Civil-Military Cooperation in Signals Intelligence in New Zealand, 1904 to 1939

The development of signals intelligence (SIGINT) in New Zealand before World War II is an example of successful civil-military cooperation, with the Royal Navy (RN) overseeing the operations and civilians (at the Post and Telegraph Department) in charge of the technology. Each arm brought their particular skills to the SIGINT process. Documents held at Victoria University of Wellington and other information recently released by the Government Communications and Security Bureau (GCSB) provide new information on this relationship.

Pre-World War I

SIGINT in New Zealand grew out of the application of new technology by both the RN and the New Zealand Government before World War I. The RN had long been involved in the defence of New Zealand and although the country had established its own naval forces in 1913, they were commanded by RN officers and, in the event of war, the forces would come under control of the Admiralty.[1] In the years before the war, the RN had been procuring the new Marconi wireless telegraphy ('radio') technology for ship to ship and ship to shore communications. The potential for obtaining intelligence by intercepting opposing forces' signals was soon recognised.[2]

At the same time, governments around the world were considering how to use radio technology. The New Zealand government, looking at ways to improve communications to and from such an isolated country, passed a Wireless Telegraphy Act in 1904. The first communication 'by wireless from New Zealand to another country (Australia) was sent on 3 February 1908' when a message from Prime Minister Joseph Ward to his Australian counterpart was transmitted from HMS *Pioneer* in Wellington Harbour via the battleship *Powerful* in the Tasman Sea to HMS *Psyche* in Port Jackson, Sydney.[3]

The following year the Government decided to establish five radio transmitting and receiving stations for communications with ships at sea. The stations were built between 1911 and 1913 and were located at Wellington, Auckland, the Chatham Islands, Awanui (near Kaitaia) and Awarua (south of Invercargill). They were operated by the Post and Telegraph Department. The equipment at Awanui and Awarua was much more powerful than at the other stations and linked New Zealand into the still developing Imperial Wireless Chain. Awarua in particular was regarded as 'one of the best [sites] in the world for receiving and transmitting radio signals.'[4]

Despite growing hostility between Britain and Germany and a naval arms race, the equipment for the stations came from the German Telefunken company, through their Australasian sub-contractor in Sydney. It was the most suitable option and less expensive than the Marconi tender. The Post and Telegraph Department noted:

> 'The suggestion that in time of war we would be placed at a disadvantage is not only incorrect, but somewhat ludicrous. In the first place there is now no monopoly in the matter of the systems used on British ships; secondly all systems in use are the invention of foreigners; thirdly our wireless system will be operated by our own officers and will be under British control'.[5]

World War I

In the final weeks of peace before the outbreak of World War I, the Admiralty reviewed the capabilities of the stations in the Imperial Chain for intercepting German radio communications. When Britain declared war, the operators at the New Zealand stations immediately commenced interception, thus beginning the country's SIGINT activities. On 6 August 1914 RN Commander R.A. Newton, the Naval Intelligence Officer based in Wellington, reported that 'Wireless Telegrams' in German and Dutch were being intercepted and translated.[6]

The most significant SIGINT work by the New Zealand stations during World War I occurred in the first months of the conflict. The powerful German East Asia Squadron, commanded by Vice-Admiral Count Maximilian Reichsgraf von Spee, was at large and believed to be in the west Pacific. With both the Australian and New Zealand expeditionary forces waiting to head overseas, their governments and the Admiralty were very anxious to locate von Spee's squadron. In early October coded signals from a ship at sea were picked up by radio stations in Wellington, Awarua and Suva, and were sent on to the Australian Commonwealth Naval Board for decoding. The information obtained showed that the German squadron was now in the east Pacific and heading towards South American waters.[7] As a result, on 16 October the Main Body of the New Zealand Expeditionary Force departed New Zealand for Albany, where it linked up with the Australians to safely sail on to Egypt.

