to get the munitions and supplies away from the coast.¹²⁵

Following the CARHAMPTON failure, SOE elected to concentrate their efforts against targets, 'of real and present value to the enemy.'¹²⁶ Foremost amongst these was the Orkla Pyrites Mine at Trøndelag in Northern Norway that in 1941, had produced 526,327 tons of pyrites used in the manufacture of sulphuric acid. The plan, codenamed REDSHANK, was to destroy the generators and transformers at the Bårdshaug power station, thus disabling both the mine and the electric railway that carried the ore to Thamshavn for shipment. A party of three saboteurs led by Lieutenant Peter Deinboll, whose father worked for the Orkla company, was drawn from the *Linge Kompanie*.

The REDSHANK party, Deinboll, Fenrik Per Getz and Sergeant Thorlief Grong, left Shetland in the Bus boat *Harald* (Skipper Per Blystad) on 17 April 1942 and carried out REDSHANK on 4 May. They broke in, overpowered the guard and laid their charges. Getz and Grong left on bicycles while Deinboll stayed behind to watch as a considerable explosion wrecked the power plant. After various misadventures, all three escaped to Sweden and were flown back to Leuchars.¹²⁷

Meanwhile, on 21 April, Arne Vaerum (PENGUIN) and Emil Hvaal (ANCHOR) were landed near Nesvik from the Shetland Bus boat *Olaf* to destroy Luftwaffe installations at Stavanger.¹²⁸ The two men contacted a local Milorg group at Sotra but, on Sunday 26 April, they were betrayed by a Quisling while with Milorg leader Lars Telle at Televåg, and an SS squad appeared. A firefight ensued in which two SS officers and Vaerum died and Hvaal was taken alive, though severely wounded. In what became known as the Televåg Reprisal, the entire community was destroyed and 260 men and boys between 16 and 65 were rounded up. Seventy-six of them died in Sachsenhausen. Hvaal, Lars Telle and another 18

¹²⁵ Ibid. See also Howarth : 1991 and Thompson *op. cit.* for the early history of the Shetland Naval Unit.

¹²⁶ HS 7 175.

¹²⁷ HS 7 175. Cruickshank : 9186 pp. 192-193.

¹²⁸ SOE case officer Malcolm Munthe wrote of Hvaal;

He had little English, which accounted for misunderstandings. He found himself married to an English girl in England, and an Irish girl in Ireland during a short holiday there. I agreed to send him home - it seemed only fair that he should see again his Norwegian wife and children. Munthe : 1954

Norwegians previously arrested for attempting to escape to Scotland were taken to Bergen, tortured, then executed.¹²⁹

The success of REDSHANK led to further attacks on industrial targets accessible from the sea, the next being Glomfjord power station south of Bodø which supplied electricity for Haugvik aluminium plant. Codenamed MUSKETOON, this raid was carried out by a party of ten Commandos and two *Linge Kompanie* men who were to land from the Free French submarine *Junon* in Tennholmfjord, destroy the power station and escape overland to Sweden. Demolition training was carried out at Fort William in August, then *Junon* went north from Dundee to Shetland for practice landings with the new 'Cow Boat'. Bad weather meant there was only time to carry out one practice. But MUSKETOON got off to a muddled start when the *Linge Kompanie* men, Corporals Sverre Granlund and Erling Magnus Djupredt, asked for a change of landing place as the planned route to the target passed through populated areas.¹³⁰ Captain Graeme Black commanding the landing party approached Lieutenant



An air reconnaissance photograph of Glomfjord. The approach route from the Svartisen was from the right of the photograph. The pipeline breached by the Commandos (highlighted on the original) can be seen behind the power station (centre left). Black's party was captured at the foot of the valley beyond the Fykan Lake.

¹²⁹ Further arrests were made in Bergen, Stavanger and Harlanger. Two SOE men, Erling Marthinson and Christian Åll, who had arrived on 8 April 1942 and set up the MALLARD radio transmitter near Bergen, were also betrayed by a quisling and executed at Trandum. This tragedy caused much resentment in Norway where it was felt that the civilian population was paying too high a price for SOE operations which either went wrong or produced meagre results. Kjeldstadli wrote;

The Norwegians blamed the British for acting arbitrarily, provoking terrible reprisals against civilians in Norway and making it difficult for the Norwegian Resistance to continue its work. Both the Norwegians and the British had underestimated their German adversary, the skill of the German police, and the part played by the Norwegian quislings, informers and *agents provocateurs*. The consequences were soon felt: the Resistance suffered heavy losses, many Norwegian patriots were imprisoned, killed or had to leave the country. On the other hand the British said that the Norwegians must learn the hard lesson of security and that this could only be learnt in the bitter school of experience. At the end of 1941 both SOE and Milorg realised that their work during eighteen months had almost been in vain. The Anglo-Norwegian controversy in London again became bitter and acrimonious.

Kjeldstadli : 1959 p. 326 *et passim* quoted in Cookridge : 1966 pp 533-534. Cruickshank : 1986 pp. 176-177. Salmon *et al* : 1995 p. 145.

¹³⁰ Once again, Norwegians had been excluded from the planning and a poor route had been chosen. The *Linge Kompanie* men were only known to the rest of the MUSKETOON party by their aliases Christiansen and Hogvold, this to

(Cont'd overleaf)

Querville of *Junon* and the landing place was moved to Bjaerangsfjord, but the submarine would have to penetrate 40 miles up a fjord and the approach march would now involve crossing the Svartisen glacier.

Junon sailed Lerwick on 11 September and, at 0220/15, after putting a good charge in her batteries, commenced her long dived passage up Lyngvaerfjord, Ottvaerfjord and Skarsfjord to Bjaerangsfjord. At 1230/15 Querville bottomed the boat in Bjaerangsfjord to wait for darkness then surfaced at 2030/15 on a clear, calm night to find that numerous lights could be seen from houses along the shore. The Naval Staff History is heavily critical;

Captain Black's statement that his crew was well versed in the art of rigging the boats and disembarking by night was not borne out in practice; one of the boats was useless as the inflation cock was missing while the second boat was eventually rigged by *Junon's* crew. The disembarkation took 55 minutes.¹³¹

The party rowed up the fjord, hid the boat, then, after a difficult approach march, arrived at the power station on the night of 18 September and attacked just after midnight on Monday, 21 September. Three men climbed the north side of the valley to place collar charges on the pipelines that fed the power station while the rest made for the main building and placed charges on the three 24,500 kV generators. Norwegian guards said there were no Germans present, but a German NCO appeared whom Granlund shot dead. The charges in the generator hall exploded 12 minutes after the Commandos left, then the collar charges shattered the pipe lines and millions of gallons of water crashed down onto the power station, bearing with it thousands of tons of rubble.¹³² The Commando party became split up in the darkness and Black and seven others ran into a party of Germans. After a firefight in which a German was killed and Djuprødet fatally wounded, Black's party was surrounded and captured. Granlund, Guardsman John Fairclough, Sergeant Richard O'Brien and Private Fred Trigg escaped to Sweden and were flown into Leuchars.¹³³ The seven prisoners were taken to Oslo, Colditz and then Berlin. On 23 October, in Sachsenhausen, they were shot, the first victims of the *Kommando Befehl*.¹³⁴

The power station was wrecked, but there had clearly been serious shortcomings because, yet again, British planners ignored local knowledge. The apparent condescension, actually a concern for security, behind the British assumption that only they could mount an operation like MUSKETOON infuriated Norwegian commanders and politicians in London, but

protect their families should any of the party be captured. Their part in the raid, under the auspices of SOE, carried the codename Operation KNOTGRASS/UNICORN. DEFE 2 364, DEFE 2 365 and Schofield : 1964.

¹³¹ ADM 234 380.

¹³² Swiss engineer Gottfried Loertscher's report on the destruction at Glomfjord reached London through an MI6 channel and is summarised in DEFE 2 364.

¹³³ Reports on the escapes, along with Granlund's account of the operation are in DEFE 2 364.

¹³⁴ The fate of the MUSKETOON prisoners is recorded in Schofield : 1964 and Stevens : 1949. Other sources on the raid include Cruickshank : 1986 pp 203-204 and Messenger : 1985.

the planners had also failed to consult British mountaineering and demolitions experts. Then there was a mighty row when it was discovered that *Junon* had penetrated deep into enemy-held territory without anyone bothering to inform either the Admiralty or FO(S). It was also apparent that the Commandos were insufficiently fit and that Black carried briefing photographs and drawings of the target into Norway. The party was too large to pass unnoticed through enemy territory and a British explosives specialist said afterwards that the demolitions could have been carried out with a lighter load of explosives.¹³⁵ Brigadier Robert Laycock wrote that the failure of the seven to escape had been, 'mainly due to fatigue and might have been avoided by more careful training and equipment.'¹³⁶ The Naval Staff History concludes;

Admiralty criticism that this operation had been badly planned by Combined Operations Headquarters was hotly countered by them, observing that the power station had been blown up extremely thoroughly and four of the party had escaped to Sweden. They did agree however that, in future, the necessity of training and checking details of equipment should be stressed.¹³⁷

KESTREL, in which Per Getz and Thorleif Grong were taken by the Shetland Bus boat *Aksel* (Skipper Bard Grotle) to destroy ore installations at Fosdalen in Trondelåg in early October, resulted in severe reprisals in Trondheim, Grane and Nordland. Thirty-five civilians, none with resistance connections, were shot. But GRANARD, a return to the Orkla Mines raided in REDSHANK eight months earlier, by a party comprising Lieutenant Per Deinboll and Sergeants Pedersen and Sættem sailed Shetland in the fishing boat *Aksel* on 6 December 1942, was a success. Deinboll's father gave them the latest intelligence on the security arrangements and the plan to burn the loading tower was abandoned in favour of sinking a ship. The *Nordfabrt* (5,000T) arrived on 26 February 1943 and the three stole a boat, attached limpets then escaped to Swden. *Nordfabrt* was heavily damaged and beached.¹³⁸ Getz, Grong and Sverre Granlund were among the SEAGULL I party that sailed Lerwick on 5 February 1943 in the Norwegian submarine *Uredd* to raid the Sulitjelma mines only to be lost in a German minefield.¹³⁹

Shetland Bus boats were initially Norwegian fishing boats until, after five were lost in the 1942-43 season, they were deemed too dangerous and were replaced in October 1943 by three US-built submarine chasers. The table of Shetland base results for 1941 to 1945 as below shows the drop in successful operations in 1942-43, and the dramatic rise in efficiency afforded by the new submarine chasers. And from 1941, when there were just two

¹³⁵ The photographs and drawings were supplied by Glenfield & Kennedy Ltd of Kilmarnock. After the war, it was discovered that the MUSKETOON party had been spotted on the Svartisen by a German topographical party who were able to follow a trail of easily identifiable items such as Senior Service cigarette packets across the glacier. But the Germans failed to alert the Glomfjord garrison to the approaching threat. Schofield : 1964.

¹³⁶ Laycock letter 10 November 1942. DEFE 2 364.

¹³⁷ ADM 234 380.

¹³⁸ Thompson *op. cit.* p. 261. Cruickshank : 1988 pp. 192-197. Cookridge : 1966 p. 545.

SOE transmitters in Norway, until May 1945 when there were 69, a total of 8,720 messages were received from SOE agents in Norway, principally at the SOE Belhaven House listening station near Dunbar. Such was the scale of the SOE network in Norway by 1944, in that year alone some 3,668 radio messages were sent to Norway and 2,878 were received from there.¹⁴⁰ Most of the latter concerned German shipping movements and played a vital part in the Allied anti-shipping offensive mounted, as detailed below, in 1943-45.

Season	Trips made	Agents landed	Agents picked up	Refugees picked up	Stores landed
1941-42	40	43	9	46	129
1942-43	40	19	3	14	36
1943-44	34	41	13	20	36½
1944-45	80	87	30	251	183
Total	194	190	54	331	384½

Seaborne special operations by submarine and Shetland Bus boats from Scotland were all part of the wider resistance and sabotage strategy in Norway. And, taken as a whole, this strategy was highly successful in that it helped disrupt enemy shipping movements off Norway, it caused damage to vital targets ashore and it helped to maintain the perception of a looming Allied military threat to Norway, thus tying down a large Axis garrison. By and large these operations were sensible, well planned and well executed, and they were carried out at relatively small cost. And, unlike in other less inherently stable theatres, the Allied support for the Norwegian resistance movement did not result in post-war schisms and political instability.

ANTI-SHIPING OPERATIONS BY SCOTTISH-BASED NAVAL AND AIR FORCES OFF NORWAY AND THE VULNERABILITY OF GERMAN COASTWISE SHIPPING

Road and rail communications the length of Norway were limited, the only sure way to travel being by sea. As a Coastal Command from 1943 report states succinctly, "The enemy's whole existence in Norway depended on their seaborne supplies."¹⁴¹ In the far north, the war on the Russo-Finnish border between the Axis and the Red Army had, in 1943 and 1944, developed into something of a stalemate. But it was of vital importance to both sides as vital supplies were brought, albeit at great cost, to the Soviet Union via the Arctic route while the Wehrmacht sought to take Murmansk and the entrance to the Kola Inlet. On 9 June 1944, three days after D Day, the Red Army began a strategic offensive against the Germans and their Finnish allies in the north. As in the 1939-40 Winter War, the Finns inflicted grievous losses on the Red Army, but the writing was on the wall and, on 19 Sep-

¹³⁹ HS 1 175.

¹⁴⁰ HS 7 178.

¹⁴¹ AIR 41 74 p. 125.

tember 1944, a Russo-Finnish armistice was signed. But there were still some 220,000 German troops on Finnish, Norwegian and Soviet territory in the far north and, in October, the Soviets began an offensive that drove the Wehrmacht over the Norwegian frontier into the Finnmark.

Another often forgotten factor that had a fundamental bearing on land and sea strategy in the far north was the position of Sweden. Given its geographical position, Sweden had little option in 1940 but to take a pro-German stance, concluding a transit agreement that allowed the Wehrmacht the use of Swedish railways and German ships the use of Swedish territorial waters. In 1941 a complete Wehrmacht division had been granted passage from Oslo across Swedish territory to Finland, and reinforcement and supply of Axis forces in the far north was carried out via this route until 1944. The trade in iron ore with Germany that had so exercised Churchill's Admiralty in 1940 continued unabated. In 1941 some 600,000 tons was supplied, in 1943 1.8 million tons.¹⁴²

As long as the Swedish port of Lulea and the Gulf of Bothnia remained ice-free, much of this traffic passed out of Allied reach. After Stalingrad, however, the war was clearly going against the Axis so, like Finland, Sweden began repositioning itself towards the Allies. In 1944, while still happy to continue supplies of ore, she withdrew the traffic concessions and seaborne shipments to and from northern Norway, including iron ore, now had to follow the Norwegian coastal route. This brought them in range of Allied MTBs, submarines and aircraft operating from Scotland.¹⁴³

Usually around eight German convoys were at sea off south-west Norway daily, one in each direction between Kristiansand South and Stavanger, between Stavanger and Bergen, between Bergen and Aalesund and between Aalesund and Trondheim. Admiralty OIC intelligence about enemy shipping movements was good and the convoys had already begun crossing open water, such as that between Kristiansand South and Stavanger, in darkness. Until 1943, largely for political reasons but also so as not to waste valuable vessels, aircraft and weaponry, there had been a restriction on attacking unescorted ships off Norway of under 1,500 tons.

Allied strategy before and immediately after D Day favoured encouraging the Wehrmacht to withdraw troops from Norway into the battle in mainland Europe but, the failed September 1944 MARKET GARDEN airborne assault in Holland presaged further Allied reverses. Allied strategy changed to bottling up as many German troops in Norway as possible and, despite a protest from the Norwegian government-in-exile in London, on 10 Oc-

¹⁴² Kersaudy : 1990 p. 226.

¹⁴³ For Swedish position, see Salmon *et al* :1995 pp. 201-204 and 206-207.

tober 1944 SHAEF stated that all shipping in Norwegian waters was liable to attack without warning.¹⁴⁴ Then, after the setback in the Ardennes in December 1944, the Allies became increasingly anxious lest the 330,000 Germans in Norway form the basis of a *Festung Norwegen* last stand which would be difficult and costly to break. Allied concerns also extended to the need to keep the Soviet Union out of Scandinavia, in particular Norway and Denmark.

MTB ANTI-SHIPING OPERATIONS

South of Bergen on 1 October 1941 Lieutenant Per Danielsen and the crew of MTB 56 cast off from the Norwegian destroyer *Draug* which had towed them across from Scapa and moved into the Leads. Hidden by camouflage netting and bushes, the MTB waited until the night of 3 October when Danielsen sank the tanker *Borgny* (3,015T) which was bound for Bergen with Luftwaffe aviation fuel.¹⁴⁵ Danielsen and other Norwegian officers had been advocating The Leads as a hunting ground for MTBs. The operation by 56 had proved their point and, in November 1942, eight Fairmile D class MTBs arrived at Lerwick to form the 30th (Norwegian) Flotilla.¹⁴⁶

MTB operations were best undertaken during longer winter nights when they could approach the Norwegian coast in relative safety, slowing and fitting external silencers as they passed the outer islands. Piloted in through narrow, undefended passages by men with local knowledge, the boats went straight to a 'lurking place', often a creek on one of the off-shore islands, where they could lie beneath camouflage nets while crewmen or Fynnforce commandos landed to watch for approaching German ships. But the need to operate in winter brought its own hazards and, while MTBs were not permitted to leave Lerwick in anything above a Force 4, nothing could be done once an operation was under way. Many boats suffered damage and all had to be specially strengthened.¹⁴⁷ Fairmile Ds had a range of 500 miles at maximum revolutions and even the shortest round trip to Norway from Lerwick was around 400 miles. On most patrols extra petrol had to be carried in cans on deck and, on longer operations, this could amount to 4,000 gallons in addition to the 5,000 gallons in the boat's main tanks.¹⁴⁸

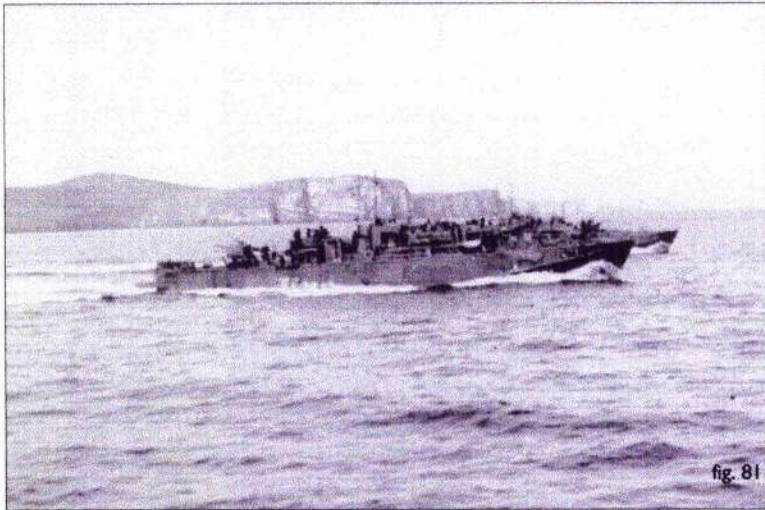
¹⁴⁴ *Naval Review* vol. XXXIII pp. 276-277

¹⁴⁵ Reynolds : 1998 pp. 29-31.

¹⁴⁶ The 30th Flotilla was renamed the 54th Flotilla, a nominal change under the Coastal Forces reorganisation which came into effect on 1 October 1944. DEFE 2 616. Lambert and Ross : 1990. Irvine : 1988 pp. 115-124. Reynolds : 1998 pp. 31-32.

¹⁴⁷ 619 and two others returned to Lerwick on 27 December 1942 after being caught in a storm. A Royal Navy report quoted in Irvine : 1988 p. 131 states, '...that all the boats returned safe and sound on 27th December says a lot for the boats and their commanders. It is now certain that these hulls are seaworthy enough, which lends weight to the argument that it was wise to strengthen them, even if it means the loss of a little speed.'

¹⁴⁸ Reynolds : 1998 pp. 35-36. See also Lambert and Ross : 1990 p. 90 *et passim* for details of the Fairmile D class.



MTBs of the Norwegian Flotilla on operations from Shetland. Fairmile D class MTBs were christened 'Dog Boats' after the wartime phonetic for the letter D. The camouflage scheme was designed specially for the Norwegian fjords.

619, *626* and *631* sailed Lerwick on 22 November 1942 for the flotilla's first operation. No targets were found off Stord and Bømlo and they returned to Lerwick after passing at high speed through Haugesund Harbour. There followed a series of anti-shipping operations jointly carried out with Fynnforce commandos. VP1 sailed Lerwick at 0815/26 November, *618* with seven Commandos to make for Florø and *620* and *623* with a 12-man party were to patrol Askvold. *631* carried Captain Fynn and six ORs for Bommelofjord. The inshore navigation lights were lit, so the *620* and *623* had no difficulty in entering the Askvold harbour, a German convoy assembly port, where they torpedoed two ships totalling 12,000 tons. The other MTBs lay under camouflage for two days but found no targets and all boats returned to Lerwick on 29 November.¹⁴⁹

619 and *627* sailed Lerwick at 1330/22 February 1943 for Sognefjord and Operation CRACKERS. *619* picked up an agent off Krakhellehavn and laid mines in Krakhellesund, then, at 0500/23, the boats moved to a lurking place on the western side of Gjeiterø Island. A party of Commandos went to the German coastwatching post at Tungodden but found it deserted, damage from when it had been shelled by *631* and *626* on 20 January still clearly visible.¹⁵⁰ Another party reconnoitred Kletten watchpost overlooking Stensund and returned to the MTBs to plan simultaneous assaults on the Kletten post and the German billet in a Quisling's house in Stensund. But a storm made it impossible to get ashore, so the operation was abandoned. The force 12 gale continued until 28 February and food began to run out. An attempt to return to Lerwick was made on 1 March, but huge seas forced the boats to turn back. Finally, after a rough passage, the boats reached Lerwick at 1830/3, nine days after they left.¹⁵¹

¹⁴⁹ Fynn's report on VP1 in DEFE 2 616.

¹⁵⁰ Two Germans in the post on that occasion had been killed. DEFE 2 616.

¹⁵¹ Waggett's report in DEFE 2 617. Herlofsen's report in DEFE 2 616. See also Irvine : 1988 p. 195.

Mines were laid off Olaskjaer on 6 March, then *619* and *631* sailed Lerwick at 1230/12 March 1943 for OMNIBUS. They made landfall at Skorpen and were secured under camouflage by 0100/13. On 14 March, an OP overlooking Florø Harbour reported a destroyer and two merchantmen and, that night, the MTBs raced into the harbour dropped mines and *619* torpedoed the German *Optima* (1,249T). *631* missed a larger vessel, one of her torpedoes hitting the quay below a German gun position, then ran onto rocks below a German battery and had to be hurriedly abandoned into *619*.¹⁵² Bressay Light was shown, a searchlight was shone skywards from Ness of Sound, then a Spitfire gave *619* a course for Lerwick where she secured at 1400/16.¹⁵³

618 and *627* left Lerwick at 0610/22 March for ROUNDABOUT, an attack on enemy shipping at Dragsund. At 0120/23 the MTBs landed their Commandos at Dragsund, two of whom were to open a lifting bridge to allow the boats to pass through, but the bridge party found the power to the lifting mechanism switched off. As they went to find the bridge keeper, they ran into two German sentries, one of whom was killed. More Germans were heard approaching, so the bridge party retired and the MTBs withdrew, arriving Lerwick at 1625/23.¹⁵⁴

On 11 April, *626* sailed Lerwick for Skorpen to pick up Leif Larsen and the crew of the Shetland Bus boat *Bergholm* which had landed three agents and four tons of supplies at Traena, before being sunk by two enemy aircraft. After a brush with a Quisling fishing skipper, they were picked up from their smallboat by another skipper who took the seven survivors to Skorpen from where they were picked up by *626*.¹⁵⁵ *626*'s next mission, on 24 April, was to Karmøy. The plan was for Sub Lieutenant Joe Godwin and six men to use canoes to attach the limpets to German vessels in Karmsund or Kopervik. The MTB sent to recover Godwin's party from Urter Island on 9 May missed the island in thick fog. Another rendezvous was attempted, but the island was deserted. The party had been on the island by 9 May after sinking a minesweeper in Kopervik, but had been betrayed by a Norwegian informer. Godwin and four men were shot on 2 February 1945, the other two died in Belsen.¹⁵⁶

620 and *653* unsuccessfully attacked a convoy in the Leads on 1 May, then, on 4 June, after lurking for two days outside Bergen, *626* and *620* attacked a convoy. *626* sank the German

¹⁵² Norwegians who had visited *631* while she was in her lurking place had brought newspapers and magazines aboard which were left lying around, many with the names of those who had given them on the cover. And a Norwegian rating left behind a letter from his family. OMNIBUS report in DEFE 2 617. Reynolds : 1998 p. 39.

¹⁵³ The Admiralty signalled, 'Bring to the officers, crews and base personnel of 54th Flotilla their Lordships congratulations on the recently carried out operation in the Norwegian fjords.' DEFE 2 617. Reynolds : 1998 p. 39. Irvine : 1988 p. 137-139. Rohwer and Hummelchen : 1974 p. 308.

¹⁵⁴ DEFE 2 616.

¹⁵⁵ Howarth : 1991 ch. 14. Irvine : 1988 p. 139.

Altenfels (8,132T), which was carrying 8,000 tons of iron ore, then both MTBs came under fire from the escort, *M-468*, and shore batteries. The German vessel was damaged, but two men were killed in *620* and several were wounded.¹⁵⁷

Driven by a heady mixture of aggression and optimism, MTB operations continued into the almost continuous daylight of summer 1943, far beyond the limits of prudence. MTB *345* was an experimental 55-foot boat sent to Lerwick for specific missions where her small size would be an advantage. But she had very limited range so, for her second mission sailing Lerwick on 24 July, *620* refuelled her off the Norwegian coast. But they were spotted by a coastal lookout station and, while *620* returned to Lerwick, *345* lurked at Aspo Island north of Bergen until a German party attacked the boat from the shore on 28 July. The boat was captured and her crew was taken to Bergen for interrogation. Despite the fact that they were in uniform, and despite the fact that Kriegsmarine officers thought they should be treated as POWs, Lieutenant Alv Andresen and his crew were shot on 30 July. The bodies were taken out to sea, attached to depth charges and thrown over the side.¹⁵⁸

Later that summer Lerwick-based MTBs began a series of SOE anti-shipping operations codenamed VESTIGE. For VESTIGE I, Corporal Harald Svindseth, Sergeant Ragnar Ulstein and Corporal Nils Fjeld were landed with kayaks and limpet mines near Gulen on the night of 3-4 September. On 23 September Svindseth limpeted the *Hermut* (2,713T) which was beached with a large hole where the two limpets had exploded next to each other. The party was picked up by MTB on 16 November. For VESTIGE III, the only other successful operation in this series, Corporals Synnes and Hoel were landed by MTB on the night of 9-10 September and planted six limpets on the collier *Jantze Frenzen* (6,582T) at Ålesund. Two exploded prematurely and the remaining four mines were removed by the Germans, despite their having been fitted with anti-tamper devices, and the collier was repaired at Bergen. The VESTIGE III party were picked up at Skorpen on 17 November by a Shetland Bus submarine chaser.¹⁵⁹

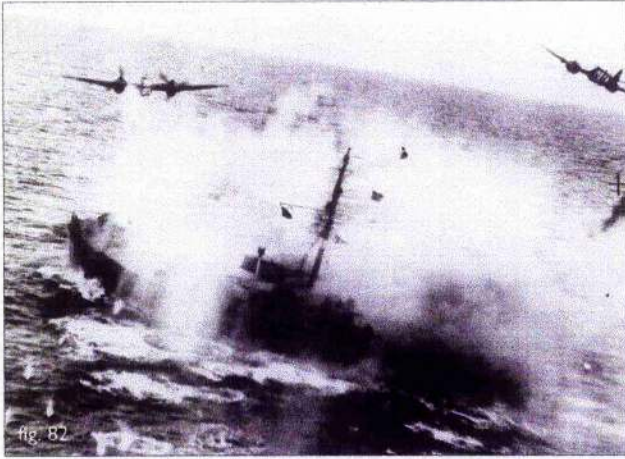
SCOTTISH-BASED COASTAL COMMAND ANTI-SHIPPIING STRIKES 1943-44

Operation HUSKY, the Allied invasion of Sicily, was due to 10 July 1943 and, on the first of that month, as one of the myriad deception schemes devised to divert German attention away from Sicily, six rocket-armed Beaufighters of 235 Squadron, four Beaufighters of 404

¹⁵⁶ Irvine : 1988 pp. 139-141. Dalzell-Job : 1992 pp. 55-57.

