



Alfred Thayer Mahan

battle. Mahan regarded the primary mission of a nation's fleet was to engage the enemy's fleet.³⁴ He advocated that 'the one particular result which is the object of all naval action, is the destruction of the enemy's organised force, and the establishment of one's own control of the water.'³⁵ Mahan espoused that the concentrated fire of the battle fleet was the principal means by which naval power was to be asserted and that the enemy's battle fleet was the preferred target of such fire.³⁶

On first inspection, the notion of a decisive battle between fleets appears to hold little relevance to modern medium power navies. However, whilst a Nelsonic vision of fleets exchanging broadsides is clearly archaic, the concept of battle per se continues to hold relevance. Rear Admiral Hill suggests that battle is a facet of higher level military operations that medium power navies should address.³⁷ He postulates that battles occur once the 'tensions of sea use and sea denial have come to a head.'³⁸ He concludes that 'if medium power navies plan never to have a battle, they may get one on very unfavourable terms.'³⁹

No examination of Mahan's war-fighting concepts is complete without analysis of what some commentators consider are his doctrinal failings. These include his lack of support for guerre de course and naval artillery as well as his omission of army roles in the maritime environment.

Despite the great importance that Mahan placed on maritime commerce, he was not an advocate of a guerre de

Beyond the broader realms of strategy, Mahan's war-fighting concepts centred on two key principles. Borrowing heavily from Jomini,³⁰ he proposed that 'concentration was the predominant principle of naval warfare'³¹ and he saw the fleet as an offensive weapon that had to be used aggressively.

course strategy.³ Mahan considered that such a practice amounted to 'abandoning any attempt to control the sea.'⁴⁰ He believed that attacks on merchant shipping, along with harassing raids and the defence of coasts and harbours were options to be pursued by a 'fleet in being'.⁴ To Mahan the only effective way to address trade was to engage and defeat the enemy's fleet thereby making the sea untenable to merchant shipping.⁴¹ History and technology have illustrated the fallibility of Mahan's concepts in this area. In both world wars, the German U-Boat fleet conducted a highly effective guerre de course campaign which arguably brought Britain to the point of 'economic strangulation' championed by Mahan. For medium power navies, such as the RAN, attacks against shipping are today considered an integral facet of combat operations at sea.⁴²

Mahan's disregard for actions from the sea, such as bombardment by naval artillery or assault from amphibious forces⁴³ are also noteworthy as well as his scant attention to the interdependence of armies and navies in wartime.⁴⁴ Cowl assesses Mahan's lack of appreciation of naval artillery was largely a result of his Civil War experience in which Union ship bombardment against Confederate coastal forts proved problematic.⁴⁵ Mahan was also highly sceptical of the utility of amphibious operations in warfare.⁴⁶ He warned that such operations could reduce the navy to simply a branch of the army.⁴⁷ Finally, Mahan regarded the navy as an autonomous agent, which acted independent of the army and its land campaigns. He considered that the navy was not affected by the outcome of land battles.⁴⁸

For medium power navies, Mahan's limited appreciation of power projection from the sea and the connectivity of land and sea forces, significantly limits

the relevance of his theories in these areas to the modern day. In the 21st century, combat operations from the sea are as much a part of maritime military action as combat operations at sea.⁴⁹ Furthermore, effective joint systems are considered essential force multipliers for any medium power navy.⁵⁰

In summary, Mahan's concepts of sea power and national greatness reflect an imperial mercantile world whilst his concepts of naval strategy and naval warfare are dominated by a theme of autonomous offensive naval action. A review of these concepts reveals that many continue to hold resonance, whilst others have clearly fallen victim to a changing world political order and the advancing technology of the 20th century.⁵¹ For medium power navies, perhaps the relevance of Mahan is best summed up by Sullivan. He suggests that his enduring value 'is not to be found in dated notions of naval power and strategy. Instead it is his approach to thinking about threats and the use of force... and ideas about the very nature of warfare that provide the classic worth of his works.'⁵²

CORBETT-HIS CONCEPTS AND THEIR RELEVANCE

Till notes that 'while the theories of Alfred Thayer Mahan are all very well in their way, the work of Sir Julian Corbett provides a much more appropriate foundation for speculation about the future of sea power in the twenty first century.'⁵³ Sir Julian Corbett, a lawyer and an historian, came to the study of naval strategy late in life.⁵⁴ He is best remembered for his book *Some Principles of Maritime Strategy* which was published in 1911. In this work, Corbett developed a number of concepts relating to a general theory of war, the theory of naval war and the conduct of naval war - all of which have degrees of relevance for medium power navies in the 21st century.

In the broadest sense, Corbett theorised that 'strategy needs to be consciously related to foreign policy and naval strategy to land strategy.'⁵⁵ In his theory of general war, his central thesis was that since men live upon the land and not 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.⁵⁶

Fundamentally, Corbett saw that the 'reward for being strong at sea was the capacity it conferred to influence events ashore for that was where events were actually decided.'⁵⁷ This thesis led Corbett to develop concepts that examined the role of sea power in the wider scheme of things.⁵⁸

Specifically, Corbett drew a distinction between maritime strategy and naval strategy. Corbett considered that maritime strategy was inherently joint in nature and focused on the relations between the army and navy in planning war.⁵⁹ He asserted that maritime strategy related to the 'principles which govern a war in which the sea is a substantial factor.'⁶⁰ In contrast, naval strategy 'determines the movements of the fleet when maritime strategy has determined what part the fleet must play in relation to the action of the land forces.'⁶¹ Unlike Mahan, Corbett did not see navies as autonomous agents. He viewed naval strategy as not a 'separate entity but simply a part of the art of war.'⁶²

For medium power navies, Corbett's ideas on maritime strategy have proven to be lasting. Royal Navy doctrine⁶³ states that 'maritime power is inherently joint in nature. It emanates from forces drawn from all three services, both sea and land based, supported by national and commercial resources, exercising influence over the sea, land and air environments.'⁶⁴ RAN doctrine

maintains that 'the environments within which the services operate and fight are interconnected and cannot be considered in isolation.'⁶⁵ Both doctrines clearly echo Corbett's intent.

Beyond Corbett's concepts of maritime and naval strategy, his theory on naval war also warrants attention. Like Mahan, Corbett upheld the principle of command of the sea. He considered that the 'object of naval warfare must always be directly or indirectly either to secure command of the sea or to prevent the enemy from securing it.'⁶⁶ However, unlike Mahan, Corbett saw that the aim of command of the sea was to ensure control of maritime communications⁶⁷ and not the total destruction of an enemy's fleet. Corbett viewed maritime communications as those that were required to support a fleet and an army overseas and also trade routes.⁶⁸ To Corbett, command of the sea was a relative and not absolute concept. He saw command as being asserted in 'theatres' and used to prevent the enemy from 'disrupting one's own communications.'⁶⁹

Relating Corbett's communications concepts to medium power navies, Rear Admiral Hill asserts that the passage of shipping against opposition has been the most important single type of sea use operation in the two major wars of the 20th century.⁷⁰ Consequently, medium power navies should address it as an element of higher level maritime operations. For the RAN, the importance that Corbett placed on maritime communications remains apposite. As an island, Australia is fundamentally dependent upon the sea for communications.⁷¹ To address this strategic reality, current RAN maritime doctrine upholds operations such as the interdiction of commercial shipping (to prevent an adversaries re-enforcement of resupply of deployed units), layered defence activities (such as convoy),

and the naval control of shipping as fundamental aspects of combat operations at sea.⁷²

To ensure the control of communications, Corbett proposed a number of concepts covering the conduct of naval war. He advocated both decisive battle⁶ and blockade as methods of securing command. For the latter he distinguished between close and observation blockades,⁷ arguing the utility of both against either naval or commercial forces. Apart from these offensive measures, Corbett also argued strongly for defensive measures. He maintained that defensive fleet operations such as a 'fleet in being' and 'minor counter attack' could be effective by holding command of the sea in dispute.⁷³ He further proposed that in exercising command of the sea, a fleet should target defence against invasion, the attack and defence of trade as well as the attack, defence and support of military operations.⁷⁴

Like Mahan, however, Corbett's warfare concepts have not escaped criticism. Some commentators suggest that Corbett fundamentally underestimated the impact of the submarine, the value of convoys and the effectiveness of a guerre-de-course strategy.⁷⁵ Despite these issues, Corbett clearly recognised the utility of both offensive and defensive operations, the importance of maritime trade, the requirement to defend the homeland and support army operations. Goldrick states that medium power navies 'need to develop and maintain the greatest possible range of capabilities to provide the balance necessary to protect against threats in the maritime environment and provide their governments with the widest range of options.'⁷⁷ Perhaps therefore the true relevance of Corbett's warfare concepts for medium power navies is that he presented a multi-faceted approach to the subject.