While von Spee was crossing the Pacific his ships sailed past German Samoa, just a few days after New Zealand forces had occupied the colony (at the end of August 1914). Before the New Zealanders landed German authorities had sabotaged their radio station outside Apia. However, equipment was sent from Awarua and the repaired station recommenced operations on 19 October. For the next two years it was run by New Zealand signallers from the Post and Telegraph Department, until the Admiralty took over in 1916.[8]

Throughout the war the New Zealand and Apia stations listened for enemy radio signals, not only from German ships and land stations, but also suspicious traffic between neutral stations. The Post and Telegraph operators maintained a continuous or near-continuous 'wireless watch' at the Wellington and Awarua stations, as well as part-time listening at the other stations. The experience gained by the New Zealand radio stations during World War I was invaluable and would be applied again twenty years later, as 'many senior staff in 1939 had worked as junior operators at those stations during the First World War.'[9] Intelligence was circulated to Britain, Australia, Canada and to RN officers on the China Station and in Montevideo. As Tonkin-Covell has noted, this was Pacific-wide co-operation, a feature to be repeated 'on a grander scale between 1939-1945.'[10]

1919 to 1933

Immediately after World War I the Post and Telegraph operators reverted to their peacetime occupations. Unlike in Britain where an organisation with a SIGINT role was established (the Government Code and Cypher School), in New Zealand the only people left with a SIGINT function were the RN intelligence officers serving with the local naval forces.

Nevertheless, imperial defence requirements meant that New Zealand retained an interest in SIGINT developments and the government was aware that decisions concerning the civilian radio stations had military implications. When the Prime Minister cabled the Secretary of State for the Colonies in November 1920 about updating the radio sets at the Awanui and Apia

stations, he noted: 'The complete staff in these and all other New Zealand wireless telegraphy stations are trained and re-qualified yearly in naval procedures and would be mobilised as RNVR [Royal Naval Volunteer Reserve] in time of war and left in these stations.'[11]

In 1919 Admiral of the Fleet Lord Jellicoe had arrived in New Zealand as part of an imperial tour to advise on naval defence. His comprehensive report on New Zealand warned of a future Japanese threat and advocated a significant expansion in the country's naval forces. He also 'stressed the importance of wireless communications' and their use in intelligence-gathering, including direction-finding stations.[12] The role of radio for direction finding (DF) had come into its own on the Western Front, where both sides had used it to locate enemy positions. In essence, DF involved two (or more) receivers locating a transmitting station by means of triangulation. The RN soon applied this technique to working out the position of ships at sea and it became increasingly sophisticated as new technology was developed. RN vessels began using radio DF extensively during the inter-war years, as did merchant shipping. In response, the New Zealand government established a DF station at Cape Maria van Diemen in 1926 to support merchant ships, while recognising that the station would also prove useful to the New Zealand naval forces.[13]

With the onset of the Great Depression, however, any further steps into new defence technology in New Zealand came to a halt.

1934 to 1939

RN concerns about possible Japanese aggression against British interests in Asia and the Pacific increased in the early 1930s. By 1934 an in-depth study of the Naval Intelligence Service in the Pacific was underway and a Flag Officers conference that year in Singapore recommended coordinating the work of the Pacific intelligence centres, which included Wellington.[14] As a result a number of intelligence bodies were established in Hong Kong, two of which were involved in SIGINT activities, the Far East Combined Bureau (FECB) and the Far East Direction-Finding Organisation (FEDO). The FECB was responsible for the collection and analysis (including cryptanalysis) of intelligence from all sources for the three Services, but its staff were chiefly naval and the Naval Intelligence Officer in Wellington came within its network. FEDO's role was to combine the operations of the DF stations in the Pacific and Indian oceans, including New Zealand stations when required.[15]

In 1936, with international tensions and conflicts increasing, the Admiralty reviewed the land-based DF stations available to the RN around the world.[16] In August the Naval Secretary in New Zealand was informed that the RN was considering the wartime requirements for DF stations, especially in the short wave or high frequency (HF) band, and that existing commercial DF stations could be used, once new HF sets were added.[17] The Post and Telegraph Department then assessed possible sites for HF DF stations around New Zealand. It reported that there were suitable sites in Auckland (including near the Auckland airfield at Mangere), in the vicinity of the Awanui station site (which had been closed six years earlier), in the central North Island and at the still operating Awarua station, and noted that the installation of new HF DF systems was already planned for Auckland and Awarua.[18]

