UNDERSTANDING
NAVAL WARFARE

IAN SPELLER

Understanding Naval Warfare

Ian Speller

Preface

This book aims to introduce the reader to the concepts and ideas required to develop an understanding of modern naval warfare. It is not a history book, nor is it designed to be a technical or tactical guide to current capabilities. Rather, it adopts a thematic approach to examine the theory and practice of modern naval warfare in order to equip the reader with a sophisticated knowledge and understanding of this and of wider maritime strategy. The intention is to provide a short, accessible and easy-to-read guide to modern practice. Because of this, and the inevitable limitations of space, the focus is primarily on navies in the twentieth and twenty-first centuries. Reference is made to ideas and to events from before this period – indeed, it is not possible to discuss modern naval warfare unless one does this. However, the main emphasis is on more modern thought and practice. The book is designed to be useful to anyone who wants to understand naval warfare and, more broadly, to understand the role and activities of navies and other maritime agencies. It provides a first step for those embarking on the subject, offering a foundation sufficient to allow for a sophisticated understanding of the subject and which can also provide a base from which the reader can embark on more detailed studies of strategy or history.

In the introduction to the 2010 *Australian Maritime Doctrine* the authors candidly note that the document draws heavily on the work of others, suggesting that one of its strengths is that it represents a synthesis of ideas derived from other sources. This book is informed by a similar logic. It is not so much an attempt to advance only this author's opinions on naval warfare, as it is designed to introduce the reader to the views, opinions and ideas of many others. In this respect it would be dishonest to suggest that the content was entirely my own. I have endeavoured to provide a fresh insight into the subject, and the book is clearly informed by my own perspective on what is important and what needs to be explained, but it draws heavily on the work of others. It would not be of much use if it did not. References are provided where other authorities have been quoted or where ideas have been derived directly from the work of others. It is important for me also to acknowledge the debt that this book owes to the many other commentators (both past and present) who contributed to the general 'synthesis of ideas' that made this work possible.

Over the course of my career I have had the pleasure of working with some very great thinkers and writers on naval warfare, maritime strategy and history. Of these I am particularly indebted to Andrew Lambert, Eric Grove and Geoffrey Till for all of their advice, help and assistance over the years. Much of what I know of maritime history and naval warfare I learned from them, even if we do not agree on all things. I have also been very lucky in my career to have had such excellent students. At the UK

Staff College I worked with students from all services and from almost every country on the planet (although I do not remember ever meeting an Iranian student there). It was a privilege to teach individuals with such a vast practical knowledge of military affairs, and they approached their studies with an enthusiasm and application that would shame most civilian counterparts. I suspect that I learned as much from them as they did from me. More recently I have taught at the Irish Military College. There are fewer students, and not so many dark blue uniforms, but the standards are as high as ever and the experience remains both demanding and rewarding. I have the good fortune also to teach at the National University of Ireland Maynooth and to work with staff and students who together contribute to a most pleasant and highly stimulating academic environment.

This book has its origins in discussions between David Jordan, Christopher Tuck and me. David and Christopher have each completed similar works that examine land and air warfare, respectively, and these are also published by Routledge. I am grateful to them for their assistance in getting this project off the ground, and particularly to Christopher for his help in reading through numerous draft chapters. I am also very grateful to the anonymous reviewers for their comments on the original proposal and also on draft work. In every case their input was balanced, fair, insightful and very helpful. This book is much better because of it. Any mistakes or omissions are despite their advice, not because of it, and the blame falls squarely and solely on my shoulders. Thanks are due to Andrew Humphrys and to the whole team at Routledge for their help and assistance throughout the publishing process. It was a pleasure to work with such a professional team. Most importantly, I would like to thank my wonderful wife, Colette, for all of her help, support and forbearance, without which this project would never have been completed. A mention is also due to my four children (Eoin, Anna, Sean and Harry), without whom it would have been completed much earlier. Now that it is finished I can appreciate their constant efforts to convince me that there is more to life than writing books.