¹⁵⁷ Report by Lieutenant Patrick Dalzell-Job in DEFE 2 616. Irvine : 1988 p. 141. Reynolds : 1998 p.39. Withoft : 1971.

¹⁵⁸ The shooting of *345*'s crew was cited as a war crime in the case of Dönitz at the Nuremberg trials. *Nuremberg Trial Proceedings* vol. 13, Friday, 10 May 1946, morning session. See also Reynolds : 1998 : pp. 41-42.



Coastal Command Beaufighters operating against shipping the Norwegian Leads.

Squadron and two Mosquitoes of 333 Squadron arrived at RAF Sumburgh in Shetland for anti-shiping operations off Norway. The plan was for 333 Squadron's Mosquitoes, manned by Norwegians, to fly reconnaissance missions and the Beaufighters would then take off and strike at any enemy shipping sighted by the Mosquitoes. In the event, the Mosquito reconnaissance proved of little value and the

Beaufighters began flying ROVER patrols along with torpedo-armed Hampdens of 489 Squadron. In the first operation on 4 July, despite heavy flak and the attentions of two ME109s, a 4,000 ton merchant vessel was rocketed and set on fire near Stadlandet. One aircraft was lost. The second operation on 10 July saw a merchantman strafed, and again one aircraft was lost. On 17 July, in the third operation, eight Beaufighters attacked a convoy near Bergen and sank one of the escorts, the trawler *UJ1705*.¹⁶⁰

Coastal Command anti-shiping sorties to Norway continued through August 1943, though at a reduced rate and with no positive result, not least because 455 and 489 Squadrons were under instruction to husband torpedoes which were in short supply. Meanwhile, MTB operations had been extended north to Trondheim by towing the boats part of the way across. On 10-11 September, 618 and 627 torpedoed the *Anke* (3,811T) in Trondheimfjord. On 22 October 1943, 653, 686, 688 and 699 (686 and 699 were from the British 58th Flotilla) shelled and sank the coaster *Kilstraum* north of Trondheim. Fighters attacked the MTBs as they headed out to sea, setting 699 on fire, killing one man and injuring five. 699 was abandoned into 688 which survived another attack and reached Lerwick safely.¹⁶¹

Wick-based Hampdens attacked a convoy off Lister early on 16 September and sank the Norwegian *Graziella* (2,137T). Tanker movements attracted particular Allied attention, one example being the *Schleswig* which sailed Kiel on 21 September 1943 bound for north Norway with fuel for *Tirpitz* and *Scharnhorst* newly returned from Operation ZITRONELLA, an attack on Allied positions on Spitsbergen. *Schleswig's* movements were tracked both by

¹⁵⁹ SOE anti-shiping operations in HS 7 175 and HS 2 208.

¹⁶⁰ AIR 41 48 p. 277.

¹⁶¹ On 22 November an explosion took place aboard 686 which was alongside the Norwegian 626 at the Anglo-Scottish Quay, Lerwick. Four British and one Norwegian were killed immediately and another three died later. Both boats burned furiously and were sunk where they were by gunfire. Irvine : 1988 p. 142

Coastal Command, by agents ashore and by Enigma decrypts until she reached Bodo on 28 September. There she was heavily damaged by aircraft from the carrier USS *Ranger* operating with the Home Fleet from Scapa.¹⁶²

Then, on 30 September, 404 Squadron Beaufighters attacked a convoy off Stadlandet, rocketing a destroying the Norwegian *Sanct Svithun* (1,376T). Anti-shipping sorties to Norway fell from 102 in September to 49 in October 1943, largely due to aircraft being withdrawn for anti-U boat operations in the Northern Transit Area, but rose again to 116 in November, 18 attacks being made and two small ships sunk. The principal change in November, after the experiments of July to September, was Coastal Command's commitment to operations off Norway with the formation of the Wick Strike Wing of torpedo Beaufighters, or, as they were universally known, Torbeaus, of 144 Squadron with 404 Squadron's cannon-armed Beaufighters for flak suppression.

Two days later, on 24 November 1943, Coastal Command submitted proposals for attacking shipping off Norway which referred to a Ministry of Economic Warfare paper that described Norway as Germany's heaviest merchant marine commitment which then involved 600,000 tons of shipping.¹⁶³ While southbound shipping principally carried iron ore and fish products, northbound convoys carried supplies and reinforcements for German troops fighting the Red Army in northern Norway.

One of the main objectives for the Strike Wing was that it should operate more closely with MTBs from Lerwick and submarines from Dundee, in particular since the X-craft attack in September 1943 had disabled *Tirpitz*, thus releasing 9th Flotilla submarines for anti-shipping work. The first Wick Strike Wing operation had already taken place on 22 November when six 144 Squadron Torbeaus escorted by eight 404 Squadron aircraft attacked a convoy off Stadlandet. The Norwegian *Gol* (985T) and *Kari Louise* (800T) were damaged, one Torbeau ditching on the way home with engine failure. This operation illustrated the potential of coordinated anti-shipping operations off Norway when, that afternoon, at 1417/22, the Norwegian submarine *Ula* attacked the same convoy and sank *Arcturus* (1,651T). Two days later, *Ula* sank the MV *Eisstrom* (928T) off Bredsdund.¹⁶⁴

December 1943 saw 121 sorties by Wick Wing during which 32 attacks were made and five aircraft lost, all without tangible result. The 9th Flotilla submarines fared better with the Dutch *O-15* attacking a convoy inside Skudesnesfjord on 26 December and claiming hits on three ships, though an escort reported two torpedoes that missed. Lieutenant Pim Kiepe recalled that the boat escaped only after taking, 'a good hammering from the es-

¹⁶² ADM 223 8. Winton : 1988 p. 77-78. Rohwer and Hummelchen : 1974 p. 359. Witthoft : 1971 pp. 296 and 332.

¹⁶³ AIR 41 48 p. 282. ADM 223 8.



The attack by 144 Squadron Torbeaus on the convoy off Stadlandet on 22 November 1943 which left two ships damaged. The convoy was attacked again that afternoon by the Norwegian submarine *Ula* and the German freighter *Arcturus* was sunk. By early 1944 the combined effect of Coastal Command, FAA, MTB and submarine attacks was forcing German convoys off south-west Norway to take refuge in fjords during the hours of daylight, thus greatly hampering their shipping operations.

cort'.¹⁶⁵ *Ula*, *Seadog* and *Viking* sailed Dundee for patrol at 0900/23 December and, on 28 December, *Ula* unsuccessfully attacked the Norwegian steamer *Pan* (3,000T) off Skudesnes. At about the same time, *Seadog* sank the German *Oldenburg* (8,537T) off Stadlandet with two torpedoes. On 2 January, *Seadog* unsuccessfully attacked a three-ship convoy with two escorts off Stadlandet.¹⁶⁶ *Seanymphe* made a rendezvous south of Bodø to transfer of personnel and stores to a fishing vessel.¹⁶⁷ *Seadog* attacked another convoy without success on 3 January and *Sceptre* was ineffectively depth-charged after missing a convoy with torpedoes off Foldafjord on 4 January.¹⁶⁸

January 1944 brought better results for the Strike Wing, 186 sorties being flown and 65 attacks being made. Four ships were sunk and two damaged for the loss of five aircraft. On 14 January Wick Wing struck at two convoys off Lister, sinking the German *Wittekind* (4,029T) but losing three aircraft after the Wing was attacked by seven ME109s. Meanwhile, 489 Squadron from Leuchars, newly returned to operations after converting to Beaufighters, attacked another convoy, sinking the *Enterios* (5,179T). Both the ships sunk had been carrying iron ore, part of the 111,000 tons shipped to Germany by the Norwegian coastal route in January. Then, on 20 January, Beaufighters from Wick sank the *Emsland*

¹⁶⁴ ADM 199 1851. Valvatne : 1954 pp. 111-119.

¹⁶⁵ Rohwer : 1997. Kiepe MS, IWM Dept of Docs ref. 96/6/1.

¹⁶⁶ It was assumed that the *Emsland* (5,170T) was sunk in this attack but Rohwer found that she was struck by an air-launched torpedo at 1130/20 January 1944 west of Stadlandet and beached near Ervik. There is also a claim that, in this attack, *Seadog* sank the ex-Dutch torpedo boat *K-2*, but this vessel was damaged by an air-launched torpedo on 9 October 1944 off Egersund and became a wreck. It seems that *Seadog's* attack on 2 January 1944 must have been the detonation that *V-5308* reported north of Stadlandet on that day. Rohwer : 1997. Witthoft : 1971 p. 313. RN Submarine Museum.

¹⁶⁷ RN Submarine Museum.

(5,170T) off Stadlandet and 489 Squadron from Leuchars attacked a convoy off Egersund, sinking the minelayer *Skagerack I* (1,281T) and damaging the *Susanna* (810T). Beaufighters and Mosquitoes from Wick and Leuchars were in action again on 26 January, damaging shipping off Stadlandet.

On 1 February the Wick Wing attacked a convoy off Stadlandet and, despite heavy flak, sank the escort trawler *UJ-1702* (500T) and damaged *Valencia* (3,096T).¹⁶⁹ *Seadog* also attacked this convoy at 1150/1, but missed. On 5 February *Sceptre* torpedoed the beached wreck of the *Emsland* at Stadlandet, MTBs *618* and *619* engaged a patrol vessel in Sognesjoen and left it on fire and *Radbod* (4,354T) was sunk in air attack at Selbervik. *Taku* sank the collier *Rheinhausen* (6,298T) in Skudesnesfjord on 7 February, *Stubborn* attacked a seven-ship convoy off Namsos on 11 February, sinking one ship and damaging two others, and *Taku* sank *Harm Fritzen* (4,818T) off Skudesnes on 12 February. *Stubborn* attacked a convoy of five ships and five escorts off Namsos on 13 February; her torpedoes missed and she was heavily counter-attacked by the escort, but escaped. That same evening, off Stavanger,



On patrol west of Namsos on 11 February 1944, *Stubborn* attacked a convoy, sinking the *Makki Faulbaums* (1,907T) and damaging the *Felix D* (2,047T). Two days later, at 1155/13, she missed a southbound convoy of five ships and five escorts with six torpedoes. The escorts *ND-12*, *V-5715* and *M-151* conerattacked and *Stubborn* was badly damaged by more than 70 depth charges and forced down to 540 feet, 200 feet below her test depth. She was eventually able to surface but was trapped on the surface perilously close to enemy territory. Home Fleet destroyers sailed to bring her in and she secured alongside *Duke of York* at Scapa. She was towed to Greenock by *Musketeer* and *Scourge* arriving, as seen here. on 25 February 1944.

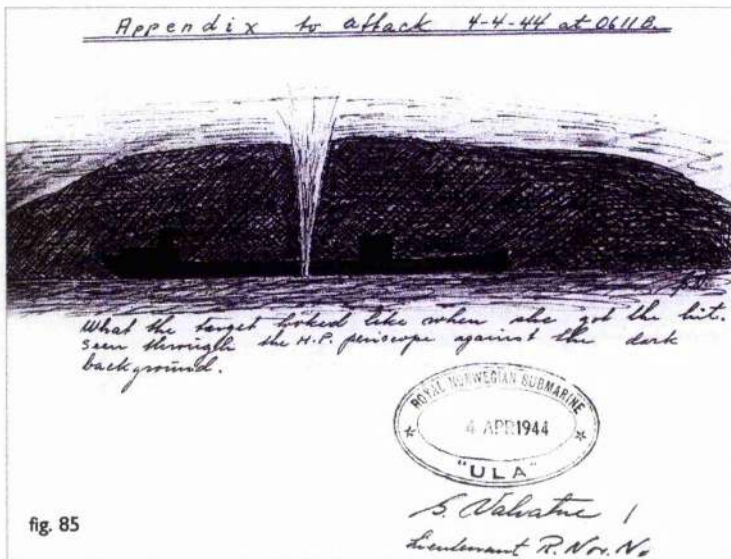
Taku sank *Hans Bornhofen* (2,130T) and, off Hustadvikka, MTBs *627* and *632* sank *Irma* (1,392T) and *Henry* (634T). *Ula* left Lerwick on 16 February, attacking convoys off Lister on 20 and 25 February without success. On 1 March *Seanymph* missed a 5,000 ton merchantman off Bodo then, on 2 March, *Venturer* sank *Thor* (2,526T) off Stadlandet and, on 3 March, the steamer *Levante* reported being missed by torpedoes, actually fired by *Seanymph*, off Bodo.

By March 1944 the 489 and 455 Squadron Beaufighters and 333 Squadron Mosquitoes had formed the Leuchars Strike Wing and both it and the Wick Wing flew 309 sorties that month. On 5 March 489 Squadron Beaufighters attacked a convoy three

¹⁶⁸ Rohwer : 1997. RN Submarine Museum.

¹⁶⁹ Rohwer and Hummelchen : 1974 p. 384. Witthoft p.354

miles west of Lindesnes and sank one of the escorts. On 6 March the Leuchars Wing attacked a 16-ship convoy off Obrestad and sank the *Rabe* (994T). *Sceptre* arrived off Kya Light on 2 March 1944 and, at 0913/3, sighted an HE115 seaplane approaching. Air patrols often heralded the arrival of a convoy and, sure enough, four merchantmen and five escorts appeared. Two torpedoes fired at 250 yards range passed under the convoy. *Sceptre* tried to attack another convoy at 1405/6, then ran into fishing nets that were cleared with difficulty. Early on 7 March *Sceptre* sighted minesweepers and a Heinkel operating ahead of a southbound convoy, penetrated the escort screen and, at 1115/7, sank the *Lippe* (8,340T). *Sceptre* unsuccessfully attacked convoys on 12 and 13 March, then arrived Lerwick on the afternoon of 16 March. On 22 March *Syrtis* on patrol off Bodo sank the *Narvik* by gunfire, then disappeared, probably lost in the German offshore minefield. Beaufighters of the Leuchars Wing on a ROVER on 23 March sank the Norwegian *Ryfylke* (898T). On 24 March *Taku* missed the tanker *Mosbill* (5,322T) off Namsos, *Satyr* sank the *Nordnorge* (340T) off Stadlandet and *Terrapin* damaged the tanker *Worth* (6,256T) and the aircraft catapult ship *Schwabenland* off Flekkefjord.



At 0615/4 April 1944 *Ula* torpedoed the valuable German tanker *Ill* (7,603T) as it passed Stadlandet (above). Two days later she torpedoed the German transport *Wesergau* (1,923T) which was beached but became a total loss and was scrapped in situ.

Mosquitoes of 544 and 333 Squadrons found the ship in Grimstadfjord at 1145/30, then tracked her south. Wick Wing took off at 1700/30 and, despite a strong escort of three minesweepers, nine ME109s and FW190s, five ME110s, two Arados and one BV138, the 18 Beaufighters heavily damaged *Monterosa* for the loss of two aircraft. That night, at 0010/31, 489 Squadron Beaufighters from Leuchars attacked her, causing further damage,

At the end of March, Coastal Command and submarines mounted a combined search for the *Monterosa* (13,882T) which was southbound off Norway after acting as depot ship during repairs to *Tirpitz* following the X-craft raid. An intelligence source, probably SOE's coastwatching service, placed her off Narvik at 0800/25, then she was reported off Skorpen at 0900/29 but a Beaufighter strike from Wick that evening failed to find her.

then she was sighted approaching Kristiansand South by a 333 Squadron Mosquito at 0825/31. *Monterosa* finally reached Aarhus on 6 April.¹⁷⁰

On 10 April *Venturer* and *Taku* sailed Lerwick to penetrate the Skaggerak mine barrier and attack enemy shipping between southern Norway and Germany. But *Taku* hit a mine and was lucky to survive heavily damaged. She returned to Lerwick and *Venturer* was diverted north to patrol off Egersund. She missed a northbound merchantman early on 15 April, but sank the *Freidrichshafen* (1,923T) that evening, then went deep as two escorts counter-attacked.¹⁷¹ *Venturer* secured at Lerwick on the evening of 18 April having been relieved off Egersund by the Norwegian *Ula*. At 0645/19 *Ula*, about four miles off Kvitingsoy Light, torpedoed and sank *U-974*. On 22 April she sank the *Bahia* (4,117T), then returned, on 27 April, to Dundee.¹⁷²

CARRIER SWEEPS OFF NORWAY IN 1944

Submarine anti-shiping patrols off the Norwegian coast closed for the summer at the end of April 1944, *Ula*, *Unshaken* and *Satyr* being the last boats to withdraw to Dundee before beginning anti-U boat patrols in the Northern Transit Area particularly directed against *Mitte Gruppe* boats. MTB operations from Lerwick also ended in March and the Norwegian boats moved to Great Yarmouth for operations in the lead-up to D-Day.¹⁷³ Much of Coastal Command's anti-shiping strength in Scotland was also withdrawn to the south for D-Day. But the last Arctic convoy cycle, JW/RA58, had sailed in March so air operations continued with Home Fleet carrier groups not required for convoy operations.

There was, however, a subtext to these carrier sweeps off Norway that had nothing to do with *Tirpitz* and coastal shipping, and of which Fraser was unaware when he clashed with Cunningham. Playing on German paranoia about an Allied invasion of Norway, British deception planners had, since 1941, been mounting a series of feints towards Scandinavia as cover for real operations elsewhere. The first, Operation HARDBOILED, involved a notional assault on Stavanger in 1942 by a force then training at Inveraray, but actually destined for IRONCLAD, the landing at Diego Suarez on 5 May. SOLO I later in 1942, and a cover for TORCH, was again designed to convince the enemy that the troops concentrated in the Clyde were destined for Norway. Double agents controlled by the Twenty Committee reported that snow chains were being provided, Lascar seamen on the Clyde were being offered bonuses to sail north of 60° north and that troops were being trained in mountain warfare. And, as seen above with the arrival of the first Coastal Command strike wing air-

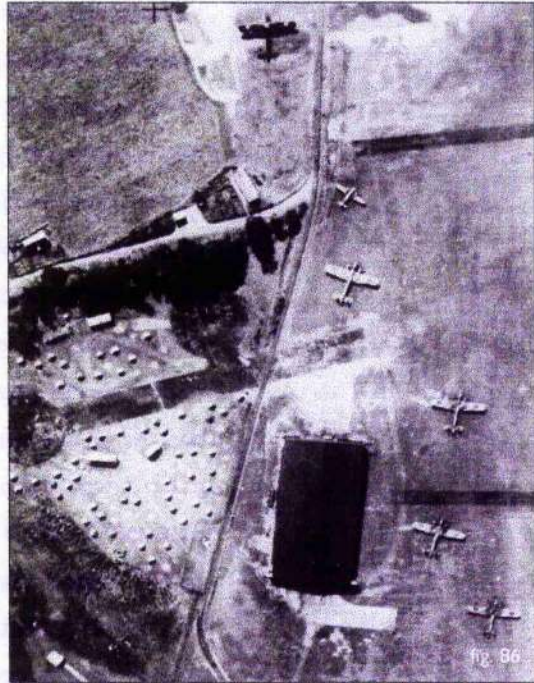
¹⁷⁰ AIR 41 48 p. 506.

¹⁷¹ ADM 234 380. ADM 199 1813. Rohwer : 1997.

¹⁷² ADM 199 1851. Wynn : 1998. Rohwer : 1997.

craft at Wick in July 1943, at the time of HUSKY, TINDALL suggested that the Allies were about to land at Stavanger.¹⁷⁴

As part of the deception plans surrounding OVERLORD, FORTITUDE NORTH posited another landing in Norway in summer 1944 so that the Germans would be encouraged to maintain a large garrison there rather than reinforce their land forces in the main theatre. Shipping was concentrated at Methil in the hope that a Luftwaffe reconnaissance aircraft would spot it. Dummy aircraft were set up on airfields like Montrose, Peterhead and Forres and a largely non-existent British Fourth Army under GOC Scottish Command, General Thorne, began filling the ether with bogus radio messages. Few of those involved in the invasion exercises at Burghead early in 1944 (see ch. 5 above) were aware that the 3rd Division and Force S



Dummy aircraft at Forres for Operation FORTITUDE NORTH

were playing their part in FORTITUDE NORTH. A much-inflated version of military movements in Scotland was being transmitted to German military intelligence by double-agents like GARBO, Spaniard Juan Pujol.¹⁷⁵

The difficulties of operating carrier aircraft in northern waters were illustrated when a force of escort carriers under Rear Admiral Bissett in *Royalist* had sailed Scapa at 0900/13 April 1944. PITCHBOWL ONE on 14 April was to have been an attack on shipping between Utvaer and Svino Island, and PITCHBOWL TWO the following day was to have seen further anti-shipping attacks between Hvidingso Island and Egero. And the carrier strikes were to have been carried out alongside Wick Strike Wing Beaufighters, but the whole operation had to be cancelled due to bad weather.¹⁷⁶ The same fate befell PLANET, though the carriers did undertake a secondary operation, RIDGE ABLE, an attack on shipping at Bodø and in the Leads to the south early on 26 April. Two Barracudas and fighters penetrated into Bodø harbour where they hit a large merchantman. Two strikes attacked a convoy off

¹⁷³ Reynolds : 1998 pp. 104-105.

¹⁷⁴ See Howard : 1990 and Wheatley : 1980.

¹⁷⁵ For FORTITUDE NORTH see Hesketh : 1999 and in particular ch.s. VII, VIII, XVIII and XIX, and Howard : 1992. See also Pujol and West : 1985 for the GARBO network.

¹⁷⁶ ADM 199 844.

Sandhørn and direct hits were claimed on the first and third merchantmen and one of the escorts. The iron ore carrying *Itauri* (6,838T) and *Lotte Leonhardt* (4,167T) were sunk. One Barracuda, two Corsairs, one Hellcat and one Wildcat were lost and one aircraft crashed on landing on *Emperor*, killing the pilot.¹⁷⁷

CROQUET and HOOPS began when a Home Fleet force commanded by Captain H. V. Grace in *Berwick* with the carriers *Furious* and *Searcher* escorted by *Savage*, *Wizard*, *Wakeful*, *Algonquin*, *Piorun* and *Blyskawica* sailed Scapa at 2230/3 May 1944. The strike comprised 18 Barracudas from 8 Wing in *Furious* escorted by 20 Wildcats from *Searcher* began taking off at 0642/6 to search for enemy shipping between the village of Bud and Smolen Island. A two-ship convoy with three escorts was sighted north-east of Bud at 0801/6 and, while Wildcats went in to smother flak, four Barracudas, three armed with bombs and one with a torpedo, attacked. The torpedo-carrying Barracuda was shot down, but after torpedoing the larger ship. The rest of the strike force attacked another convoy of a freighter, a tanker and a coaster and three escorts west of Kristiansand at 0808/6. The Wildcats were unable to silence heavy flak from the escorts, some having to shoot down one of two BV138 aircraft orbiting the convoy, so the Barracudas had a difficult time during their attack and one was shot down. The tanker *Saarburg* (7,913T) sank after being hit by two torpedoes and the ore carrier *Almora* (2,522T) sank after being bombed.¹⁷⁸

The CROQUET force turned for home after the last aircraft were recovered at 0944/6, but *Berwick* and *Searcher* detached off Noup Head to join the HOOPS force of *Royalist*, *Jamaica*, *Striker*, *Emperor* and six destroyers which sailed Scapa at 0600/7. The plan was, once again, to attack shipping off Bud and two flights of 800 Squadron Hellcats began taking off from *Emperor* at 0730/8. Escorted by 882 Squadron Wildcats, they sighted first two trawlers which they left alone, then a passenger steamer with the Norwegian flag prominently painted on her sides which opened fire on the strike force. Lieutenant Commander Hall was about to order an attack, when a convoy of five merchantmen and escorts was sighted off Kristiansand. The convoy was attacked but not hit and two Wildcats were shot down. The force was returning to the carriers when, about 15 miles offshore, it was bounced by six enemy fighters. Two ME109s and one FW190 were shot down.

After making landfall at Gossen Island and failing to sight any shipping, the second strike, HOOPS DOG, went south, shot down two BV138s caught in the act of taking off, then bombed oil tanks near Alesund and a herring oil factory at Fosnavåg before strafing a ship off Ålesund. Two aircraft were lost.¹⁷⁹ HOOPS was the first time the Hellcat had been used

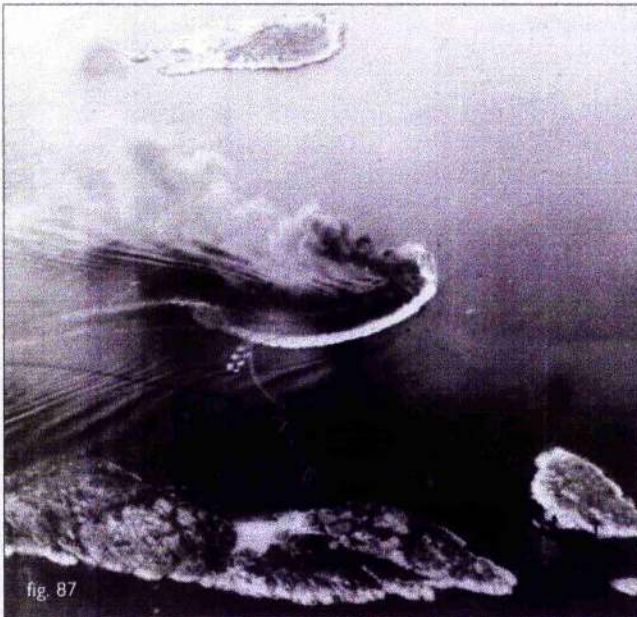
¹⁷⁷ Ibid.

¹⁷⁸ ADM 199 844. *Naval Review* vol. XXXIII p. 183. Rohwer and Hummelchen : 1974 p. 410

¹⁷⁹ ADM 199 844.

as a fighter-bomber and this accounted for the poor marksmanship of 800 and 804 Squadrons. POTLUCK, the next carrier operation sailed Scapa at 1730/12 May as *Sheffield*, *Royalist*, *Emperor*, *Searcher*, *Onslow*, *Obedient*, *Ursa*, *Wakeful*, *Piorun* and *Blyskawica*. Bombing practice was planned for that evening at Stackserry but this had to be abandoned due to insufficient wind and a heavy swell. Thus, most of the pilots had only dropped two bombs, one during training at Hatston on 5 May and one during HOOPS three days later.