In July 1937 communications experts from the Dominions met at the offices of the Committee of Imperial Defence in London. Radio interception work in Britain was discussed, as well as wartime expansion plans. The meeting agreed that it 'appears to be of the greatest importance that the members of the British Commonwealth should consider how best they can gain

experience in W/T [wireless telegraphy] interception in peace, and prepare schemes for expansion to meet war conditions.'[19] The New Zealand Government responded that it was willing to cooperate (as were the other Dominions and Newfoundland and Southern Rhodesia) and that suitable officials had been nominated for consultation. It further stated, however, that 'at the moment it is not proposed to expand the peace-time scheme already in operation.'[20]

Nevertheless, as the threat of war increased in the late-1930s, radio interception operations recommenced in New Zealand. By 1938 Post and Telegraph staff at the Auckland radio station, using its remote receiving station at Avondale, were intercepting Soviet 'naval and general traffic' which was sent on to the FECB.[21] The Awarua station also returned to SIGINT activities. In September 1938, during the Munich crisis, its staff 'observed the changes in call signs of German marine stations, indicating naval movements or intentions, a very significant item at the time, and appreciated at the Admiralty.'[22] The Secretary of New Zealand's Organisation for National Security, Lieutenant-Colonel W.G. Stevens, informed the Post and Telegraph Department: 'I gather from the Navy that you did pretty well in the recent crisis!'[23]

Awarua also listened into a number of Japanese stations which were transmitting from Japan and the Philippines. In 1939 'authorities in the United Kingdom' asked if Awarua could 'receive any transit traffic to and from the Philippine Islands, Honolulu and the Netherlands East Indies.' The Superintendent, A.W. Head, reported that his station could receive traffic from a number of stations in these territories, as well as stations in Japan and its mandates.[24]

When World War II began, therefore, the Post and Telegraph Department was ready to once again play a SIGINT role in the conflict and its stations immediately became operational. Over the previous 25 years the Department and the Navy had developed a useful and comfortable relationship, with a division of labour between civilians and military that was logical for a small country to make. It would not, however, survive the increasing pressures and military demands of a new, and wider, world conflict.

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[1] S.D. Waters, *The Royal New Zealand Navy* (Wellington: War History Branch, Department of Internal Affairs, 1956), pp.6-7.

[2] Jerry Proc, 'A Brief History of Naval Radio Communications', http://jproc.ca/rrp/nro_his.html [accessed November 2017].

[3] Desmond Ball, Cliff Lord and Meredith Thatcher, *Invaluable Service: The Secret History of New Zealand's Signals Intelligence during Two World Wars* (Waimauku: Resource Books, 2011), p.2; A.C. Wilson, *Wire and Wireless: A History of Telecommunications in New Zealand 1890 – 1987* (Palmerston North, The Dunmore Press, 1994), p.93.

[4] Ball, Lord and Thatcher, p.5.

[5] Wilson, p.95.

[6] John Tonkin-Covell, *The Collectors: Naval, Army and Air Intelligence in the New Zealand Armed Forces during the Second World War* (PhD thesis, University of Waikato, 2000), p.34.

[7] Ibid, p.133.

[8] Laurie Barber and Cliff Lord, *Swift and Sure: A History of the Royal New Zealand Corps of Signals and Army Signalling in New Zealand* (Auckland: New Zealand Signals Incorporated, 1996), pp.43-44.

[9] Ball, Lord and Thatcher, pp.13-14.

[10] Tonkin-Covell, p.134.

[11] Information received from the Government Communications and Security Bureau (GCSB).

[12] Waters, p.8.

[13] Archives New Zealand, R21465018-AAYT-8490-N1-271/-10/7/5, 'W/T stations - Direction finding stations – General'.

[14] Information received from the GCSB.

[15] For further information on the FECB and the FEDO see Jozef Straczek, 'The Empire is Listening: Naval Signals Intelligence in the Far East to 1942', *Journal of the Australian War Memorial*, Issue 35. Available at https://www.awm.gov.au/articles/journal/j35/straczek [accessed November 2017].

[16] In 1936 Italy completed its conquest of Abyssinia (Ethiopia), Germany re-occupied the Rhineland and the Spanish Civil War began.

[17] Ball, Lord and Thatcher, p.14.

[18] Tonkin-Covell, pp.136-137.

[19] Security Papers Collection, Victoria University of Wellington.

[20] Ibid.

[21] Ball, Lord and Thatcher, pp.16-17.

[22] Security Papers Collection, Victoria University of Wellington.

[23] Ibid.

[24] Ibid.