

Signals Intelligence in New Zealand during World War II

This article is partly based on new information from the Government Communications Security Bureau (GCSB), in particular the relevant chapter of a draft history of New Zealand signals intelligence written by the first director of the GCSB, Colin Hanson, after he retired.

When World War II began, the radio stations run by New Zealand's Post and Telegraph Department immediately took up their planned signals intelligence (SIGINT) roles. The station at Awarua (south of Invercargill) commenced high frequency direction finding (HF DF)¹, as did another HF DF station at Musick Point (on Bucklands Beach peninsula near Auckland).² Awarua assisted in one of the first Royal Navy (RN) victories of the war when, along with other direction finding stations, it tracked the movements of the German 'pocket battleship' *Admiral Graf Spee* in the Indian Ocean and the South Atlantic. This information contributed to the Battle of the River Plate (in which the New Zealand light cruiser *Achilles* took part) and the subsequent scuttling of the German ship.³ Some months later the British Admiralty conveyed to New Zealand its appreciation of 'the excellent service rendered by ... Awarua in connection with the special work which is being carried out.'⁴

New Zealand's SIGINT activities in the early years of the war were 'conducted only by the Navy, essentially functioning under the overall direction of the Admiralty in London', and working through the Far East Combined Bureau (FECB) intelligence organisation (whose main components had been moved from Hong Kong to Singapore at the start of the war).⁵ The Navy Office in Wellington, therefore, became the centre for New Zealand SIGINT. There was a substantial receiving base at the radio station on Tinakori Hill above central Wellington, alongside powerful transmitters. As well as handling general naval communications, the Wellington station formed 'a key node' in the Admiralty's worldwide interception and direction finding (DF) network.⁶ At peak wartime strength, 44 ratings, including 10 'Wrens' (members of the Women's Royal New Zealand Naval Service), worked at the station.⁷

In May 1940 Commodore W.E. Parry, who had commanded the *Achilles* at the River Plate, became Chief of Naval Staff. The following month the steamer *Niagara* sank in the approaches to the Waitemata Harbour after hitting a mine laid by a German commerce raider. This underlined the need for better intelligence, and four months later a Combined Intelligence Bureau (CIB) was established in the Navy Office in Wellington to provide intelligence for the Chiefs of Staff of the three armed services. The small Intelligence Section was responsible for external and internal intelligence, and worked with the Police and the new Security Intelligence Bureau (SIB) on internal security matters.⁸ Parry also developed a Merchant Shipping Section, noting that it was essential 'that the position at sea of every warship and merchant ship, of whatever nationality, in the Pacific should be known as accurately as possible at any moment.' The information obtained was exchanged with the FECB.⁹

In October 1941, the CIB, which was 'little more than a stop-gap', was subsumed by a Combined Operational Intelligence Centre (COIC), also in the Navy Office.¹⁰ Under it were the Merchant Shipping and Naval Intelligence sections, another section responsible for naval security and censorship, a coding room and, for SIGINT, the 'Y' section (handling the content of intercepted signals) and the HF DF plotting room.¹¹ In charge of the COIC was Lieutenant Commander F.M. Beasley, the Director of Naval Intelligence. He was 'a German, Spanish and French linguist' and had served at Britain's Government Code and Cypher School at Bletchley

Park.¹² Indicative of a series of visits, exchanges and appointments of RN intelligence specialists across Singapore, Australia and New Zealand in the first years of the war, Beasley had visited the FECB in Singapore and the Australian COIC while en route to New Zealand. Likewise, Lieutenant Hanson Philpott, who was in charge of New Zealand's Y section, had visited the Australian Special Intelligence Bureau in Melbourne, its Dutch equivalent in Batavia (Jakarta) and the FECB in 1941.¹³ The aim of the interaction was to ensure that the Allied intelligence units would work closely and effectively together.

Philpott was a central figure in New Zealand SIGINT during World War II. He had risen through the ranks of the New Zealand Division of the RN, specialising in wireless telegraphy, and had been commissioned in 1941. An officious man, he was not universally popular, especially with the Wrens, but he was very efficient and hard-working.¹⁴ His small Special Intelligence team in the Y section included a decoding expert, Dr Jim Campbell, who in peacetime was a mathematics lecturer at Victoria University College in Wellington.

