

## CHAPTER 4

### THE SIGNAL SCHOOL

THE year 1906 saw the Signal School established in the Barracks. Prior to 1888 young signalmen were drafted to the Channel Squadron as supernumeraries for training, but in that year the introduction of a Higher Standard Qualification led directly to the setting up of Signal Schools in the Home Ports. This qualification was introduced in an Admiralty Circular Letter (N.2107) in July, 1888, and involved instruction in electric telegraphy, electric light and heliography. It was stated in the Letter that not more than fifteen per cent. of the signal ratings were to qualify for the higher standard and those who did were to receive an extra threepence a day in pay. In the following October another Letter (N.2713) stated that Schools of Signalling were to be established at one or two of the Home Ports to teach the subjects required for the higher standard and, as a preliminary, arrangements were made with the Postmaster-General for four senior signal ratings to undergo a five months' Post Office course to fit them for the duties of Signal Instructor. The next month it was decided (Letter N.3305) to open two Schools of Signalling, one at Portsmouth on board the "Duke of Wellington," and the other at Devonport, when the new barracks there was properly organised.

A further proposal contained in this Letter, was that at Portsmouth the Gunnery Lieutenant should take charge of signalling instruction and that he should undergo the Post Office course to prepare himself for the post. The Flag Captain, who was then also in command of the "Duke of Wellington," opposed the details of the scheme, and in a report to the Commander-in-Chief, Portsmouth, (18/12/88) suggested that:

"A suitable place can be found on board H.M.S.

'Victory' for the instruction room. The 'Victory' is proposed on account of the incessant and unavoidable noise in the 'Duke of Wellington' occasioned by the various drills being carried out."

And with regard to the supervision of the Signal School he added:

"I beg to point out that the stay of Lieutenants (G) in the ship is a very short one and during my command of eleven months I have already had three and am now without one. Therefore I would suggest that a suitable Warrant Officer have charge until a Lieutenant can be appointed solely to undertake this work."

The Admiralty approved his suggestions and the Torpedo Boatswain of H.M.S. "Vernon" was subsequently appointed to superintend the course, which was given on board the "Victory." In March, 1890, he was replaced by one of the newly established Signal Boatswains; but by November, 1895, the "Victory" Signal School had become so important that it was decided to place it under a Commander specially selected for his knowledge of signal duties. Commander L. G. Tufnell became the first Superintendent of Signal Schools and was responsible not only for the Portsmouth Signal School but also for the inspection of the Schools at the other Home Ports. Another, more unusual, aspect of his work was the supervision of the training of homing pigeons for communication purposes. The use of homing pigeons was officially recognised by the Admiralty in 1896 under the title of War Pigeon Service, and the next year a naval pigeon loft was opened in the Royal Clarence Yard, Gosport. It was placed under Mr. William Barrett, a Gunner, credited by their Lordships with having "a practical acquaintance with the training of homing pigeons," and by 1904 its stock of birds had increased to over three hundred. The loft was closed in 1908, but subsequently homing pigeons were used for naval purposes both during the First World War and occasionally afterwards.

It was the development of wireless communication that led to the abolition of the War Pigeon Service. In July, 1901, a separate Wireless Section was established in H.M.S. "Vernon," the headquarters of torpedo and electrical training in Portsmouth. In addition to early experimental work the department undertook the training of selected signal ratings who volunteered for wireless duty, and this work eventually led to a separate Telegraphist Branch being formed in 1908. The majority of the ratings were transferred to the new Branch from the Signal Branch, but the officers were either Torpedo Lieutenants or Royal Marine Officers who had taken the wireless course in "Vernon." Visual signal training was transferred in 1904 from "Victory" to the "Hercules," then lying alongside the Dockyard. Two years later came the move into the Barracks, though the wireless section in "Vernon" did not follow until June, 1917.

The period of the First World War was one of intense research and development in communications, and the increased activities of the Barracks' Signal School led to a large expansion in numbers, especially in the Experimental Department where extra workshops had to be provided. Research was largely directed towards the development of anti-submarine devices in co-operation with H.M.S. "Vernon." This work was really outside the proper sphere of the Signal School and consequently in April, 1927, the Anti-Submarine Department was transferred to H.M.S. "Osprey" at Portland.

In 1920 the Superintendent of Signal Schools, Captain A. K. Macrorie, was reappointed with the title of "Captain, H.M. Signal School," and this change of title marked the demise of the Signals Schools at Devonport and Chatham, for they were formally closed for reasons of economy two years later. The Signal School at the Barracks thus became responsible for all signal training on shore and when necessary Chatham and Devonport ratings were drafted to Portsmouth for courses of instruction. With the growing complexity of communications the School expanded steadily during the nineteen-thirties until it occupied the whole of K and L blocks and all except

the first floor of M and V blocks. In addition some lecture rooms and some of the Experimental Department had to be housed in hutments. The work of the Signal School during this period can best be summarised by the following passage from the 1932 "History of the Royal Naval Barracks, Portsmouth."

"Signal and Wireless Instruction: The Signal School is divided into two parts, 'Instructional' and 'Experimental,' the former of which undertakes the training of officers and men in all subjects that come under the heading of Naval Communications.