In summary, Corbett's theories

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of war, naval war and the conduct of naval war all contain concepts, which continue to hold relevance for medium power navies in the 21st century. Specifically, his views on maritime strategy, sea communications and naval war-fighting concepts appear as pertinent to modern medium power navies today as they were nearly a century ago.

CONCLUSION

A medium power navy seeks to employ sufficient naval capabilities to preserve its nation's vital interests at sea. To pursue this objective, a medium power navy requires a maritime strategy. Alfred Thayer Mahan and Sir Julian Corbett were among the very first who sought to establish the principles of maritime strategy. Both men aimed to demonstrate that 'sea power has been and would continue to be, very important for present and future developments'.⁷⁸

Over the years, Mahan's theories have been said to wear less well than Corbett's.⁷⁹ Mahan's studies of sea power and national greatness are indicative of this with their references to colonies and the dependent relationship between commerce and navies. However, for medium power navies in the 21st century, the value of these theories lies not in the attitudes of an imperial age, but rather in Mahan's attempt to define the relationship between a navy and its nation.

Mahan's exploration of naval strategy and naval warfare centred on the concepts of command of the sea and autonomous naval action. He viewed command of the sea as an absolute concept. It could only be achieved through decisive battle. Mahan also saw the primary function of navies was the protection of maritime commerce, yet he failed to value a *guerre de course* strategy. He also gave little credence to the utility of naval artillery and the

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relationship between navies and armies, or medium power navies, technological change and a doctrine of joint warfare have clearly impacted Mahan's tactical and operational applications of sea power.⁸⁰ However some of his principles, such as the concentration of force and offensive action at sea, are as relevant today as they were a century ago.

In contrast to Mahan, Corbett believed that it was 'on land that human destiny was decided and it was where they had an impact ashore that navies were most influential'.⁸¹ He considered that navies and armies were interconnected and hence discriminated between maritime strategy and naval strategy.

To Corbett, command of the sea was a relative concept. Its objective was the control of communications in a given theatre. This control could be secured by any number of offensive or defensive measures, though like Mahan, he underestimated the impact of submarines and the inherent benefits of a *guerre de course* strategy. In Corbett's concepts, medium power navies find the origins of terms such as joint warfare, power projection and sea control. Today, these concepts are embedded in the war-fighting doctrines of many medium power navies.

In the final analysis, this article has demonstrated that though Mahan and Corbett wrote their works many decades ago, a number of their concepts relating to maritime strategy and naval warfare continue to hold relevance for medium power navies, such as the RAN, in the 21st century.

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(Footnotes)

¹ Gooch, p. 33. Note: Mahan defined command of the sea as 'the possession of that overpowering power on the sea which drives the enemy's flag from it or allows it to appear only as a fugitive; and which by controlling the great common, closes the highway by which commerce moves to and from the enemy's shores'.

² Royal Australian Navy, p. 39. Sea control is defined as a condition, which exists when one has freedom of action to use an area of sea for one's own purposes for a period of time (sea assertion) and, if required, deny its use to an adversary (sea denial).

³ Gough, p. 56. Note: *guerre de course* is the attack of merchant shipping.

⁴ Etzold, p. 41. Note Mahan used the term 'fleet in being' to describe the defeated naval fleet following a contest for the command of the sea.

⁵ Joint Standing Committee on Foreign Affairs, Defence and Trade, *Inquiry into Australia's Maritime Strategy, Submission by the Australian Centre for Maritime Studies*, 4 Nov 2002, p 3 http://www.acmarst.com/parl_sub/sub_2002.htm. Note paper states that the Australian economy is both directly and indirectly totally dependent on the unhindered flow of trade by sea.

⁶ Corbett, p. 165. Note: Corbett said of decisive battle- 'Whatever the nature of the war in which we are engaged, whether it be limited or unlimited, permanent and general command of the sea is the condition of ultimate success. The only way of securing such a command by naval means is to obtain a decision by battle against the enemy's fleet. Sooner or later it must be done, and the sooner the better'. Refer to p 167 of above reference.

⁷ Gough, p. 59. Note: A close blockade aims to prevent an enemy from putting to sea. An observation blockade aims to draw the enemy's forces out to sea in order to combat them in a decisive battle.

(Endnotes)

¹ J.R. Hill, *Maritime Strategy for Medium Powers*, Croom Helm, London, 1986, pp. 17, 19, 20.

² *ibid*, pp. 21, 27.

³ *ibid*, p. 48.

⁴ J Goldrick, 'The Medium Power Navy in the 21st Century' *The Naval Review*, Vol 80 No 2, April 2002, p. 103.

⁵ Royal Australian Navy, *Australian Maritime Doctrine*, Canberra, 2000.

⁶ P Paret (ed), *Makers of Modern Strategy, from Machiavelli to the Nuclear Age*, Princeton University Press, New Jersey, 1986, p. 467.

⁷ B.R. Sullivan, 'Mahan's Blindness and Brilliance' *Joint Forces Quarterly Journal*, Spring 1999, p. 115.

⁸ B.M Gough, *Maritime Strategy: The Legacies of Mahan and Corbett as*

The relevance of classical naval strategists to the RAN in the 21st century

Philosophers of Sea Power, Royal United Services Institute for Defence Studies, Winter 1988, p. 56.

⁹ G Till, *Maritime Strategy and the Nuclear Age* (2nd ed), St Martin's Press, New York, 1984, p. 43.

¹⁰ A Dorman, M Smith, M.R.H. Uttley (eds), *The Changing Face of Maritime Power*, MacMillan Press, London, 1999, p. 59.

¹¹ Paret, p. 450.

¹² J Gooch 'Maritime Command Mahan and Corbett' in Colin Gray and Roger Barnett, *Sea Power and Strategy*, Tri-Service Press, London, 1989, p. 31.

¹³ T.H. Etzold, 'Is Mahan Still Valid?' *Naval Institute Proceedings*, August 1980, p. 38.

¹⁴ *ibid.*

¹⁵ W.D. Needham, 'Mahan?' *Naval Institute Proceedings*, January 1993, p. 44.

¹⁶ Gough, p. 56. Note Mahan viewed ships and bases as the instruments of war.

¹⁷ Paret, p. 451.

¹⁸ Etzold, p. 41.

¹⁹ Gough, p. 56.

²⁰ Bateman, W.S.G., Sherwood, R.J.

1992, *Principles of Australian Maritime Operations*, Working Paper No 265, ANU, Canberra.

²¹ Department of Defence 2000, *Defence 2000 Our Future Defence Force – Defence White Paper 2000*, AGPS, Canberra, pp 30-31 and 34.

²² Royal Australian Navy, p. 38.

²³ Hill, p. 81.

²⁴ Ritchie, C.A. 2003, United Services Institute Presentation, 6 Aug 03, p 5.

²⁵ Paret, p. 455.