The POTLUCK ABLE strike on 14 May attacked shipping and aircraft off Rorvik and Stadlandet, claiming four enemy aircraft destroyed, escort vessels strafed and a direct hit on a merchantman. Sub Lieutenant Holloway returned to *Striker* with undercarriage damage and baled out. He was seen clear of his parachute harness in the water, but was dead when found by *Wakeful*. At 1757/14 six HE115 seaplanes appeared, their approach not seen on radar due to rain clutter, and made 'half-hearted attacks' on the carrier group. Hellcats, Wildcats and Sea Hurricanes were scrambled but the Heinkels escaped in cloud towards Trondheim. POTLUCK BAKER began taking off at 0400/15, but weather conditions along the coast were poor and no shipping was sighted. Two armed trawlers were strafed and set on fire and the fish oil factory at Fosnavåg was bombed again. Two aircraft received flak damage, but all returned safely. Meanwhile, at the same time, a Home Fleet force under Sir Henry Moore in *Anson* with *Victorious* and *Furious* had launched Operation BRAUN, a strike against *Tirpitz* at Altenfjord which had to abort due to cloud cover over the target.¹⁸⁰



Carrier sweeps off Norway generally involved minelaying missions in the Leads by Avengers from escort carriers and fighter and fighter-bomber strikes by Seafires and Fireflies from fleet carriers. Home Fleet carriers led by *Implacable* undertook a sweep in the Bodo area between 26 and 28 September 1944, and while Avengers laid mines, fighters attacked a six-ship convoy off Lodingen (left) and sank a seaplane tender (overleaf top). *U-1060* was driven ashore during this sweep and destroyed two days later by Coastal Command. One result of these sweeps was that U boats were stationed off Scapa to catch the carriers as they put to sea. But the principal outcome was that German shipping and, notably, U boat traffic, was unable to move in daylight.

¹⁸⁰ Ibid.



fig. 88

AIR AND SEA OPERATIONS IN WINTER 1944-45

Submarine operations off Norway recommenced with the shortening daylight hours in August 1944, *Satyr* attacking a convoy off Skudesnes on 20 August without success. Coastal Command operations over the Bay of Biscay and the southern North Sea had been much reduced by late August 1944 and, on 1 September, 235 and 248 Mosquito squadrons and 144 and 404 Beaufighter squadrons formed a new Strike Wing at Banff for anti-shipping operations off Norway. The Banff Wing, in September the sole strike force in 18 Group, was responsible for the coast of south-west Norway from Kristiansand South to Aalesund, but, the only reconnaissance aircraft available were from the 333 (Norwegian) Squadron Mosquito flight at Leuchars. As the AHB narrative states;

These were quite invaluable as the pilots knew well the maze of fjords and islets which made the location of shipping so difficult along this indented and precipitous coastline. They were consequently almost worked off their feet and it was largely through their daily flights that any strike action could be planned.¹⁸¹

Submarines, carrier-based aircraft and 16 and 18 Groups, Coastal Command, carried out the following effective attacks off south-west Norway in September 1944 (naval attacks in blue);

¹⁸¹ AIR 41 74 p. 117.

Date	Vessel	Flag	Sunk (tons)	Dam'd (tons)	Sqdn/Ship	Position	
8/9	Coaster <i>Henglo</i>	Du	195		236, 254, 455, 489	SW Norway	
11/9	<i>Floating Dock</i>	Ger			X-24	Bergen	
	<i>SS Kong Oscar II</i>	Nor		941	X-24	Bergen	
	<i>SS Sten</i>	Nor		1464	X-24	Bergen	
	<i>M426</i>	Ge	750		236,254, 455,	Off Kristian-	
	<i>M462</i>	Ge	750		489	sand South	
	Coaster <i>Vang</i>	Nor	678		<i>Venturer</i>	Off Lister	
12/9	<i>VP5307</i>	Ge	260		Aircraft from	Off Stadlandet	
	<i>VP5105</i>	Ge		260	<i>Furious</i> and		
	<i>VP5105</i>	Ge		260	<i>Trumpeter</i>		
	<i>SS Ostland</i>	Ge		5,374			
14/9	<i>VP1608</i>	Ge	264		144, 404, 235,	Off Kristian-	
	<i>MV Iris</i>	Ge		3,323	248		sand South
19/9	<i>MV Lynx</i>	Nor	1,367		144, 404, 235	Sognefjord	
	<i>MV Tyrifjord</i>	Nor	3,080				
20/9	Coaster <i>Vela</i>	Nor		1,184	<i>Sceptre</i>	Off Egersund	
	<i>M132</i>	Ge		685	<i>Sceptre</i>		
21/9	Coaster <i>Vangnes</i>	Nor	191		144, 404, 235,	Off Lister	
	Coaster <i>Hygia</i>	Nor	104		248		
	Fishing vessel	Nor	75				
24/9	<i>NB02</i>	Ge	168		248	Hjeltfjord	
	Coaster <i>Storesund</i>	Nor			563		
	Tanker <i>Knut Nelson</i>	Nor		5,749			Minefield laid
	<i>MV Cläre Hugo Stinnes I</i>	Ge		5,295			by
	<i>UJ1106</i>	Ge		447			<i>Rabis</i>
	<i>UJ1715</i>	Ge	489				
28/9	<i>NK02</i>	Ge	80		248	Off Kristian-	
	Total		17 ships (19,942 tons)	7 Ships (11,649 tons)			

To sink 11 ships totalling just 7,024 tons Coastal Command aircraft had flown 443 sorties during September with 154 aircraft actually carrying out attacks. The kill rate was poor but, aside from inexperienced aircrew, a serious problem to beset Strike Wing operations off Norway in 1943 and 1944 was assembling a large formation of aircraft at a precise location after the long flight across the North Sea, particularly as anti-shipping strikes were generally carried out at either first or last light. German convoys were generally small but powerfully escorted, and were increasingly passing vulnerable stretches of coastline in the dark and taking refuge in secluded fjord anchorages during the day. Squadrons in training at RAF Drem in East Lothian had developed the DREM attack, a variation on the Pathfinder tactic used by Bomber Command in which, just before dawn, a rendezvous over the target area would be illuminated by flares.¹⁸²

Another critical problem for Coastal Command off southern Norway was the total absence in 1943 and early 1944, of fighter escort. There were only three short stretches where German convoys had to cross open water outside The Leads, thus exposing themselves to attack, the most profitable of these being between Stavanger and The Naze. Not surprisingly, this too was where Luftwaffe fighter strength was concentrated. Beaufighters could

¹⁸² Ibid. pp. 118 and 125.

not be sent unescorted against single-engined fighters such as ME109s and FW190s unless the 333 Squadron Mosquitoes on reconnaissance reported cloud cover in which the strike aircraft could hide. On 12 December 1943, for example, 110,000 tons of German shipping was known to be at sea between Haugesund and Kristiansand South, and Beaufighters were available at Wick and Leuchars but, as there was no cloud cover, no attack could be made. Representations were made to Fighter Command for the allocation of Spitfire Vs and Mustangs with long range tanks, but just 28 fighter sorties were flown in support of 443 strike sorties off Norway in September 1944. Pitifully few fighters were made available until early 1945 and this resulted in a high loss rate among 18 Group strike aircraft.¹⁸³

The first DREM operation began at 0417/9 October when a Warwick of 281 ASR Squadron took off from Banff. At 0610/9 this aircraft dropped seven flares, 17 flame floats and 50 drift lights in a three-mile radius circle off Skudesnesfjord. Meanwhile, eight 404 Squadron Beaufighters, ten 144 Squadron Beaufighters and eight cannon-armed Mosquitoes of 235 Squadron had left Banff between 0456/9 and 0529/9 and they formed up on the flares at 0630/9. As dawn broke the Wing wavehopped south for 30 minutes, then sighted a convoy of five merchantmen and six escorts off Egersund. While three Mosquitoes circled overhead as fighter cover, cannon-armed Mosquitoes and Beaufighters attacked the escorts and merchantmen, then rocket armed Beaufighters took on the leading escorts and merchantmen and finally four Torbeaus attacked the two largest merchantmen. Despite intense flak, the strike was over and all aircraft were on course for Banff in under five minutes. *Rudolf Oldendorff* (1,953T) and the escort *UJ1711* (485T) were sunk and *Sarp* (1,116T) was seriously damaged. After the action, Coastal Command noted that;

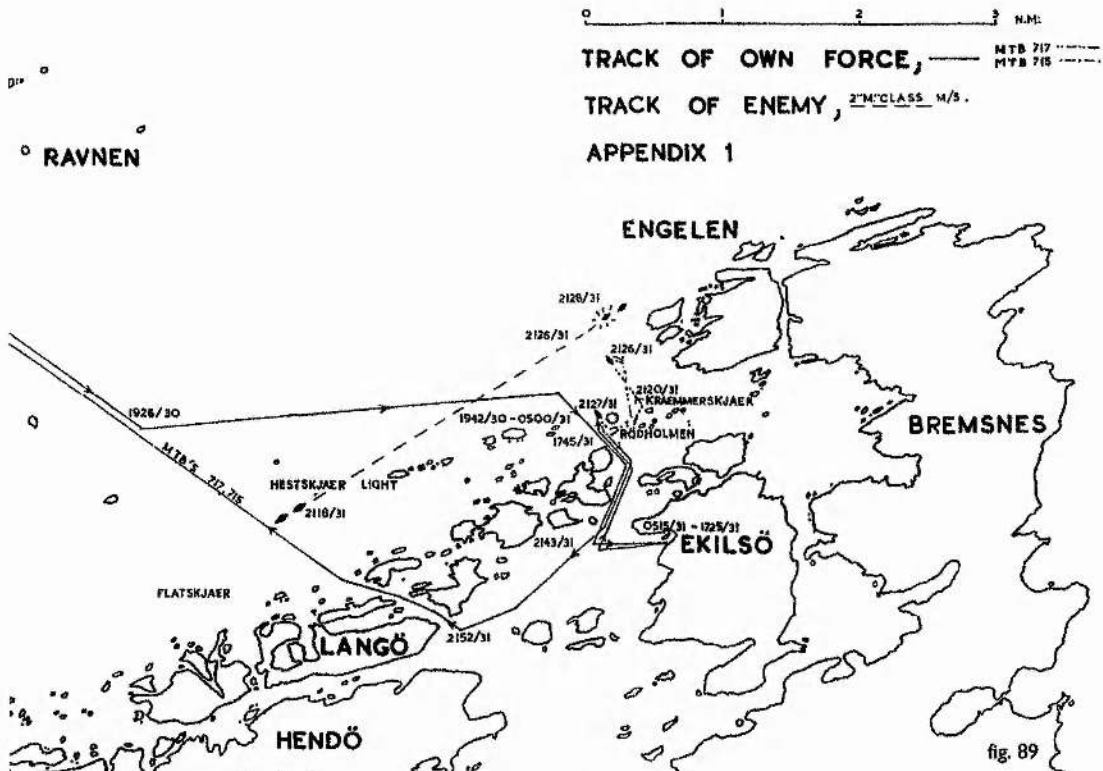
...it will be seen that the continual thought, training and exercise that had been given to Wing operations since early in 1944 had not altered the basic conception which was to smother, put off aim or otherwise neutralize the intense flak put up from a convoy by a first wave of cannon fire followed immediately by RP so as to allow the torpedo carriers a relatively unmolested run in. In narrow fjords or other places where torpedoes could not be used, RP was the main weapon and the cannon element was increased so as to blast a temporary respite in which carefully aimed shallow RP attacks could be made. Each element had to be timed to the split second...

Thus Coastal Command, and the Banff Strike Wing in particular, maintained its anti-shipping strikes off Norway until the end of the war. And, as evidence of greater cooperation between forces operating from Scotland, Coastal Command had also begun mining The Leads to force enemy shipping out into open water where they could be attacked by submarines and MTBs. Meanwhile, its involvement in D Day at an end, the Norwegian 54th MTB Flotilla had returned to Lerwick at the end of September 1944 and recommenced operations a week later. By January 1945 Admiralty Intelligence summaries were concluding that, 'Increased alarm on account of MTB attacks,' had led to convoys being sailed with

¹⁸³ AIR 41 48 p. 282.

stronger escorts. But air attack by day was still considered a greater threat to the convoys than MTB attack.

On 8 October, 712 and 722 drove the coaster *Freikoll* (236T) ashore near Florø.¹⁸⁴ On 1 November 712 and 709 sank the patrol boats *V-5525* and *V-5531* in Sognefjord. 688 and 627 attacked a convoy in Sognefjord on 13 November, but the two merchantmen evaded the torpedoes. One escort, *UJ-1430*, was hit and the other two were engaged in a fire-fight.¹⁸⁵ On 27 November 715 and 623 unsuccessfully attacked patrol boats off Sognefjord and 717 sank the *Welheim* (5,455) bound Bergen for Aalesund.¹⁸⁶ 653 and 717 crossed to Norway on 6 December and, at about midnight, sank the *Ditmar Koel* (4,479T) in Korsfjorden.¹⁸⁷ Three pairs of MTBs sailed Lerwick on 23 December, 722 and 712 sinking the minesweeper *M-489* in Bommlofjord then shelling a coastwatching station nearby and 717 and 627 sinking the small tanker *Buvi* off Frosjoen.¹⁸⁸ On 6 January, 722 sank the *Dora*



The track chart for Operation VP79 described overleaf shows a classic 'lurking' operation in which the two MTBs ran in through the Leads to wait, in this case for two hours at Ekilsø, then dash out at high speed to attack enemy shipping before escaping by another narrow channel.

¹⁸⁴ Rohwer and Hummelchen : 1974 p. 446.

¹⁸⁵ Ibid.

¹⁸⁶ Reynolds : 1998 p. 110. Withoft : 1971. p.361. Irvine : 1988 p. 143. Rohwer and Hummelchen : 1974 p. 468

¹⁸⁷ Reynolds : 1998 p. 111-112. Irvine : 1988 p. 143. Rohwer and Hummelchen : 1974 p. 473

¹⁸⁸ Rohwer and Hummelchen : 1974 p. 475. Reynolds : 1998 p. 113.

Fritzen (6888T) with her cargo of iron ore and *709* damaged the *Nikolaifleet* (5,158T). This convoy was attacked again off Sognefjord early on 9 January and *Nikolaifleet* and *Viola* (991T), both ore carriers, were sunk.¹⁸⁹ On the evening of 31 January, *717* and *715* missed *M381* but sank *M-382* south of Trondheim (see chart on previous page). *M-381* was sunk when *717* returned to the area twelve days later.¹⁹⁰

717, *715* and *711* were lurking west of Karmøy on 12 March when a convoy appeared and *711* sank the 5,000 ton liner *Paris*.¹⁹¹ Early on 30 March two German patrol vessels were shelled in Bommelofjord by *717* and *716*. *VP-5532* was hit repeatedly and driven ashore, the other was damaged but escaped. As they withdrew, the MTBs shelled a coastwatching post on Slotterø.¹⁹² With the end of the war clearly imminent, *711*, *723*, *713* and *719* left Lerwick early on 25 April. Enemy movements by this time were almost non-existent, so *713* and *719* sighted nothing. On 26 April, however, *711* and *723* were west of Karmøy when a U boat surfaced close by. Both boats fired torpedoes, but missed, then the MTBs opened fire and *711* dropped four depth charges, badly damaging the U boat which was last seen limping towards the shore and on fire. The MTBs left when a German patrol boat appeared and *U-637* limped into Stavanger.¹⁹³

FINAL SUBMARINE PATROLS

On 14 October, *Viking* sank the *Standard* (1,286T) near Bodo. At 2233/21 October, *Sceptre* attacked a large convoy off Lister, sinking the escort *UJ-1111* (510T). *Venturer* sailed Dundee on 2 November to patrol off Andoy and carry out Operation HANGMAN, the landing of stores for SOE's coastwatching service. She was submerged off Andoy at 0839A/11 when the OOW sighted a U boat conning tower. Lieutenant Launders fired four torpedoes at 0845A/11 and, 90 seconds later, there was a loud explosion followed by breaking-up noises and a smaller explosion as the U boat's batteries exploded. *Venturer* had sunk *U-771* which had sailed Hammerfest on 14 October to attack JW61, but without success. All 51 aboard the U boat were lost. HANGMAN was carried out that night and *Venturer* returned to Lerwick on 24 November and Dundee on 26 November.

Venturer and *Rubis* sailed Dundee on 13 December, *Venturer* for an uneventful patrol off Egersund between 18 and 26 December, and *Rubis* to lay mines off Stavanger. During the minelay she had to dodge a convoy of barges which passed about a cable astern of her, but, on 21 December, a convoy consisting of five merchantmen, one U boat and six escorts

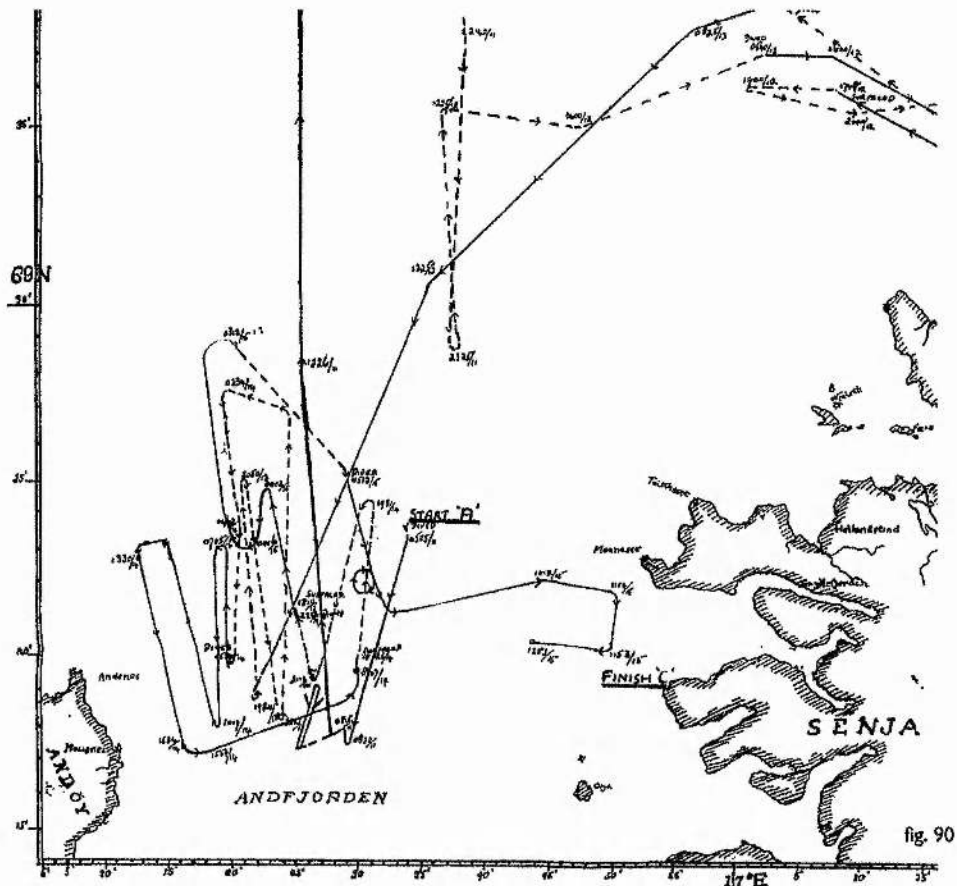
¹⁸⁹ Witthoft : 1971 p. 313.

¹⁹⁰ Reynolds : 1998 p. 115.

¹⁹¹ ADM 199 997.

¹⁹² Ibid. Reynolds : 1998 p. 116-117.

¹⁹³ Wynn : 1998. ADM 199 997. Reynolds : 1998 p. 117.



Detail from *Venturer's* track chart covering the sinking of U-771 and Operation HANGMAN

steamed into the minefield. The escorts *UJ-1113* (830T), *UJ-1116* (830T), the minesweeper *R-402* (127T) and the supply ship *Weichselland* (5,190T) were all sunk.¹⁹⁴

Utsira sailed Dundee on 6 January 1945 and sank the patrol vessel *V-6408* off Namsos on the 16th.¹⁹⁵ *Venturer* attacked three ships and four escorts off Skudesnes at 2342/22 January, sinking the *Stockholm* (618T). And, on 9 February, it was *Venturer* that carried out one of the most noteworthy submarine attacks of the war, the only known occasion when a submerged submarine has sunk another submerged boat. Faint but increasing HE was heard from 0932/9 then a periscope was sighted on the hydrophone bearing and course was altered to intercept. The periscope was sighted again at 1115/9. The U boat was plotted by Asdic and Lieutenant Launders was assisted by a generous view of its periscope at 1122/9. At 1212/9, Launders brought *Venturer* onto a firing course and fired four torpe-

¹⁹⁴ *Rubis* secured Dundee on 24/12/44. On her return *Rubis* was in urgent need of a complete refit, but she was not taken in hand as the refit would take at least six months.

¹⁹⁵ 9th Submarine Flotilla Monthly Letter dated 4 February 1945 (from RN Submarine Museum). ADM 234 380. Rohwer : 1997. Rohwer and Hummelchen : 1974 p. 486.



does set to run at 40 feet. Two minutes later *U-864* exploded and sank in 6046N 0435E with all 73 hands. *Venturer* surfaced and found a large patch of oil and wreckage.¹⁹⁶

Utsira sailed Lerwick on 29 March 1945 for patrol off Frohavet. On the morning of 5 April Lieutenant Valvatne tried to attack a tanker but

could not get close. That evening, off Folla, he attacked a four-ship convoy escorted by 10 armed trawlers and sank *Torridal* (1,381T). *Utsira* broke surface on firing due to a faulty vent but a counter attack by the escorts did no damage. Once again, it was becoming dangerous to operate close inshore patrols off Norway due to the limited dark hours. On this patrol, which ended when *Utsira* returned to Lerwick on 16 April, 75% of her time in the danger area was spent submerged.¹⁹⁷

At 0730/11 April, *Tapir* detected a U boat off Bergen and, at 0753/11, Lieutenant Roxburgh fired a salvo of eight torpedoes. Two minutes later an explosion was heard and Roxburgh saw the U boat hit amidships. A column of brown smoke rose 500 feet and, from the unexpectedly large explosion, Roxburgh considered that he must have hit some high-explosive in the U boat. *Tapir* had destroyed *U-486*.¹⁹⁸ *Tapir* was relieved by *Venturer* on 14 April 1945 and, amid rumours that *Prinz Eugen* was about to make a dash for northern waters, *Venturer* and *Varne* were ordered to patrol Egersund and Lister respectively and other submarines were brought to short notice for sea. But nothing materialised and *Venturer*, by then the last Allied submarine off Norway, was recalled on 25 April.¹⁹⁹

OPERATIONS IN NORTHERN WATERS IN RETROSPECT

Prior to the German invasion of Norway and Denmark in April 1940, the Royal Navy operating from the Clyde, Scapa and Rosyth was principally concerned with blockading the northern exit to the North Sea and thus protecting the Atlantic convoys from German surface warships and raiders, then still seen as a greater threat than U boats. From mid-1940, and with the Atlantic lifeline under growing U boat threat and Western Approaches Command placing increasing emphasis on anti-submarine warfare, the Scottish-based surface

¹⁹⁶ ADM 199 1813. ADM 234 380. Jones : 1986 p. 187-197. Information from ex-Leading Stoker Albert Hamilton.

¹⁹⁷ ADM 199 1852. 9th Submarine Flotilla Monthly Letters dated 4 April and 4 May 1945.

¹⁹⁸ ADM 234 380. Jones : 1986 pp. 211-215. Wynn : 1997.

¹⁹⁹ ADM 234 380. 9th Submarine Flotilla Monthly Letter (from RN Submarine Museum).

ships and submarines of the Home Fleet were principally concerned in the containment of enemy capital ships based in Norway.

This commitment became all the more vital once the Arctic convoy route opened late in 1941, the Arctic convoys themselves being a Home Fleet responsibility quite distinct from the Atlantic convoys for which Western Approaches was responsible. Of the 40 outbound PQ and JW convoys that sailed to the Soviet Union, 27 (67%) sailed from either Scapa Flow, the Clyde or Loch Ewe and of the 37 inbound QP and RA convoys, 27 (73%) sailed to Scotland. In terms of actual numbers of merchant ships sailed, 646 sailed from Scotland (77% of the total) and 592 returned (80% of the total). Most of the PQ/QP cycles were principally to and from Iceland and these convoys were heavily dependent on feeder convoys to and from Scotland, in particular Loch Ewe. That the percentage of the total number of ships sailed appears disproportionately high reflects the fact that the larger JW/RA convoys sailed almost exclusively to and from Scotland.²⁰⁰

At least in the early days, when the Royal Navy was at its weakest, the Germans were able to bring such a potent threat to bear in the Arctic, both in terms of surface ships, U boats and air power. Yet their performance was notably poor, their strategy was ill-considered and their command structure disjointed, thus they failed to break this strategically important and highly symbolic supply route.

The winter ore trade from Sweden via Narvik that had so exercised Churchill's Admiralty in 1939-40 continued to be a factor in naval strategy in northern waters, as did other coastal traffic off Norway. But, with the writing on the wall for Germany following the Axis defeat at Stalingrad and with American pressure on Stockholm growing, it was announced on 23 September 1943 that ore exports would be reduced from 10 million tons in 1943 to 7 million tons in 1944 and that ball-bearing exports would be cut from 45 million kronor to 21 million kronor.²⁰¹ Also passing along the convoy route through the Norwegian Leads were supply and reinforcement convoys for German garrison troops, for the Kriegsmarine units in the northern fjords, for the Luftwaffe in northern Norway and for the Wehrmacht fighting the Red Army in the far north.

Until 1943, allied attacks on this traffic were necessarily limited by either a lack of assets in theatre, or by the primary need to contain enemy heavy naval units. But from late 1943 onwards, with the formation of the Coastal Command Strike Wings, the start of MTB operations off Norway and the release of submarines and carrier groups which had been principally concerned in fighting through the Arctic convoys, sinkings on the coastal route

²⁰⁰ Schofield : 1977. Browning : 1996. Campbell & McIntyre : 1958. Rohwer : 1999. Smith : 1975. Various ADM series files.

off Norway increased dramatically. Between June 1940 and May 1941 just 12 vessels in convoy totalling 16,434 tons had been sunk off Norway and two had been damaged, all of them either by submarine-laid mine or by submarine torpedo. The picture for June 1944 to May 1945, as seen in the chart below, is radically different and shows clearly how, off Norway as elsewhere along the enemy-held coastline, the RAF had become the most effective ship-killers.

Non U-boat sinkings (144 vessels) by Allied forces off Norway
June 1944 - May 1945 as tonnage by cause

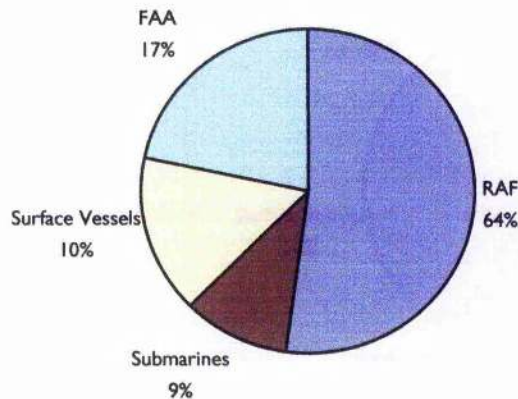


fig. 92

Of 144 ships totalling 307,125 tons known to have been sunk on the Norwegian coastal route in the last year of the war, 93 were the result of attacks by Scottish-based Coastal Command aircraft of, 24 were sunk by carrier-based aircraft of the Home Fleet operating from Scapa Flow, 14 were sunk by MTBs operating from Lerwick and 13 were sunk by submarines based on the Clyde and at Dundee.