List of abbreviations

A list of abbreviations for types of ship and submarine can be found in Appendix 2.

A2/AD	Anti-Access/Area Denial
AAW	Anti-Air Warfare
ACM	Acoustic Countermeasures
AEW	Airborne Early Warning
AFM	Armed Forces Malta
APM	Acoustic Protective Measures
APS	Africa Partnership Station
ARG	Amphibious Ready Group
ASCM	Anti-ship cruise missile
ASEAN	Association of Southeast Asian Nations
ASM	Air-to-surface missile
ASUW	Anti-Surface Warfare
ASW	Anti-Submarine Warfare
AWSM	Acoustic Warfare Support Measures
BMD	Ballistic Missile Defence
C4ISR	Command, Control, Communications, Computers, Information, Surveillance and Reconnaissance
CARAT	Cooperation Afloat Readiness and Training (exercises)
CIWS	Close-in weapons system
CMS	China Marine Surveillance
CS21	US Maritime Strategy (2007)
CSG	Carrier Strike Group
CSI	Container Security Initiative
EAW	Electronic and Acoustic Warfare
ECM	Electronic Countermeasures
EEZ	Exclusive economic zone
EM	Electromagnetic
EMP	Electromagnetic pulse
EPM	Electronic Protective Measures
ESF	Expeditionary Strike Force
ESG	Expeditionary Strike Group
EU	European Union
EW	Electronic warfare
ESM	Electronic Support Measures

FSV	Fully Submersible Vessel
GDP	Gross domestic product
GPS	Global Positioning System
HA/DR	Humanitarian assistance/disaster relief
ICBM	Intercontinental ballistic missile
IMB	International Maritime Bureau
IMCMEX	International Mine Counter-Measures Exercise
IMERC	Irish Maritime and Energy Resource Cluster
IMO	International Maritime Organization
IRBM	Intermediate-range ballistic missile
ISPS Code	International Ship and Port Facility Security Code
ISR	Intelligence, surveillance and reconnaissance
ISTAR	Intelligence, surveillance, target acquisition and reconnaissance
IT	Information technology
JCG	Japan Coast Guard
JMSDF	Japanese Maritime Self-Defence Force
JSTARS	Joint surveillance target attack radar system
km	Kilometre(s)
LCS	Littoral Combat Ship
LHD	Amphibious assault ship, multi-purpose
LPD	Landing Ship, Personnel, Dock
LPH	Landing Ship, Personnel, Helicopter
MARPOL	International Convention for the Prevention of Pollution by Ships
MCM	Mine countermeasures
MDA	Maritime domain awareness
MEU	Marine Expeditionary Unit
MIOPS	Maritime interdiction operations
MPS	Maritime prepositioning ship
MSC	Military Sealift Command
MSO	Maritime security operations
NATO	North Atlantic Treaty Organization
NCAGS	Naval Cooperation and Guidance for Shipping
NCW	Network-Centric Warfare
NEO	Non-combatant evacuation operation
NGO	Non-governmental organisation
NGS	Naval gunfire support
NIA/D3	Networked, integrated attack-in-depth to disrupt, destroy and defeat
nm	Nautical mile
NMW	Naval Mine Warfare
OMFTS	Operational Maneuver from the Sea
OPV	Offshore patrol vessel
OTH	Over the horizon
PLAN	(Chinese) People's Liberation Army Navy
PSO	Peace support operation
RAF	Royal Air Force
RAN	Royal Australian Navy
RECAAP	Regional Cooperation Agreement on Combating Piracy and Armed Robbery Against Ships in Asia