²⁶ Gooch, p. 34.

²⁷ Paret, p. 455.

²⁸ Hill, p. 85.

²⁹ Royal Australian Navy, p. 57.

³⁰ Paret, p. 457.

³¹ *ibid.*

³² Gooch, p. 34.

³³ Royal Australian Navy, p. 22.

³⁴ Paret, p. 458.

³⁵ *ibid.*

³⁶ *ibid.*

³⁷ Hill, p. 142.

³⁸ *ibid.*, p. 143.

³⁹ *ibid.*

⁴⁰ Paret, p. 459.

⁴¹ Paret, p. 459.

⁴² Royal Australian Navy, p. 57.

⁴³ Paret, p. 461.

⁴⁴ *ibid.*

⁴⁵ *ibid.*

⁴⁶ *ibid.*, p. 460.

⁴⁷ *ibid.*

⁴⁸ *ibid.*, p. 461.

⁴⁹ Royal Australian Navy, p. 57.

⁵⁰ Goldrick, p. 103.

⁵¹ Etzold, p. 43.

⁵² Sullivan, p. 118.

⁵³ Dorman, Smith, & Uttley, p. 19.

⁵⁴ Gough, p. 58.

⁵⁵ Dorman, Smith, & Uttley, p. 5.

⁵⁶ Corbett, J.S. 1911, *Some Principles of Maritime Strategy*, United States Naval Institute Press, Annapolis, Maryland 1988, originally published by Longmans Green and Co., London 1911, p. 15.

⁵⁷ Dorman, Smith, & Uttley, p. 29.

⁵⁸ *ibid.*, p. 19.

⁵⁹ Corbett, p. 16.

⁶⁰ *ibid.*, p. 15.

⁶¹ *ibid.*, p. 15.

⁶² Dorman, Smith, & Uttley, p. 20.

⁶³ Note BR 1806 is the 'Fundamentals of British Maritime Doctrine.'

⁶⁴ Dorman, Smith, & Uttley, p. 59.

⁶⁵ Royal Australian Navy, p. 47.

⁶⁶ Corbett, p. 91.

⁶⁷ *ibid.*, p. 94.

⁶⁸ *ibid.*, p. xx.

⁶⁹ Gough, p. 59.

⁷⁰ Hill, p. 137.

⁷¹ Royal Australian Navy, p. 45.

⁷² Royal Australian Navy, p. 58.

⁷³ Corbett, p. 209.

⁷⁴ *ibid.*, p. 166.

⁷⁵ Gough, p. 60.

⁷⁶ Gooch, p. 44.

⁷⁷ Goldrick, p. 109.

⁷⁸ *ibid.*, p. 1.

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⁸¹ *ibid.*, p. 186.

**HMAS ANZAC's
forecastle during
deployment in the
Southern Ocean**



In what major ways did the shift from sail to steam transform the strategy of war at sea?

LIEUTENANT COMMANDER SCOTT M RITCHIE, RAN

The adoption of steam on the warship during the nineteenth century changed the whole geography of maritime strategy. There had been no revolution of such consequence since the displacement of the galley by the sailing ship.¹

The transitional period from sail to steam propulsion at sea was a long-drawn-out one, covering the majority of the nineteenth century. During this unique episode in maritime history, the warship experienced an extraordinary degree of technical change that progressed at a slow, yet steady and continuous, pace:

The slow death of masts, yards and sails seems, in retrospect, to be the classic anachronism of the times. In fact the [British] Admiralty, given its matchless reputation as an opponent of innovation, was not slow to adopt steam as an auxiliary form of propulsion. ... Dispensing with sails, however, proved a protracted business.²

There were many practical problems that made the adoption of steam very slow. Early maritime engines were big, rudimentary and inefficient, consuming large amounts of coal. Consequently, initial endeavours to power conventional wooden warships were viewed sceptically. Thus, there emerged an apparently unattainable crusade for a warship featuring:

- a hull big enough to carry an engine powerful enough to provide sufficient thrust to move such a hull, plus
- storage-space for fuel, plus
- a power-drive – paddle or screw – that would not impair the ship's sailing qualities, plus
- orthodox armaments, hold, magazines, and living-space.

These requirements go some way to explain why steam was initially seen

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HMS Warrior marked a turning point with her iron hull and armour. Powered by both steam and sail, she featured a citadel - an armoured turret housing guns

only as an auxiliary source of power.³ However, the sine qua non was the complete substitution of sail by steam in the last 40 years of the century.⁴

The shift from sail to steam had a polemic transformative effect on the strategy of war at sea. While much has been written on the factual aspects of the technological changes that ensued,⁵ little critical thought has been given to the strategic impact that this period in maritime history brought to bear. Portentous changes in platform capability do not adequately address the effects on the strategy of war at sea.⁶ Moreover, while this period of change brought with it a number of other innovations, which in themselves had their operational effects and revolutionised naval warfare,⁷ most notably hull design and armament,⁸ it is the method of propulsion that fetched in a new era of naval and maritime strategy.⁹

The aim of this paper is examine the major ways that the shift from sail to steam transformed the strategy of war at sea. To achieve this aim, the paper will firstly consider the concept

of strategy and its context, thereby drawing a clear distinction between strategy and tactics. It will then go on to discuss the interaction between the technological developments that transpired, and the evolution of tactics and strategy. Finally, the essay will consider the development of strategy by the Royal Navy as the dominant naval force and the only world power during the nineteenth century and the movement from the Age of Sail to the Age of Steam.

STRATEGY AND ITS CONTEXT

Strategy, narrowly defined, means 'the art of the general' (from the Greek *strategos*). In a strictly military sense, the term first gained currency at the end of the eighteenth century, when warfare was still relatively simple and limited. The art of fighting itself continued to carry the name tactics, whereas that of making the fight take place under the most favourable circumstances, as well as utilising it after it had taken place, was given the name of strategy. Since then, the terms tactics and strategy have usually marched together, but over time each has attained both a prescriptive and a descriptive meaning.

In its military aspect, the term had to do with stratagems by which a general sought to deceive an enemy - with plans he made for a campaign, and with the way he moved and disposed his forces in war. Frequently defined as the art of projecting and directing campaigns, military strategy came to acquire almost the whole field of generalship (short of the battlefield itself), including the planning of naval warfare.

In warfare theory, strategy and tactics have generally been put into separate categories. The two fields have traditionally been defined in terms of different dimensions: strategy dealing with wide spaces, long periods of time,

In what major ways did the shift from sail to steam transform the strategy of war at sea?



The free-flooding monitor *USS Monadnock* in 1901 – many and varied were the types of design experimented with before the dreadnought defined the look of the successors to the wind-powered warship

and large movements of forces; tactics concerned with the opposite. Strategy is usually understood to be the prelude to the battlefield, and tactics the action on the battlefield itself. To tactics, military jargon reserved the art of executing plans and handling forces in battle. Although in theory strategy continues to occupy a middle ground between national policy and tactics, in practice the line dividing it from the other two fields has become difficult to draw.

Historically, the theoretical strategic application of the naval power of maritime nations has been geared towards the principle of achieving command of the sea by performing several functions:¹⁰

- maintenance of a superior fighting fleet either:
- to seize command of the sea (active force during wartime), or
- to deter an enemy from attempting to control the sea (passive force during periods when no declared war exists);
- defending against invasion;
- protecting maritime commerce by preserving sea lines of

communication;

- blockading the enemy coast either directly or indirectly;
- engaging in combined, amphibious operations; and
- providing strategic bombardment (or naval gunfire support).

Thus, naval strategy is taken to be a practical issue, concerned with the 'broad and comprehensive direction of ships and weapons to achieve specific practical and political ends through forceful control.'¹¹ With the advent of steam, these strategic applications of naval power took on greater significance warranting consideration of the interaction between technology, tactics and strategy.