Theoretical instruction in electrical and mathematical subjects is given by officers belonging to the staff of the School. Practical instruction in visual training is imparted in a variety of ways, of which flag and flashing exercises and marching manoeuvres are no doubt familiar to all who live in the Royal Naval Barracks.

For the benefit of those who seek knowledge and skill in wireless telegraphy, wireless offices are provided similar in all respects to the offices fitted in the different types of men of war.

The instruction of officers includes courses for those specialising in signal and torpedo duties, Observers, Sub-Lieutenants, Royal Indian Marine, Royal Naval Reserve, and Royal Naval Volunteer Reserve Officers. In addition, many foreign officers have passed through the Signal School including officers belonging to the Chinese, Chilean, Egyptian, Jugo-Slav, Siamese, and Turkish Navies.

The Experimental Department: This branch of the Signal School is responsible for the development of all signalling material, including wireless apparatus, up to and including first trials at sea, the fitting of all new construction, home Dockyard refit, and the alterations and additions of ships in commission.

In addition the Experimental Department maintains a special staff to test all electrical apparatus and components, supplied for signalling purposes,

before their acceptance for issue to the Naval Service.

Seagoing Tenders and attached ships: The number of these vessels has now, in 1932, been reduced to two, His Majesty's Ships 'Concord' and 'Sardonyx,' but at various times they have included:—

The battleship, 'Centurion,' later commissioned as Fleet Target Ship.

A cruiser, H.M.S. 'Antrim,' subsequently relieved by H.M.S. 'Yarmouth.'

A destroyer, H.M.S. 'Truant,' since broken up.

A patrol boat 'P.59,' a submarine 'H43,' a coastal motorboat, and finally an aeroplane."

The Signal School was rapidly becoming too large for the accommodation available in the Barracks, and this led the First Lord to state in presenting the Navy Estimates for 1937 that: "Major works for which a small provision is made . . . include a new Signal School at Portsmouth to meet Fleet requirements." The war intervened before anything practical was done; and when the bombing of Portsmouth became heavy in 1940 it was decided to transfer the Training side of the Signal School to Leydene House near Petersfield, where it has since remained and become a separate establishment as H.M.S. "Mercury," and the Experimental side to Lythe Hill House, Haslemere. This began the split between Training in H.M.S. "Mercury" at Leydene, and Research and Development in H.M.S. "Mercury II," first at Lythe Hill House and now on top of Portsdown Hill.

Radar for the Royal Navy had begun its development in the Signal School in 1934 under the code-letter title R.D.F., and throughout the early war years experimental work continued in Portsmouth. Most of the work was done at outstations rather than in the Barracks, at Eastney Fort East (where it had begun in 1935), Southsea Castle, which was mainly a trials site, and Onslow Road (1940). There was also an extension at Nutbourne in Sussex where all the Aerial Development was concentrated. The Eastney Fort East Extension specialised initially in Early Warning and Onslow Road in Gunnery Radar.

The first developments at Eastney were the longer wave-

length systems for aircraft detection. The first shipborne centimetric radar was also developed there and installed at the highest possible speed for the anti-submarine war in the Western Approaches. Eastney proved an ideal site because of its local facilities, and out to sea was the Nab Tower, well placed to function as the standard target. The earliest sets were so feeble that their performance was judged by "Can you see Nab or not?" If Nab could be seen more or less clearly then that particular set was doing well. Three or four years later, with the rapid progress of development work, the Nab was likely to become embarrassingly prominent.

Secrecy shrouded all activities, even in the early days. The sloop, H.M.S. "Saltburn," had been assigned for sea trials of radar equipment in 1936, and a year later, while proceeding from the Scillies to Weymouth, she discovered she had unwittingly been acting as a practice target for a U-boat, which had shadowed her all the way. The odd-looking radar aerials must have puzzled the Germans. They surfaced at the end of their exercise and steered a parallel course at about four cables distance for some miles before moving off at speed.

For some years prior to 1940 a group of the experimental staff at the Signal School had been busy developing the use of 50-centimetre wavelengths, three times shorter than the shortest then in use for radar purposes. In May of that year the group moved from the Royal Naval Barracks to premises previously used as a school in Onslow Road, Southsea, and by the middle of the year sufficiently sensitive receivers had been produced to give the bearing of an aircraft or ship accurately enough for gunnery purposes (existing radar already gave the range of the target with accuracy). Orders were placed for two hundred of the new sets and by the end of the year ships were being fitted with Type 284, the Surface Gunnery Set, and with Types 282 or 285 for A.A. Fire. In the Barracks the old School was filled with radar sets on test and under development for two and a half years; then the radar sections of the Signal School, Eastney Fort

East, and Onslow Road were brought together as the radar section of the Admiralty Scientific Establishment at Witley in September, 1942.

Type 284 quickly proved its worth. It enabled H.M.S. "Suffolk" to pick up and shadow the "Bismarck" through the Denmark Straits in 1941. Then in the battle of Matapan the guns were alerted and directed by radar without the Italian Fleet being aware of the presence of British ships. H.M.S. "Warspite" fired radar-directed broadsides and five of the six 15-inch shells in the first broadside scored hits. In the "Scharnhorst" action the enemy shadowed by 10-centimetre equipment, was caught completely unaware when the "Duke of York" fired her first salvo at 12,000 yards. Most of the salvos fired by her in action were "blind" and the deciding one was fired entirely on radar information.