ROE	Rules of engagement
Ro-Ro	Roll-on/roll-off ferry
RPG	Rocket-propelled grenade
RSN	Republic of Singapore Navy
SAM	Surface-to-air missile
SAR	Search and rescue
SAS	Special Air Service (UK Special Forces)
SEAD	Suppression of enemy air defences
SEAL	Sea-Air-Land Teams (US Navy Special Forces)
SLOCs	Sea Lines of Communication
SOLAS	International Convention for the Safety of Life at Sea
SOSUS	Sound Surveillance System
SPSS	Self-Propelled Semi-Submersible
SSBN	Nuclear ballistic missile submarine
SSM	Surface-to-surface missile
SSN	Nuclear-powered submarine
STOM	Ship-to-Objective Maneuver
STOVL	Short take-off and vertical landing (aircraft)
STUFT	Ship Taken Up From Trade
SUA	Convention for the Suppression of Unlawful Acts Against the Safety of Maritime Navigation
TEU	Twenty-foot-equivalent unit
UAV	Unmanned aerial vehicle
UN	United Nations
UNCLOS	United Nations Convention on the Law of the Sea
UNIFIL	United Nations Interim Force in Lebanon
US	United States
USCG	United States Coast Guard
USMC	United States Marine Corps
USN	United States Navy
USV	Unmanned surface vehicle
UUV	Unmanned underwater vehicle
VTOL	Vertical take-off and landing (aircraft)

Contents

List of illustrations

Figures

Tables

Boxes

Introduction

> Whosoever can hold the sea has command of everything.
>
> (Themistocles, 524–460 BC)

As the title suggests, this book aims to provide an examination of and an introduction to the complex business of naval warfare. It does not provide a history of war at sea but rather gives the reader the intellectual tools required to understand fully that history and also to make sense of current plans, capabilities and operations. It provides a thematic examination of the conduct of naval warfare in the past and in the present, with an emphasis on the latter. The focus is on an examination of the concepts, issues and debates associated with military activity at and from the sea. For reasons that are obvious the book will focus primarily on navies, but it will also reflect the joint (i.e. inter-service) nature of most maritime operations and activities.

The book is intended to act as an introductory guide, a first port of call for students, military professionals and the general reader seeking to understand naval warfare. This can often represent quite a challenge as the sea is remote from the experience of many people. Navies operate in an environment that most people do not understand and that many avoid. They are equipped with a bewildering range of ships, craft and other vessels and types of equipment, the purpose of which is often unclear and which have peculiar names. Writings on naval warfare are usually replete with references to obscure concepts explained in arcane language that can serve as an effective barrier to understanding. It is the objective of this book to cut through the obscure and the arcane to offer a clear, coherent and accessible guide to the key features of naval warfare which will equip the reader with the knowledge and understanding necessary for a sophisticated engagement with the subject.

This book focuses on the role and activity of navies and on the conduct of naval warfare. It is divided into two parts. Part I (Chapters 1 to 4) focuses on concepts of naval warfare, while Part II (Chapters 5 to 9) addresses the conduct of naval warfare.

Thus, Part I will introduce the key concepts and ideas associated with the theory and practice of naval warfare. It builds on the notion that maritime power is a form of power that derives from the attributes of the sea and that this gives particular characteristics to naval forces and particular features to the conduct of naval operations. Chapter 1 examines the unique nature of the maritime environment and explains the impact that this has on naval operations. Chapter 2 examines traditional concepts of maritime strategy and argues that there is a dominant 'Anglo–American' tradition that has had an important impact on both thought and policy through to the present day. Chapter 3 looks at some alternative interpretations that stand

outside this tradition and relates ideas about maritime strategy to an analysis of the conduct of war at sea in the First and Second World Wars. Chapter 4 explores ideas about the use of navies for diplomatic purposes in peacetime and situations short of major war.

Part II of this book builds on this conceptual foundation and examines naval roles and activities in the contemporary world. It will seek to assess to what extent and in what ways the established concepts and ideas still hold true. The aim is to identify what has changed and what has not, and to demonstrate how the concepts work (or don't work) in the real world. The focus here will be on an examination of the conduct of naval warfare. Thus, Chapter 5 will examine combat operations at sea and particularly focuses on the different ways in which navies have sought to establish or contest control of the sea. Chapter 6 also examines operations at sea, but addresses the exploitation of sea control through the use of sea lift, blockades/embargoes and also the defence of civilian shipping. Chapter 7 analyses the ways in which navies have sought to exploit sea control in operations *from* the sea, including amphibious operations, maritime strike and expeditionary operations. Chapter 8 examines the constabulary roles of navies, the conduct of maritime security operations, an issue of growing importance for many states. Chapter 9 addresses alternative visions of naval warfare in the future and assesses the extent to which military, economic, political and societal developments will either constrain or enhance the ability of navies to meet policy objectives in the future.

