

## CHAPTER 1

### The Start of an Era

#### Historical Background

The history of Naval signalling goes back Many hundreds of years, but the methods of signalling used today are nearly all of much more recent origin. Until the Napoleonic wars, signalling was mostly carried out by means of sail movements, the firing of guns, and the display of flags in various positions to convey different meanings, the codes used having been privately compiled and printed, and being limited both in scope and use.

In 1780 Admiral Kempenfelt devised a code (subsequently revised and elaborated by Lord Howe in 1790), consisting of numeral flags and a small number of special flags and pennants, by which several hundreds of different signals could be made. This code was basically the same as that used by Lieutenant Pascoe to make Nelson's famous signal at Trafalgar but the significations of the flags had been changed owing to the capture of the signal book by the French in 1804. A revised signal code containing much more detail was produced as the result of research by Admiral Popham, who, for a number of years had devoted much of his time to this subject.

Semaphore signalling was adopted in 1795 from a system devised by the Reverend Lloyd George Murray, which at first consisted of a screen containing six shutters which could be operated to give numerous combinations. This system was used by the Admiralty for communicating with the Nore and Portsmouth commands in Britain, the signals being relayed by a chain of signal stations situated within sight of each other on convenient hills. It was extended later to Plymouth, and an improved semaphore was adopted which was lit by lanterns at night and operated so as to form different angles. It is claimed that in clear weather a signal could be transmitted by this system from London to Portsmouth in ten minutes although it had to pass through ten different stations in transit. These land stations were finally closed down in 1848 after the introduction of the electric telegraph, but the system is commemorated to this day by many of the original sites of these stations being known locally as "Telegraph Hill".

The Morse code, so named after its American inventor, Samuel Morse, revolutionised signalling on land with the introduction of the "Electromagnetic Recording Telegraph". The use of this instrument was first demonstrated by the transmission of a message over a line from Baltimore, Maryland, to Washington D.C. on May 24<sup>th</sup>, 1844. The wide possibilities of this system were quickly recognised, and in 1865, as a result of experiments and trials carried out by Captain Philip Colomb, Royal Navy and Captain Bolton of the 12<sup>th</sup> Regiment, the Royal Navy adopted the "flashing system" in which shutters and flags were used by day and lamps by night for transmitting signals in the Morse code. Visual signalling held complete sway afloat until 1905, when wireless telegraphy emerged from its early experimental stage into practical use and further development. The revolution in naval communications brought about by the advent of wireless can be easily appreciated when it is realised that before 1905 a naval unit when at sea and outside visual range of land was entirely cut off from all outside communication except by despatch vessel.

Before setting out to chronicle the history of the Communications Branch in the RNZN, it must be acknowledged that the communications branch in New Zealand was created well before the Navy it was designed to serve. Almost the same situation occurred in the Royal Navy which had been in existence hundreds of years before the emergence of any form of a Signals or Communications Branch. In fact it was the latter part of the 19th century before the RN's signalmen acquired the necessary skills from "on the job" training at sea.

As sail began to give way to steam and manoeuvring became more precise it was realised that more formal training arrangements needed to be made. In 1882, the rate of "Qualified Signalman" was introduced to replace the previous non-substantive rate of the same name held by seaman employed on signal duties. The Admiralty order stipulated that these young signalmen should be drafted to the Channel Squadron as "supernumeraries for training in signals".

The title "Yeoman of Signals" was originally used to refer to the petty officer rate of a number of specialisations such as "Yeoman of the Powder Room", "Yeoman of the Sheets", or "Yeoman of the Main Deck" etc The descriptor "Yeoman of Signals" was introduced by order in council dated 25 November 1816, well before the formal introduction of signalmen some sixty years later. The signal branch was the only one to retain the title Yeoman rather than Petty Officer, the other "Yeomen" having fallen into disuse many years earlier. The rates of Chief Yeoman and Yeoman of Signals had existed for many years and were now joined by a new rate of Second Yeoman of Signals together with a new intermediate rating of Leading Signalman.