Technology, Tactics and Strategy

As opined by Castex, 'the influence of geography on operations is not a constant but evolves with technical change.'¹² The history and strategy of maritime empires have been shaped not only by geography and men, but by naval technology as well. Indeed, it is arguable that the mere existence of a navy is testimony to civilisation and

its growing technology.¹³ Thus, the technological development of the ship has been flagged by the means of its propulsion, but not its weaponry:¹⁴ the Age of Galleys (2500 BC – 1571 AD); the Age of Sail (1200–1850); the Age of Steam, Ironclads and Steel (1815–1905); and the Modern Age (1906 – Present).¹⁵

By the middle of the seventeenth century, guns arrayed along the sides of fighting ships were the critical weapons. Heavy guns required a gun deck and a short, sturdy hull, which were at odds with the galley's requirements of lightness and length. Thus, the shift to sail was a victory of fighting strength over manoeuvre. Tactically, sailing navies became victims of the wind's whim,¹⁶ but strategically they benefited from nearly limitless range and, compared to the frail galleys, greatly improved seaworthiness. In the decades leading up to the Age of Steam, there had been notable advances in the speed, size and manoeuvrability of the sailing ship, but the new principle of mechanical propulsion was ushering in a dynamic transformation.¹⁷

Technology, tactics and strategy complement one another, and there is no better period in history for studying their interrelationship than the shift from sail to steam in the nineteenth century. The shell gun, which was raised to naval attention during the Crimean War by the Battle of Sinope (1853), compelled navies to adopt the iron sheathing of hulls. This pointed the way to all-metal hulls – iron, then steel – which in turn both permitted and demanded as a response the installation of rifled, breech-loaded guns of major calibre. Concurrently, iron boilers and screw propellers made steam propulsion practical and provided a new freedom of manoeuvre.¹⁸ Navies were unfettered tactically from the wind, but at the strategic price of having to remain within steaming range of coaling

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The High Seas Fleet led by *Blücher*

stations.¹⁹ As Castex surmised:

The influence of the land on the sea is not, then, an empty one. It has been increased, moreover by technical developments. In the days of sail, the superior fleet could maintain its pre-eminent situation, even on the coasts of a belligerent having a geographical advantage, much longer than at present. Because his range of action was limited, his mastery had a more permanent character.²⁰

Unfortunately, the sweeping consequences of these and other technological innovations lacked the crucible of war in which to test them,²¹ for it was an era of *Pax Britannica*,²² with the maritime peace kept by the Royal Navy through its presence in each major region of the globe: the Baltic, the North Sea, the Mediterranean and North Africa, the Middle East, the African sea route to India, the Orient and the Western Hemisphere.²³

The American naval strategist Alfred Thayer Mahan made perhaps too much of the influence of technological progress on tactics. In his seminal *The Influence of Sea Power upon History, 1660-1783* (1890), he wrote that, due to new fighting systems, 'from time to time the structure of tactics has to be wholly torn down but the foundations of strategy so far remain, as though laid upon a rock.'²⁴ Mahan appreciated the utility of naval history for the discovery of strategic constants – that is, principles of strategy that have remained valid throughout technological change. Nevertheless, it is worth noting Castex's view that 'one must not overly denigrate technology, because it is one of the pillars of tactical success, itself such an important contributor to strategy.'²⁵

The influence of the land on the sea is not, then, an empty one. It has been increased, moreover by technical developments

Both naval tactics and naval strategy were profoundly affected by the advent of the steamship. Ships conducting ocean crossings could now proceed in a direct line instead of in deviations determined by the winds or by seasonal activity.²⁶ Tactics, which had previously been subjugated by the direction and strength of the wind, required complete revision to take account of changes in endurance, range and general navigational capabilities. Strategically, it demonstrated the steamship's ability to arrive at its destination at a time planned in advance.²⁷

However, against these positive gains must be measured its drawbacks, for while steam propulsion conferred new strength and speed to manoeuvrability on the seas, the logistical necessity of ensuring that the fleet was supplied with fuel served as a considerable constraint upon it. Hence, the battle fleet became more reliant upon its base, which in turn tapered its range of action, though it could be argued that bases return some of the endurance that warships lost as a result of the shift from sail to steam.²⁸ As an aside, this change benefited the defensive strengths of powers that were separated from their rivals by wide oceans, thereby favouring the contemporaneous aspirations of the United States. Britain resolved the problem of range by establishing coaling bases all over the world.²⁹

By contrast, van Creveld suggests that whilst each successive iteration of the steam-powered warship built after 1870 provided tactical superiority over its predecessors, strategically 'a navy made out of ironclads was rather less flexible ... than one composed of sailing men-of-war.'³⁰ Moreover, technological change offered strategic benefits to a potential enemy, particularly in counteracting a blockade or commerce raiding – unlike their predecessors, steam warships were not constrained by the weather and could more freely

choose a time to avoid or engage a blockading squadron; similarly, steam merchant ships were not bound to fixed routes, so could be diverted if necessary.³¹

DEVELOPMENT OF BRITAIN'S STRATEGY OF WAR AT SEA

Britain's approach to war at sea was as much 'accidental and as much the product of basic geography as it was the result of a carefully and consciously thought-out grand strategy.'³² Accordingly, her maritime strategy varied from attempts on Spanish bullion fleets, to concentration on total destruction of the enemy's navy and merchant shipping, to the seizure of colonies or raids and limited interventions against the European coastline.³³

During the naval wars in the Age of Sail, few regarded strategy as a separate concept; it was practiced 'as if it were part of one great continuum.'³⁴ However, naval strategy was acutely affected by changes in the balance of power and the technological advances made during the nineteenth century. For example, during his tenure as Prime Minister of Great Britain (1828-30), the Duke of Wellington was sufficiently concerned about the increased threat of invasion by the 'newfangled steamships' that he ventured the opinion on one occasion that the Royal Navy should concentrate its strategic thinking on defence.³⁵ Concern about the impact of steamships on naval warfare had also been heightened by Captain John Ross' *A treatise on navigation by steam...* (London, 1828) in which he argued that they would enable the least maritime of nations to undertake naval wars because they would be able to train their navies in their own rivers and harbours. He speculated that warfare at sea would become very similar to warfare on land.³⁶

After an interval of nearly half a

In what major ways did the shift from sail to steam transform the strategy of war at sea?



HMS Dreadnought – her new design made every other major battleship obsolete

century since the Napoleonic Wars (1793-1815), the hostile attitude of France caused British citizens once more to arm for the protection of their country. The British army and navy had declined in strength and efficiency. While, France, on the other hand, by the energetic development of her military and naval power and the early application of steam to ships of war, brought the possibilities of the invasion of England in 1846 within measurable distance.³⁷

With the advent of steam power, however, ships could now approach the British home islands without regard to the prevailing winds. As Lord Palmerston reported to the House of Commons in 1845, 'Steam navigation has rendered what was before impassable by a military force nothing more than a river passable by a steam bridge.'³⁸ The Duke of Wellington seconded this thought in 1847, when he declared that '[i]n the event of war, every part of our coast ... is open to attack.'³⁹ What is now often forgotten, and in fact took some time to realise then, was that the application of steam power on land also reduced the probability of the Royal Navy successfully intercepting an invasion fleet. As a consequence, Britain established a steam harbour at Alderney, the advanced post for blockading squadrons, and the assembly point for coast assault forces built around steam gunboats and steam block ships armed with improved heavy artillery.