What does 'modern' mean?

This book focuses on 'modern' naval warfare, which begs the question of what we mean by this term. A dictionary definition suggests that 'modern' means 'of the kind now extant' or 'belonging to the present day or a comparatively recent period of history'. This still requires one to decide what a 'comparatively recent period' might be. Different authors have adopted different approaches. Theodore Ropp, for example, began his famous study of *War in the Modern World* in 1415.[1] This book does not intend to provide a definitive answer to this philosophical question of what we mean by 'modern'. Instead it aims simply to examine the conduct of naval warfare today and in the recent past, and to offer opinion on the likely nature of naval warfare in the near future. In order to meet this end, and to keep the overall length within reasonable bounds, there is a particular emphasis on the twentieth and twenty-first centuries, which offers the opportunity to enrich the analysis with a variety of relevant examples and case studies, and does not seem an unreasonable interpretation of the term 'recent past'. Of course, reference will be made to earlier experience where relevant. Indeed, it is impossible to understand naval warfare without some reference to ideas and events that predate this period. However, it is important to remember that this is not intended to be a history book but instead an examination of the concepts, issues and ideas required to understand naval warfare.

History and strategy

> Historical experience is literally our sole source of evidence on strategic phenomena as the future has not yet happened.
>
> (Colin S. Gray, 2006)[2]

The thematic approach adopted in this book implies an engagement with concepts and theories, underpinned by an understanding of naval and wider maritime history. As has been noted already, it is not intended, nor would it be possible, to provide a detailed and comprehensive historical analysis within the confines of this one volume. Instead historical examples and case studies are used in order to illustrate and explain the issues under consideration. Most of the concepts examined were developed from, or justified by, reference to relevant naval history, and the importance of history to the development of maritime strategy must be emphasised. As Colin Gray has argued, history is important as it provides the only evidence that we have on strategic behaviour.[3] However, it is not the history itself that is the primary concern of this book but rather the ideas and concepts that have been and continue to be developed from the study of the past.

It is, of course, important to recognise that history has its limitations. History does not repeat itself, even if historians repeat one another. Each individual event is the result of innumerable different factors that can never be replicated. Similar things may happen for similar reasons but the past does not provide a reliable or uncontested guide to the future. To make matters more complex, different commentators looking at the same event are liable to draw different conclusions. History, therefore, does not provide ready-made lessons but rather offers a bank of information that must be discovered and interpreted. Interpretations must accommodate the knowledge that some things change, often quite radically, and that ideas derived from an examination of previous practice and experience may no longer be relevant. It is important to be able to recognise the things that do change and those that do not – or at least, that do not change often.

Most of the key writers and thinkers on naval warfare, both past and present, have believed in the existence of enduring characteristics or principles (i.e. things that do not change often). The most famous of these, an American, **Alfred Thayer Mahan (1840–1914)**, sought to derive such principles primarily from an examination of the British experience during the age of sail. He was undaunted by the obvious technological and tactical differences between warships in the age of sail and the steam-driven armoured battleships of his own time, noting that while the 'conditions' of naval warfare changed from time to time with the progress of technology, there were certain teachings that remained constant, had universal application and thus could be elevated to the category of 'general principles'.[4] From the other side of the Atlantic **Julian Corbett (1854–1922)** adopted a similar but more professional historical approach. Like Mahan, he focused on identifying principles of enduring value and this is reflected in the title of his 1911 publication, *Some Principles of Maritime Strategy*. For Corbett these principles were useful mainly as a way of focusing the mind on things that needed thinking about, of creating a common conceptual language that would foster understanding and debate, and as an intellectual tool designed not to replace judgement and experience, but to promote them. He was very aware of the danger of simply memorising the principles without thinking about them, warning that 'nothing is so dangerous in the study of war as to permit maxims to become the substitute for judgement'.[5]