In addition, 58 ships totalling 162,844 tons were seriously damaged, 47 of them in air attacks. A chart of total effective attacks on ships in convoy in the 1944-45 period, demonstrating a steadily rising monthly trend, is given overleaf.

In the case of Norway, it must be stressed that the German garrison, Luftwaffe and Kriegsmarine were all entirely dependent on coastwise shipping, road and rail communications being poor or non-existent. Thus, with the possible exception of the seaborne supply effort mounted to support Axis forces in North Africa in 1941-43, the Norwegian convoys remained the largest single commitment of Axis merchant shipping.

And in the June 1940 to May 1941 period, not one U boat had been sunk off Norway. But in the June 1944 to May 1945 period some 14 were sunk, six by Coastal Command, four in a Bomber Command raid on U boat pens at Bergen in October 1944, three

²⁰¹ *The Economic Blockade. History of the Second World War Civil Series*, W. N. Medlicott. HMSO 1952-1959.

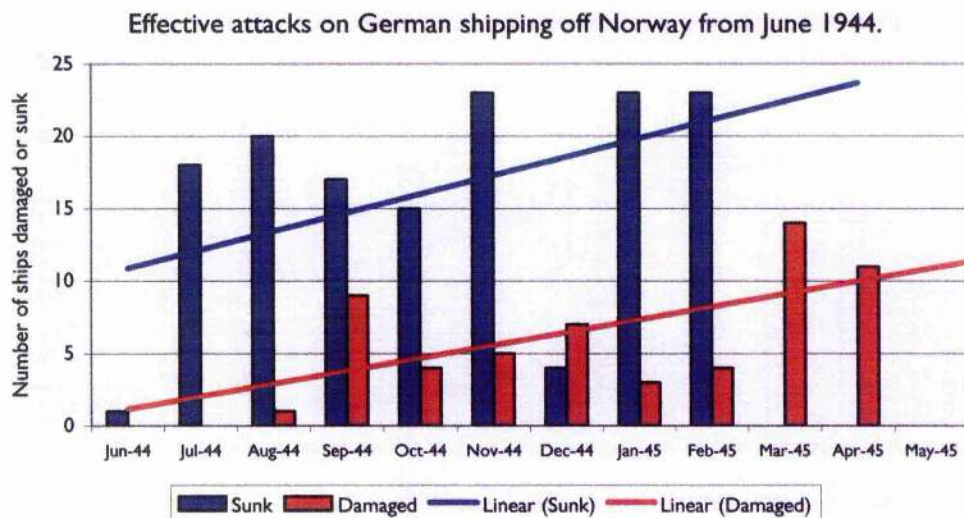


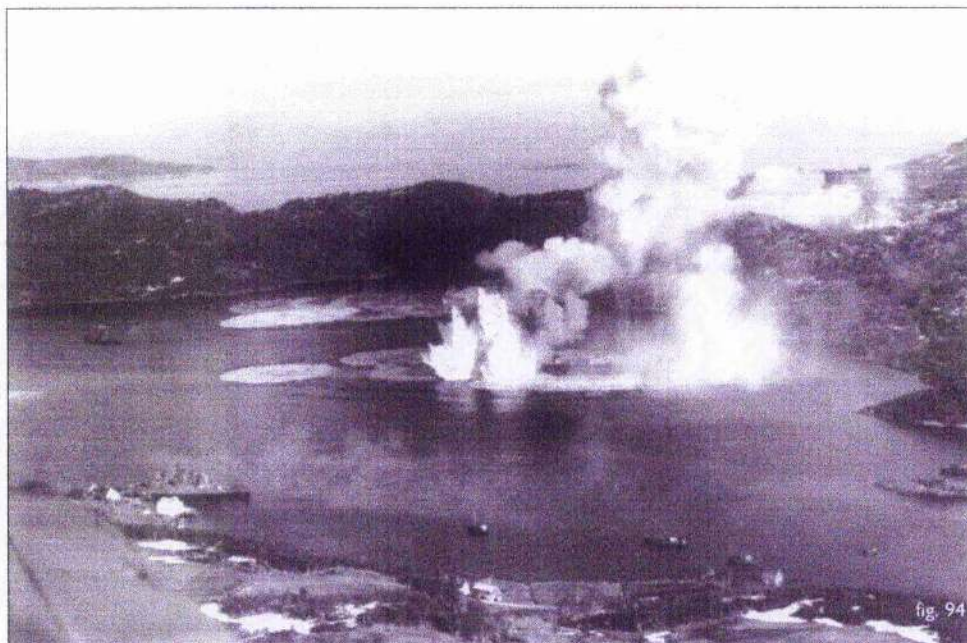
fig. 93

by Allied submarines and one by carrier aircraft. Another three U boats were seriously damaged, two by Coastal Command and one by MTB. All of the Allied forces concerned were operating from Scotland.

Further adding to Axis difficulties were seaborne special operations mounted from Scotland by SOE and MI6 against shipping, harbours and coastal installations in Norway. While these were generally on a small scale, they added considerably to the overall impression given by Combined Operations and strategic deception operations described in Chapter Five, and by larger-scale naval operations described above, that the Allies retained an interest in land operations in Norway. This played on known German paranoia about the vulnerability of Norway and helped to ensure that a large garrison was maintained there. And, even had the German High Command accepted that Norway was, from 1944 on, a strategic side-show, attempts to transfer the 350,000 troops found there in 1945 to the eastern front or western Europe would have been rendered all but impossible by the quality of Allied intelligence and their consequent ability to deploy naval and air assets against shipping off Norway to good effect.

By and large, from late 1942 onwards, Allied maritime operations in northern waters were intelligently handled and strategically effective. But this has to be set against the fact that Axis naval and air operations in the same theatre were ineptly managed from the outset, not least because of the irreconcilable strategic imperatives that arose out of Hitler's decision to invade the Soviet Union without first knocking Britain and her Royal Navy out of the war. At the time in 1941-1942 when the Axis were in the ascendancy and should have, for example, broken the Arctic supply route to the Soviet Union, they did not. The loss of the Arctic route would not have brought about the defeat of the Soviet Union, but it

would have had major political and symbolic consequences and prolonged the war, so the German failure here was serious.



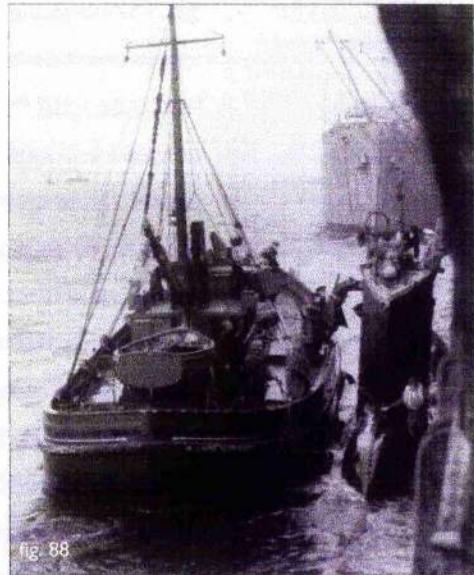
The aptly named Operation JUDGEMENT on 4 and 5 May 1945 was the last Home Fleet operation of the war. *Norfolk* (Vice-Admiral Rhoderick McGrigor), *Searcher*, *Queen*, *Trumpeter*, *Diadem*, *Opportune*, *Zambesi*, *Carysfort*, *Scourge* and *Savage* sailed Rosyth on 1 May to strike at the U-boat Arctic flotilla base at Kilbotn near Harstadt in Vestfjord. Twenty-eight Wildcats and 17 Avengers attacked the depot ship *Black Watch* (5,035T) and *U-711* (Kapitanleutnant Hans-Günther Lange) lying alongside. Both were sunk as above. A tanker was also claimed as sunk and an AA ship damaged for the loss of two aircraft. Type VIIC *U-711* was the last U boat sunk by the Fleet Air Arm in the war; 32 of her crew died and 11 survived.

Chapter Seven

APPARENTLY THE WAR IS OVER

On 5 May 1945 Spitfires of 603 Squadron staged an early victory fly-past over Edinburgh. The German surrender was signed at SHAEF HQ, Reims, at 0241/7 May and that afternoon the squadron ORB records laconically, 'Apparently the war is over.'¹ That evening, as victory bonfires were lit and celebrations began, and as described in Chapter Four, *U-2336* sank the *Avondale Park* and *Sneland 1* in the Forth. On 8 May Swedish radio reported that Allied envoys had reached Oslo and, on 10 May, in accordance with the Reims surrender terms, Kapitanleutnant Kruger's party flew into Drem with charts of German minefields, swept channels into Norwegian ports and U-boat dispositions.

The last outbound Arctic convoy, JW67, sailed the Clyde on 12 May still under war conditions in case there was a U boat commander keen to fight. U-boats in the North Atlantic and northern North Sea had been ordered to surface, fly a black flag and take one of two routes into Loch Eriboll so as to arrive between sunrise and three hours before sunset.² On 9 May, a surfaced U-boat not showing a black flag was attacked west of Shetland. *U-2326* had unsuccessfully attacked a convoy off Arbroath late on 23 April, returned to Stavanger for reloads, then sailed again on 4 May to patrol off the Forth. She received the surrender order at 2115/9 but, understandably keen to reach home, Oberleutnant Jobst ignored the order to proceed to Loch Eriboll and set course north to Peterhead, then east for Kiel. Two aircraft passed over and, on both occasions, Jobst pretended he could not read their signals. Finally, at 1030/12, a 206 Squadron Liberator dropped a bomb alongside and, from 60 miles off the Danish coast, the abruptly compliant Jobst was told to steer west and was escorted into Dundee at 0930/14.³ Fur-



U-2326 at Dundee

¹ AIR 27 2080.

² Ibid.

³ ADM 199 139. ADM 1 17761.

ther north, on 16 May, the Norwegian destroyer *Stord* on passage to Narvik met a convoy of 15 U-boats heading down Vestfjord to a rendezvous with EG9 which had detached from JW67 to escort them to Loch Eriboll.⁴

On 11 May, Crown Prince Olaf and Norwegian Government Ministers sailed Rosyth in the minelayer *Ariadne* and reached Oslo two days later. General Andrew Thorne wrote;

Everyone who had a boat or could get into someone else's did so and came out to cheer him and the squadron. The only one who didn't appreciate it was the German naval officer pilot who came on board off Lista Lighthouse. It must have been very humiliating for his feelings to see the real joy and gladness in the faces of the people.⁵

The Norwegian Brigade reached Tromsø on 26 May to take control of north Norway where Soviet troops were proving difficult to dislodge from territory they had taken from the Wehrmacht. British warships and American troops were sent to the area and the Soviets withdrew. New battle-lines were being drawn.⁶

SYNTHESIS

This thesis set out to consider aspects of Scotland's operational role in the Second World War at sea, and this on the basis that maritime and Scottish historians alike had, hitherto, been neglectful of this period in Scotland's past. But some might argue that the lack of interest shown by historians is down to little of consequence having happened in or around Scotland, or involving forces based in Scotland, so let us first consider the evidence, cohesively studied in this thesis for the first time, that proves otherwise.

In analysing Scotland's role, some might advocate counter-factual scenarios to imagine how things might have turned out had circumstances been different. And it is true that such debate can occasionally help recapture the uncertainties that surround military decision making. But this process generally involves speculation about an individual's or a group's thought processes, so counter-factuals are often flawed, if not actually inane, and, as H. P. Willmott writes in characteristically blunt fashion:

There are some historians who, it would seem, cannot put pen to paper without subtracting from the sum of human knowledge. I have always experienced too many difficulties trying to understand what did happen to worry myself about imaginary scenarios.⁷

So these concluding remarks will confine themselves to the facts and let the evidence speak for itself.

⁴ U boat surrenders at Loch Eriboll, Scapa Flow and Kyle of Lochalsh included *U-244, U-255, U-293, U-516, U-668, U-716, U-764, U-802, U-826, U-956, U-997, U-1009, U-1010, U-1058, U-1105, U-1109, U-1305*. ADM 199 2056.

⁵ One of *Ariadne's* escorts was the cruiser *Devonshire* which had brought King Haakon, his family and much of his government out of Norway to Scotland in 1940. On 5 June 1945 *Devonshire* escorted Haakon into Oslo aboard the cruiser *Norfolk*. *Scotsman* 14 May 1945. Roskill : 1961 pp. 263-264. See also Russell : 1987.

⁶ *Ibid.*

⁷ Willmott in *Battle of The Atlantic 1939-45 - 50th Anniversary International Naval Conference* Howarth & Law (eds) 1994 Ch. 9 *The Organisations, The Admiralty and the Western Approaches*.

At the outset, from its strategically vital position controlling the northern passages, Scotland played a principal role in the 'blockade' of Germany as Chamberlain's policy of appeasement was translated into military strategy. While the English Channel might easily be closed, Scotland's naval bases at Rosyth, Scapa Flow, Loch Ewe and in the Clyde were all heavily involved in the effort to shut off the northern passages to German warships and merchantmen. The Northern Mine Barrage was footed on Scotland and air patrols in support of the blockade were mounted from Scottish air bases at Leuchars, Invergordon, Hatton and Oban. Fundamentally flawed the blockade may have been, but it was only possible to conduct this strategy from Scottish bases.

The Royal Navy's Home Fleet based at Scapa Flow and Rosyth on the outbreak of war was ill-equipped to meet the challenges of a new trade war in the Atlantic, the protection of the Empire and the containment of a modern, albeit small, enemy surface fleet. Having spent the inter-war years as a pawn in the greater game of politicians seeking unworkable disarmament treaties and under constant pressure from the Treasury, the assets needed to fight a trade war simply did not exist. However, while the Battle of the Atlantic, reduced to its barest essentials, was a tonnage war, it was never quite the near run thing described by some.

The late winter of 1940-41, when virtually all shipping making for British ports was funneling through the North Channel, was the only critical period when the Kriegsmarine and Luftwaffe could have forced the issue on the North Atlantic supply route. While the Kriegsmarine may have regarded the Atlantic battle as war-decisive, the eyes of Hitler and the German high command were fixed on the east and Operation BARBAROSSA. The loss of *Graf Spee*, *Blucher* and *Bismarck* by mid-1941, the damaging of other ships and the non-appearance of its planned aircraft carriers, all but ended the Kriegsmarine's ambitions for an Atlantic strategy involving capital ships. And Dönitz started the war with a pitifully small force of U-boats, too few for the sustained effort necessary to put a stranglehold on the North Western Approaches. Further, Luftwaffe cooperation was negligible when it was needed most, a portent of Axis failures in northern waters later in the war. Thus, in the winter of 1940-41, while the maritime war was principally being played out off Scotland, and largely on the Allied side by naval and air forces operating from Scotland, the Royal Navy managed not to lose the battle but the Kriegsmarine neglected to win it.

From mid-1941, the combined effects of British technological advances and cryptanalytical success, Allied shipbuilding capacity and improved ship management along with the increased availability of escort vessels and aircraft manned by properly trained crews and the growing support of the United States ensured that the U-boats never stood a chance. Scottish-based naval and seaborne commando units played a leading role in the securing of

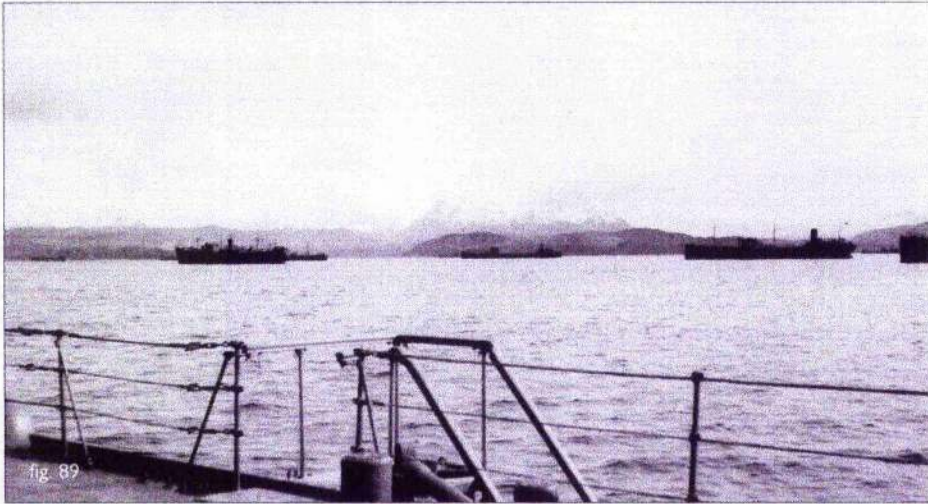
Enigma encypherment machine intelligence that played a vital role in beating the U boats from 1941 onwards. But the winter of 1940-41 had demonstrated the inadequacy of British counter-measures to meet the U boat threat and one of the Scotland's principal contributions to Allied victory in the trade war came from the Western Approaches escort group sea training establishments at Tobermory and Stornoway, along with the anti-submarine training schools on the Clyde, in particular at Campbeltown. Some 1,139 escort vessel crews worked up at Tobermory alone and, without in any way belittling the training work of the Western Approaches Tactical Unit at Liverpool and sea training establishments elsewhere modelled on Tobermory, the sea training of so many escort vessels was a unique and ultimately vital Scottish achievement. Then, from mid 1942, Coastal Command long-range aircraft operating from Scotland played a key role in closing the Atlantic Gap and the final defeat of the U boats.

Scotland's other major involvement in the maritime trade war lay in the contribution of the port complex and shipbuilding yards on the Clyde. The port of Glasgow and the other facilities on the river formed one of two principal eastern termini for the Atlantic supply chain, Liverpool and the Mersey being the other. The ability of the Clyde to absorb steadily increasing volumes of traffic was essential to the Allied cause, as was the success of Scottish-based sea and air forces in fighting the coastal convoys around the north of Scotland to east coast ports reopened in late 1940. The securing of the trade route, the increasing commitment of the United States once Lend-Lease passed in March 1941 and the entry of the Soviet Union into the war that June meant that, from the middle of that year, British military power could again be projected around the world, albeit in a small way at first.

Following defeat in Scandinavia and France in 1940, it was to Scotland, and, in particular the Clyde, that the Royal Navy, Army and RAF turned to develop the inter-service cooperation and amphibious warfare capability that would be central to future operations. And it was from the Clyde that amphibious expeditions reached out to Scandinavia, Africa, the Indian Ocean and the Middle East during 1941 and 1942. Further, troops prepared on the Clyde for other significant operations at, for example, Bruneval, St Nazaire and Dieppe. Then, at the end of 1942, the first large-scale Allied invasion force trained in Scotland and sailed from the Clyde to North Africa. The TORCH force was followed out of the Clyde in 1943 by a substantial element of the Sicily invasion force, and it was amphibious warfare techniques developed on the Clyde that were to see Allied land forces successfully ashore in every theatre of war, most notably Normandy.

In northern waters, Allied warships and submarines operating from Scottish bases, principally Scapa Flow, Loch Ewe, the Clyde and Dundee, were ultimately able to secure the Arctic convoy route to the Soviet Union against Axis heavy naval units, U boats and the

Luftwaffe. Hugely costly, Dudley Pound's 'most unsound operation' was nevertheless a political imperative entirely justified in that it cemented a thoroughly shaky coalition with, when it was conceived, Britain's only confirmed ally. The vast majority of sailings for the Soviet Union departed from Scotland, mainly from Loch Ewe and the Clyde. And, while *Bismarck*, *Tirpitz* and their consorts exercised a powerful influence on Allied maritime strategy in the north, on occasion with tragic consequences, it is one of the ironies of war that they also probably saved a considerable portion of the Royal Navy from the same fate as befell *Prince of Wales* and *Repulse*.



The bleak expanse of Loch Ewe was the starting point for most Arctic convoys about which, on 18 April 1942, First Sea Lord Admiral Dudley Pound wrote that, 'The whole thing is a most unsound operation with the dice loaded against us in every direction.' But the need to get these convoys through dictated much Allied naval strategy both in northern waters and elsewhere. And it is at least arguable that the Kriegsmarine did the Allies in general, and the Royal Navy in particular, a considerable favour by maintaining their capital ship threat in northern waters. Had this not been so, it is highly likely that Churchill would have forced the Admiralty to strip the Home Fleet for the Pacific in late 1941, and there is no reason to assume that, with little or no air cover, they would have fared any better than *Repulse* and *Prince of Wales*.

The Kriegsmarine could avoid the costly development of an amphibious capability and aircraft carriers, but the Scandinavian theatre was the one place where it remained vital for them to maintain an effective surface-ship trade protection capability. Yet from 1941 onwards, and especially from 1943, Allied naval and air forces operating from Scotland conducted an increasingly effective offensive against Axis merchant shipping off Norway. This greatly hampered German land, sea and air operations in the Scandinavian theatre. It also slowed the passage of ore supplies to Germany from Sweden, not least because, by late 1944, German convoys off Norway were unable to move in daylight for fear of attack.

Then, as the war drew to a close, Scottish-based Allied naval operations off Norway, along with deception schemes aimed at that country from Scotland, helped to ensure that some 350,000 Axis troops were still there in May 1945, not having played a role in the main European battlefield. While this may not have materially affected the outcome, or

perhaps even the length of the war, it certainly reduced the casualty rate on both sides.⁸ And more importantly in the longer term, the inability of the Wehrmacht to draw down reinforcements from Norway through Denmark allowed Montgomery's 21st Army Group to race north from the Elbe to Wismar on the Baltic in just two days at the beginning of May 1945, thus forestalling by a matter of hours a Red Army occupation of Schleswig Holstein and Denmark.

We have already discussed in the introduction to this thesis the paucity of academic study and published material on the subject of Scotland's wartime experience. So why then, with all this evidence of Scotland's key role in maritime events during the Second World War, have historians shown hitherto so little interest in this and the wider study of Scotland's wartime experience?

AND THE FUTURE...

This thesis has demonstrated that Scotland played a pivotal role in maritime operations throughout the Second World War, but this first study of just one aspect of Scotland's wartime history must not be the last. And one of the most frustrating aspects of this study has been the vast amount of excellent material that has had to be left out. I first began researching this subject ten years ago, in 1990, when the history of wartime Britain was still heavily larded with mawkish sentimentalism, in no small measure the result of a tendency to believe in one's own propaganda. Now, perhaps, is the optimal time to begin serious work on the period.

Many aspects of wartime Scotland invite further study: transport, port operations, industry, agriculture, politics, industrial relations, propaganda and the media to name but a few. A sound, film and image archive would be an attractive proposition and there is a clear need to determine what documentary resources are available, and where. This study has also highlighted other issues such as the need for a comprehensive study of British port operations in wartime, not least in respect of Liverpool.

But one pressing need is for a well-directed survey of the archaeology of the Second World War in Scotland. Some work has been done by the Royal Commission on Ancient and Historical Monuments, the Fortress Study Group and others, but too many wartime sites are being swept away or allowed to decay without being recorded or their importance being assessed. A prime example of this is at Inveraray where, during the life of this project, the wartime Wrennery at Dalchenna House was razed to the ground by Argyll Estates for quite the oddest of reasons. And, north of Dundee, a POW camp with important wall murals has only recently been demolished. Just a few of the many other sites worthy of study are the

⁸ For the liberation of Norway and the problems that arose from it, not least what to do with the 350,000 Germans, see



fig. 90

Among the many important, yet neglected, of Scotland's wartime sites are the Combined Training Centres around the Clyde. Much remains to be recorded, not least the three LST hards (left) and the camp at HMS Quebec pictured from the roof of the sickbay in 1945 (below left) and the same view in 2000 (below right). The large Recreation Hall in the middle distance is a notable survivor, as are several other brick buildings.

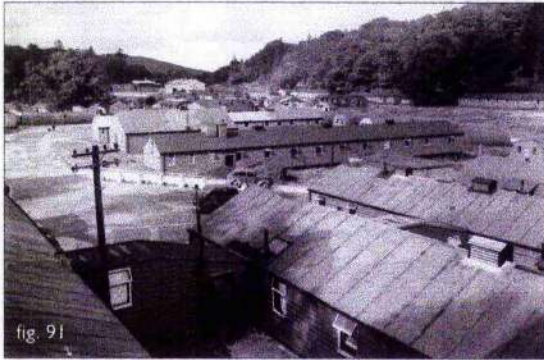


fig. 91



fig. 92

naval establishments at Rosyth, Greenock, Dundee, Lerwick, Campbeltown, Ardrishaig, Fort William and the torpedo range in Loch Long along with its associated camp site. Then there are the combined training sites at Rosneath, Dundonald, Castle Toward, Largs, Tighnabruaich, Lochailort and Burghhead. And then there are important airfields such as Prestwick, Benbecula, Tìree, Wick, Lossiemouth, Banff, Drem and Turnhouse.

It is just as well that Scotland's seaward defences were never tested in anger. Two scenarios appear to have influenced planning. One was the notion that a large German invasion force could somehow be transported unseen across the North Sea to land on the east coast. The other was the equally absurd premise that Scotland would still be resisting after England had been subdued following a cross-Channel invasion. Elaborate and wholly asinine plans were drawn up for the defence of northern Glasgow in the event of the enemy having reached the south bank of the Clyde. Few seem to have stopped to consider the harsh reality that it would all have been over long, long before the Wehrmacht reached Carter Bar, never mind Govan.⁹

Plans for the defence of Scotland may have bordered on the ludicrous, but they involved a large portion of the population in, for example, the Home Guard, Glasgow's twelve battal-

Salmon (ed.): 1995 Ch. 22 for a paper by Sir Peter Thorne, the son of General Andrew Thorne.

⁹ D-TC 8/10 83 to D-TC 8/10 86.

ions alone mustering some 23,000 men. So this aspect of Scotland's wartime history must also be worthy of serious academic study.

And what of the Luftwaffe? In popular mythology, the numerous air attacks on Scotland have been reduced to the so-called Clydebank Blitz. This thesis has gone some way to redressing the balance by examining raids on shipping and coastal towns, but a study of the full extent of aerial activity over Scotland is long overdue.

The *North Western Approaches* thesis has shone new light into a neglected corner of Scottish 20th century history. But there is a great deal still to be done.



fig. 93

GOC Scottish Command General Andrew Thorne and officer cadets armed with fire-work-tipped arrows during an anti-invasion exercise at Musselburgh in 1941.