In the early stages of the Age of Steam (1815-1854), the Royal Navy

underwent a significant transformation, although Mahan advocated that while there was ultimately a 'definite parting with sails as the motive reliance of a ship-of-war', the period 'was characterized by an extreme conservatism, which then was probably judicious, and certainly represented the naval opinion of the day.'⁴⁰ The British Admiralty was focussed on 'various imperial enterprises around the world and on the more practical consequences of the contemporary struggle between sail and steam', with 'little real thinking about the future of maritime strategy.'⁴¹ Initially comprising a variety of sailing vessels, a legacy of the Napoleonic Wars, by 1854 the fleet included 'numerous steam driven, paddle propelled sloops and frigates while the main fighting force comprised frigates and ships of the line equipped with auxiliary steam engines driving screws.'⁴² At the end of the Crimean War with Russia (1854-6), the British fleet had been bolstered by steam driven armoured floating batteries and numerous screw propelled steam gunboats, marking the beginnings of a modern navy.⁴³ The important contribution of the paddle propelled ships (and then subsequently the new steam screw battle fleet) to strategy in the period before the Russian war cannot be underestimated:

They had carried out many functions, within their limitations, patrols against the slave trade, service as fast despatch boats, as a highly mobile presence to reinforce diplomacy at times of tension. Above all, they gave a degree of mobility which no ship of war had ever had before to the great sailing squadrons which survived from an earlier era ... Vital also was the role of the steam frigate in amphibious warfare, troop landing and reconnaissance.⁴⁴

While there is an absence of policy documentation to support these overtures,⁴⁵ the change in strategic



HMS Warrior

With the advent of steam power, however, ships could now approach the British home islands without regard to the prevailing winds

concepts is evidenced by the evolution in ship design. Andrew Lambert has argued that during the period from 1856 to 1914, there was an increase in the strategic significance of sea power, with coastal warfare dominating naval policy.⁴⁶ He argues that the design of British ships from 1815 to at least 1889 underscored the fact that they were built to undertake offensive operations against fortresses in aid of amphibious operations. This was a result of a British grand strategy intended to deny any opponent the use of the sea by destroying its ports and to force it to defend them in such strength as to tie up large amounts of troops.⁴⁷

This view is supported by the fact that steam, armour and long-range guns now made possible the capture of previously unassailable forts, the use of rivers, and exposed enemy fleets to destruction in defended harbours.⁴⁸

CONCLUSION

It would be trite, but somewhat remiss, not to conclude that naval strategy during the Age of Sail was necessarily dominated by weather and geography. As the Age of Sail submitted to a period of increasing technological change, the threat of French advancements and innovations became the catalyst that motivated the modernisation of naval warfare. While a technological revolution, the shift from sail to steam manifested itself at a considerably slow pace, particularly in contrast with the transformations in the future. By the mid-nineteenth

century, steam had presaged a new dimension to the strategic and tactical mobility of sea power.

As the sun was beginning to set on the Age of Sail, the strategy of war at sea was in its relative infancy – warfare was simple and limited in its extent. The majority of intellectual rigour was applied to tactics. With the introduction of the steamship, greater strategic thought began to be applied to the principle of achieving command of the sea through the performance of several functions, including the maintenance of a superior fighting fleet and defence against invasion. Technological changes in speed, size and manoeuvrability of the sailing ship through the shift to steam provided a new freedom of manoeuvre and tactics, which gradually impacted on naval strategy. The new strategy of war at sea had to factor in logistical constraints that had hitherto been unknown.

These technological changes had a particularly profound impact on the development of Britain's strategy of war at sea. Although much of its historical naval strategy was a product of geography and its place in the world as a maritime nation, the critical changes in the balance of power resulting from the shift to steam meant that considerable thought needed to be given to defending against invasion. At the same time, the steamship was beginning to reveal its unique strategic capabilities in the conduct of amphibious operations and coastal warfare. Yet, the development of theoretical strategic thought about the war at sea remained largely untested throughout the shift from sail to steam. It was not until steam had completely replaced sail as the means of propulsion that naval strategy was put to the acid test, by which time, further significant technological changes had had their impact not only on tactics but further transformed strategy. ➤

LCDR Ritchie completed the Australian Command and Staff Course in 2003.

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² Gordon, Andrew, *The Rules of the Game: Jutland and British Naval Command*, John Murray (Publishers) Ltd, London, 1996, p. 165.

³ Humble, Richard, *Before the Dreadnought: The Royal Navy from Nelson to Fisher*, Macdonald and Jane's Publishers, London, 1976, pp. 50-1.

⁴ Brock, P.W. and Basil Greenhill, *Steam and Sail: In Britain and North America*, David & Charles, Newton Abbot, 1973, p. 9.

⁵ See, eg. Brown, D.K., 'Wood, Sails and Cannonballs to Steel, Steam and Shells' in J.R. Hill, ed., *The Oxford Illustrated History of the Royal Navy*, Oxford University Press, Oxford, 1995; George, James L., *History of Warships: From Ancient Times to the Twenty-First Century*, Naval Institute Press, Annapolis, 1998; Lyon, David, *The Ship: Steam, Steel and Torpedoes: The Warship in the 19th Century*, Her Majesty's Stationery Office, London, 1980.

⁶ Cf Youseman, Nick, 'Sail to Steam and its Impact on the Strategy of War at Sea', *Journal of the Australian Naval Institute*, No. 107, Summer 2003, pp. 24-30.

⁷ Hill, J.R., 'Accelerator and Brake: The Impact of Technology on Naval Operations, 1855-1905', *Journal for Maritime Research*, December 1999.

⁸ Van Creveld, Martin L., *Technology and War: From 2000 BC to the Present*, The Free Press, New York, 1989, p. 199. See also Hill, 'Accelerator and Brake: The Impact of Technology on Naval Operations, 1855-1905'.

⁹ One should be careful to distinguish between 'naval' strategy – the study of sea power alone – and 'maritime' strategy – the study of sea power in connection with military strategy and foreign policy: Neilson, Keith and Elizabeth Jane Errington, eds., *Navies and Global Defense: Theories and Strategy*, Praeger Publishers, Westport, 1995, p. 2.

¹⁰ Reynolds, Clark G., *Command of the Sea: The History and Strategy of Maritime Empires*, William Morrow & Company Inc, New York, 1974, pp. 12-13.

¹¹ Neilson and Errington, eds., *Navies and Global Defense: Theories and Strategy*, p. 52.

¹² Castex, Raoul, *Strategic Theories* (Eugenia C. Kiesling trans, first published 1931-39), Naval Institute Press, Annapolis, 1994 [translation of: *Théories stratégiques*], p. 281.

¹³ Reynolds, *Command of the Sea: The History and Strategy of Maritime Empires*, p. 9.

¹⁴ George, *History of Warships: From*



18th century naval gun

Ancient Times to the Twenty-First Century, p. 281.

¹⁵ *Ibid*, p. 274.

¹⁶ Rodger, N.A.M., 'Weather, Geography and Naval Power in the Age of Sail', *The Journal of Strategic Studies*, Vol. 22, Nos. 2/3, June/September 1999, p. 178.

¹⁷ Moyse-Bartlett, H., *From Sail to Steam: The Final Development and Passing of the Sailing Ship*, The Historical Association, London, 1968, p. 5.

¹⁸ *Ibid*, p. 17.

¹⁹ Castex, *Strategic Theories*, p. 281.

²⁰ *Ibid*, p. 284.

²¹ Lyon, *The Ship: Steam, Steel and Torpedoes: The Warship in the 19th Century*, p. 7.

²² Van Creveld, *Technology and War: From 2000 BC to the Present*, p. 203; George, *History of Warships: From Ancient Times to the Twenty-First Century*, p. 275; Youseman, 'Sail to Steam and its Impact on the Strategy of War at Sea', p. 25.

²³ Reynolds, *Command of the Sea: The History and Strategy of Maritime Empires*, p. 332.

²⁴ Till, Geoffrey, *Maritime Strategy and the Nuclear Age* (2nd ed), MacMillan, London, 1984, p. 33.

²⁵ Castex, *Strategic Theories*, p. 331.

²⁶ Rodger, 'Weather, Geography and Naval Power in the Age of Sail', p. 191.

