The Waglan Island:
The Lights, the Elements and the Skies

Research Monograph

Ir Dr. S.W. Poon, Dr. K. Y. Deng, Ir K.F. Man

June 2021

Figure 1 View from the North

Figure 2 View from the South

Contents

Executive Summary

Waglan is a small and remote island to the south-east of Hong Kong. It is barren and inhabitable but well known to the seafarers of the light erected on the island. For many decades, Waglan is mentioned while highlighting the strong wind recorded in times of the approach of severe tropical storms.

This project is aimed to trace the full history of the Waglan Island which commenced its essential functions from 1893. The integral findings would not only rebuild the full history of the lighthouse compound initiated, designed and built by the China Imperial Maritime Customs Service; but also define the intangible legacy of those involved in keeping the lights and recording the elements.

The origin and documents of the history of the Waglan Lighthouse compound were traced in Hong Kong and the UK regarding its design and construction, and maintenance of the lights. The work and function of the weather station erected on Waglan were recorded. The different kinds of personnel stationing on the Island and the interesting stories of their work, life and culture were recollected. In 1989 installations on the island became automated and the Lighthouse was declared a monument in 2000.

The dissemination of the lonely men's stories reinstalls the forgotten memory of the lighthouse-related work on this frontier Island, the collection and transmission of important weather information, as well as the unique lifestyle and culture over there.

Chapter 1 Introduction

Following the completion of lighthouses at Cape D' Aguilar and Green Island In 1875, and the lighthouse at Cape Collinson in 1876, the plan to erect lighthouses at Waglan and Gap Rock had been among discussion between the Hong Kong Colonial Government and Imperial Qing Customs Service. In 1892, the Gap Rock Lighthouse was constructed by the Hong Kong Government and a year later the Waglan Light was lit by the Imperial Maritime Customs Service.

This report is all about the history of Waglan Island, including the lighthouse, the people and their work and life while stationed on the island.

Name of Historic Lighthouses in Hong Kong and the year lit

No	Name of Lighthouse	Year Lit
1	Cape D'Aguilar	1875
2	Green Island (Old and New)	1875 & 1905
3	Cape Collinson	1876
4	Gap Rock	1892
5	Waglan	1893
6	Tang Lung Chau	1912

Figure 3 Location of Historic Lighthouses in Hong Kong (Source: HK Map)

Chapter 2 Research Methodology

Studying a lighthouse which was erected one hundred and twenty eight years ago on a remote island requires various data collecting methods. These include conducting interviews with descendants of personnel associated with the project; and examining the complete infrastructure despite the restriction in landing on the island.

Before having a chance to visit the island and the lighthouse, the team began by searching several related archives in the libraries and Public Records Office in Hong Kong. Archives held by the British Library and National Archives in London were searched simultaneously.

With exceptional arrangement a visit was arranged by a professional institute to the island. Team members had the opportunity to take a closer look of the lighthouse compound and were also benefited from detailed discussions with a retired staff who had worked for almost three decades on the island. The team has been able to make contacts with the descendants of the personnel involved in the design and operation of the lighthouse. More than ten interviews were conducted and invaluable information were recorded.

Built upon information gathered from the cross-continental archives, this report presents a historical reconstruction of the events leading to the construction of the lighthouse and the subsequent operation work until automation in 1989.

Chapter 3 History of Erecting Lighthouses in Hong Kong

The following were activities or events leading to the construction of Waglan Lighthouse.

On 12 October 1854 a letter was submitted to China Mail on the subject of erecting a lighthouse on Pratas Island with an appeal to the Chambers of Commerce or similar organisations to take up the matter.

In 1867 Sir Richard MacDonnell, representing the Mercantile Community, raised the lighthouse's issue with their full support, and reports were prepared.
Commander Reed, a British Naval Surveyor in commend of H.M.S. *Rifleman*, was instructed to investigate suitable lighthouse locations to cover the port approaches to Hong Kong. Waglan at the east entrance, North-east Head of Lema Island (Green Island from Harbour Master Report 1887) at the west entrance and Gap Rock to mark the south approaches, were proposed but no action was further pursued due to the proposed locations were all within the China territory.

The Treaty of Tientsin 1869-1870 required China to open more ports for trade and as a consequence erection of lighthouses had become a necessity.

At the annual meeting of Hong Kong General Chamber of Commerce (HKGCC) in early 1872, lighting of the approaches to the port was discussed. The Special Fund remained in the HK Government was also touched on in providing the money for lighthouse construction. A resolution was passed to request the unofficial members of the Council to urge upon the local government the importance of properly lighting the entrances to the harbour of Hong Kong, and that they were further requested to ascertain whether such portion of the Special Fund can be applied for that purpose.

In January 1873, James Whitthall of HKGCC, a member of Legislative Councillor proposed a debate on the necessity to erect two or more lighthouses at the eastern and western entrances of Victoria harbour. He expressed that the total cost would not be more than $25,000, which could be paid from Special Fund, and maintenance of $6,000 per annum to be covered by the light dues of 50 cents per 100 tons (0.5c per ton).

Robert Hart, Inspector General of Chinese Maritime Customs Service, after seeing the speech of James Whittall from China Mail concerning the lighthouses on the neighbourhood of Hong Kong, replied on 20 Feb 1873 to James Whittall, and opined that the colony had little chance of acquiring the places named. He further suggested that Hong Kong to pay the fee of $90,000, then the Customs would undertake to construct the Gap Rock and Waglan Lighthouses, and maintain them subsequently.