NORTH WESTERN APPROACHES

Bibliography

PRIMARY SOURCES

PUBLIC RECORD OFFICE, KEW, LONDON

ADM Series

1		Admiralty Secretariat cases.
	3574	Naval air stations in Scotland. Report 1942-43.
	9760	SS <i>Athenia</i> - denial of enemy allegations.
	9847	Forth anti-submarine defences 1938-39.
	9852	Organisation of Port A, Loch Ewe.
	9855	Forth anti-submarine defences following the mining of HMS <i>Belfast</i> .
	9858	Rosyth anti-aircraft defences 1939.
	9860	Defences of Scapa Flow.
	9899	Capture of <i>Cap Norte</i> by HMS <i>Belfast</i> .
	10033	Report on sinking of SS <i>Athenia</i> .
	10091	Awards to crew of HMS <i>Mohawk</i> for 16/10/39 Forth Raid.
	10141	Details from POWs taken from <i>U-27</i> and <i>U-39</i> .
	10237	Loss of SS <i>Astronomer</i> - Admiralty Board of Enquiry.
	10252	Combined Operations Base, Inveraray - supply of machine tools.
	10254	Combined Operations Base, Inveraray - pier.
	10566	Loss of French destroyer <i>Maille Breze</i> - Board of Enquiry.
	10670	Mining of HMS <i>Belfast</i> 1939.
	10720	Merships abandoned after air attack - danger to navigation.
	10733	Loss of HMS <i>Exmouth</i> - Board of Enquiry.
	10773	Loss of HM drifter <i>Apple Tree</i> - Board of Enquiry.
	10775	Loss of <i>Salvestria</i> - Board of Enquiry.
	10778	Loss of <i>Shelbrit 1</i> - Board of Enquiry.
	10785	Loss of HMS <i>Sphinx</i> - Board of Enquiry.
	11009	Destroyer repair bases at Fort William and Oban.
	11065	Commander Donald Macintyre's report on HX112.
	11133	Attack on OB318 and the capture of <i>U-110</i> .
	11138	Port War Signal Stations at Aberdeen and Dundee.
	11153	Refloating of <i>U-570</i> an passage to the UK.
	11180	Loss of <i>Empress of Britain</i> - Board of Enquiry.
	11215	Loss of AMCs <i>Patroclus</i> and <i>Laurentic</i> - Board of Enquiry.
	11275	<i>U-570</i> /HMS <i>Graph</i> .
	11519	Awards to <i>Athenia</i> personnel.
	11529	Award to Captain D. F. Harlock of SS <i>Helmond</i> for reporting <i>Altmark's</i> arrival in Norway.
	11542	Loss of HMS <i>Sturdy</i> - Board of Enquiry.
	11588	Salvage of <i>Trevarrack</i> .
	11657	Awards to the crew of <i>San Demetrio</i> .
	11676	Passage through secret minefields.
	11713	Greenock Boat Pool.
	11770	RAF Typex encoding machine.
	11826	Construction of replica control room of <i>U-570</i> /HMS <i>Graph</i> for training boarding parties.
	12310	Loss of HM ships <i>Milford Earl</i> and <i>Phineas Beard</i> - Board of Enquiry.
	12332	Awards to crew of <i>Superman</i> following air attack.
	12700	Trinity House Light Vessels transferred to war stations.
	12817	Commodore <i>Western Isles</i> .
	12880	X Craft of 12th Flotilla.

	12882	Caledonian Canal - traffic flow arrangements 1940-43.
	12918	Campbeltown Naval Base.
	13082	Fast water boats for the Clyde.
	13119	Cape Wrath Signal Station.
	13217	Berthing for Combined Operations vessels in Scotland.
	13255	Tobermory and Stornoway.
	13269	MTB bases in Shetlands.
	13410	Craft for training at Loch Cairnbawn.
	13430	Berths for <i>Queen Mary</i> and <i>Queen Elizabeth</i> in the Clyde.
	13555	Transport for Merchant Navy personnel on shore leave in Orkney.
	14981	Labour disputes at John Brown Shipbuilders.
	15090	Lifeboat crews - responsibilities in the event of invasion.
	15100	Pilotage in the Firth of Forth - Methil and Burntisland 1942-43.
	15478	Loss of HM submarines <i>Vandal</i> and <i>Untamed</i> - Boards of Enquiry.
	15549	Rescue Tug Service.
	16009	Letter to Flag Officer Greenock re <i>Subsistence</i> trials 1944.
	16150	Loss of HMS <i>Rockingham</i> September 1944.
	16168	Loss of <i>Empire Heritage</i> and rescue ship <i>Pinto</i> - Board of Enquiry.
	16464	Acquisition of helicopters for Fleet Air Arm anti-submarine work 1942-44.
	16848	U boat shelters in Norway and production of Types XXI and XXIII - info ex secret sources.
	16873	Loss of HMS <i>Breda</i> - Board of Enquiry.
	16908	Mines in the Clyde - injuries during dredging operations.
	17126	Advisability of using Greek crews - recent mutinies and unrest 1944.
	17347	Arming of RNLI Lifeboat crews.
	17423	Royal Naval air stations in the Highlands and Islands. Post-war policy.
	17608	21st Escort Group 1944-45. Bridge logs and reports to C-in-C Western Approaches.
	17661	<i>U-2326</i> surrendered at Dundee - interrogation of Captain.
	17668	Sinking of <i>U-482</i> - information from German records.
	18039	Loss of HMS <i>Bullen</i> - Board of Enquiry.
	18096	HMS <i>Iron Duke</i> 1945.
	18193	Loch Lathaich working up base.
	18915	Report on sinking of <i>Athenia</i> .
	19038	Derequisitioning of Perth Ice Rink 1945.
53	109405	HMS <i>Jervis</i> October 1939.
	109897	HMS <i>Nelson</i> December 1939.
	107660	HMS <i>Barham</i> December 1939.
	108641	HMS <i>Fame</i> August 1939.
116		Admiralty and Secretariat Cases.
	3831	Scapa Flow Photo index.
	3876	Proposals for the defence of the Scottish coast 1935-39.
	4052	Yachts requisitioned.
	4121	HM ships, Auxiliaries and Allied submarine losses 1939-40.
	4295	Censorship in the area north of the Caledonian Canal.
	4381	Operation ANKLET.
	4509	Operation GRAPH - refloating HMS <i>Graph</i> .
	4539	Greenock Memoranda.
	4548	HMS <i>Graph</i> - model and experiments.
	4591	HM Naval Base Rosneath - transfer to the US Navy.
	4736	Torpedo research and Coastal Forces, Greenock 1941-44.
	5432	Protected Areas including Inveraray 1941-45.
	5790	Scapa Flow Photo Index.
178		Secretariat cases.
	194	Loss of HMS <i>Oxley</i> .
	195	Loss of oiler <i>Birchol</i> .
	226	Loss of R.J. <i>Cullen</i> etc. in 1942.
	246	Loss of <i>Empress of Britain</i> .
	249	Loss of minelayer <i>Port Napier</i> .
	250	HMS <i>Dundee</i> - grave error in being abandoned too soon (pic).
186		Files on Naval Control of Shipping.
	798	Naval Operations during the Norway Campaign 1940.
	799	Naval Operations in Home Waters September 1939 to April 1940.
	805	Interrogations of German Naval survivors.
	806	Interrogations of German Naval survivors.
	807	Interrogations of German Naval survivors.

	808	Interrogations of German Naval survivors.
	809	Interrogations of German Naval survivors.
189		Torpedo and anti-submarine school reports.
	142	History of net defence - photographs of <i>Arandora Star</i> 1940.
	176	Technical History of A/S weapons.
195	85-97	Rosyth Dockyard.
	2195-2326	War Diary Summaries.
	2130-2148	Survivors reports (Merchant vessels).
199	1-5	Convoy system introduction and organisation.
	6	East Coast convoys - policy, routes and discipline 1939-41.
	7	East Coast convoys - assembly and routing 1939-41.
	13	EN and WN convoy reports 1940-41.
	14	WN convoys 1941.
	15	EN and WN convoys 1940-41.
	16	EN and WN convoys 1940-41.
	20-40	Various convoy reports, mainly coastal, including FN, FS, OA, TM, MT etc.
	43	EN and WN convoy reports 1941-42.
	45	EN and WN convoy reports 1941-42.
	49	HX convoy reports 1940.
	51	HX convoy reports including HX72.
	55	HX and SC convoy reports 1940-42.
	59	SC convoy reports including SC11.
	66	Anti-aircraft defence of ports and naval establishments 1939-40.
	74	Enemy air attacks on HM ships and Merchant vessels.
	75	Enemy air attacks on HM ships and Merchant vessels.
	76	Enemy air attacks on HM ships and Merchant vessels.
	77	JW and RA convoys.
	80-84	British and Allied ships sunk.
	92	Various convoy reports.
	99 - 103	Enemy air attacks in home waters. (Photographs CN 1/32-1/34)
	121	Convoy reports and attacks on U boats <i>U-31</i> , <i>U-32</i> . (Good source)
	122	Attacks on U boats <i>U-63</i> .
	123	Attacks on U boats <i>U-33</i> .
	126	Attacks on U boats <i>U-27</i> .
	127	Attacks on U boats <i>U-47</i> .
	128	Attacks on U boats <i>U-35</i> .
	139	<i>U-2336</i> (sinking of <i>Avondale Park</i> and <i>Sneland 1</i> in May 1945).
	139	Anti-U boat war - final stages 1945.
	140	Loss of <i>Athenia</i> .
	141	Enemy submarine attacks on merships 1939-40.
	142	Enemy submarine attacks on merships 1939-41.
	143	Enemy submarine attacks on merships 1939-41.
	144	Enemy submarine attacks on merships 1939-41.
	145	Enemy submarine attacks on merships 1939-41.
	158	Loss of HMS <i>Royal Oak</i> .
	172	Enemy air attacks on merships 1942-43.
	173	Enemy air attacks on merships 1942-43.
	174	Enemy air attacks on merships 1942-43.
	197	Anti-U boat operations 1945.
	198	Anti-U boat operations 1945.
	199	Anti-U boat operations 1945.
	203	Anti-U boat operations 1945.
	220	HM and merships - reports of loss by mining 1939-41.
	221	HM and merships - reports of loss by mining 1941-44.
	233	Operation RANKIN B (Norway).
	234	Operation RANKIN B (Norway).
	246	HM submarine patrol reports 1945.
	247	HM submarine patrol reports 1945.
	248	HM submarine patrol reports 1945-46.
	249	HM submarine patrol reports 1944-45.
	250	HM submarine patrol reports 1944-45.
	251	Minelaying by enemy aircraft in coastal waters.
	252	Minelaying by enemy aircraft in coastal waters.
	270	Operations by Norwegian Coastal Forces, 1943-45.

277	Submarine flotilla organisation (3rd and 7th flotillas), training, policy, patrols etc 1939-41.
278	Losses and damage to HM submarines 1939-41.
279	Submarine flotilla organisation (3rd and 7th flotillas).
280	<i>Altmark</i> - interception and boarding.
281	<i>Altmark</i> - interception and boarding.
285	Submarine patrol reports 1939-41.
286	Submarine patrol reports 1939-41.
288	Submarine patrol reports 1939-41.
292	Submarine patrol reports 1939-41.
294	Submarine patrol reports 1939-41.
300	Submarine patrol reports 1939-41.
311	Submarine patrol reports 1939-41.
362	C-in-C Rosyth War Diary 1939.
363	C-in-C Rosyth War Diary 1940-41. (See re Norway and Forth Fixed Defences)
364	Aberdeen, Methil, Dundee War Diaries from 1/2/40.
365	Leith, Peterhead, Invergordon War Diaries from 1/2/40.
371	Western Approaches War Diary 1940.
372	Western Approaches War Diary 1940.
373	Vice Admiral Submarines War Diary 1939-40.
377	Aultbea, Stornoway, Scapa, Shetland War Diaries, 28/12/39-1940.
397	Orkney and Shetland War Diaries 1941.
400	Dundee, Admiral Submarines War Diaries 1941.
401	Rosyth, Methil, Aberdeen, Peterhead and Lerwick War Diaries 1941.
412	Peterhead, Invergordon War Diaries 1941.
418	Aberdeen, Dundee and Blyth War Diaries 1942.
419	Scotland and Northern England War Diaries 1942.
423	Western Approaches War Diary 1942.
450	Operations to enemy occupied Norway 1940-41.
482	Military Operations (Norway) 1940.
483	Military Operations (Norway) 1940.
529	Operation TORCH.
531	Naval operations off Norway 1944.
557	Start of series on Convoy Reports.
614	Free French units with Royal Navy.
627	Admiral Submarines War Diary 1943.
631	Western Approaches War Diary 1943.
637	Operation TORCH.
646	Invergordon, Orkney/Shetland, Rosyth and Glasgow War Diaries 1942.
654	North Atlantic Command War Diary 1939-40. (Gibraltar; Admiral Dudley North)
658	Western Approaches War Diary 1941.
659	Western Approaches War Diary 1941.
684	HX Convoy Reports.
690	Rescue Tug Service reports 1941.
730	Operation GAUNTLET - Spitzbergen 1941 - Report of Proceedings.
770	Various Home Areas War Diaries 1943.
771	Various Home Areas War Diaries 1943.
777	Losses of British warships, auxiliaries and small vessels 1940-41.
844	Naval Air operations off Norway 1944.
866-71	Operation TORCH.
807	Polish units with Royal Navy - administration.
852	Operation TORCH.
854	Operation TORCH.
885	Home Commands memoranda etc.
899	Submarine patrol reports, various 1940-45.
904	Operation TORCH - reports and war diary.
997	Norwegian Coastal Forces, Lerwick - operations, 1945.
1050	Glasgow War Diary.
1051	Various Home Commands War Diaries.
1081	Western Approaches convoy schedules 1942.
1097	9th Submarine Flotilla patrol reports including <i>Rubis</i> and <i>Minerve</i> .
1118	Submarine patrol reports, various 1941-42.
1120	Submarine patrol reports, various 1941-42.
1128	Attacks on U boats; <i>U-651</i> .
1129	Operation GRAPH and other submarine reports.

	1139	<i>U-2326</i> surrender at Dundee.
	1150-55	Submarine patrol reports, various 1941-42.
	1167-1172	Enemy mining and minesweeping 1939-45.
	1173-1176	Enemy air attacks in home waters.
	1180	Enemy air attacks in home waters - coastal convoys 1941.
	1181	Enemy air attacks in home waters - coastal convoys 1941.
	1205	Submarine patrol reports, various 1941-42.
	1237-1239	Rescue Tug service 1940-41.
	1340-48	Submarine patrol reports, various 1941-42.
	1391	Various Home Areas War Diaries 1944.
	1392	Western Approaches War Diary 1944.
	1443	Western Approaches War Diary 1945.
	1444	Various Home Areas War Diaries 1945.
	1707	Convoy HX72 Reports.
	1729	HMS <i>Western Isles</i> , Tobermory.
	1793-1803	Rear Admiral Scapa (including Lyness).
	1813	HMS <i>Venturer</i> patrol reports.
	1827	HMS <i>Gragh</i> patrol reports.
	1838	HMS <i>Satyr</i> patrol reports.
	1842	HMS <i>Sterlet</i> patrol reports.
	1846	HMS <i>Taku</i> patrol reports.
	1851	Norwegian submarine patrol reports 1940-44 including <i>Ula</i> , <i>Uradd</i> .
	1852	Norwegian submarine patrol reports 1940-44 including <i>Ula</i> , <i>Uradd</i> .
	1853	Polish submarines patrol reports 1940-44.
	1855	Dutch submarine patrol reports 1940-44 including <i>Dolfijn</i> , <i>Zeebond</i> .
	1856	Dutch submarine patrol reports 1940-44 including <i>Dolfijn</i> , <i>Zeebond</i> .
	1857	French submarine patrol reports 1940 including <i>Antiopé</i> , <i>Achille</i> , <i>Sfax</i> .
	1858	French submarine patrol reports 1940 including <i>Antiopé</i> , <i>Achille</i> , <i>Sfax</i> .
	1859	US submarine patrol reports 1942-43 including <i>Barb</i> , <i>Blackfish</i> , <i>Gunnell</i> .
	1877	HMS <i>Clyde</i> patrol reports.
	1878	HMS <i>Severn</i> patrol reports.
	1879	Dutch submarine patrol reports including <i>O-23</i> , <i>O-24</i> .
	1881	Various submarine patrol reports.
	1887	Loss of <i>Empress of Britain</i> .
	1893-1903	Rear Admiral Scapa (Lyness).
	1904	Rescue tugs and Naval establishments at Thurso and Scrabster.
	1890	Midget submarine patrol reports.
	1905-14	Daily state reports by Admiral Submarines.
	1921	Various Dutch and US submarine patrol reports 1940-45.
	1939	Daily Operations Reports 1939.
	1976	Start of series on U boat attacks on convoys. (1976 for SC3, 1977 for HX79)
	2030	HMS <i>Satyr</i> patrol report.
	2032-56	Series on U boat incidents 1939-45.
	2057	Monthly A/S warfare returns including convoy attack reports etc. (9/39-12/40)
	2058	Monthly A/S warfare returns including convoy attack reports etc. (1/41-12/41)
	2059	Monthly A/S warfare returns including convoy attack reports etc. (1/42-12/42)
	2060	Monthly A/S warfare returns including convoy attack reports etc. (1/43-12/43)
	2061	Monthly A/S warfare returns including convoy attack reports etc. (1/44-12/44)
	2062	Monthly A/S warfare returns including convoy attack reports etc. (1/45-12/45)
	2073	Start of series of monthly Admiralty Trade Division Reports.
	2149-2154	Rescue ships.
	2158-2163	Survivors reports (Merchant vessels).
	2165	Rescue tugs.
205		First Sea Lord papers.
	11	Battle of the Atlantic Committee minutes 18/4/41 - 26/7/41.
	21	Special studies - convoy system ex 1939.
	23	Battle of the Atlantic Committee minutes 2/9/41 - 30/6/42.
	59	First Sea Lord Records Index.
217		Western Approaches Station Records incl. rescue ships and convoy reports from 1942.
	686	Residual Material on Western Approaches.
	695	Residual Material on Western Approaches.
	696	Residual Material on Western Approaches
223		Naval Intelligence reports 1939-47 including Ultra.
	2	Information derived by the Germans from decyphered British signals.

	15	Ultra - weekly U boat sitreps 20/12/41 - 28/6/43.
	16	Ultra - U boat appreciations and convoy battles 12/41 - 11/43.
	36	Signals connected with the sinking of the <i>Scharnhorst</i> .
	88	Special study - special intelligence in Battle of the Atlantic.
	152	U-570 capture and technical surveys.
	172	Ultra - weekly U boat sitreps 20/3/44 - 10/9/44.
234	332	Battle Summary - Norway April to June 1940.
	333	Battle Summary - Norway April to June 1940.
	369	Battle Summary - Arctic Convoys 1941 to 1945.
	372	Naval Staff History - Home Waters and the Atlantic April 1940 to December 1941.
	380	Naval Staff History - Submarines in Home, Northern and Atlantic Waters.
239		Royal Navy reference books.
	150	Examination Service Traffic Regulations Scapa Flow and Kirkwall 1940-41.
	162	Examination Service Traffic Regulations Clyde 1941-44.
	166	Examination Service Traffic Regulations Aberdeen 1940.
	167	Examination Service Traffic Regulations Firth of Tay 1940-42.
	169	Examination Service Traffic Regulations Aulitbea, Loch Ewe.
	170	Examination Service Traffic Regulations Buckie, Lossiemouth and Macduff.
	171	Examination Service Traffic Regulations Peterhead.
	172	Examination Service Traffic Regulations Lerwick.
	296	Chart Z48 - Scapa Defences 1941.
	297	Chart Z48 - Scapa Defences 1943.
	304	Chart Z46 - North Sea minefields.
	350	Lessons learned from Dieppe operation.
	358	U-570/HMS <i>Graph</i> .

AIR Series

2	2720	Typex coding machine - offer to RN.
10	4038	Air Stations in the UK.
	4039	Air Stations in the UK.
15		Coastal Command.
	171	Intelligence report on 1/KG40 Condor operations in NW Approaches.
	178	Convoy protection in Western Approaches 7/40-9/41.
	184	Proposed Area Combined HQ, Orkney, 5/40-8/40.
	185	Division of Western Approaches into two commands.
	186	A/S operations - Air co-operation with Admiral commanding Orkney and Shetland 1/40-11/40.
	202	Operation DUCK - bombardment of Stavanger Sola airfield 4/40.
205-209		Operations to Norway 1940.
	320	STARFISH policy.
	413	Landing of enemy aircraft at Dyce 5/43-7/43.
	656	Training exercises with HM ships from Tobermory 5/42.
	670	Flying boat bases in Shetland 11/38-8/40.
	676	Air-Sea Rescue 8/40-7/44.
	682	Operations Room at Sullom Voe - photos taken 2/46.
	694-701	RAF Three diary and log 12/40 - 9/45.
16		Fighter Command.
	127	Defence of the Firth of Forth 7/39-11/39.
	128	Defence of the Firth of Forth 10/39- 4/40.
	150	Scapa Flow Defences - policy 11/39-1/40.
	155	Establishment of Fighter Sector at Wick 11/39.
	156	Establishment of Fighter Sector at Wick 11/39.
	189	Defence of Scapa Flow 9/39-3/42.
	578	Formation of 14 Group 5/40-11/40.
	689	Defence of Scapa Flow 12/40-12/44.
	915	13 Group Wick 1944-46.
19	176	Air Defence of Great Britain Plans.
	207	Air warning system and defence measures.
20	1027	Directorate of Naval Co-operation.
	1050	Operation ARCHERY.
	1079	North-west Scotland and outer isles - extension of radar cover.
	1091-94	HIGHBALL trials.
	1322	HIGHBALL proposed operations.
	7585	Air stations in the UK.

	7586	Air stations in the UK.
25		Group Operations Record Books.
	232	13 Group Operational Record Book 1939-40.
	233	13 Group Operational Record Book. January 1941- December 1943.
	234	13 Group Operational Record Book January 1944-46.
	235-242	13 Group Operational Record Book Supplements.
	250	14 Group Operational Record Book 1/40-7/43.
	251	14 Group Operational Record Book Appendices 1/40-7/42.
	252	14 Group Operational Record Book Appendices August – December 1942.
	253	14 Group Operational Record Book Appendices January – July 1943.
	380	18 Group Operational Record Book 9/39 – 12/43.
	381	18 Group Operational Record Book 1/44 – 12/44.
	382	18 Group Operational Record Book 1/45 – 12/45.
	383-452	18 Group Operational Record Book Appendices.
27		Squadron Operational Record Books.
	441	43 Squadron Operational Record Book 1940.
	442	43 Squadron Operational Record Book 1941.
	592	65 Squadron Operational Record Book.
	624	72 Squadron Operational Record Book.
	866	111 Squadron Operational Record Book.
	969	141 Squadron Operational Record Book.
	1293	209 Squadron Operational Record Book.
	1294	209 Squadron Operational Record Book.
	1298	210 Squadron Operational Record Book.
	1731	333 Squadron Operational Record Book.
	1732	333 Squadron Operational Record Book.
	2073	602 Squadron Operational Record Book to 12/39.
	2074	602 Squadron Operational Record Book to 12/40.
	2079	603 Squadron Operational Record Book to 12/43.
	2080	603 Squadron Operational Record Book to 8/45.
	2081	603 Squadron Operational Record Book Appendices.
	2102	609 Squadron Operational Record Book.
	2130	618 Squadron Operational Record Book.
	2265	929 Barrage Balloon Squadron Operational Record Book (Queensferry).
	2266	929 Barrage Balloon Squadron Operational Record Book (Queensferry).
	2294	948 Barrage Balloon Squadron Operational Record Book (Rosyth).
28		Station Operations Record Books.
	49	RAF Banff Operational Record Book 1944-1945.
	181	RAF Dallachy Operational Record Book 9/44-11/45.
	182	RAF Dallachy Operational Record Book Appendices 9/44-11/45.
	219	RAF Drem Operational Record Book 1939-1945.
	220	RAF Drem Operational Record Book 1939-1945.
	289	RAF Fraserburgh Operational Record Book 12/44-6/45.
	328	RAF Greenock Operational Record Book 9/40-7/45.
	397	RAF Invergordon Operational Record Book 8/39-6/41.
	398-402	RAF Invergordon Operational Record Book 8/39-6/41 Appendices.
	440	RAF Lossiemouth Operational Record Book 1945-1946.
	459	RAF Leuchars Operational Record Book 8/38-12/40.
	460	RAF Leuchars Operational Record Book 1/41-12/41.
	461	RAF Leuchars Operational Record Book 1/42-12/42.
	462	RAF Leuchars Operational Record Book 1/43-12/43.
	463	RAF Leuchars Operational Record Book 1/44-12/44.
	464	RAF Leuchars Operational Record Book 1/45-12/45.
	465	RAF Leuchars Operational Record Book Appendices 10/39-4/40.
	466	RAF Leuchars Operational Record Book Appendices 5/40-12/40.
	467	RAF Leuchars Operational Record Book Appendices 1/41-12/41.
	468	RAF Leuchars Operational Record Book Appendices 1/42-12/42.
	469	RAF Leuchars Operational Record Book Appendices 1/43-1/44.
	470	RAF Leuchars Operational Record Book Appendices (photographs) 10/39-5/40.
	471	RAF Leuchars Operational Record Book Appendices (photographs) 6/40-1/44.
	615	RAF Oban Operational Record Book 9/39-12/42.
	616	RAF Oban Operational Record Book 1/43-11/45.
	617	RAF Oban Operational Record Book Appendices (narrative) 10/39-6/40.
	618	RAF Oban Operational Record Book Appendices (narrative) 7/40-12/40.

	619	RAF Oban Operational Record Book Appendices (narrative) 1/41-12/41.
	620	RAF Oban Operational Record Book Appendices (narrative) 1/42-12/42.
	621	RAF Oban Operational Record Book Appendices (narrative) 1/43-4/45.
	712	RAF Skeabrae Operational Record Book.
	775	RAF Sullom Voe Operational Record Book 1/40-12/43.
	776	RAF Sullom Voe Operational Record Book 1/44-12/45.
	777-781	RAF Sullom Voe Operational Record Book Appendices.
	782	RAF Sumburgh Operational Record Book 5/40-9/45.
	783-786	RAF Sumburgh Operational Record Book Appendices (786 Anti-U boat reports).
	804	RAF Tain Operational Record Book 11/41-2/46.
	848	RAF Tiree Operational Record Book 11/41-8/44.
	849	RAF Tiree Operational Record Book 9/44-5/46.
	850	RAF Tiree Operational Record Book Appendices 4/42-3/44.
	861	RAF Turnhouse Operational Record Book 8/36-12/42.
	862	RAF Turnhouse Operational Record Book 1/43-12/45.
	863-865	RAF Turnhouse Operational Record Book Appendices.
	915-917	RAF Wick Fighter Sector HQ Operational Record Book 1939-1945.
	918-940	RAF Wick Fighter Sector HQ Operational Record Book Appendices.
	941-944	RAF Wick Fighter Sector HQ Operational Record Book (photographs) 1939-1944.
29		Operational Record Books of miscellaneous units such as OTUs.
	570	13 Flying Training School Drem Operational Record Book.
	683	56 Operational Training Unit RAF Tealing Operational Record Book.
	684	58 Operational Training Unit Operational Record Book.
	696	132 Operational Training Unit Operational Record Book.
41	48	The RAF in the Maritime War (Atlantic and Home Waters) The Offensive Phase 1942-44.
	73	The RAF in the Maritime War (Atlantic and Home Waters) The Defensive Phase 1939-41.
	74	The RAF in the Maritime War (Atlantic and Home Waters) The Victorious Phase 1944-45.
50	166	602 Sq. Combat reports.
	167	603 Sq. Combat reports.

WO Series

106	1812	Operations to capture Narvik 11/4/40.
128	28	12 Commando War Diary 1940-41.
166	114-139	Scottish Command War Diaries.
	135	RA Scottish Command HQ 1941.
	136	RE Scottish Command HQ 1941.
	1708	506 Coast Regiment RA.
	1743	543 Coast Regiment RA.
	7163	543 Coast Regiment RA 1942.
	2127	3 rd AA Division War Diary 1939.
	2128	3 rd AA Division War Diary 1940.
	2129	3 rd AA Division War Diary 1941.
	7514	147 Heavy Anti-Aircraft Regiment RA.
	2591	321 Heavy Anti-Aircraft Battery, Balmore Road, Glasgow 5/40-3/41.
	1025	155 Brigade.
	1026	155 Brigade.
	1155	Glasgow and District HQ 1939-40.
	1198	Edinburgh Area HQ 9/39-12/41.
	1199	Edinburgh Area HQ from 1/42.
	1204	Glasgow and District HQ 1941.
	1205	RASC Glasgow HQ 1941.
	1255	Ayr sub-area HQ 1940-41.
	1259	Angus sub-area 1940-41.
	1274	Clyde sub-area HQ 1941.
	1284	Fife sub-area HQ 10/40-12/41.
	1288	Gareloch CRE 1940-41.
	1302	Lothian sub-area HQ 3/41-12/41.
	1310	Perth sub-area.
	2058	Forth Fixed Defences.
	3261	417 Searchlight Battery RA.
	3552	Fortress Companies Renfrewshire 1939-40.
	3553	Fortress Companies Renfrewshire 1939-40.
	3745	276 Field Coy RE 1939.