As the war progressed New Zealand opened new SIGINT stations, including an HF DF station at Waipapakauri (north of Kaitia) in 1940. The following year a similar station was opened in Suva, operated by the FECB but under New Zealand administration and staffed by New Zealanders. Through these years New Zealand's SIGINT activities were focused on locating German and Italian shipping (including surface raiders) and monitoring German, Japanese and Soviet radio traffic. Cable communications between the Japanese Consul in Wellington and the Foreign Ministry in Tokyo were also intercepted.¹⁵ The FECB in Singapore informed the Navy Office that the 'special shipping reports ... are of great value to us.'¹⁶ After Japan entered the war in December 1941, Japanese ships (especially submarines) and military and diplomatic signals became the primary target.

As the USA became the dominant ally opposing the Japanese in the Pacific, it took control of Allied SIGINT activities directed against Japan, particularly after the FECB had withdrawn from Singapore and relocated to Colombo in Ceylon (Sri Lanka) and Kilindini in Kenya. US primacy was formalised in the Holden Agreement of 1942 between the US Navy and Britain's Government Code and Cypher School.

To ensure good relations with the United States, Lieutenant Commander Beasley flew to Pearl Harbor in early 1942 for discussions with Admiral Nimitz, the US Commander-in-Chief of Pacific Forces, and senior US intelligence officers. After the meeting Beasley noted that 'a number of things were fixed up very satisfactorily – particularly as regards ... D/F and Y intelligence.'¹⁷ As John Tonkin-Covell states, the 'New Zealand interception effort facilitated entree as a minor participant in the Allied signals intelligence offensive.'¹⁸

However, the new relationships between the Allies took time to settle in, which may explain why a New Zealand SIGINT coup in 1942 was not acted on by its Australian partners, with near catastrophic results. In May New Zealand stations identified five Japanese submarines operating off the east coast of Australia and on 26 May intercepted a Japanese signal which, if immediately decrypted, would have provided the plan for the midget submarine attack on Sydney Harbour five days later.¹⁹ This material was passed on to Australian and US authorities but was neither decrypted nor acted on in time. The attack came as a complete surprise to Sydney's defences, but fortunately damage and casualties were limited.²⁰

In the same month 'criminal carelessness' in New Zealand came close to exposing the top secret British code-breaking operation known as 'Ultra'.²¹ The COIC in Wellington sent a

cache of documents, including a Pacific-wide shipping summary largely based on Ultra material, in the general mail on a freighter sailing for Calcutta (Kolkata). A German commerce raider seized the freighter in the Indian Ocean and at the end of July the captured documents were delivered to the German naval attaché in Tokyo. They were passed on to the Japanese Navy which soon after changed its main code. As a result, the US Navy could not decrypt Japanese signals during various sea battles in October and November. However, code alteration was a normal procedure, and neither the German nor the Japanese intelligence officers seemed to recognise the importance of what they had obtained. Fortunately for the Allies, they 'escaped significant consequences' from the blunder originating in Wellington.²²

As 1942 progressed New Zealand's DF activities were increasingly coordinated by the US Navy through a newly established intelligence organisation in Melbourne (called the 'Fleet Radio Unit' or FRUMEL) and via intelligence headquarters at Pearl Harbor. At the end of 1942 Philpott could report that the New Zealand's DF stations were working with similar US stations around the Pacific to 'ensure that nine D/F stations in the Pacific will take practically simultaneous bearings of identical targets.'²³

New Zealand's DF activities contributed to the Allies locating Japanese ships during the pivotal campaigns of 1942 and 1943. Frank Barlow, who worked at Awarua, recalled intensive monitoring of Japanese radio traffic during the battles of the Coral Sea and Midway, and the later Solomon Islands actions.²⁴ During the Coral Sea engagement, New Zealand's SIGINT operators 'were urgently directed, by Hawaii, away from intercepting Japanese communications onto the taking of D/F bearings on specific Japanese naval call-signs – thereby ensuring all Japanese units engaged in the Battle, or present in adjacent waters, were located.'²⁵ In June 1944 Admiral Nimitz sent a signal of thanks to the Pacific Fleet Radio Intelligence Unit in Pearl Harbor noting the proficiency of the entire Pacific DF network, recognising the 'incalculable aid' it had provided, and asking that his 'recognition and appreciation' be conveyed to all concerned.²⁶

New Zealand's Y intelligence activities were not as well integrated with the other Allies as its DF work was. Philpott's report said that Y work was 'largely uncoordinated and some form of central control appears most desirable', preferably from Pearl Harbor.²⁷ This control did not develop. Nevertheless, throughout the war the Y section continued to sort and pass on to Australian and US authorities the many Japanese naval and diplomatic signals intercepted by the New Zealand stations. In general, the signals were sent on still encrypted, although the Y section was allocated a number of low grade Japanese codes and cyphers to decrypt, such as naval meteorological codes and codes used by auxiliary ships.

