

# SEMAPHORE

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## VISUAL SIGNALLING IN THE ROYAL AUSTRALIAN NAVY

Regular readers of the Sea Power Centre – Australia's newsletters will be familiar with its title of *Semaphore*. To many, the significance of this selection will be immediately apparent, recognising it as a form of visual signalling (V/S) that has been used by navies the world over for more than a century. To others it may well represent a somewhat archaic choice, at a time when the Royal Australian Navy (RAN) is embracing the tenets of Network Centric Warfare and all that it promises for the future of naval communications. Regardless of the view taken, it seems appropriate to review the origins and history of V/S at a time when its continued use faces an uncertain future.

When Samuel Morse revolutionised signalling on land with the development of the Morse code and the introduction of the electro-magnetic recording telegraph in 1844, the wide possibilities of this system were quickly recognised by the Royal Navy (RN). Experiments and trials were subsequently carried out by Lieutenant (later Vice Admiral) Phillip Colomb, RN and Captain (later Colonel) Bolton of the East Suffolk Regiment, who developed their own simplified flashing light code and patented a flashing light signal system in about 1862.<sup>1</sup> The RN introduced Colomb's system into service in 1867, with the complete Morse Code being adopted for flashing light purposes and inclusion in signal books in 1889.<sup>2</sup>



*Mechanical semaphore in use early in the 20th century  
(Mr John Perryman)*

At the same time, other means of V/S were also being trialled and in around 1874, ships were first fitted with mechanical semaphore. This system, which had evolved from a French innovation, involved the use of a post fitted with mechanical arms that could be positioned to form various angles with the perpendicular to represent the

letters of the alphabet. By 1880 it was realised that the position of the mechanical semaphore arms could just as well be replicated by signalmen using hand flags, and this new method of conducting short range semaphore was subsequently introduced.

Flag signalling too, continued to develop. In use by the Navy of England for centuries, it had by the early 20th century evolved from some basic signals appearing in the *Black Book of the Admiralty* in the 1300s into an effective means of conveying manoeuvring instructions between ships. With the advent of steam propulsion, warships were able to function at increased speeds, perform more complex manoeuvres and operate in larger formations, generating a greater need to rapidly pass manoeuvring instructions. This increased dependence on V/S for manoeuvring, resulted in a nexus forming between ship's command elements and the signalmen who were responsible for conveying this information. From this point, V/S and tactical manoeuvring became inextricably linked, with signalmen developing a keen understanding of what later became known as fleetwork.

In 1905 the emergence of wireless telegraphy (W/T) revolutionised naval warfare.<sup>3</sup> Ships communications were no longer cut when out of V/S range and RN senior officers became convinced that wireless communication offered great possibilities. The enthusiasm shown for W/T over 100 years ago in many ways mirrors the enthusiasm shown today for e-mail and 'chat' services afloat. Notwithstanding this fervour it did not prevent one naval officer submitting a post exercise report on the use of W/T that cautioned 'The working of W/T was most inefficient, not because it didn't work, but because of the enormous number of useless and obsolete messages transmitted'.<sup>4</sup> It was also recognised that while V/S and cable communications were reasonably secure, wireless messages in plain language were not, and could be read by anyone with receiving equipment.<sup>5</sup> Consequently, far from falling into decline, V/S continued to be used widely, even as W/T was further developed and cryptographic codes introduced.

The developments being made by the RN in signalling during the late 19th and early 20th century coincided with the genesis of Australia's Navy. As such the RN's signalling procedures, codes and equipment were quickly adopted by Australia's colonial naval forces, with the first School of Signalling being established at Williamstown, Victoria in 1900. The school later relocated to its current site at HMAS *Cerberus* in 1913 and by the time the 'Fleet Unit' arrived in Sydney on 4 October 1913 the RAN was already proficient in most aspects of signalling and fleetwork. The following year the RAN was relying heavily on these skills during its first wartime operations.

Throughout World War I, both V/S and W/T proved invaluable. Both RN and RAN signalmen had by now



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attained a high degree of efficiency and speed in signalling, and V/S had become the normal method used for tactical manoeuvring. It also provided a vital means of communicating with merchant ships using the *International Code of Signals*.

Although no RAN vessels participated in the Battle of Jutland in May 1916, many lessons in signalling flowed from this encounter. Poor visibility and battle damage impeded effective V/S during the action and ambiguity arose from instances of poor signal selection and ineffective enemy contact reporting.<sup>6</sup> The RN was quick to review its V/S and manoeuvring procedures following the battle with a number of changes being swiftly implemented in September 1916.<sup>7</sup> One of the most important changes came when W/T 'ceased to be a byline of torpedomen and became instead the departmental and administrative property of the Signals Branch'.<sup>8</sup>

Technological advancements included the introduction of the hand held Aldis signalling light followed shortly after the war by the introduction of the ubiquitous Admiralty Pattern 3860A 10 inch signalling projector, used in all Commonwealth navies until superseded in 1986.