	3746	RE Movement Control, Glasgow 9/41-12/41.
	4054	91 Bomb Disposal Section RE.
	4055	92 Bomb Disposal Section RE.
	4056	93 Bomb Disposal Section RE.
	6698	Edinburgh Area HQ/Polish forces.
	6698	Exercises and defences.
	6699	Edinburgh Area HQ/Polish forces.
	6699	Exercises and defences.
	6701	Glasgow HQ 1942.
	6716	Angus sub-area 1942.
	6717	Argyll sub-area HQ 1942.
	6718	Ayr sub-area HQ 1942.
	6732	Clyde sub-area HQ 1942.
	6740	Fife sub-area HQ 1942.
	6759	Lothian sub-area 1942.
	6777	Stranraer sub-area HQ 1942.
	6833	West of Scotland District HQ 1942.
	4125	13 (HD) Argyll & Sutherland Highlanders 1941 (Dunbartonshire 1941).
	4126	14 (HD) Argyll & Sutherland Highlanders 1941 (Renfrewshire 1941).
	4363	4 King's Own Scottish Borderers.
	4364	5 King's Own Scottish Borderers.
	6884	Faroe Islands garrison 1942.
199		Home Headquarters series.
	807	Polish Forces
	2175	Defence of aerodromes.
	2676	Defence of ports against minelaying.
	2677	Glasgow air raids.
	2680	Flame barrage at sea.
	2712	Decoy sites 1940-43.
	2772	Faslane defences.
	2805	Defence of the Forth and Clyde Canal.
	2878	Bullion defence Royal Bank of Scotland.
	2879	Anti-invasion measures.
208		Directorate of Military Intelligence – includes reports on POWs.
	4117	Information ex POWs 1939-40.
257		War Diaries Ships Signals Section.
	7	Ship Signals Section HMS <i>Dundonald II</i> etc 1943-45.
	11	Ship Signals Section HMS <i>Dundonald II</i> modified 1944-45.

HS Series

2		Special Operations Executive series.
	1	Operation FORTITUDE.
	3	W/T stations in Norway and PWE operatives.
	5	Air operations missions and supply drops.
	6	Air operations missions and supply drops.
	130	Shetland Bus and Operation BALDER (USAF Liberator ops, Leuchars to Stockholm.)
	136	Televaag Reprisals as a result of ANCHOR and PENGUIN 1942.
	150	Operation CHEESE.
	151	Operation CHEESE.
	194	Operation GRANARD.
	198	Operation ANKLET.
	199	Operation ANKLET.
	202	Operation TITLE 1942-1943.
	203	Operation TITLE 1942-1943.
	208	Operation VESTIGE 1943-1944.
	209	Operation VESTIGE 1943-1944.
	210	Operation VESTIGE 1943-1944.
	224	Operation CLAYMORE.
	225	Operation ARCHERY.
	235	Shetland Bus operations.
	240	Shetland Bus operations.
	243	Operation VESTIGE 1943-1944.
	246	Honours and decorations for Norwegian agents 1942-1945.
	247	Honours and decorations for Norwegian agents 1942-1945.

	248	Honours and decorations for Norwegian agents 1942-1945.
	252	Statistics on Shetland Bus and other SOE operations.
	253	Operation RUBBLE 1941-1942.
	258	Stockholm-Scotland air service 1944-1945.
	270	Stockholm-Scotland air service 1944-1945.
7	175	SOE Norwegian Section War Diary appendices.
	174	SOE Norwegian Section War Diary maps to appendices.
	178	SOE Norwegian Section evaluations 1940-1945.

DEFE Series

1		Postal and Telegraph Censorship Dept.
	134	Rudolf Hess.
	303	Censorship in Scotland.
	310	Censorship in Scotland.
	311	Censorship in Scotland.
	312	Censorship in Scotland.
2		Combined Operations HQ records.
	73	Operation ANKLET.
	74	Operation ANKLET - photographs.
	80	Operation ARCHERY.
	81	Operation ARCHERY.
	82	Operation ARCHERY - photographs.
	83	Operation ARCHERY - narrative.
	140	Operation CLAYMORE.
	141	Operation CLAYMORE.
	142	Operation CLAYMORE.
	204	Exercises FLAXMAN and MOSSTROOPER.
	228	Exercises FLAXMAN, MOSSTROOPER and Operation GAUNTLET.
	269	Operations Orders - Operation HUSKY.
	364	Operation MUSKETOON.
	365	Operation MUSKETOON.
	529	RATTLE Conference.
	530	RATTLE Conference.
	597	Operation TORCH - Naval Commanders' Reports.
	602	Operation TORCH - Naval Commanders' Reports.
	616	Operation VP.
	617	Operation VP.
	698	Keyes correspondence and early history of Combined Operations.
	713	Establishments, ships etc - monthly progress reports.
	714	Establishments, ships etc - monthly progress reports.
	715	Establishments, ships etc - monthly progress reports.
	716	Establishments, ships etc - monthly progress reports.
	814	Visit of King to Combined Training Centre Inveraray on 9/10/41.
	815	Inveraray Combined Training Centre.
	816	Inveraray Combined Training Centre.
	817	Inveraray Combined Training Centre.
	834	Conversions of <i>Queen Emma</i> and <i>Princess Beatrice</i> .
	856	Appledore and Dundonald Comb. Trg. Centre and Beach Experimental Establishment.
	869	Navigational Unit, Inveraray.
	900	Transfer to USN of Rosneath base.
	929	Naval Beach Commandos.
	934	Beachmasters; selection etc.
	961	RN Beach Commandos.
	1049	Combined Training Areas (Castle Toward).
	1101	Pilotage Parties.
	1111	Pilotage Parties.
	1117	Combined Training Areas (UK).
	1118	Combined Training Areas (UK) - maps.
	1152	Pilotage Parties.
	1317	Combined Training Centre Inveraray - units trained 1940-41.
	1318	Combined Training Centre Inveraray - organisation 1940-44.
	1319	Combined Training Centre Inveraray - précis of lectures.
	1320	Combined Training Centre Inveraray - précis of lectures.
	1321	Combined Training Centre Inveraray - Instructors course.

	1322	Combined Training Centre Inveraray - training 52(L) Division.
	1323	Combined Training Centre Inveraray - training 52(L) Division.
	1324	Combined Training Centre Inveraray - training 50(N) Division.
	1777	Operation TORCH - Naval Landing Parties.
	1778	Operation TORCH - Naval Landing Parties.
	1778	Operation TORCH - reports.
	1780	Operation TORCH - reports.

INF Series

1	162	Proposed Scottish Programme.
	188	Regional censorship.
	264	Daily Reports 1940.
	267	Rumours of invasion 1940.
	268	Rumours of parachute landings 1940.
	269	Secret weapons 1940.
	282	Home Intelligence reports 1941-45.
	284	Reports on home morale 1942-43.
	292	Weekly Home Intelligence Reports 1940-44.
	293	Special reports.
	294	Public meetings.
	308	Glasgow Information Committee 1940-43.
	315	Regional censorship 1940-41.
	844	Censorship re air raids.
	845	Censorship re air raids.
	846	Censorship re air raid casualties.
	887	Evacuation of coastal towns.
	912	Rudolf Hess.

HO Series

198	139-140	STARFISH.
	198	Daily raid summaries 10/39 - 4/42.
	211	UXBs in Clydebank 1941.
	212	UXBs in Glasgow 7-8/4/41.
	213	UXBs in Greenock 12-13/7/40.
199	197	Aberdeen - poor casualty handling during raid on 12/7/40.
	198	Western District air raid incidents 6/40-9/41.
	199	Aberdeen raids 29/6/40 - 4/11/40.
	200	Kincardine air raid incidents to 7/8/40, Orkney 2-3/8/40, Pitlochry 3-4/8/40.
	201	Glasgow 18/9/40.
	202	Edinburgh 7/10/40.
	203	Dunfermline 4/11/40.
	204	Air raids 5/11/40.
	205	Clydebank raids 3/41.
	206	Leith raid 8/4/41.
	207	Glasgow raids 7/4/41-8/5/41.
	208	Kilmarnock raid 6/5/41.
	410	Regional Commissioner's Monthly Reports.
	428	Region 11 air raid incidents 5/42-1/43.
	429	Chief Constable's Reports 12/4/40-27/9/40.
	482	Rudolf Hess.
202	1-10	Daily and Weekly reports.
203	1-16	Daily Reports.
205	241	Shelters.
207	1087	Reorganisation of Civil Defence personnel.
	1088	Air raid shelters including Dundee.
	1089	Clydeside raids and salvage in Edinburgh.
	1090	Gallowgate Tunnel Shelter.
	1091	Paisley deep shelter at Oakshaw Hill.

CAB series

65		War Cabinet Minutes.
	6	Cabinet minutes 1940
99	3	Allied Supreme War Council 1939-40.

BT series

261		Awards for gallantry at sea.
	10	Gallantry Awards 1935-41.
	11	Gallantry Awards 1941-43.
	12	Gallantry Awards 1942-44.
	13	Gallantry Awards 1944-46.

MT series

40	60	Operation TORCH cargo tonnage allocated.
	61	Operation TORCH cargo tonnage allocated.
	62	TORCH and BACKBONE cargo tonnage allocated.
	130	Rescue ships - history by Lt Cdr Martyn RNVR.
59	19	Operation BOLERO 1943-44.
63	169	Overside discharge (Forth).
	193	Overside discharge of cargo - Clyde 1940.
	194	Overside discharge of cargo - Clyde 1940-44.
	195	Overside discharge of cargo - Clyde 1944-46.
	200	Port Operations (Clyde) 1940 - report.
	202	Port Operations (Forth) 1940 - report.
	204	Port Operations (Faslane) - report.
	303	Operation BOLERO 1942-45.
	274	Loch Ewe - use as a convoy assembly anchorage 1941-44.
	492	Ore shipments from Narvik.
	570	Operation BOLERO schedules.
	3389	Personal effects from SS <i>Athenia</i> - war risks insurance.

PRO series

30	92/2	S. S. Wilson paper on port organisation in 1940-41.
31	20	Section on Ultra material.

SCOTTISH RECORD OFFICE

AD57	19	Death Sentence in wartime.
	30-34	Various wartime measures.
AF43	465	Dept of Agriculture and Fisheries Memoranda.
AF56	1278	Control of fish supplies in wartime.
	1281	Clyde Fishermen in the event of war.
	1285	Laying up of near water trawlers and their purchase by the Admiralty.
	1287	Laying up of near water trawlers and their purchase by the Admiralty.
AF62	1339	Decorations for Fishermen 1940-54.
	1342	Decorations for Fishermen 1940-54.
	1343	Decorations for Fishermen 1940-54.
	1344	Decorations for Fishermen 1940-54.
	2179	Damage to fishing boats and gear 1930-42.
	2181	Agriculture and Fisheries Officers reports on damage to boats and gear 1932-51.
	2212/6	Dumping of explosives and destruction of mines.
	2223	Warnings and damage to ships - mines left over from WW1.
	2228/1	Gunfiring affecting fishing in the Forth 1940.
	2228/2	Gunfiring affecting fishing in the Forth 1941-49.
	2233	Rifle and machine gun range at Fort George 1930-49.
	2234	Black Dog rifle range 1931-41.
	2235	Cape Wrath Bombardment Range.
	2237/2	Bombing and Firing Practice Areas 1939-52.
	2240	Admiralty Exercise Areas Orkney and Shetland 1942-61.
	2409	Aerial gunnery ranges at Leuchars and St Andrews Bay.
	2411	Bombing practice Moray Firth 1938-40.
	2412	Bombing practice Moray Firth 1940-44.
	2413	ARP for merships and fishing vessels.
	2425-29	Arming of fishing vessels.
	2632	Clearance of wrecks from fishing grounds.
DD12	496	Rosyth and Port Edgar post-war future.
GD229/1	110-116	Leith Dock Commission Directors' Minute Books.
GD229/2	159-231	Leith Dock Commission Port Registers 1939-1945.

GD229/11	4	Leith Dock Commission - Damages to Works 1930-1949.
GD229/14	31	Leith Dock Commission ARP.
HH36	3	Air Raids.
	5	Air Raids.
	6	Air Raids.
	13	Air Raids.
HH41	453/1	Scottish Regalia.
	453/2	Scottish Regalia
HH45	121	Conscientious Objectors.
	159	Scottish Office War Diary reports.
HH50	1	Clydebank air raid damage and casualties.
	2	Clydebank air raid damage and casualties.
	3	Haddington and Clydebank air raid damage and casualties.
	4	Clydebank air raid damage and casualties.
	5	Rosyth air raid damage and casualties.
	6	<i>Athenia</i> .
	7	Scottish Office ARP Circulars.
	20	Scottish Home and Health Dept. War Diary Reports 1939-40.
	48	Evacuation.
	63	Conscientious Objector tribunals.
	64-65	Civil Defence.
	66-67	Disposal of dead in wartime.
	79	Land for Civil Defence purposes.
	83-90	Government War Book, Hospital scheme.
	104	Evacuation - survey of sending and receiving areas.
	91-103	Series of files on the Clydeside raids.
	106	Emergency wireless broadcast.
	107	Aged and infirm.
	109	Evacuation leaflet 'Why and How'.
	115	Civil Defence Training Officer conferences.
	116	Mental services.
	117	Mental services.
	118	Montrose Royal Asylum air raid damage and casualties.
	119	Protected Areas - removal of persons contravening Defence Regulation 13.
	120	Protected Areas including Orkney and Shetland.
	121	Protected Areas including Orkney and Shetland.
	122	Protected Areas including Orkney and Shetland.
	123	Protected Areas including Orkney and Shetland.
	126-127	Burial of dead in wartime.
	128-135	Regional Commissioners reports.
	136-143	VE and VJ Days.
	159	War Diary 1939-40.
	160	Record of missiles dropped Districts 1-4.
	161	Records of missiles dropped District 5.
	162	Records of missiles dropped in cities and large burghs.
	163	Plots of missiles dropped.
	164	Plots of objects dropped.
	165	Bomb census reports.
	199	Prestwick.
	202	Regional Commissioners.
HH51	1-2/004	Evacuation.
	11	Medical Stores.
	13	Record of civilians killed.
	16	Honours to Civil Defence personnel, particularly Clydeside.
HH52	25-34	Police circulars.
HH55	650-652	Billeting in Orkney.
HH57	989	Admission to civil prisons of German and Italian POWs sentenced by military court.
	990	Admission to civil prisons of Polish prisoners sentenced by military court.
	991	Admission to civil prisons of US prisoners sentenced by military court.
	992	Conscientious Objectors imprisoned 1941-1943.
	995-7	Military Detention Centre, Barlinnie.
	115	Escapes from military detention.
	1025	Prisons - Indian Seamen employed by the Clan Line.
	1026	Prisons - Indian Seamen employed by the General Steamship Navigation Co.

	1030-3	Prisons.
	1057	Colonial Prisoners Removal Act 1884. Prisoners removed to colonies.
MD6	various	Territorial Army Minutes.
MD7	27	County of Fife Territorial Army Minute Book.
MD11	11-27	Various Territorial Army Minutes.

ABERDEEN CITY AND COUNTY ARCHIVES

CE87	4/41	Customs and Excise Aberdeen - Depositions of Wrecks.
HR/1	1/4	Alexander Hall & Co., Minutes of Board Meetings.
	1/5	Alexander Hall & Co., Minutes of Board Meetings.
20/2	56	Aberdeen Harbour Commission, Minutes of Meetings 1939-40.
	57	Aberdeen Harbour Commission, Minutes of Meetings 1940-41.
	58	Aberdeen Harbour Commission, Minutes of Meetings 1941-42.
	59	Aberdeen Harbour Commission, Minutes of Meetings 1942-43.

DUNDEE CITY ARCHIVES

CE70	1/68	Customs and Excise, Dundee - Letter Book (Collector to Board 1940).
CE70	2/159	Customs and Excise, Dundee - Letter Book (Board to Collector 1930-1957).
CE70	4/80	Customs and Excise, Dundee - Collectors Report Books 1939-43.
	4/81	Customs and Excise, Dundee - Collectors Report Book 1940.
	4/82	Customs and Excise, Dundee - Collectors Report Book 1941.
	4/83	Customs and Excise, Dundee - Collectors Report Book 1942-1943.
	4/84	Customs and Excise, Dundee - Collectors Report Book 1944-1945.
	4/163	Customs and Excise, Dundee - Pier Head Book Tayport 1938-67.
A/1	22	Dundee Harbour ARP Organisation - General.
	26	Dundee Harbour ARP Organisation - HARPO Journal 1940-45.
	28	Dundee Harbour ARP Organisation - Decontamination.
D/2	11	Dundee Submarine Base 1908-14. Miscellaneous papers.
		Dundee Harbour Trust Wharf Books 1939-45 (not indexed)

EDINBURGH CENTRAL LIBRARY

YDA1844	939	Diary of Chas Boog Watson, ARP Warden.
YDA2410	B21271	Leith at War - File of press cuttings etc.

NATIONAL LIBRARY, EDINBURGH

ACC	4303	Barnton Fire-fighters minute book.
	6174	7 Polish Workshop Coy 1940-47.
	8802	115-118 R.J.B. Sellar Home Guard Papers.
MS	3816-22	Home Guard in Scotland.
		Microfilm files of <i>The Scotsman</i> .
		Hard copy files of the <i>Edinburgh Evening News</i> .

STRATHCLYDE ARCHIVES

AGN	1818	List of bombs dropped in Glasgow.
CO 1/61	15-17	ARP warden's logbook, Lanarkshire.
CO 2/3/4	65	Start of series on ARP etc. in Renfrewshire.
	73	Bombs on Renfrew.
G 1	3/44	<i>Atberia</i> Disaster Fund.
D-AP 6	15	Details of damaged properties in Glasgow.
D-AP 8	14	Map of damaged areas in Glasgow.
D-CC 2	1/74	Glasgow City Council Financial Accounts 1945-1946.
D-CD 1		Air raid casualties 3/41-1/42.
D-CD 7	1-3	Registers of dead.
D-CD 8		Photograph album - Clydebank dead.
D-CD 9/9	20	Incidents in Marine Division 7/40-43.

	21	Incidents in Marine Division 13-14/3/41.
	22	Additional Reports.
	26	Incidents in Southern Division.
	28	Incidents in Eastern Division.
	30-33	Incidents in Maryhill Division.
	35-36	Incidents in Maryhill Division outwith air-raids.
	37-38	Incidents in Central Division.
	39-40	Incidents in Govan Division.
	21-35	General on casualty services.
	5-9	Anti-gas measures.
	4	ARP for animals.
D-TC 8/10	61-62	Evacuation.
	74	Co-ordination of action to meet heavy attacks.
	75	Lessons from heavy raids.
	76	Lighting restrictions.
	83-4	Invasion defences and invasion committees.
	85-6	Key Points.
	79	Co-operation with employers.
	87	Public lighting restrictions.
	90	Reports on air raid incidents etc.
	96	Special reports including HMS <i>Sussex</i> and other incidents on 18/9/40.
	114	Awards for gallantry.
	115	Requisitioning of Barrowland.
	116	Mortuary Service.
	144	ARP Service HQ and training centre at 6 Beech Ave.
	148	War damage claims.
	158	Raid spotters.
	175-6	Rescue service reports - raids.
	179	Rescue services.
	191-2	Salvage of valuables.
		Clyde River Patrol, letter & photographs 5/2/93 per Mrs McAughtrie Hakewill.
T-CN 6/5	6	Clyde Navigation Trust Annual Report 1942.
TCN 16/74	14	Clyde Navigation Trust ARP.
	15	Clyde Anchorages
	16	Monthly imports
	17	Dumb Barges
	18	Battle of the Atlantic.
	22	Short sea shipping control.
	24	Admiralty Berthing Officer, Greenock.
	25	Berthing for invasion ships.
T-CN 19	555	General photograph Glasgow Harbour including <i>Manipur</i> .
	609/1	Photograph <i>Athenia</i> sailing Glasgow 1935.
	656/2	Photographs of gas explosion damage aboard HMS <i>Fiji</i> at No.3 Graving Dock.
	657/1-13	Photographs HMS <i>Sussex</i> at Yorkhill and UXB at Rothesay Dock 1941.
	658	General area photographs of Glasgow Harbour 1943.
T-CN 58	87-93	Series of Greenock Harbour Trust minutes.
TD	554/4	Material relating to Kelvindale and Kelvinside.
	575/4/5	Staff duties at Brownlie and Murray.
	1129/1-4	Records of 22nd Ward Kelvinside ARP.
	1226	Tickets, menus and other memorabilia from <i>Athenia</i> .

GLASGOW ROOM, MITCHELL LIBRARY, GLASGOW

		Microfilm files of the <i>Glasgow Herald</i> .
		Microfilm files of the <i>Daily Record</i> .

GLASGOW UNIVERSITY DEPT. OF BUSINESS RECORDS

UGD	3	Denny Shipbuilders.
	49	Scottish Coal and Iron Masters Federation.
	55	J.M. Campbell Shipowners.
	131/1	Ellerman Shipowners re <i>City of Benares</i> and <i>City of Adelaide</i> .

	151	Butter's Cranes.
	176	Clyde Shipping Co. (Tug and Shipowners).
	223	Lithgow Shipbuilders.
	266	Yarrow Shipbuilders.
	299	Redpath Dorman Long/Colville's Ironworks.

DEPARTMENT OF DOCUMENTS, IMPERIAL WAR MUSEUM, LONDON.

Surgeon Lieutenant Commander H. M. Balfour. MS reference no. 95/23/1

Lieutenant P. Calvert. MS reference no. 84/36/1.

Colonel H. S. Gillies. MS reference no. 90/26/1.

Lieutenant Commander Pim Keipe RNN. MS reference no. 96/6/1.

Second Lieutenant W. S. Knight. MS reference no. 97/7/1.

Colonel H. E. Yeo. MS reference no. 95/6/1.

NATIONAL ARCHIVES AND RECORDS ADMINISTRATION,
WASHINGTON*Information from POW survivors U-1003 sunk in North Western Approaches 20/3/45.*

Held by the National Archives and Records Administration, Washington, USA. Record Group 38, Subject File 1942-1945, OP16Z (from Algiers to British NID/1 PW), British Final Reports, Box 2.

Information from POW survivors U-1206 lost in diving accident off Peterhead 14/4/45.

National Archives and Records Administration, Washington, USA. Record Group 38, Subject File 1942-1945, OP16Z (from Algiers to British NID/1 PW), British Final Reports, Box 2.

Records Relating to U-boat Warfare 1939 - 1945. Guide to the Microfilmed Records of the German Navy. A guide produced by Timothy Mulligan at the National Archives and Records Administration, Washington, in 1985.

US NAVAL HISTORICAL CENTER, WASHINGTON

The U-47's Scapa Flow Undertaking. Monograph by Wagner Fuerbringer held by US Naval Operations Archive at the US Naval Historical Center, Washington. (Microreel T-47).

War Diary (KTB) Summary U-106 attack on Zealandic 17/1/41. Translated into English and held by US Naval Operations Archive at the US Naval Historical Center, Washington. (GNR Box T-78)

War Diary (KTB) Summary U-26 First patrol 16/9/39. Translated into English and held by US Naval Operations Archive at the US Naval Historical Center, Washington. (GNR Box T-81)

War Diary (KTB) Summary U-28 attack on Sliedrecht 16-17/11/39. Translated into English and held by US Naval Operations Archive at the US Naval Historical Center, Washington. (GNR Box T-82)

War Diary (KTB) Summary U-30 First patrol 16/9/39. Translated into English and held by US Naval Operations Archive at the US Naval Historical Center, Washington. (GNR Box T-81)

War Diary (KTB) Summary U-31 First patrol 16/9/39. Translated into English and held by US Naval Operations Archive at the US Naval Historical Center, Washington. (GNR Box T-81)

War Diary (KTB) Summary U-34 First patrol 16/9/39. Translated into English and held by US Naval Operations Archive at the US Naval Historical Center, Washington. (GNR Box T-81)

War Diary (KTB) Summary U-35 First patrol 16/9/39. Translated into English and held by US Naval Operations Archive at the US Naval Historical Center, Washington. (GNR Box T-81)

War Diary (KTB) Summary U-48 attack on City of Benares 17/9/40. Translated into English and held by US Naval Operations Archive at the US Naval Historical Center, Washington. (GNR Box T-78)

War Diary (KTB) Summary U-94 attack on Florian 20/1/41. Translated into English and held by US Naval Operations Archive at the US Naval Historical Center, Washington. (GNR Box T-81)

War Diary (KTB) Summary U-96 attack on Almeda Star 17/4/41. Translated into English and held by US Naval Operations Archive at the US Naval Historical Center, Washington. (GNR Box T-82)

MAP COLLECTION, NATIONAL LIBRARY OF SCOTLAND

Admiralty Fleet Charts - Searched Channels:

- F 0154 A2 - Loch Ewe.
- F 0177 A2 - St Abbs Head to Aberdeen.
- F 0178 A2 - Aberdeen to Banff.
- F 0179 A2 - Peterhead to the Pentland Firth.
- F 0180 A3 - Orkney Islands.
- F 0181 A2 - Thurso Bay to the North Minch.
- F 0183 A2 - Western Approaches to the Firth of Clyde.
- F 0188 A2 - The River Forth.
- F 0300 A1 - North Sea Gridded Chart.

SECONDARY SOURCES

PUBLISHED WORKS

- Abbazia, Patrick : 1975. *Mr Roosevelt's Navy: The Private War of the US Atlantic Fleet 1939-42*. Naval Institute Press, Annapolis.
- Adams, Jack : 1989. *The Doomed Expedition - The Norway Campaign of 1940*. Leo Cooper.
- Allen, T : 1996. *The Storm Passed By: Ireland and the Battle of the Atlantic*. Irish Academic Press.
- Andenaes, Johannes, Olav Riste and Magne Skodvin : 1974. *Norway and the Second World War*. Johan Grund Tranum Forlag, Oslo.
- Anderson, G. D. : 1983. *Fascists, Communists and the National Government*. London.
- Andrew, Prof. Christopher (ed.) : 1986. *Codebreaking and Signals Intelligence*. Cassell.