## **INCREASED PAY & STATUS**

In 1888 a Higher Standard Qualification was added to include instruction in electric telegraphy, electric light and the heliograph. Up to 15% of signal ratings could qualify for the higher standard which entitled them to an extra payment of three pence a day. This sudden wealth created an immediate demand for and a significant increase in both professional knowledge and the status of the Signal Branch. But not all were convinced. "One good Leading signalman should be retained for odd jobs repairing flags etc. He should be the fraud on the staff for he will come in handy when returning flags to the Dockyard," wrote Rear Admiral Sir Christopher Craddock in 1892. It was October, 1888 when Admiralty said it was proposed to establish Schools of Signalling at one or two home ports where signalling subjects were to be taught.

## **TUFFNELL APPEARS**

In Portsmouth it was not long before HMS Victory became a Signal School with sets of flags and signal books being supplied and flag hoisting drills being carried out with the fore and mizzen masts representing different ships. With a speed that suggested that this proposal had already been agreed informally, Commander Tuffnell was, on November 19, 1890, appointed to HMS Victory "in charge of Signal Schooling."

By permission of the Admiralty some officers were allowed to go through a course of telegraphy while other officers came and received instruction in Signal Books and manoeuvring. In fact, the demand for such instruction increased so rapidly it was found necessary to open a class for officers in temporary huts at the naval college in the Dockyard.

A glimpse of life in Victory was provided by Signal Boatswain Eason, after he retired, as a result of a letter from the Signal School on 1 February, 1908, in which Charles Collins wrote, "The Captain wishes you to send him a short crisp history of the signal school during your time there.....towards making a history book of the Signal School during your appointment. P.S. Ignore Wireless Telegraphy which is now obsolete, being superseded by Poulsen's wireless telephony having accomplished 250 miles. I give W/T 2 years longer life."

The temporary huts and HMS Victory remained the home of the signal school for over 30 years and although the 1937 defence estimates did include provision for a new signal school to be built, the war intervened. Heavy bombing damage to dockyard buildings and surrounding areas during 1940-41 imposed severe restrictions on communications training.. But even while this was occurring, the development of wireless was growing throughout the fleet to such an extent that a year earlier, in 1907, permission had been given to form the Telegraphist Branch.

Harking back to WW2, a particularly heavy raid caused almost total destruction of the Portsmouth Dockyard, resulting in the decision being made to move training, research and accommodation facilities away from the Portsmouth area. The search extended well into the country, finishing up at Leydene House near Clanfield,, originally earmarked as a recovery hospital for wounded officers, located some 25 miles North of Portsmouth Dockyard. HMS Mercury, as the new establishment was known, grew steadily until 1990, when a series of economic cuts forced its closure. The end result of this was that from 1994 all communications training moved to Fareham to merge with its upstart electrical competitor, HMS Collingwood, where it remains to this day

## **N.Z. DEVELOPMENTS.**

In N.Z. communications training also had a somewhat chequered history with available space for classrooms being at a premium or even non-existent in the ageing cruiser HMS Philomel. On Mar 31, 1939 there were 7 officers and 688 ratings borne on the active list in the N.Z. Division of the Royal Navy, all of whom, except for 16, had been entered or recruited in N.Z. These totals were supplemented by 72 officers and 619 ratings from the Royal Navy, giving a total naval force of 1370.

Clear records exist of the first class of New Zealand communications boys being recruited in 1920, although there is considerable doubt whether they completed their full signal and wireless training in N.Z. before joining one of the two cruisers currently on the NZ station even though the earliest records of a class completing their full communications training in HMS Philomel was in 1933, where their classroom was in one of the green huts along what is now the boardwalk

One year later, the N.Z. entry figures had risen to 12 officers and 801 ratings, except for the same 16, who had all joined in N.Z. These were supplemented by 70 officers and 531 ratings from the R.N. making the first wartime total 1398, or just 28 different from the pre-war figure.

In the period leading up to World War 2 it was the considered opinion of the NZ naval advisers that there was little if any need for intensified recruiting of naval personnel beyond a figure necessary to provide replacements for the two cruisers (Leander & Achilles) and the numerous smaller craft engaged in minesweeping and coastal defence duties.