In 1942 the New Zealand Army, in response to the Japanese threat, began its own SIGINT operations in New Zealand. An Army Signal Company was established, based at Nairnville Park north of Wellington (with a later extension to Johnsonville). Alongside the signallers providing national and international radio links was the Special Wireless Section, which intercepted and recorded Japanese signals (up to 8,000 per month).²⁸ The signals were sent on to FRUMEL, which forwarded some material to the Central Bureau in Brisbane (an intelligence and code-breaking organisation established by US General Douglas MacArthur, the Supreme Commander Southwest Pacific Area). Some traffic was sent to a separate British-Australian secret intelligence organisation, the Allied Intelligence Bureau. As with the Navy's Y section, the Special Wireless Section also worked on deciphering some low grade Japanese codes. According to Tonkin-Covell, the unit was 'well regarded by the Australian, American and British intelligence authorities in the South Pacific and Southwest Asia. Tiny in size, the virtue

of its geographical location made it useful for collecting signal traffic more difficult to intercept elsewhere.’²⁹

The Special Wireless Section was also tasked with assisting the Police and SIB in locating and monitoring any ‘illicit radio communications emanating within New Zealand’. Using two specially constructed vehicles equipped with DF equipment, they surveyed a number of sites around the country. Colin Hanson states: ‘While a number of unusual transmissions were detected, such as emissions from diathermy equipment in hospitals, and from electric fences, none were of a security interest.’³⁰

The most unusual SIGINT operation in New Zealand during the war was set up in an isolated farmhouse at Rapaura in Marlborough late in 1942. It was an all-women operation staffed by eight Wrens, who worked on a new form of ‘radio finger-printing’ (pioneered in Britain) to produce what was called ‘Z’ intelligence. The RN had earlier realised that by photographing Japanese radio transmissions as they appeared on a cathode-ray tube, a ‘finger print’ of individual radios could be identified. Then, using a dictionary of images already built up (to which the Wrens added further images), the ships, submarines and shore stations where the radios were based could themselves be identified.³¹ The Wrens worked at this top secret task for 17 months, with their primary role being ‘to identify the sources of Japanese naval transmissions detected and located by New Zealand’s network of HF DF stations.’³² Their principal target was Japanese submarines and their most memorable achievement was identifying two submarines which passed through New Zealand waters in February and November 1943.

However, as Tonkin-Covell has noted, there were ‘certain limitations’ to New Zealand’s SIGINT activities. Even if raiders or submarines were located, it was difficult for New Zealand’s small and scattered forces to engage the enemy in time. ‘The relative immunity of enemy naval units in New Zealand waters was both a problem and a warning, and it is somewhat sobering to note that no enemy surface raider or submarine suffered any inconvenience whatsoever operating this far south.’³³

The last SIGINT station set up in New Zealand during the war was part of the naval station established at Waiouru on the Volcanic Plateau, which commenced operations in August 1943. It was built there because the previous year the Chiefs of Staff had realised how vulnerable the coastal radio stations, particularly in Wellington, were to attack from the sea. Lieutenant Philpott was station commander from 1943 to 1946. Under his watch, Waiouru became the largest and ‘most important Naval establishment in New Zealand’, with 150 officers and ratings (including many Wrens) based there by the end of the war.³⁴ Their work was mainly standard radio transmission and reception, but Y and Z activities also took place.