²⁷ Brown, 'Wood, Sails and Cannonballs to Steel, Steam and Shells', p. 204.

²⁸ Till, *Maritime Strategy and the Nuclear Age*, p. 87.

²⁹ Brodie, *From Crossbow to H-Bomb*, pp. 153-4.

³⁰ Van Creveld, *Technology and War: From 2000 BC to the Present*, p. 203.

³¹ Till, *Maritime Strategy and the Nuclear Age*, pp. 42, 126.

³² Neilson and Errington, eds., *Navies and Global Defense: Theories and Strategy*, p. 28.

³³ *Ibid*.

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³⁵ Jupp, P., *The foreign policy of Wellington's government, 1828-30*, http://www.archives.lib.soton.ac.uk/wellington/pdfsforall/pol_jupp_ed.pdf, p. 7.

³⁶ *Ibid.*, p. 15, f42.

³⁷ Sondhaus, Lawrence, *Naval Warfare, 1815-1914*, Routledge, New York, 2001, p. 38.

³⁸ Brodie, *From Crossbow to H-Bomb*, p. 156.

³⁹ See Neilson and Errington, eds., *Navies and Global Defense: Theories and Strategy*, p. 79.

⁴⁰ Mahan, Alfred Thayer, *From Sail to Steam: Recollections of Naval Life*, Da Capo Press, New York, 1968, p. 25. See also Brown, 'Wood, Sails and Cannonballs to Steel, Steam and Shells', p. 211.

⁴¹ Till, *Maritime Strategy and the Nuclear Age*, p. 24.

⁴² Greenhill, Basil and Ann Giffard, *Steam, Politics and Patronage: The Transformation of the Royal Navy 1815-54*, Conway Maritime Press, London, 1994, p. 24.

⁴³ But see George, *History of Warships: From Ancient Times to the Twenty-First Century*, p. 66.

⁴⁴ Greenhill and Giffard, *Steam, Politics and Patronage: The Transformation of the Royal Navy 1815-54*, p. 226.

⁴⁵ Hill, 'Accelerator and Brake: The Impact of Technology on Naval Operations, 1855-1905'.

⁴⁶ See Neilson and Errington, eds., *Navies and Global Defense: Theories and Strategy*, p. 78.

⁴⁷ *Ibid.*, p. 3.

⁴⁸ Lambert, Andrew, 'The Shield of Empire, 1815-1895' in J.R. Hill, ed., *The Oxford Illustrated History of the Royal Navy*, Oxford University Press, Oxford, 1995, p. 189. See also Lambert, Andrew, *War at Sea in the Age of Sail: 1650-1850*, Cassell, London, 2000, pp. 209-10; Sondhaus, *Naval Warfare, 1815-1914*, p. 36.

Op Slipper - HMAS CANBERRA

Boarding Team members practicing fast roping from 02 deck. Photograph by LSPH Damian Pawlenko



Does the International Port Facility (ISPS) Code adequately address post-11 September 2001 maritime security threats from ships and ships crews?

BY LCDR PETER THOMPSON

September 11 2001 provided a watershed in maritime security. The IMO sought to address the terrorist treat by the introduction of the International Ship and Port Facility (ISPS) Code in order to protect the complex, polyglot world of maritime trade while permitting the continuance of an efficient maritime industry that seeks to support the world's trade demands.

Terrorists have used the complex world of ship ownership to both support and finance their activities for many years and provide the most significant threat to maritime security. The worst case maritime security scenario is the potential for terrorists to use shipping containers to deliver a weapon of mass destruction into a major international port.

The ISPS Code consists of both mandatory requirements and broad guidance to allow Contracting Governments, coastal States and ship owners to meet their obligations under the Code and thus improve maritime security. However, shortcomings of the Code include the exclusion from the Code of vessels under 500 tonnes and a failure to address cargo security. Additionally, considering the poor record of flag of convenience nations in enforcing maritime safety standards it is likely that the IMO will not be able to achieve ISPS Code compliance due to a lack of enforcement powers.

Despite the lack of IMO power to enforce the Code a number of nations, notably the USA, have taken a firm line on enforcing the Code. The US has initiated a number of complementary initiatives and is using market forces and access to the US economy as a method of ensuring broad compliance

*September 11
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a watershed in
maritime security*



with the ISPS Code to ensure it addresses the maritime security threat.

The events of 11 September 2001 (9/11) provided a watershed in the way that international security was controlled. With the prospect of more 9/11 attacks a possibility the international community, and in particular the United States, focused on developing worst case scenarios and began developing measures to counter the threat of mega-terrorism. The International Maritime Organisation (IMO) was quick to respond to this new threat and on 12 December 2002 published the International Ship and Port Facility Security (ISPS) Code. However, the IMO by its own charter is unable to enforce the ISPS Code by any method thus can the Code be effective in addressing the threat posed to maritime security?

This essay will examine the effectiveness of ISPS Code in adequately addressing post-9/11 maritime security threats from ships and ships crews. First I will examine the threat posed by maritime environment and the maritime security threat. While maritime

USS Cole. Source: U.S. Navy photo by Photographer's Mate 2nd Class Leland Comer.

security threat can be considered to include both terrorist and criminal activity I will limit this examination to the terrorism as it presents the most pressing and potentially damaging threat to maritime trade. I will then discuss the ISPS Code and its strengths and limitations before examining US initiatives to further reduce the security threat.

THE MARITIME ENVIRONMENT

The international maritime industry consists of 6500 ports and harbours, 112 000 merchant vessels, 1.2 million crewmembers and 36 000 shipping companies and businesses. Maritime trade has been at the heart of economic prosperity and advancement during the later part of the twentieth century. The development of the global market to meet the insatiable demand for raw commodities and consumer goods has seen a dramatic growth in merchant fleets. Coupled with economic growth

Does the International Port Facility (ISPS) Code adequately address post-11 September 2001 maritime security threats from ships and ships crews?

has been the increased efficiency of modern industry practice that is wholly focused on minimal inventory holding to support production. This demand for just-in-time logistics has necessitated the development of a fast, effective and near-frictionless transport system.¹ The US *Secure Seas, Open Ports* policy states that 'the goal is to find the appropriate balance between security and freedom – between inspecting every container and keeping trade moving'.² Thus, to be effective the ISPS Code must address the need to provide security while enabling the continuance of effective international trade.³

The world of ship ownership provides a high level of complexity to the issue of maritime security enabling motives, identity and ownership to be concealed. The 'Corporate Veil' of ship ownership is enabled by the use of flags of convenience and often hides the real owners of ships. These flags of convenience provide to ship owner's cheap and quick registration of vessels with less stringent enforcement of crewing regulations and safety requirements. Flags of convenience have provided ship owners, both legitimate and otherwise, the opportunity to pursue their interests with anonymity. Likewise it has provided terrorists and criminals concealment while permitting them to pursuing their goals. In order to address the security issue it is critical for authorities and counter-terrorism agencies to be able to lift the corporate veil to uncover the true origins and operations of vessels.⁴

One of the corner stones of the international maritime trade is the humble shipping container of which there are an estimated 18 million around the world.⁵ These containers are designed to minimise handling at port facilities thus increasing throughput of cargo and vessels to meet the increasing global demand for trade. However this

increase in efficiency has lead criminal elements to use the anonymity of contents and corruption at ports to use the shipping container as a vector for illicit goods.⁶ The use of maritime trade to facilitate crime is a significant concern however the nightmare scenario is a terrorist organisation using the humble shipping container to transport arms, people or a weapon of mass destruction (WMD) into a port in order to conduct an attack.

THE THREAT OF MARITIME TERRORISM

The sheer size, ubiquity and polyglot nature of maritime trade provides terrorists with opportunity to strike deep into the centre of the target nations economic, political and psychological heart. In order to achieve their strategic ends terrorists may seek to use the sea in five ways:

- Use a vessel as a means to facilitate terrorism,
- Use a vessel as a weapon,
- Use a vessel as a bomb,
- Use a vessel as a disruption tool, or
- Make a vessel a target.⁷

While all these methods are feasible it is the first and last of these that have been seen most often.