To understand naval warfare, therefore, one must engage with concepts and ideas in a sophisticated manner. That we should do this matters because, to paraphrase Sun Tzu, the conduct of (naval) war is of such importance, quite literally the province of life and death, it is vital that it should be studied carefully.[6] Only by studying the

phenomenon will we be in a position to make appropriate decisions about when and how to wage war or to use military force in a range of lesser circumstances. For civilians, most of whom will never be called upon to make such decisions, it is still important to understand such issues as only then will they be equipped to make intelligent judgements about the ways in which their governments seek to use military force. In a democracy it is vital that as many people as possible are able to hold decision makers to account in this way.

The requirement for naval personnel to understand both naval history and theory should, one would think, be too obvious to need justification given the correlation that exists between ignorance and incompetence. Unfortunately, military personnel of all types have sometimes been reluctant to admit the need for academic study designed to promote informed and critical thinking, often preferring instead to fall back on easily learned but essentially vacuous catchphrases and aphorisms. This has often been encouraged, or at least tolerated, by the process of military education in which bullet-pointed lists on endless PowerPoint slides can serve as an alternative to creative analysis. Anyone who has taught at a cadet school or staff college is likely to recognise Vice Admiral Sir Peter Gretton's lament on seeing a particularly hackneyed phrase: ' … my heart sinks because another ignorant officer has been allowed to perpetuate the old aimless catchwords.'[7]

In the past some navies, and particularly the US Navy and British Royal Navy, were notorious for preferring experience and common sense to academic education.[8] Certainty was valued over the equivocation associated with academic debate. Typically, naval thinkers, including Captain Stephen Luce (the founding father of the US Naval War College) and Captain Alfred Mahan, were criticised for wanting officers to spend time at a desk rather than at sea. Sir Julian Corbett, one of the greatest thinkers on maritime strategy, complained of the difficulty that he had, when lecturing at the naval colleges at Portsmouth and Greenwich, of 'presenting theory to the unused organs [i.e. brains] of naval officers'.[9] Geoffrey Till has characterised the 'school of experience' approach of the Royal Navy in the early twentieth century as follows:

> The proper place for naval officers, they said, was at sea, for the navy needed seamen not bookworms. This was the place to learn about strategy and tactics, after the due number of years on the bridge, a mystical appreciation of what sea warfare was about could be expected to descend on the head of the efficient naval officer, rather in the manner of the Holy Ghost.[10]

The Anglo-American tradition of anti-intellectualism was not shared by all and it is fair to say that this approach is no longer typical in either navy. However, running alongside this tradition is another that has proven more enduring. This can be characterised as a **'material' tradition** that focuses primarily on current equipment and technology and, as these change over time, tends to deny the existence of enduring principles. In reality advances in technology or material may change some things, but they have never yet changed everything, and they rarely transform or revolutionise to the extent that is often claimed. Once again, the challenge is to be able to identify what has changed, and also what has not. It is important to remember that, as Jeremy Black has argued convincingly, technology is not an independent variable and its development and use depends on a variety of factors that are not technological in origin.[11] An understanding of technology and of the capabilities that it can foster is important, but

it is useful only if balanced by an appreciation of other factors. Whilst not ignoring technology, this book focuses primarily on those 'other factors'.