- Ashworth, Christopher : 1992. *RAF Coastal Command 1936-1969*. Patrick Stephens.
- Aspinall-Oglander, Cecil : 1951. *Roger Keyes*. Hogarth.
- Atherton, David and Davies, Trevor : 1994. *Far Wis Ye When The Siren Blew?* Aberdeen City Arts and Recreation Division.
- Baden-Powell, Dorothy : 1982. *Operation Jupiter - SOE's Secret War in Norway*. Robert Hale.
- Bagwell, Philip S. : 1974. *Transport Revolution from 1770*. Batsford.
- Bailey, Thomas A. and Ryan, Paul B. : 1979. *Hitler vs. Roosevelt: The Undeclared Naval War*. Free Press, New York.
- Baird, Robert : 1993. *Shipwrecks of the Forth*. Nekton Books.
- Baird, Robert : 1995. *Shipwrecks of the West of Scotland*. Nekton Books.
- Baker, Richard : 1972. *The Terror of Tobermory*. W. H. Allen.
- Barker, Ralph : 1976. *The Blockade Busters*. Chatto and Windus.
- Baxter, Richard : 1944. *Stand By to Surface*. Cassell.
- Beckman, M. : 1996. *Atlantic Roulette: A Merchantman at War*. Donovan.
- Bennett, Tom : 1986. *617 Squadron - The Dambusters at War*. Patrick Stephens.
- Bird, James : 1963. *The Major Seaports of the United Kingdom*. Hutchinson.
- Blair, Clay : 1996. *Hitler's U-boat War - Vol. 1: The Hunters*. Random House.
- Bond, Brian. : 1980. *British Military Policy Between The Two World Wars*. Clarendon Press.
- Bone, David : 1949. *Merchantmen Rearmed*. London.
- Bonsor, N. R. P. : 1978. *North Atlantic Seaway*. Brookside Publications, Jersey.
- Boscher, Philippus : 1984. *De Koninklijke Marine in de Tweede Wereldoorlog*. Wever B. V.
- Boutilier, James A. (ed.) : 1982. *The Royal Canadian Navy In Retrospect: 1910 - 1968*. University of British Columbia Press, Vancouver.
- Brooke, Geoffrey : 1982. *Alarm Starboard*. Patrick Stephens.
- Brookes, Ewart : 1962. *Destroyer*. Jarrolds.
- Brookes, Ewart : 1977. *Prologue to a War*. White Lion. Originally published in 1966 by Jarrolds.
- Broome, Jack : 1972. *Convoy is to Scatter*. William Kimber.
- Brown, David : 1990. *Warship Losses in World War Two*. Arms and Armour Press.
- Browning, Robert M. jun. : 1996. *US Merchant War Casualties of World War II*. Naval Institute Press, Annapolis.
- Buckley, John : 1995. *The RAF and Trade Defence 1919-1945 - Constant Endeavour*. Keele - Ryburn.
- Burn, Alan : 1993. *The Fighting Captain - Frederick John Walker RN*. Leo Cooper. (Re-printed 1998)
- Cain, T. J. : 1971. *HMS Electra*. Hutchinson Library Services.
- Calder, Angus : 1991. *The Myth of the Blitz*. Jonathan Cape.
- Calder, Angus : 1969. *The People's War*. Jonathan Cape.
- Cameron, Dugald : 1990. *Glasgow's Airport*. Holmes MacDougall.

- Cameron, Dugald : 1987. *Glasgow's Own - 602 (City of Glasgow) Squadron, Royal Auxiliary Air Force*. Squadron Prints.
- Campbell, Ian and Macintyre, Donald : 1958. *The Kola Run: A Record of the Arctic Convoys 1941 - 1945*. Frederick Muller.
- Campbell, John : 1985. *Naval Weapons of World War 2*. Conway Maritime Press.
- Carton de Wiart, General Adrian : 1950. *Happy Odyssey*. Cape
- Caulfield, Max : 1958. *A Night of Terror*. Frederick Muller.
- Chadwick, Steven : 1996. *Loch Ewe during World War Two*. Wilderness Guides.
- Chalmers, W. S. : 1954. *Max Horton and the Western Approaches*. Hodder & Stoughton.
- Churchill, Winston : 1948-1953. *The Second World War*. Cassell.
- Clarke, Colonel Dudley : 1948. *Seven Assignments*. Jonathan Cape.
- Coles, Alan and Briggs, Ted : 1985. *Flagship Hood*. Robert Hale.
- Connell, G. G. : 1987. *Mediterranean Maelstrom - HMS Jervis and the 14th Flotilla*. William Kimber.
- Cookridge, E. H. : 1966. *Inside SOE - The story of Special Operations in Western Europe 1940-45*. Arthur Barker.
- Costello, John and Hughes, Terry : 1977. *The Battle of the Atlantic*. Collins.
- Cruickshank, Charles : 1979. *Deception in World War 2*. Oxford University Press.
- Cruickshank, Charles : 1986. *SOE in Scandinavia*. Oxford University Press.
- Dalzel-Job, Patrick : 1992. *From Arctic Snow to Dust of Normandy*. Nead-an-Eion.
- Denham, Harold M. : 1984. *Inside the Nazi Ring*. John Murray.
- Derry, T. K. : 1952. *The Campaign in Norway*. HMSO.
- Dinklage, Ludwig : 1971. *Die Deutsche Handelsflotte 1939-1945 - Unter besonderer Berücksichtigung der Blockadebrecher* vol. 1. Musterschmidt Göttinger, Frankfurt.
- Dorrian, James. : 1998. *Storming St Nazaire*. Leo Cooper.
- Douglas, W. A. B. : 1988. *The RCN in Transition: 1910 - 1985*. University of British Columbia Press, Vancouver.
- Drummond, John D. : 1960. *A River Runs to War*. W. H. Allen.
- Drummond, John D. : 1958. *HM U-boat*. W. H. Allen.
- Dunnett, Alastair M. : 1960. *The Donaldson Line - A Century of Shipping 1854-1954*. Jackson & Co.
- Durham, Philip : 1996. *The Fuhrer Led But We Overtook Him*. Pentland Press.
- Edwards, Bernard : 1989. *Fighting Tramps - The Merchant Navy Goes To War*. Robert Hale.
- Edwards, B. : 1996. *Dönitz and the Wolf Packs*. Arms and Armour Press.
- Edwards, Kenneth : 1946. *Operation Neptune*. Collins.
- Evans, A. S. : 1986. *Beneath the Waves*. William Kimber.
- Fairfield Shipbuilding Co. Ltd. : 1960. *Fairfield 1860-1960*. Barbour McLaren, Glasgow.
- Farr, A. D. : 1973. *Let Not The Deep - The Story of the Royal National Lifeboat Institution*. Impulse Books.
- Fell, W. R. : 1966. *The Sea Our Shield*. Cassell.

- Ferguson, David M. : 1991. *Shipwrecks of North-East Scotland 1444 - 1990*. Mercat Press.
- Fergusson, Brigadier Bernard : 1961. *The Watery Maze - The Story of Combined Operations*. Collins.
- Fisher, David E. : 1987. *A Race on the Edge of Time: Radar, The Decisive Weapon of World War Two*. McGraw Hill, New York.
- Foot, M. R. D. : 1984. *SOE 1940 - 1946*. BBC Publications.
- Franks, Norman L. R. : 1995. *Search, Find and Kill - The RAF's U boat Successes*. Grub Street. Originally published in 1990 by Aston Publications as *Search, Find and Kill - Coastal Command's U boat Successes*.
- Frost, Major General John : 1980. *A Drop Too Many*. Cassell.
- Gallacher, Thomas : 1980. *Against all Odds*. Ulverscroft. (Originally published as *The X Craft Raid* by Harcourt Brace Jovanovich, New York, in 1970.)
- Gannon, Michael : 1998. *Black May - The Epic Story of the Allies' Defeat of the German U boats in May 1943*. Aurum Press.
- Gibson, John Frederick : 1953. *Brocklebanks 1770-1950*. Henry Young. (In two volumes - volume 2 refers)
- Gibson, John S. : 1985. *The Thistle and the Crown*. Edinburgh.
- Gilbert, Martin : 1989. *Finest Hour - Winston S. Churchill 1939-1941*. Minerva.
- Gilchrist, Donald : 1960. *Castle Commando*. Oliver & Boyd.
- Glass, Norman : 1994. *Caithness and the War 1939 - 1945*. North of Scotland Newspapers. (Originally published by Peter Reid & Co in 1948)
- Glover, Michael : 1990. *Invasion Scare 1940*. Leo Cooper.
- Goralski, Robert and Freeburg, Russell W. : 1987. *Oil and War: How the Deadly Struggle for Fuel in World War II Meant Victory or Defeat*. William Morrow & Co., New York.
- Gretton, Admiral Sir Peter : 1964. *Convoy Escort Commander*. Cassell.
- Hackman, Willem : 1984. *Sonar, Anti-Submarine Warfare and the Royal Navy 1914-1954*. HMSO for The Science Museum.
- Hampshire, A. Cecil : 1978. *Secret Navies*. William Kimber.
- Harper, Stephen : 1999. *Capturing Enigma*. Sutton Publishing.
- Harris, Paul : 1986. *Glasgow and The Clyde at War*. Archive Publications.
- Harris, Paul : 1987. *Aberdeen and the North-East at War*. Archive Publications.
- Herwig, Prof. Holger H. : 1976. *The Politics of Frustration - The United States in German Naval Planning 1889-1941*. Little Brown, Boston USA.
- Hessler, Günter (assisted by Hoschatt, Alfred and Rohwer, Jurgen) : 1989. *The U-boat War in the Atlantic 1939 - 1945* (Vol.s 1 to 3). HMSO.
- Hesketh, Roger : 1999. *Fortitude - The D Day Deception Campaign*. St Ermin's Press.
- Higham, R. (ed.) : 1972. *Guide to the Sources of British Military History*. Routledge. Supplement (ed.) G. Jordan, Garland 1988.
- Hill, Roger : 1975. *Destroyer Captain*. William Kimber.
- Hinsley, Prof. F. H. and Simkins, C. A. G. : 1979-1988. *British Intelligence in the Second World War* (Vol.s 1 to 3), HMSO.
- Hodges, Andrew : 1983. *Alan Turing - The Enigma*. Hutchinson.

- Holden, Herbert D. : 1996. *Incidents in the Life of a Wartime Sailor*. Stockwell.
- Horne, Alistair : 1990. *To Lose a Battle – France 1940*. Papermac.
- Houlder Bros. : 1946. *Sea Hazard*. Houlder Bros. & Co.
- Howard, Michael : 1990. *Strategic Deception in the Second World War*. HMSO.
- Howarth, Stephen. and Law, Derek. (eds.) : 1994. *The Battle of the Atlantic 1939-1945: The 50th Anniversary International Naval Conference*. Naval Institute Press, Annapolis.
- Howse, H. Derek : 1993. *Radar at Sea: The Royal Navy in World War II*. Macmillan.
- Humble, Richard : *Aircraft Carriers*. Michael Joseph.
- Humble, Richard : 1983. *Fraser of the North Cape. A Life of Admiral of the Fleet Lord Fraser 1888 - 1981*. Routledge and Keegan Paul.
- Hyde, Prof. Francis E. : 1971. *Liverpool & The Mersey – An economic history of the Port*. David & Charles.
- Irvine, James W. : 1988. *The Waves Are Free - Shetland-Norway Links 1939-1945*. Shetland Publishing Co.
- Irvine, James W. : 1991. *The Giving Years - Shetland and Shetlanders 1939-1945*. Shetland Publishing Co.
- Jarvis, Adrian : 1996. *The Liverpool Dock Engineers*. Sutton.
- Jefferson, David : 1996. *Coastal Forces at War - Royal Navy Little Ships in World War Two*. Patrick Stephens.
- Jeffrey, Andrew : 1991. *This Dangerous Menace - Dundee and the River Tay at War 1939 - 1945*. Mainstream.
- Jeffrey, Andrew : 1992. *This Present Emergency - Edinburgh, the River Forth and South-East Scotland in the Second World War*. Mainstream.
- Jeffrey, Andrew : 1993. *This Time of Crisis - Glasgow, the West of Scotland and the North Western Approaches in the Second World War*. Mainstream.
- Johnson, Brian : 1978. *The Secret War*. BBC.
- Johnstone, Air Vice Marshal Sandy : 1986. *Spitfire Into War*. William Kimber.
- Jones, Geoffrey : 1986. *Defeat of the Wolf Packs*. William Kimber.
- Jones, Geoffrey : 1986. *Submarines versus U-boats*. William Kimber.
- Jones, Geoffrey : 1989. *U-boat Aces*. William Kimber.
- Jones, Prof. Reginald V. : 1978. *Most Secret War*. Hamish Hamilton.
- Jowitt, The Earl : 1954. *Some Were Spies*. Hodder and Stoughton.
- Kahn, David : 1980. *Hitler's Spies*. Arrow.
- Kahn, David : 1991. *Seizing the Enigma - The Race to Break the German U Boat Codes 1939-1943*. Souvenir Press.
- Kahn, David : 1967. *The Codebreakers*. Macmillan.
- Kee, Robert : 1984. *1939 - The World We Left Behind*. Weidenfeld and Nicholson.
- Kee, Robert : 1985. *1945 - The World We Fought For*. Hamish Hamilton.
- Keegan, John : 1988. *The Price of Admiralty: War at Sea from Man of War to Submarine*. Hutchinson.
- Kemp, Paul : 1993. *Liverpool and the Battle of the Atlantic 1939-45*. Maritime Books.

- Kemp, Paul : 1993. *Convoy! Drama in Arctic Waters*. Arms and Armour Press.
- Kemp, Paul : 1995. *Friendly Fire*. Leo Cooper.
- Kemp, Peter : 1958. *No Colours, No Crest*. Cassell.
- Kennedy, Ludovic : 1979. *The Life and Death of the Tirpitz*. Sidgwick and Jackson.
- Kerr, J. Lennox (ed.) : 1953. *Touching the Adventures of Merchantmen in the Second World War*. Harrap.
- Kersaudy, Francois : 1990. *Norway 1940*. Collins.
- Kerslake, S. A. : 1984. *Coxswain in the Northern Convoys*. William Kimber.
- Kimball, Warren F. : 1969. *The Most Unsordid Act: Lend-Lease 1939-1941*. John Hopkins University Press, Baltimore.
- Kjeldstadli, Sverre : 1959. *Hjemmestyrene*. Aschenhoug, Oslo.
- Konings, Chris : 1985. *Queen Elizabeth at War 1939-1945*. Patrick Stephens.
- Kremer, Peter and Brustat-Naval, Fritz : 1984. *U 333: The Story of a U boat Ace*. Bodley Head.
- Ladd, J. D. : 1976. *Assault From The Sea 1939-45. The Craft, The Landings, The Men*. David & Charles.
- Laird, Dorothy : 1961. *Paddy Henderson*. George Outram.
- Lamb, Gregor : 1991. *Sky Over Scapa 1939 - 1945*. Byrgisey.
- Lamb, Richard : 1993. *Churchill as War Leader - Right or Wrong?* Bloomsbury.
- Lambert, John and Ross, Al : 1990. *Allied Coastal Forces of World War II*. In two volumes by Conway Maritime Press.
- Laxon, W. A. and Perry, F. W. : 1994. *B. I. - The British-India Steam Navigation Company Ltd*. World Ship Society.
- Lenman, Bruce : 1977. *An Economic History of Modern Scotland 1660-1976*. Batsford.
- Lenton, Henry : 1968. *The Royal Netherlands Navy in World War II*. Doubleday.
- Lewin, Ronald : 1982. *Ultra Goes To War*. Hutchinson.
- Lovat, Simon Fraser, Lord : 1978. *March Past*. Weidenfeld and Nicholson.
- Lund, Paul and Ludlam, Harry : 1972. *Trawlers Go To War*. New English Library. Originally published by Foulsham in 1971.
- Lund, Paul and Ludlam, Harry : 1973. *Night of the U-Boats - Convoys SC7 and HX79*. Foulsham.
- Macdonald, Rod : 1993. *Dive Scotland's Greatest Wrecks*. Mainstream.
- Macintyre, Donald : 1956. *U-boat Killer*. Weidenfeld and Nicholson.
- Macintyre, Donald : 1961. *Battle of the Atlantic*. Batsford.
- McLachlan, Donald : 1968. *Room 39 - Naval Intelligence in Action*. Weidenfeld and Nicholson.
- McKee, Alexander : 1966. *Black Saturday*. Souvenir Press.
- MacPhail, I. M. M. : 1974. *The Clydebank Blitz*. Clydebank District Libraries.
- Manus, M. : 1953. *Underwater Saboteur*. William Kimber.
- Mars, Alastair : 1971. *British Submarines at War: 1939 - 1945*. William Kimber.
- Massie, Robert K. : 1992. *Dreadnought - Britain, Germany and the Coming of the Great War*. Jonathan Cape.

- Maund, L. E. H. : 1949. *Assault From The Sea*. Methuen.
- Messenger, Charles : 1985. *The Commandos 1940-1946*. William Kimber.
- Miller, Joan : 1986. *One Girl's War*. Dingle, Dublin.
- Mitchell, Pamela : 1993. *The Tip of the Spear*. Richard Netherwood.
- Moir, Peter and Crawford, Ian : 1994. *Argyll Shipwrecks*. Moir Crawford.
- Morgan, General Sir Frederick E. : 1950. *Overture to Overlord*. London.
- Morrison, Samuel Eliot : 1947. *The Battle of the Atlantic - September 1939 to May 1943*. Vol. 1 in the *History of United States Naval Operations in World War II* series. Oxford University Press.
- Morrison, Samuel Eliot : 1947. *Operations in North African Waters - October 1942 to June 1943*. Vol. 2 in the *History of United States Naval Operations in World War II* series. Oxford University Press.
- Moulton, Major General J. L. : 1966. *The Norwegian Campaign of 1940*. Eyre & Spottiswoode.
- Mountfield, Stuart : 1965. *Western Gateway. A History of the Mersey Docks and Harbour Board*. Liverpool.
- Munthe, Malcolm : 1954. *Sweet is War*. Duckworth.
- Murfett, M. H. (ed.) : 1995. *The First Sea Lords*. Praeger, Conn, USA.
- Neillands, Robin : 1989. *The Raiders*. Wiedenfeld and Nicholson.
- Nesbit, Roy Conyers : 1995. *The Strike Wings - Special Anti-shiping Squadrons 1942-1945*. HMSO.
- Nimmo, Ian : 1989. *Scotland At War*. Archive Publications.
- Nock, O. S. : 1971. *Britain's Railways at War*. Ian Allan.
- Oakley, C. A. : 1967. *The Second City*. Blackie.
- Owen, Sir David J. : 1939. *The Ports of the United Kingdom*. Allman & Son.
- Pack, S. W. C. : 1978. *Invasion North Africa 1942*. Ian Allan.
- Padfield, Peter : 1984. *Dönitz - The Last Fuhrer*. Gollancz.
- Padfield, Peter : 1995. *War Beneath The Sea - Submarine Conflict 1939 - 1945*. John Murray.
- Partridge, R. T. : 1983. *Operation Skua*. Fleet Air Arm Museum.
- Poolman, Kenneth : 1970. *The Catafighters and Merchant Aircraft Carriers*. William Kimber.
- Poolman, Kenneth : 1988. *Allied Escort Carriers of World War Two in Action*. Blandford Press.
- Price, Alfred : 1980. *Aircraft versus Submarine - The Evolution of the Anti-Submarine Aircraft 1912-1980*. Jane's Publishing.
- Pujol, Juan and West, Nigel (pseud. for Rupert Allason) : 1985. *Garbo*. Weidenfeld and Nicolson.
- Quigley, David J. : *Under the Jolly Roger - British Submariners at War 1939 - 1945*. Portsmouth Publishing and Printing Co.
- Ramsay, Winston et al. : 1989. *The Blitz Then and Now* (Vols 1 - 3). After the Battle Publications.
- Ranft, Bryan : 1977. *Technical Change and British Naval Policy 1860 - 1939*. Hodder and Stoughton.
- Rayner, Denys Arthur : 1955. *Escort - The Battle of the Atlantic*. William Kimber.

- Reid, Max : 1990. *DEMS At War*. Ottawa.
- Reynolds, L. C. : 1998. *Dog Boats At War - A History of the Operations of the Royal Navy D Class Fairmile Motor Torpedo Boats and Motor Gunboats 1939-1945*. Sutton Publishing.
- Riddell, John : 1979. *Clyde Navigation*. John Donald.
- Ritchie, George F. : 1991. *The Real Price of Fish - Aberdeen Steam Trawler Losses 1887 - 1961*. Hutton Press.
- Ritchie, L. A. : 1992. *The Shipbuilding Industry - A Guide to Historical Records*. Manchester University Press.
- Ritchie-Noakes, Nancy : 1984. *Liverpool's Historic Waterfront - The world's first mercantile dock system*. Merseyside County Museums and RCHM.
- Robertson, Terence : 1981. *Night Raider of the Atlantic*. Evans Bros. First published as *The Golden Horseshoe* by Evans Bros. in 1955.
- Rohwer, Prof. Jürgen : 1997. *Allied Submarine Attacks of World War Two*. Greenhill Books.
- Rohwer, Prof. Jürgen : 1999. *Axis Submarine Successes 1939-1945*. Greenhill Books.
- Rohwer, Prof. Jürgen : 1977. *The Critical Convoy Battles of March 1943*. Ian Allan.
- Roskill, Stephen W. : 1954. *The War at Sea 1939-45* (Vol. 1). Collins.
- Roskill, Stephen W. : 1956. *The War at Sea 1939-45* (Vol. 2). Collins.
- Roskill, Stephen W. : 1957. *HMS Warspite*. Collins.
- Roskill, Stephen W. 1959. *The Secret Capture*, Collins.
- Roskill, Stephen W. : 1960. *The War at Sea 1939-45* (Vol. 3 part 1). Collins.
- Roskill, Stephen W. : 1960. *The Navy at War 1939-1945*. Collins.
- Roskill, Stephen W. : 1961. *The War at Sea 1939-45* (Vol. 3 part 2). Collins.
- Roskill, Stephen W. : 1962. *A Merchant Fleet in War - Alfred Holt & Co. 1939 - 1945*. Collins.
- Roskill, Stephen W. : 1976. *Naval Policy Between The Wars - The Period of Reluctant Re-armament 1930-39*. (Vol. 2) Collins.
- Roskill, Stephen W. : 1977. *Churchill and the Admirals*. Collins.
- Rössler, Eberhard : 1981. *The U boat*. Arms and Armour Press.
- Russell, Andrew : 1987. *The Forgotten General - A Life of Andrew Thorne*. Wilton.
- Rutherford, Iain W : 1946. *At the Tiller*. Blackie.
- Sainsbury, Keith : 1976. *The North African Landings 1942*. Davis-Poynter.
- Salmon, Patrick (ed.) : 1995. *Britain and Norway in the Second World War*. HMSO.
- Saunders, Hilary St George : 1948. *Valiant Voyaging - The British India Steam Navigation Company in the Second World War*. Faber & Faber.
- Schofield, Vice-Admiral B. B. : 1977. *The Arctic Convoys*. Macdonald and Janes.
- Schofield, Vice-Admiral B. B. and Martyn, Lt Cdr L. F. : 1968. *The Rescue Ships*. Blackwood.
- Schofield, Ernest and Conyers Nesbit, Roy : 1987. *Arctic Airmen - The RAF in Spitsbergen and North Russia in 1942*. William Kimber.
- Schofield, Stephen : 1964. *Muskatoon*. Jonathan Cape.
- Scott, Sir Peter M. : 1945. *The Battle of the Narrow Seas*. Country Life.

- Saelen, Frithjof : 1974. *None But The Brave - The Story of Shetlands Larsen CGM DSO DSC DSM and Bar*. Elmfield Press.
- Seamer, Robert : 1990. *The Floating Inferno*. Patrick Stephens.
- Sebag-Montefiore, Hugh : 2000. *Enigma - The Battle for the Code*. Weidenfeld and Nicolson.
- Showell, Jak Mallman : 1979. *The German Navy in World War 2*. Arms and Armour Press.
- Showell, Jak Mallman : 1989. *U-boat Command and the Battle of the Atlantic*. Conway Maritime Press.
- Simpson, George : 1972. *Periscope View*. Macmillan.
- Sims, George : 1972. *HMS Coventry, Anti-Aircraft Cruiser*. HMS Coventry Old Hands Association.
- Slader, John : 1995. *Fourth Service: Merchantmen at War 1939-45*. New Era.
- Slader, John : 1988. *The Red Duster at War: A History of the Merchant Navy during the Second World War*. William Kimber.
- Slaven, Anthony : 1975. *The Development of the West of Scotland 1750-1960*. Routledge and Keegan Paul.
- Smith, David : 1983. *Action Stations 7*. Patrick Stephens.
- Smith, Michael : 1998. *Station X - The Codebreakers of Bletchley Park*. Channel 4.
- Smith, Peter C. : 1968. *Destroyer Leader*. William Kimber.
- Smith, Peter C. : 1975. *Convoy PQ18 - Arctic Victory*. William Kimber.
- Smith, Peter C. : 1987. *Pedestal - The Malta Convoy of August 1942*. William Kimber. First published by Kimber in 1970. Revised and expanded for the 1987 edition.
- Smith, S. E. : 1969. *The United States Navy in World War II*. Ballantine, New York.
- Stafford, David : 1980. *Britain and European Resistance 1940-1945 - A Survey of the Special Operations Executive, with Documents*. Macmillan.
- Stern, Robert C. : 1991. *Type VII U boats*. Arms and Armour Press.
- Stevens, E. : 1949. *The Trial of Nikolaus Von Falkenhorst*. Hodge.
- Syrett, David : 1994. *The Defeat of the German U Boats*. University of South Carolina Press, USA.
- Tall, Commander J. J. and Kemp, Paul : 1996. *HM Submarines In Camera 1901 - 1996*. Naval Institute Press, Annapolis, USA.
- Terraine, John : 1989. *Business in Great Waters: The U-boat Wars 1916-45*. Leo Cooper.
- Terraine, John : 1985. *The Right of the Line: The RAF in the European War*. Hodder and Stoughton.
- Thomas, David A. : 1990. *The Atlantic Star 1939-45*. W.H. Allen.
- Thomson, William & Co. : 1948. *The Ben Line - The Story of a Merchant Fleet at War 1939-1945*. Nelson.
- Valvatne, Sigurd : 1954. *Med Norske Ubaater i Kamp*. J. W. Eides Forlag, Oslo.
- van der Vat, Dan : 1990. *The Atlantic Campaign*. Grafton.
- van der Vat, Dan : 2000. *Standard of Power - The Royal Navy in the Twentieth Century*. Hutchinson.
- Vause, Jordan : 1997. *Wolf - U Boat Commanders of World War II*. Airlife.
- Vian, Admiral of the Fleet Sir Philip : 1960. *Action This Day*. Frederick Muller.