In the lead up to World War II V/S changed little. Notwithstanding this, V/S and fleetwork were used extensively throughout the war in all theatres and in just about every facet of naval warfare imaginable. The application of V/S and fleetwork ranged from major surface actions to convoy work, amphibious assaults (notably D-Day), small boat work and clandestine operations, when the need for radio silence was paramount.

Following America's entry into the war, it did not take long for the RAN to begin operating with ships of the United States (US) Navy. Up until this point the RAN had used RN doctrine exclusively and new codes, signalling procedures and manoeuvring instructions had to be learnt by signals personnel. This was duly achieved and RAN units operated successfully as elements of the US Task Forces operating throughout the Pacific.

When the British Pacific Fleet arrived in Australia in February 1945, its personnel had to learn the US manoeuvring and V/S procedures. They also had to familiarise themselves with the extensive use of Radio Telephony (R/T) used by the Americans to manoeuvre the large and widespread formations by voice over tactical communication nets. This successful integration of the Anglo-American fleets in the Pacific theatre contributed greatly to the close relationship that was maintained and developed after the war.

V/S continued to play its part right up until Victory over Japan day when HMAS *Nizam* received by flag hoist the signals 'Cease hostilities with Japan' and 'Splice the Mainbrace'. As the signals were being repeated by the Australian destroyer a Kamikaze aircraft, intent on continuing the fight, was brought down over the fleet. The scene on *Nizam's* flag deck, with one signalman trying to hoist 'Splice the Mainbrace' while the other was hoisting 'Aircraft warning Flash Red' made for a memorable end to the second great conflict of the 20th century.<sup>9</sup>

Following World War II the proliferation of signal traffic stemming from the rapid development in technology introduced new challenges for the naval war fighter. The

sheer volume of information being transferred today between allies and coalition partners via a myriad of hi-tech circuits is astounding. This is often compounded by the absence of brevity which underpinned all V/S and W/T transmissions. As early as 1955, Captain Jack Broome, RN, wrote in his book *Make a Signal*: 'Today information is poured, irrespective of distance, from brain to brain. The air is saturated with it. One day it will condense and paradoxically, form fog'<sup>10</sup>. Clearly he was a man of vision, which prompts the question: has that fog already formed?



*HMAS Nepal fills the sky with bunting when V/S was at its peak during World War II (RAN)*

V/S is still taught in the RAN and is still used within the fleet, albeit at a much reduced rate. In its heyday it was favoured for its brevity: those who used it became adept at 'saying what they meant and meaning what they said'. Irrespective of the method used, the key to successful signalling has always been brevity.

As for *Semaphore* which lends its name to this newsletter...the mechanical semaphore remained in use in larger ships of Commonwealth navies until finally withdrawn in 1943,<sup>11</sup> while semaphore signalling using hand flags ceased to be used as a formal communications medium in the RAN on 24 November 2005.<sup>12</sup>

The *Dominance of Communications in Warfare* is the topic of the next King-Hall naval history conference scheduled to take place in July 2007. This conference will provide a forum to further stimulate thinking on the future of naval communications.

<sup>1</sup> Captain Barrie Kent, *Signal! - A History of Signalling in the Royal Navy*, Hyden House Limited, Hampshire, 1993, p. 9.

<sup>2</sup> Kent, *Signal!*, p. 10.

<sup>3</sup> Royal Navy, *Admiralty Manual of Seamanship* Volume 1, HMSO, London, 1964, p. 348.

<sup>4</sup> Kent, *Signal!*, p. 29.

<sup>5</sup> Captain Jack Broome DSC RN, *Make a Signal*, Putnam, London, 1955, p. 23.

<sup>6</sup> Andrew Gordon, *The Rules of the Game*, Naval Institute Press, Annapolis, 1996, p. 506.

<sup>7</sup> Gordon, *The Rules of the Game*, p. 517.

<sup>8</sup> Gordon, *The Rules of the Game*, p. 507.

<sup>9</sup> L.J. Lind & M.A. Payne, 'N' Class, Naval Historical Society of Australia, Sydney, 1974, p. 152.

<sup>10</sup> Broome, *Make a Signal*, Preface.

<sup>11</sup> Kent, *Signal!*, p. 12.

<sup>12</sup> Maritime Commander Australia, *Semaphore as a formal fleet communications medium*, MCAUST SAE/BAS 240157Z NOV 05.