Sea power and maritime power

> When I use a word ... it means just what I want it to mean – neither more nor less.
> (Humpty Dumpty, in Lewis Carroll's *Through the Looking-Glass*, 1871)

Before embarking on an examination of naval warfare it is important to clear up some potential sources of confusion over the vocabulary that will be used. While some terms are relatively uncontested, others are subject to different usage and alternative interpretations that can mislead. It is symptomatic of this problem that among the classic works, Alfred Mahan's most famous book was entitled *The Influence of Sea Power upon History, 1660–1783*, his contemporary Philip Colomb chose for his title *Naval Warfare*, and Julian Corbett wrote of *Some Principles of Maritime Strategy*. The pattern has been repeated today: note the emphasis of this book on *Understanding Naval Warfare*, Geoffrey Till's focus on *Seapower: A Guide for the Twenty-First Century*, and Andrew Tan's work on *The Politics of Maritime Power*.[12] Despite the different terminology, and notwithstanding nuances in focus that are sometimes betrayed by the choice of words, all of these books examine essentially the same thing – the ability of navies to exert power at and from the sea in pursuit of national (and multi-national) policy goals.

Reflecting on the problem of defining 'sea power', Eric Grove noted the following:

> Sea power means different things to different people. It can be an almost mystical concept, a magic formula to be muttered in awe struck tones to scare away evil spirits such as defence ministers with non-naval priorities or air force officers with alternate means on offer of providing a state's military power on or across the oceans.[13]

As Till emphasises, the key difficulty can be the word 'power'.[14] Power is a tricky concept and rivers of ink have been expended in attempts to define it properly. Power can be understood in different ways. It has inputs (things that make you powerful) and outputs (things that you do with that power). It can be an attribute (something that you have), a right that can be exercised or a structure defining the relationship of one power in the context of others. Most importantly, power is a relationship. The amount of power that any individual or organisation has is relative to the particular situation. The same force used in different circumstances will generate different amounts of power and it is, of course, entirely possible to be simultaneously powerful in one area and weak in another.

The recognition that power is relative is important as it reminds us that all states that use the sea exert some form of maritime power, no matter how small. As Admiral Richard Hill noted in his study of maritime strategy for medium-sized powers, 'there appears to be no instance of a state which possesses a sea coast ignoring the fact. However minimally, some of its people will apply the resources of the sea to their environment. Thus, if power is the ability to influence events, all states with a sea coast have some maritime power'.[15] Maritime power is not the exclusive province of the powerful.

Sea power

Despite coining the phrase, Mahan did not define 'sea power' clearly. He saw it as an interlocking system of forms of sea use that had both civil and military applications, and argued that it made a unique contribution to the wealth and power of a nation. As Till notes, the advantage of this term is that it reminds us that 'it is a form of power that derives from the attributes of the sea itself'.[16] 'Sea power' is often used interchangeably with 'maritime power' and it is the latter phrase that will be adopted in this book, except when directly quoting other authors. Maritime power is more commonly employed in current military doctrine and its use emphasises the connection to the broader civil maritime sector.

Maritime power

Maritime power is an inherently broad concept, embracing all uses of the sea, both civil and military. In its widest sense it can be defined as military, political and economic power or influence exerted through an ability to use the sea. The maritime power of a state reflects sea-based military capabilities, such as ships and submarines, and also a range of military land-based assets and space-based systems that may or may not be operated by the navy. It also includes civilian capabilities such as port infrastructure, merchant shipping or a capacity for marine insurance, without which Britain would have been defeated at sea in two world wars.

Naval power

Following on from the above, it is clear that naval power is a sub-set of maritime power which refers to the activity of navies. Its study involves an analysis of the way in which navies are organised and employed in support of government policy. Given this, it is clear that to understand naval power one must understand the general context within which it is used.

Maritime strategy

To use the sea purposefully implies some form of strategy. In 1911 Julian Corbett offered what remains the most satisfactory definition of maritime strategy: 'the principles which govern a war in which the sea is a substantial factor.'[17] The emphasis is not so much on activity at sea, but rather on the impact of that activity on land. As Corbett emphasised:

> Since men live upon the land and not upon the sea, great issues between nations at war have always been decided – except in the rarest cases – either by what your army can do against your enemy's territory and national life, or else by the fear of what the fleet makes it possible for your army to do.[18]

The role of naval forces as an enabling factor within a wider maritime strategy is clear. Naval warfare is only one aspect of a strategy that needs to be integrated into a wider national or multi-national approach. Naval warfare is thus a sub-set of maritime