The opinion that “no appreciable claims upon the manpower of the Dominion will be necessary for Naval purposes in New Zealand” was expressed by the then Chief of Naval Staff in a memorandum at the end of November 1939. Since an increase in the number of warships maintained by the NZ Government was not contemplated, except for the three small vessels, Kiwi, Tui and Moa, then under construction in the U.K. and as the staffs of the various naval services at the main ports were “now stabilised” it was not anticipated that there would be any major naval requirements which could not be met from the existing pool of reservists.

The N.Z. Naval authorities reluctance to embark on any form of intensive recruitment or training was soon dispelled by Royal Navy requests for “electricians, fitters, mechanics, instrument mechanics, medical officers preferably with marine experience who were considered to possess qualities that would fit them for RNVR commissions.” Following this initial request on September 22<sup>nd</sup>. Admiralty authorised Navy Office to call for applications from “young men between the ages of 18 and 25 years qualified to hold technical ratings as engineroom artificers, electrical artificers, shipwrights, joiners, blacksmiths, plumbers, painters, **telegraphists and signalmen.**

The initial Admiralty request for Communications branch ratings was soon followed by further appeals until it became obvious that the two classrooms in the green huts could no longer meet the demand. With one classroom being used almost continuously for basic Morse training and another being reserved for Signals training, the problem was only resolved by the creation of a naval barracks for some 200 ratings at Lyttleton, commissioned as HMNZS Tasman, for the training of new entry Telegraphists and some seamen specialisations.. . .

A similar establishment was built for new entry signals ratings in Dunedin, the first class entering in June 1943. Some idea of the demand can be gained from the figures that reveal that in the first year of its operation, six classes totalling 144 ordinary signalmen went through the Dunedin school, with 121 passing their final examination while over 200 trainees received their initial professional training in HMNZS Tasman. Unfortunately, it has not been possible to discover just how many of this 200 were Communicators for after this first year, Signals training was moved from Dunedin to Lyttleton while Telegraphist training moved to the newly constructed HMNZS Tamaki on Motuihe Island.

The late 1980s saw a major change in the RNZN Communications Branch with its incorporation as a sub trade of the "Operations Branch" along with Radar Plotters,, Sonarmen, Gunners, Electronic Warfare and Communications Analysts. 1994 saw an even more dramatic change in the direction of the Communications Branch. The imminent delivery of the Navy's new ANZAC frigates required a rethink of the way communicators were employed at sea, and the necessary changes in training required to utilise these differences in employment. The main drive for this was the reduced crew numbers and in particular the reduction in Communication billets from the previous 21 on a Leander frigate to 11 on an Anzac.

After much deliberation it was concluded that the only way to achieve these numbers was to combine the traditional Radio Operator [RO] and Signaller [SG] trades while consolidating and in some areas reducing the required training. This eventually saw the demise of Aural Morse and Semaphore as trained skills, a reduction in Flashing light speed to 8 WPM and a lower level of training in Fleetwork and radio knowledge at the lower ranks.

A new structure was put in place with the introduction of the cross-trained "Communications Operator" [OCO,ACO,LCO]. However, during the development process it was determined that a need still existed for supervisors specialising in either Radio or Signals knowledge. The branch was therefore structured around Communications Operators being cross-trained in both radio and signals knowledge up to Leading Rank [LCO] with significant importance placed on the knowledge up to Leading Rank [LCO] level.

Petty Officers and above would still specialise in Radio or Signals knowledge but due to the progressive knowledge gained in previous ranks, would retain a level of cross knowledge. Since this structure has been in place, there have been a number of other initiatives to reduce the time spent in formal training while retaining the required level of knowledge. These include open learning packages and phased training.

Prior to undergoing advanced trade training for promotion to the Petty Officer rank LCOs select one of two specialisations to follow as a senior rating communicator. These are the traditional Radio Supervisor [RS] or Yeoman of Signals [YS] as set forth in the current branch structure..

**Details of known classes and class memberships can be found in the training register at the end of the book**