- Walker, Fred M. : 1984. *Song of the Clyde*. Patrick Stephens.
- Walker, Graham : 1988. *Thomas Johnston*. Manchester University Press.
- Wallis, R. Ransome : 1973. *Two Red Stripes - A Naval Surgeon at War*. Ian Allan.
- Warlow, Ben : 1992. *Shore Establishments of the Royal Navy*. Maritime Books.
- Warren, Charles E. T. : 1973. *We Will Not Fear - HM Submarine Seal*. White Lion.
- Warren, Charles E. T. and Benson, James : 1953. *Above Us the Waves*. Harrap.
- Warren, Charles E. T. and Benson, James : 1997. *Thetis - The Admiralty Regrets...* Avid Publications. (Reprint)
- Waters, Sydney D. : 1961. *Shaw Savill Line - 100 Years of Trading*. Whitcombe & Tombs.
- Watkins K.M. : 1963. *Britain Divided*. Nelson.
- Watts, Anthony J. : 1976. *The U Boat Hunters*. Macdonald and Jane's.
- Weaver, Harry J. : 1980. *Nightmare at Scapa Flow*. Cressrelles.
- Wemyss, D. E. G. : 1955. *Restless Pursuit - Walker's Groups in the Western Approaches*. William Kimber. (Originally published in the *Liverpool Echo* in 1948)
- West, Nigel (pseud. for Rupert Allason) : 1981. *MI5 - British Security Service Operations 1909 - 1945*. Bodley Head.
- Wheatley, Dennis : 1980. *The Deception Planners*. Hutchinson.
- Wiggan, Richard : 1982. *Hunt the Altmark*. Robert Hale.
- Wiggan, Richard : 1986. *Operation Freshman - The Rjukan Heavy Water Raid, 1942*. William Kimber.
- Williams, J. A. and Gray J. B. : 1993. *HM Rescue Tugs in World War II*. Privately published by HM Rescue Tugs Veterans Association.
- Williams, Jack : 1997. *Fleet Sweepers at War - Fleet Minesweepers of the Royal Navy 1939-1945*. Blackpool.
- Williams, Mark : 1979. *Captain Gilbert Roberts RN and the Anti-U boat School*. Cassell.
- Winklareth, Robert J. : 1998. *The Bismarck Chase - New Light on a Famous Engagement*. Chatham Publishing.
- Winton, John : 1983. *Convoy: The Defence of Sea Trade 1890-1990*. Michael Joseph.
- Winton, John : 1986. *Carrier Glorious*. Leo Cooper.
- Winton, John : 1988. *Ultra at Sea*. Leo Cooper.
- Withtoft, Hans Jürgen : 1971. *Die Deutsche Handelsflotte 1939-1945 - Unter besonderer Berücksichtigung der Blockadebrecher vol. 2*. Musterschmidt Göttinger, Frankfurt.
- Wynn, Kenneth : 1997. *U Boat Operations of the Second World War - Vol. 1. Career Histories U-1 to U-510*. Chatham Publishing.
- Wynn, Kenneth : 1998. *U Boat Operations of the Second World War - Vol. 2. Career Histories U-511 to UIT25*. Chatham Publishing.
- Young, Edward : 1952. *One of Our Submarines: War Memoir of a British Submarine Officer*. Hart Davis.
- Young, Brigadier Peter : 1958. *Storm From The Sea*. William Kimber. New edition with additional material published by Lionel Leventhal Ltd in 1989.

MONOGRAPHS

- Black Hackle – The Story of 11 (Scottish) Commando.*** Prof. Graham Lappin, University of Illinois, USA (2000).
- British Rearmament and The Treasury 1932-1939.*** G. C. Peden. Scottish Academic Press, 1979.
- British Shipping and World Competition.*** S. G. Sturmev. The Athlone Press, University of London, 1962.
- British Vessels Lost At Sea 1939-1945.*** HMSO 1947. Reprint published by Robert Stephens 1976.
- Building the Navy's Bases in World War II - History of the Bureau of Yards and Docks and the Civil Engineer Corps 1940-1946*** (Vol. 2). United States Government Printing Office (1947).
- Inverkeithing, Queensferry and Rosyth - the Construction of the Naval Dockyard.*** Study dated 1903 by Andrew Cunningham.
- Lloyds Shipping Index.*** Lloyds of London Press.
- Lloyds War Losses: The Second World War.*** Vols 1 and 2. Lloyd's of London Press 1989.
- Merchant Shipping and The Demands of War. History of the Second World War Civil Series.*** C. B. A. Behrens. HMSO 1978.
- Merchant Shipping and War - A Study in Defence Planning.*** Martin Doughty. Published by the Royal Historical Society in 1982.
- Naval Policy Between The Wars.*** Transcript of lecture by Captain Stephen Roskill CBE DSC RN at the National Maritime Museum on 20 April 1977. Published by the National Maritime Museum in 1978 as no.29 in a series of monographs and reports.
- Prelude to Dieppe. Thoughts on Combined Operations Policy in the Raiding Period.*** Paper by Barry Hunt and David Schulman in *Naval Warfare in the Twentieth Century*. Gerald Jordan (ed.) published by Crook Helm in 1977.
- North American Supply. History of the Second World War Civil Series,*** Hessel Duncan Hall. HMSO 1955.
- Operation Neptune – Landings in Normandy, June 1944. Battle Summary No. 39.*** HMSO 1994.
- Port At War – The story of Liverpool, its ordeals and achievements during the war 1939-1945.*** Mersey Docks & Harbour Board, 1946.
- Queensferry ARP Log.*** Held by Edinburgh City Council Archives Department.
- Services by the Lifeboats of the Royal National Lifeboat Institution 1939 - 1946.*** Monograph published by the Royal National Lifeboat Institution in 1956.
- Souvenir of the Clyde Anchorages Emergency Port Scheme.*** Privately published by Scruttons Ltd in 1947. Held by the National Library of Scotland.
- St Andrews ARP Log.*** Compiled by Arthur Scroggie, Communications Officer, Civil Defence, St Andrews Area. Held by St Andrews University Library, Department of MSS.
- Statistical Digest of The War. History of the Second World War Civil Series,*** Central Statistical Office. HMSO 1955.
- The Applications of Radar and other Electronic Systems in the Royal Navy in World War*** 2. F. A. Kingsley (ed.) for the Naval Radar Trust in 1995.

- The Battle of the Atlantic and Signals Intelligence: U-Boat Situations and Trends, 1941-1945.*** Prof. David Syrett (ed.) Published for the Navy Records Society (publication no. 139) by Ashgate in 1998.
- The British War Economy. History of the Second World War Civil Series,*** W. K. Hancock and M. M. Gowling. HMSO 1949.
- The Church and the Sailor. Journal of the Missions to Seamen*** Vol. XXIX no.338; March - April 1940.
- The Control of Raw Materials. History of the Second World War Civil Series,*** Joel Hurstfield. HMSO 1953.
- The Defeat of the Enemy Attack on Shipping 1939-1945. Naval Staff History, Second World War*** CB3304 (Vol.s 1A and 1B). Eric J. Grove (ed.). Revised edition published by the Navy Records Society 1997.
- The Defence of the United Kingdom. History of the Second World War Military Series,*** Basil Collier. HMSO 1957.
- The Economic Blockade. History of the Second World War Civil Series,*** W. N. Medlicott. HMSO 1952-1959.
- The Keyes Papers*** (Vol. III). Paul G. Halpern (ed.). Published by George Allen & Unwin for the Navy Records Society in 1981.
- The LMS at War.*** George C. Nash. Privately published by the LMS Railway Co. in 1946.
- The Polish Navy in the Second World War - An Historical Sketch.*** Monograph compiled for the Polish Naval Association by Michael Alfred Peske. 1989.
- The Port of Glasgow.*** Monograph compiled in 1947 by William French on behalf of the Clyde Navigation Trust.
- The Royal Air Force 1939-1945.*** Official history of the Royal Air Force in the Second World War in three volumes. Vol. 1 ***The Fight at Odds*** Denis Richards (ed.), vol. 2 ***The Fight Avails*** Denis Richards and Hilary St George Saunders (eds.), and vol.3 ***The Fight is Won*** Hilary St George Saunders (ed.) first published in 1953 and republished by HMSO in 1993.
- The U Boat War in the Atlantic 1939-1945.*** HMSO 1989.
- ULTRA and the campaign against the U-boats in World War II.*** Paper (1980) by Commander Jerry C. Russell USN. From *Studies in Cryptology*, document SRH-142, record group 457, records of the National Security Agency, Washington, USA.
- United States Submarine Operations in World War II.*** Theodore Roscoe, published by the Naval Institute Press, Annapolis, USA, in 1949.

SPECIALIST ARTICLES

- Air Power and the Battle of the Atlantic 1939-45.*** John Buckley in *The Journal of Contemporary History* vol. 28 (1993).
- British plans for Economic Warfare against Germany - The problem of Swedish Iron Ore.*** Prof. Patrick Salmon in *Journal of Contemporary History* vol. 16 (1981).
- Combined Operations 1939-1945.*** Rear Admiral H. E. Horan CB DSC in the *Royal United Services Institute Journal*, February 1953.
- Combined Operations in Hitler's War.*** Rear Admiral H. E. Horan CB DSC in *Naval Review* vol. 48 (1960).
- Construction and Operation of the Military Ports in Gareloch and Loch Ryan.*** Sir Bruce G. White in *Transactions of the Institution of Engineers and Shipbuilders in Scotland 1948-1949*.
- Convoys to Murmansk.*** Kalapani (pseud.) in *Naval Review* vol. XLV no. 4 (1957).

- HMS Quebec.** Unattributed article in *Per Mare* magazine, Spring 1946.
- Naval Intelligence, the Atlantic Campaign and the sinking of the Bismarck. A study in the integration of intelligence into the conduct of Naval Warfare.** Article by Donald P. Steury in *The Journal of Contemporary History* vol. 22 (1987).
- Some Naval Aspects of Combined Operations.** 'Amphibian' in *Naval Review* vol XXXIII (1945).
- Strategic Intelligence and the Outbreak of the Second World War.** Richard Overy in *War in History* vol. 5 no. 1.
- The British Chiefs of Staff Committee and the preparation for the Dieppe Raid, March – August 1942. Did Mountbatten really evade the Committee's authority?** Peter J Henshaw in *War in History* vol. 1, no. 1 (1994).
- The Dawn of Modern Anti-Submarine Warfare: Allied Responses to the U Boats, 1944-45.** Dr Marc Milner in the *Royal United Services Institute Journal* (March 1989).
- The First Headquarters Ship.** A. Cecil Hampshire in the *Royal United Services Institute Journal* (May 1966).
- The Fuhrer Conferences on Naval Affairs** in *Brassey's Naval Annual* (1948). Rear Admiral H. G. Thursfield (ed.). William Clowes & Sons.
- The Navy's Part in Combined Operations.** Transcript of a lecture by Rear Admiral T. H. Troubridge DSO in *Royal United Services Institute Journal* (February 1945).
- The Operational Intelligence Centre, Naval Intelligence Division.** Three part article by P. B. (pseud. for Patrick Beesly) in *Naval Review* vol. 63 (1975).
- Was SOE any good?** Article by M. R. D. Foot in *The Journal of Contemporary History* vol. 16 (1981).

ACADEMIC DISSERTATIONS

- From Neutrality to NATO - The Norwegian Armed Forces and Defense Policy 1905-1955.** Ph.D. dissertation by David G. Thomson, Department of History, Ohio State University, Columbus, Ohio, USA, 1996. (Ch.s 4 to 9 on the Second World War)
- Iceland and the Struggle for the North Atlantic 1940-41.** MA dissertation by Thor Whitehead, University of Georgia, USA, 1972.

DOCUMENTARY AND FEATURE FILMS

- Squadron 992.** Propaganda short on the Forth Raid October 1939. IWM.
- The Lion has Wings.** National Film Archive.
- Scotland Speaks.** (1941). IWM.
- The Shortest Route.** Polish Paratroops. IWM.
- The White Eagle.** Polish Paratroops. IWM.
- Strangers.** (1944) Poles in Scotland. IWM.
- The Silver Fleet** (1943) Some scenes shot at HMS *Ambrose*, Dundee.

Illustration Credits

Fig. no.	
1	Imperial War Museum, Dept. of Photographs.
2	Author's collection.
3	<i>Glasgow Herald and Evening Times.</i>
4	Author's collection.
5	Author.
6	Imperial War Museum, Dept. of Photographs.
7	Imperial War Museum, Dept. of Photographs.
8	<i>The Scotsman and Edinburgh Evening News.</i>
9	ADM 234 332.
10	ADM 234 332.
11	Imperial War Museum, Dept. of Photographs.
12	602 Squadron Museum, Glasgow.
13	<i>The Scotsman and Edinburgh Evening News.</i>
14	Author's collection.
15	AIR 28 470.
16	Author's collection.
17	602 Squadron Museum, Glasgow.
18	<i>Dundee Courier and Evening Telegraph.</i> Caption: WO 166 2128.
19	Bob Baird, Crossford, Dunfermline.
20	AIR 28 471.
21	Bob Baird, Crossford, Dunfermline.
22	ADM 199 13.
23	Imperial War Museum, Dept. of Photographs.
24	<i>Dundee Courier and Evening Telegraph.</i>
25	Imperial War Museum, Dept. of Photographs.
26	Clydebank Library Local History Collection.
27	Clydebank Library Local History Collection.
28	<i>Glasgow Herald and Evening Times.</i>
29	Greenock Library Local History Collection. Caption: HH/50 1-5.
30	Mike Hughes.
31	Imperial War Museum, Dept. of Photographs. Caption: ADM 199 369. ADM 199 371. ADM 199 371. Wynn : 1998. Rohwer : 1999.
32	Mike Hughes. Caption: ADM 199 59. ADM 199 372. AIR 27 1298.
33	Imperial War Museum, Dept. of Photographs.
34	Author's collection.
35	Author's collection.
36	Author.
37	Author's collection.
38	Author.
39	Author's collection.
40	Imperial War Museum, Dept. of Photographs.
41	Imperial War Museum, Dept. of Photographs.
42	<i>The Scotsman and Edinburgh Evening News.</i>
43	Author's collection.
44	Imperial War Museum, Dept. of Photographs.
45	DEFE 2 140.

46	DEFE 2 140
47	Imperial War Museum, Dept. of Photographs.
48	<i>Glasgow Herald and Evening Times.</i>
49	Imperial War Museum, Dept. of Photographs.
50	Imperial War Museum, Dept. of Photographs.
51	Imperial War Museum, Dept. of Photographs.
52	Imperial War Museum, Dept. of Photographs.
53	DEFE 2 815. Caption: DEFE 2 713.
54	Royal Commission for Ancient and Historical Monuments, Scotland.
55	Imperial War Museum, Dept. of Photographs.
56	Imperial War Museum, Dept. of Photographs.
57	<i>Combined Operations 1940-1942 HMSO : 1942.</i>
58	Imperial War Museum, Dept. of Photographs.
59	DEFE 2 83.
60	Author's collection.
61	Imperial War Museum, Dept. of Photographs.
62	Imperial War Museum, Dept. of Photographs.
63	Imperial War Museum, Dept. of Photographs.
64	Author.
65	Imperial War Museum, Dept. of Photographs.
66	Imperial War Museum, Dept. of Photographs.
67	Imperial War Museum, Dept. of Photographs.
68	Imperial War Museum, Dept. of Photographs.
69	Imperial War Museum, Dept. of Photographs.
70	Imperial War Museum, Dept. of Photographs.
71	Royal Navy Submarine Museum, HMS <i>Dolphin</i> .
72	ADM 234 380.
73	Imperial War Museum, Dept. of Photographs.
74	Author's collection.
75	Author's collection.
76	Author's collection.
77	Imperial War Museum, Dept. of Photographs.
78	ADM 199 844.
79	HS 2 151.
80	DEFE 2 365.
81	Royal Norwegian Navy Museum, Horten.
82	Author's collection.
83	Royal Norwegian Navy Museum, Horten.
84	Royal Naval Submarine Museum, HMS <i>Dolphin</i> .
85	ADM 199 1851.
86	Imperial War Museum, Dept. of Photographs.
87	Imperial War Museum, Dept. of Photographs.
88	Imperial War Museum, Dept. of Photographs.
89	ADM 199 997.
90	ADM 199 1813.
91	Author's collection.
92	Author.
93	Author.
94	Imperial War Museum, Dept. of Photographs.

Glossary

IWO	First Watch Officer (i.e. First Lieutenant) aboard a U-boat.
AMC	Armed Merchant Cruiser.
ARP	Air Raid Precautions.
Asdic	Shipborne sound-ranging device that could determine the range and bearing of a submerged contact.
ASV	Air-to-Surface-Vessel radar. (See also LRASV)
B deinst	Abbreviation for Funkbeobachtungdeinst, the German radio interception and cryptanalysis service.
BDO	Boom Defence Officer.
BdU	Abbreviation for Befehlshaber der Unterseeboote, the German C-in-C U-boats, but also commonly used to refer to U boat Headquarters.
BDV	Boom Defence Vessel.
Bletchley Park	Buckinghamshire mansion which was the HQ of the Government Code and Cypher School, the British cryptanalysis service.
BOAC	British Overseas Airways Corporation.
BST	British Summer Time.
CAP	Combat Air Patrol.
Captain (D)	Captain of a destroyer flotilla.
Captain (S)	Captain of a submarine flotilla.
CCO	Chief of Combined Operations.
CET	Central European Time.
C-in-C	Commander-in-Chief.
C-in-C (HF)	Commander-in-Chief (Home Fleet).
C-in-C (WA)	Commander-in-Chief Western Approaches.
COHQ	Combined Operations Headquarters.
COPP	Combined Operations Pilotage Party.
COSSAC	Chief of Staff to the Supreme Allied Commander.
CP	Communist Party.
CTC	Combined Training Centre.
DA	Director Angle. Used by submarines in calculating an attack solution.
DCO	Director, Combined Operations.
Decrypt	A decyphered message.
D/F	Direction Finding by establishing the bearing of a station transmitting a radio signal. By triangulating two or more bearings on the same signal, it is possible to calculate the position from which it is being transmitted.
DNI	Director of Naval Intelligence.
Doppler	In Asdic, the observed effect of the changing wavelength of sound waves reflected from a moving submerged object, i.e. a U-boat.
EG	Escort Group.
EN	Series code for coastal convoys from Methil to the Clyde.
Enigma	The German Schlüssel M encryption machine, the naval version being the Marine Funkschlüssel Machine M. The term was also used by the British to refer to encrypted texts that emanated from the machine.

ETOUSA	European Theater of Operations, US Army.
FAA	Fleet Air Arm.
Flak	An abbreviation for the German Flugzeugabwehrkanone or anti-aircraft gun. Used by both sides to refer to anti-aircraft gunfire.
FN	Series code for coastal convoys from the Thames to Methil.
FO	Forsvarets Overkommando. Norwegian High Command.
FO(S)	Flag Officer (Submarines)
FS	Series code for coastal convoys from Methil to the Thames.
GMT	Greenwich Mean Time.
GOC	General Officer Commanding.
Gruppe	Group (i.e. of U-boats).
H ₂ S	Airborne radar sets also fitted to LCN.
HA	High Angle. Often used to describe anti-aircraft or dual-purpose armament.
HE	Hydrophone effect.
HE	High explosive.
HE111	Heinkel 111 bomber.
HE115	Heinkel 115 seaplane.
Hedgehog.	Ahead-throwing anti-submarine multiple mortar that fired depth charges 250 yards in front of an escort vessel, thus closing the gap between the loss of an Asdic echo at close range and the normal method of firing depth charges over the stern. (See also Squid)
HMT	His Majesty's Trawler.
HN	Series code for convoys from Bergen to Methil that ran until 9 April 1940.
HSL	High-speed launch.
HX	Series code for inbound convoys from North America.
HXF	Series code for fast inbound convoys from Canada.
JU88	Junkers 88 bomber.
JW	Series code for convoys outbound to the Soviet Union from December 1942.
Kfg	Kuestenfliegergruppe .
KMF	Series code for fast outbound military convoys to the Mediterranean.
KMS	Series code for slow outbound military convoys to the Mediterranean.
Knickebein	German radio beam bombing aid.
Kriegsmarine	The German Navy prior to 1945.
Kriegstagebuch	Daily log kept by German ships at sea and shore headquarters.
KTB	See Kriegstagebuch.
KX	Series code for outbound military supply convoys to the Mediterranean.
LCA	Landing Craft (Assault) (also referred to as ALC)
LCG	Landing Craft (Gun).
LCM	Landing Craft (Mechanised) (also referred to as MLC).
LCN	Landing Craft (Navigation).
LCS	Landing Craft (Support).
LCT	Landing Craft (Tank).
LCV	Landing Craft (Vehicle).
LSI	Landing Ship (Infantry).
LOA	Length Over All (of a ship)
LRASV	Long Range Air-to-Surface-Vessel radar.
LSS	Landing Ship (Sternchute).
LST	Landing Ship (Tank).
Luftwaffe	German Air Force.
LWOST	Low water, ordinary spring tides
ME109	Messerschmitt Bf 109 fighter.
ME110	Messerschmitt Bf 110 fighter-bomber.
MFV	Motor Fishing Vessel.

MI5	Security Service.
MI6	Secret Intelligence Service.
ML	Motor Launch.
MT	Motor Transport.
MTB	Motor Torpedo Boat.
MV	Motor Vessel.
NCSO	Naval Control of Shipping Officer.
NOIC	Naval Officer in Charge.
OA	Series code for outbound convoys from the Thames. These passed through the English Channel until 3 July 1940, then were diverted to join FN and EN convoys before passing outward through the North Western Approaches.
OB	Series code for outbound convoys from Liverpool which, from 7 July 1940, were diverted through the North Channel.
OIC	Operational Intelligence Centre (Admiralty).
ON	Series code for convoys from Methil to Bergen that ran until 9 April 1940. Code letters used, from 15 July 1941 and in place of OB, for outbound 9 knot convoys to North America.
ONS	Series code for 7½ knot outbound convoys to North America from 15 July 1941.
OOW	Officer of the Watch.
OP	Observation Post.
OR	Other Ranks (non-commissioned).
ORB	Operations Record Book kept by RAF squadrons, stations, groups and commands.
PPI	Plan Position Indicator (radar display).
PQ	Series code for convoys outbound to the Soviet Union to November 1942.
PRU	Photo Reconnaissance Unit (RAF).
QP	Series code for convoys inbound from the Soviet Union. to November 1942
Quisling	Norwegian followers of the fascist puppet dictator Vidkun Quisling.
R Boat	American designed wooden assault craft.
RA	Series code for convoys inbound from the Soviet Union from December 1942.
RACOB	Rear Admiral Combined Operations Bases.
RDF	Radio Direction Finding. British cover name for radar.
SBNO	Senior British Naval Officer.
SC	Series code for slow inbound convoys from North America.
Schnorchel	A breathing tube that could be raised above the surface to allow a U-boat to run submerged on diesel engines, thus conserving battery power.
SHAEF	Supreme Headquarters Allied Expeditionary Force.
SL	Series code for inbound ocean convoys from Freetown, Sierra Leone, to UK
SO	Senior Officer.
SOE	Special Operations Executive.
Squid	Ahead throwing anti-submarine mortar, which fired a battery of three contact-fuzed depth charges. Employed larger charges than Hedgehog (q.v.).
SS	Steam Ship.
Ultra	Disguised form in which Enigma decrypt-derived intelligence was transmitted to operational commands.
UXB	Unexploded bomb (also used to refer to unexploded air-dropped mines).
VANP	Vice Admiral Northern Patrol.
VP	Series code for MTB anti-shiping operations off Norway.
WN	Series code for coastal convoys from the Clyde to Methil.
WS	Series code for outbound convoys to the Middle East and India via Suez or the Cape. Also known as 'Winston's Specials'.
Würzburg	German paraboloid radar system.
XDO	Extended Defence Officer.

APPENDIX 1

**ADMIRALTY FLEET CHARTS SHOWING SWEEP CHANNELS AS USED
BY COASTAL CONVOYS OFF THE EAST COAST OF SCOTLAND.**

APPENDIX 2

TRAINING BEACHES AT CTC INVERARAY

Furnace Beach	A 300 yard shingle beach with access to the main road used for driving vehicles on and off craft in exercises with follow-up formations. Usable at all states of tide.
Creggans Beach	A 120 yard beach of mud and stones with access to a track leading to the main road. Unusable for craft equipped, like LCTs, with kedge anchors due to the presence of a submarine cable to Strachur. Usable at all states of tide. Little used other than for embarking troops for Exercise NEWTON BAY.
P.M.'s Beach	A shingle and sand beach with three prepared exits to the track leading round the loch to the main road. Usable at all states of tide. Used for loading and unloading vehicles for exercises.
RE Beach	A beach some 200 yards south of the RE Pier, the southmost pier the HMS <i>Quebec</i> , with prepared exits for wheeled and tracked vehicles. Usable at all states of the tide for the same purpose as P.M.'s Beach.
Cambrai Hards	Three concrete hards each capable of taking one LCT or LST, though not usable two hours either side of low water. Used for loading and unloading tanks, SP guns and vehicles of all types for exercises.
RAC and REME Beach	Not used for training as such, this 60-yard sand beach was used for the beaching of landing craft and a fairway past the rocky spit at the north-eastern extremity was marked by spars.
Admiral's Beach	Eighty yard beach of sand and stones with direct access to the main road, but with, at its northern end, a dangerous spit marked by a buoy. Most landing craft could beach here at all states of the tide, though LSTs were restricted to four hours either side of high water. Used for loading and unloading vehicles and troops for exercises.
Gash Beach	A small beach immediately south of Inveraray Pier normally used for loading personnel in minor landing craft for unit training and exercises.
Salmon Beach	A 100-yard shingle beach with direct access to the main road. Used for loading and unloading vehicles and personnel. Larger landing craft restricted to two hours either side of high water. Not used during the salmon season.
Auchnatra Beach	A 75-yard stone beach with two exits, one for wheeled and one for tracked vehicles, to the main road. Used for loading and unloading vehicles and personnel.
Castle Beach	A 50-yard shingle beach west of Dunderave Castle suitable only for minor landing craft. No exit for vehicles.
Dunderave Beach	A 100 yard shingle beach with two exits, one for wheeled and one for tracked vehicles, to the main road. Used for loading and unloading vehicles.
Rubha Mor Beach	A 100 yard shingle beach suitable for all types of landing craft three hours either side of high water with a vehicle exit to the road. Approved for the use of 2" mortar smoke and flares, 4" Naval smoke mortar, no. 77 smoke grenades, bangalore torpedoes and small explosive charges. Used for training assault company groups in assault landings, deployment exercises for tanks or SP guns, exercises for follow-up formations, exercises for Assault Battalion Groups and sometimes used in Assault Brigade Group exercises.
Noble's Beach	Beach of fine shingle used for wading vehicles from LCTs.
Ardkinglas Beach	A semi-circular 75-yard beach with a prominent spit at the south west end used for training Assault Company Groups, re-embarking vehicles waded ashore at Noble's Beach, exercises for Assault Battalion Groups and sometimes used in Assault Brigade Group exercises.
Bathaich Bhan Beach	A 150-yard beach of fine shingle used for exercises for Assault Battalion Groups and sometimes used in Assault Brigade Group exercises. Approved for the use of 2" mortar smoke and flares, 4" Naval smoke mortar, no. 77 smoke grenades, bangalore torpedoes and small explosive charges.
Ardno Beach	A 200-yard beach of fine shingle with easy access to the main road used for exercises for Assault Battalion Groups and sometimes used in Assault Brigade Group exercises. Approved for the use of 2" mortar smoke and flares, 4" Naval smoke mortar, no. 77 smoke grenades, bangalore torpedoes and small explosive charges. Care had to be taken that no bombs fell on Ardno Farm and that Bangalore torpedoes were not detonated too close.
Ard na Slaitte Beach	A 150-yard loose shingle beach with access to the main road used for exercises for Assault Battalion Groups and sometimes used in Assault Brigade Group exercises. Approved for the use of 2" mortar smoke and flares, 4" Naval smoke mortar, no. 77 smoke grenades, bangalore torpedoes and small explosive charges. Care had to be taken that no bombs fell on the main road.
Ard na Gailich Beach	A 100-yard shingle beach with easy access to the main road. Used for craft training and sometimes used in Assault Brigade Group exercises.
Strachur Beach	Muddy sand and shingle beach used for wet landings by troops and wading vehicles.
Rosebank Beach	A 200-yard beach of stones with access to the main road used for driving vehicles on and off craft.
Stucroch Beach	A 200-yard stone beach with two exits to the main road for wheeled or tracked vehicles. Used in conjunction with Exercise NEWTON BAY.
Newton Bay Beach	A 175-yard beach used for Exercise NEWTON BAY. Usable by LCAs and LCTs two hours either side of high water. Hinterland very boggy and this prevented the movement of vehicles off the beach. Ammunition and explosives used here.

APPENDIX 3

MAP OF THE COAST OF SOUTH-WEST NORWAY SHOWING THE INNER LEADS PASSAGE AS USED BY GERMAN SHIPPING. (AIR 41 74)