The veil of ownership has permitted terrorist organisations to own and operate merchant vessels as apparently legitimate businesses while using their ships to provide revenue by the carriage of legitimate or illicit cargo. Terrorists have frequently made use of the maritime industry to support revenue-raising activities such as narcotics smuggling as well as the movement of weapons and personnel. In 1997 the Tamil Tigers (LTTE) was able to have one of its own vessels contracted to ship 32 000 mortar bombs ordered by the Sri Lankan Army; not surprisingly

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the mortars were not delivered to their intended owners.⁸ In 2004 *Time* reported a significant connection between Al Qaeda and an Afghan tribal leader involving a fleet of cargo vessels shipping heroin from Pakistan to Europe and returning with weapons and explosives for Al Qaeda.⁹ Similarly, *The Washington Post* reported Al Qaeda as owning of fifteen cargo vessels which are used regularly to ship narcotics from Pakistan to Europe to provide finance for operations.¹⁰

Several terrorist organisations have shown both the willingness and capability to attack vessels and offshore facilities. While LTTE has used suicide bombers to sink several Sri Lankan Navy ships it is the attacks against *USS Cole* and *MV Lindberg* in Yemeni waters in 2000 and 2002 respectively and the attempted suicide attack on two Iraqi offshore oil terminals in April 2004 that are most widely known.

As a weapon or a bomb a ship could be hijacked and rammed into a bridge or significant port facility. One potential terrorist method is to use a ship such as a LPG/LNG carrier as a bomb to attack a major port or city. While the stored energy potential of such a vessel is enormous the method of cargo carriage make the explosive potential low. A more likely target would be a LPG/LNG terminal. As a tool of disruption terrorists could use a hijacked vessel to block an international strait such as the Malacca or Singapore Strait by either sinking or deliberately grounding the vessel in the shipping channel. While none of these three methods have been used successfully it is probable that they are under consideration by a terrorist organisation seeking an economically significant and symbolic target to strike.

THE ISPS CODE: STRENGTHS AND LIMITATIONS

The ISPS Code was conceived in

London in November 2001 when the Assembly of the IMO unanimously agreed to develop measures to ensure the continuing safety of ships and port facilities by use of what is essentially a risk management activity.¹¹

THE OBJECTIVES OF THE ISPS CODE ARE:

- To establish a framework involving co-operation between Governments, local administrations and the maritime industry to detect security threats and take preventative measures against incidents affecting ships or port facilities used in *international trade*
- To establish the respective roles and responsibilities of Governments, local administrators and the maritime industry for ensuring maritime security
- To ensure early and efficient collection and exchange of security-related information
- To provide a methodology for security assessments of plans and procedures, and
- To ensure confidence that adequate and proportionate maritime security measures are in place.¹²

The Code was implemented through chapter XI-2 of the International Convention for the Safety of Life at Sea (SOLAS) and consists of two sections. Part A of the ISPS Code lays out mandatory requirements while Part B provides guidance on the establishment and implementation of the measures at Part A. Due to the ISPS Code being incorporated as part of SOLAS only the 148 nations which are Contracting Governments to SOLAS are bound by its regulations.

The ISPS Code is applicable to vessels of greater than 500 gross tonnes on international voyages, mobile offshore drilling units and port facilities servicing ships on international voyages.

The ISPS Code is not applicable to vessels less than 500 gross tonnes, warships, naval auxiliaries or other ships owned and operated by a Contracting Government nor is it applicable to ports that are not primarily used by vessels on international voyages.¹³ Critically this limitation excludes many fishing vessels and other small merchant vessels that routinely operate internationally in Southeast Asia likewise it does not include other small vessels such as large motor yachts with the capability of being used on international voyages.¹⁴

While the exclusion of these tens of thousands of vessels is a significant inhibitor to the effectiveness of the ISPS Code it should be considered that the inclusion of all vessels with the ability to be used internationally would render the ISPS Code almost unmanageable for flag states. To overcome this shortcoming some nations, notably Singapore, have introduced additional measures to ensure near ISPS Code levels for vessels which are below the 500 tonnes threshold.¹⁵ Thus the application and effectiveness of the Code is limited due to its limited application, however can be bolstered by due diligence and legislation by the coastal state.

The ISPS Code details three levels of security. Security Level 1, which must be maintained at all times, provides the *minimum* level of security at which a ship or port facility can operate. Security Level 2 provides *additional* protective security measures to facilitate a greater level of security in the event of a heightened security risk being identified. Security Level 3 is the highest level and is used in the event that a security incident is *probable or imminent* although it may not be possible to identify the specific target.¹⁶ By providing three broad and generic security levels the ISPS Code permits the development of plans both generic and specific to meet security threats.

Under the ISPS Code all ships and port facilities are required to have a security plan which details the actions required by the three Security Levels. Contracting Governments are responsible for approving ship security plans (SSP) and port facility security plans (PFSP). While it is reasonable for the IMO to pass the responsibility for approving PFSP to Contracting Governments it is difficult to imagine that all states will provide the level of oversight to PFSPs that will ensure the maintenance of high security standards over a long term. This will be particularly the case with nations with high levels of crime and corruption. This said the strong line taken by the US in attempting to maintain international PFSPs will be addressed later.

Companies operating ships are required to have a dedicated Company Security Officer (CSO) who is responsible for conducting ship security assessments (SSA). Onboard each ship will be required to have a designated Ship Security Officer (SSO) who will be responsible to the master for the implementation of the SSP. With consideration of the oversight currently provided by many maritime companies and masters to matters related to upkeep and safety it is feasible that the issue of ship security will quickly be overridden by the same commercial and profit motives that see many companies ignore the prudent maintenance of their vessels. Again it is probable that international rather than flag state attention will force the less diligent to comply fully with the Code.

The ISPS Code as it relates to port facility security is similar in structure to that required of ships in that it requires security plans, monitoring, access control, training and supervision. Likewise the Code requires the conduct of a security audit process but unlike ship assessments the port assessments are required to be conducted by

Several terrorist organisations have shown both the willingness and capability to attack vessels and offshore facilities

Does the International Port Facility (ISPS) Code adequately address post-11 September 2001 maritime security threats from ships and ships crews?

the Contracting Government or an authorised security organisation. Thus the audit process for port facilities *should* be more rigorous and less vulnerable to a lack of proper oversight than the ship audit process provided the Contracting Government pursues its responsibilities with vigour.

Perhaps mindful of the potential for security operations to adversely affect trade the ISPS Code for port facilities clearly states that security procedures are to be applied in such a way as to cause minimum interference or delay to passengers and cargo operations.¹⁷ This requirement could potentially bring conflict between the requirements of commercial trade and the requirement to maintain security. For example the eleven-day shut down of twenty-nine major US ports in 2002 is estimated to have cost around US\$467 million. However, by contrast the cost of a major terrorist attack on a US port with the global delays in shipping and lost trade would reasonably amount to an order of magnitude more than this.¹⁸ It could be argued that this economic rationalism, particularly in privately operated ports or developing economies could lead to port operators down playing threats or reducing security in order to minimise disruption and maintain productivity.

Like any security regime the provision of adequate and appropriate training is critical for its success. In an attempt to meet this requirement the ISPS Code provides an extensive, thorough and appropriate *recommended* training regime with the planning and implementation of training lying with the CSO and the SSO. However the Code does not provide for external certification of training thus the effectiveness of the training regime is dependent upon the rigour and consistency of the CSO and SSO. As a result of the absence of a systematic and verifiable program of external certification and oversight may

render maritime security education and training less effective than it should be.¹⁹

The Code addresses the issue of crew security by requesting that the International Labour Organisation (ILO) continue to develop a verifiable security document for seafarer identification.²⁰ While the scale of the task of verifying and issuing over 1.2 million identity cards is imposing it is critical to ensuring the veracity of maritime workers bona fides.