In 1944/45, with fighting in the Pacific moving steadily northwards, SIGINT activities in New Zealand gradually declined, as ‘the Japanese signals became weaker, the volume of radio traffic that could be intercepted declined, and bearings taken by the DF stations became less reliable.’³⁵ In May 1944 the Rapaura station ceased operations and the Wrens were transferred to other tasks. By mid-1945 the Special Section at Nairnville Park had closed and of the DF stations, only Auckland, Waipapakauri and Suva were still in action. With the end of the war in August ‘only small interception units remained at the Waiouru and Suva stations.’³⁶

Some 200 men and women were directly involved in the DF, Y and Z work in New Zealand between 1939 and 1945. While it is impossible to quantify the results of their work, it is

reasonable to suggest that they had an ‘impact on military operations ... far out of proportion to their relatively small numbers.’³⁷ The longer-term result of their wartime activity was the integration of New Zealand SIGINT into the larger US, British and Australian networks. By Tonkin-Covell’s account, New Zealand SIGINT ‘only made sense within an Allied context. Its very nature and the size of effort mounted meant it could not stand alone. Its usefulness and strength came from its practical application in cooperation with Anglo-American signals intelligence.’³⁸

This wartime co-operation had far-reaching effects after 1945. As Nicky Hager states:

‘Historical ties, which made it inevitable that New Zealand’s primary intelligence links would be with Britain (and thus Britain’s primary ally, the United States), were reinforced by the necessity of working with these countries in the 1942-45 Pacific War ... These wartime relationships, which were built around systems for British-American cooperation, were cemented into a comprehensive and enduring post-war signals intelligence alliance in the growing cold war of the late 1940s.’³⁹

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- ¹ Radio direction finding usually involves the use of two or more receivers to locate a transmitting station by means of triangulation.
- ² 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.17.
- ³ *Ibid.*, pp.108, 308; 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.140.
- ⁴ Colin Hanson, *Draft History of New Zealand SIGINT*, Chap 3: 'World War II', GCSB, pp.1-2.
- ⁵ Ball, Lord and Thatcher, p.17.
- ⁶ *Ibid.*, p.145.
- ⁷ Archives New Zealand, R21465022-AAYT-8490-N1/272, 'W/T stations – Wellington radio station'.
- ⁸ For further details on the SIB see Aaron Fox, 'A Formidable Responsibility: The Rise and Fall of the New Zealand Security Intelligence Bureau 1940-1945', *Security and Surveillance Series*, no. 1 (2018), pp.1-32.
- ⁹ Tonkin-Covell, pp.54, 77; S.D. Waters, *The Royal New Zealand Navy* (Wellington: War History Branch, Department of Internal Affairs, 1956), pp.435-449.
- ¹⁰ Ball, Lord and Thatcher, p.37.
- ¹¹ Nicky Hager, *Secret Power: New Zealand's Role in the International Spy Network* (Nelson: Craig Potton Publishing, 1996), pp.277-278.
- ¹² Hanson, p.3.
- ¹³ Ball, Lord and Thatcher, p.47.
- ¹⁴ *Ibid.*, pp.45-46, 256, 280.
- ¹⁵ Tonkin-Covell, p.149.
- ¹⁶ Hanson, p.3.
- ¹⁷ Ball, Lord and Thatcher, p.64.
- ¹⁸ Tonkin-Covell, p.129.
- ¹⁹ Ball, Lord and Thatcher, pp.113-114.
- ²⁰ This was not the only warning the Australians ignored, including an unknown plane flying over Sydney the day before the attack, which was later identified as a float plane from one of the submarines.
- ²¹ Max Hastings, *The Secret War: Spies, Codes and Guerrillas 1939-1945* (London, William Collins, 2015), p.94.
- ²² *Ibid.*, pp.94-95.
- ²³ Ball, Lord and Thatcher, p.324.
- ²⁴ *Ibid.*, p.95.
- ²⁵ Hanson, pp.6-7.
- ²⁶ Ball, Lord and Thatcher, p.310. An original copy of this signal is held at the GCSB in Wellington.
- ²⁷ *Ibid.*, p.327.
- ²⁸ Hanson, pp.9-10.
- ²⁹ Tonkin-Covell, p.326.
- ³⁰ Hanson, pp.11-12.
- ³¹ Ball, Lord and Thatcher, p.233.
- ³² *Ibid.*, p.261.
- ³³ Tonkin-Covell, p.125.
- ³⁴ Ball, Lord and Thatcher, pp.275-278.
- ³⁵ *Ibid.*, p.305.
- ³⁶ *Ibid.*
- ³⁷ *Ibid.*, p.2.
- ³⁸ Tonkin-Covell, p.427.
- ³⁹ Hager, *The Origins of Signals Intelligence in New Zealand* (Auckland: Centre for Peace Studies, University of Auckland, 1995), p.iii.