In order to reduce the risk to its ships while they are at sea the ISPS Code directs Contracting Governments to provide guidance on appropriate measures to reduce the security risk to ships flying their flag. Again the issue of flags of convenience brings into question the effectiveness of any security guidance given by an open register nation. In contrast to a ship's in port security plan, at sea security will be the sole responsibility of the master and SSO and be unable to be verified by the flag state and unable to be enforced by any other authority. However it would be an imprudent master who did not take reasonable measure to ensure the safety of his vessel. In the event of an imminent attack the ISPS Code directs that the ship should seek to contact those responsible in the flag State for responding to security incidents but again the issue of the ability of a flag of convenience to take any appreciable action is questionable.²¹

ISPS Code also requires all covered by the Code to be fitted with a Ship security alert system (SSAS). The SSAS is designed to raise an alarm ashore in the flag State in reaction to a security incident or threat. The rationale behind the flag State rather than the coastal State being informed is to allow individual nations to respond to the threat in accordance with their national guidelines. The question should be asked how would Panama, Tonga or Liberia react to the activation of SSAS

onboard one of their flagged vessels?

Under Regulation 19 of SOLAS Chapter V, an Automatic Identification System (AIS) is now mandatory on all ships with a gross tonnage of between 300 and 50 000. While AIS is designed to exchange data between vessels and shore control facilities to facilitate safe navigation and enhance safety the transponder system it can, ironically, lead to greater security risks by allowing ships to be tracked by unauthorised persons. In December 2004 the IMO condemned the posting of AIS data on the Internet and declared that AIS data published on the Internet or elsewhere could be detrimental to the safety and security of ships and port facilities.²² Additionally, acknowledging lapses in the security of AIS data actually increasing the risk to ships the IMO has allowed ships to switch off AIS when transiting areas of known piracy and maritime crime.²³ However regardless of the effectiveness of AIS in preventing maritime crime and terrorism the system is limited in its coverage. Even the United States has the ability to utilise AIS data in only about half of its busiest ports.²⁴ As an adjunct to this the IMO has urged member nations to implement long range ship identification and tracking by way of INMARSAT C polling.²⁵

ISPS provides two initiatives under Chapter XI of SOLAS (*Special measures to enhance maritime security*) to attempt to prevent the hiding of a vessels identity: the Continuous Synopsis Report (CSR) and the Ship Identification Number (SIN). The CSR is intended to provide an onboard record of the history of the ship and will contain details of the ships flag and registration date, SIN, port of registry, owners' name, classification society and the Contracting Government which issued the International Ship Security Certificate.²⁶ The SIN is a permanently marked number (generally

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by way of raised or punched letters) on the external hull and on an internal bulkhead of the ship.²⁷

The requirement to maintain the CSR and SIN are significant steps towards overcoming the potential security threats resulting from the renaming and re-flagging of merchant vessels by terrorist and criminal organisations. Critical to the effectiveness of the CSR is the rigour provided to the task of transferring CSR between both shipping companies and flag states when ownership and/or flags are changed. If this process is conducted with due regard to accuracy it should be possible to better track vessels used to support terrorist activities. Despite this positive step the CSR is only effective from 1 July 2004 and ships constructed prior to that date need only record their history from that date, potentially disguising prior crimes and misdemeanours.

While the IMO has no ability to impose penalties for non-compliance with the ISPS Code it believes that market forces and economic factors will drive compliance.²⁸ With access to the world markets at stake there is strong economic incentive for ports and vessels to comply with ISPS Code.

The ISPS Code provides that if the port state is not satisfied with the security measures being taken by a vessel it may direct that the vessel take action to either align its security level to that of the port, cease operations or leave the port. The US has taken a particularly strong line on ISPS compliance to the point where compliance is a pre-condition for access to US ports. During the first week after the ISPS Code took effect the US Coast Guard (USCG) denied entry to nineteen vessels and detained thirty others for non-compliance.²⁹ This hard line appears to have paid dividends with the USCG reporting a non-compliance rate of 1.5% over

Perhaps the greatest shortcoming of the ISPS Code is its failure to address the issues of container security

the first six months of the ISPS Code being in force with the majority of non-compliant vessels originating from flag of convenience countries.³⁰ Likewise the US Coast Guard has undertaken the International Port Security Program inspections of foreign ports to assess their security measures. Ports failing to meet the standards will require that vessels using these ports will require additional processing on arrival in the US thus increasing operational costs for the carrier.

US INITIATIVES

Perhaps the greatest shortcoming of the ISPS Code is its failure to address the issues of container security. More than 50 000 containers arrive in the US each day and following September 11 the US felt the need to control this possible terrorist vector. In response to this threat the US initiated a number of security initiatives which operate in parallel to the ISPS Code to provide a greater level of confidence for maritime security. These initiatives include the Customs-Trade Partnership against Terrorism (C-TPAT), the 24-Hour Advanced Manifest Rule and the Container Security Initiative (CSI).

C-TPAT is an international program that seeks to provide a secure supply chain from manufacturer to final destination. The 24-Hour rule requires advance lodgment of manifests for all cargo consigned to US ports. Under the rule failure to meet the 24-Hour rule will result in the shipment being denied loading. The CSI scheme has US teams working under bilateral agreements with host nations to screen, target and identify potentially suspect containers in foreign ports before they are loaded for passage to the US. Participation in these schemes allows member nations and companies easier access to US markets thus improving competitiveness and potential profitability. The potential

benefits of these schemes provide a strong incentive for manufacturers, logistic companies and port facilities to develop strong security cultures and assist the intent of the ISPS Code to provide a secure maritime environment.³¹

CONCLUSION

The ISPS Code seeks to establish a framework to detect security threats and take preventative measures against incidents affecting ships or port facilities used in *international* trade. In doing so it addresses the issue by attempting to manage risk while at the same time attempting to balance the requirements of international trade. While the Code must address the threat presented by terrorism it must also permit international trade to continue and flag and port state rights to remain in place.

In addressing the threat the Code has several shortcomings, in particular its failure to include vessels of less than 500 tonnes under the Code although nations like Singapore have taken action to address this. Likewise the requirement for SSPs to be audited by owners rather than flag states may lead to neglect and a less effective security system. The IMO appears to agree with this conclusion by noting:

*As with all other aspects of shipping regulated through multilateral treaty instruments the effectiveness of [the Code] is dependent on how the relevant provisions are implemented and enforced.*³²

Despite this gloomy prediction market forces and economic factors will drive compliance. This is particularly so with the US determined to punish, expel or deny entry to vessels not in compliance with the Code. Additionally the US initiatives of C-TPAT, the 24-Hour Rule and the CSI operate in a complementary manner to the ISPS Code by requiring a strong

security awareness and culture to be enforced in order to gain access to US markets.

The ISPS Code meets its overall objective adequately in addressing post-11 September 2001 maritime security threats from ships and ships crews not because of the powers of the IMO but rather by the economic forces which coerce compliance from even the most undiligent ship owner, master and flag State. ✶

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¹² ISPS Code Art 1.2

¹³ ISPS Code Art 3.1

¹⁴ Raymond, C, 2005, *The Challenge of Improving Maritime Security*, Journal of Australian Naval Institute, Number 115, Summer 2005, New Millennium Print, Fishwick, p 16.

¹⁵ Raymond, C, 2005, *The Challenge of Improving Maritime Security*, Journal of Australian Naval Institute, Number 115, Summer 2005, New Millennium Print, Fishwick, p 16.

¹⁶ ISPS Code Art 2.1

¹⁷ ISPS Code Art 14.1

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