Agreement was not given by the Qing Government for the Colony to erect such buildings on the Chinese Territory. It incurred much loss of time and a great deal of correspondence that the colonial government was compelled to build lighthouses within its own jurisdiction. (Harbour Master Report 1887)

To avoid further delay, in March 1873 the Harbour Master chose lighthouses to be built at Cape D'Aguilar, Green Island and Cape Collinson. This was possible as other suggested places were within Chinese territory and a lease from Qing Dynasty was not successful. The first two were lit in 1875 and the third was completed one year later due to the mismanagement in sending the equipment to Cape of Good Hope.

Chapter 4 The History of Waglan Lighthouse

Waglan island was one of the locations first suggested by the Colonial Government for lighthouse construction. However, due to the reason highlighted previously, such idea was not considered by the Imperial Qing Government.

With China's agreement on the Gap Rock Lighthouse construction in 1888, the Hong Kong Governor expressed the wish of erecting a lighthouse at Waglan while presenting to the legislative council on the lighthouse arrangement by the Chinese Government.

The Colonial Secretary wrote to the Commissioner of Chinese Customs, Kowloon on 6 July 1888, stating that ***Cape D'Aguilar was the wrong place*** for the light, and the right one should be Waglan Island, and erection of the lighthouse at the former place simply because the better site was not available. F.A. Morgan, the Commissioner of Customs for Kowloon and District, submitted his letter dated 8 August 1888 to Colonial Secretary explaining that Robert Hart was not able to treat the Waglan Lighthouse at the Tsung-li Yamen as he did for the Gap Rock proposals.

Waglan lighthouse was designed by David Marr Henderson, the Engineer-in-chief of Imperial Maritime Customs Service, and built by Barber, Benard and Turenne, a French Contractor. The light was first lit on 9 May 1893. Initially it was operated by German Keepers but transferred to the Hong Kong Government from 1 March 1901 [Nicholas' notebook] as a result of the lease of the New Territories in 1898.

燈塔由滿清海關總工程師本韓德森設計
David Marr Henderson, Engineer-in-chief
Chinese Maritime Customs (1869 – 1898) (SCMP)

Figure 4 David Marr Henderson (Source: SCMP)

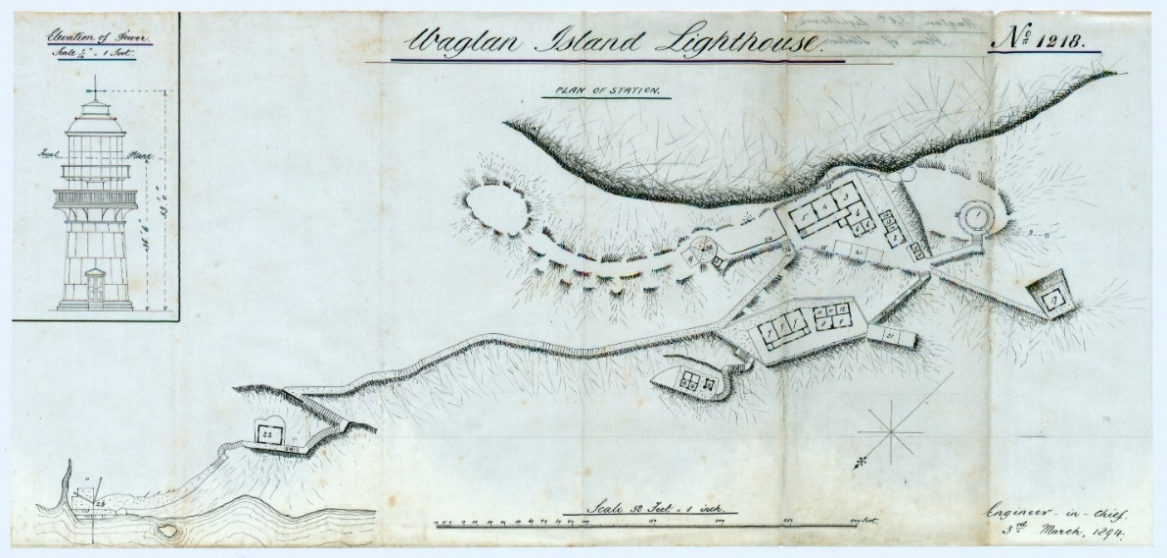


Figure 5 Drawing of Waglan Lighthouse by David Marr Henderson (Source: Institution of Civil Engineers, UK)

The lantern was of first order of 45,000 candle power, consuming the mineral oil with rotating apparatus floating on mercury, an almost friction free bearing for the lens apparatus, that enabled an 8 tonne first order lens to be rotated by the push of a little finger. [Steven Davies, Waglan Lighthouse – a brief history, the Industrial History of Hong Kong Group.] It has a twin of the Lao-tieh-shan Light at Dairen (Appendix A). The diagram and operation of the apparatus was recorded by Charles Edwin Nicholas in his note book.

On 9th May 1893 the light was lit by Lady Robinson in the presence of the Governor of Hong Kong who were travelling by Customs cruiser ‘Likin’ to Waglan Island. The project was supervised by Mr. Harding, the Assistant Engineer of ICMS. [May 26 1893, North China Herald]

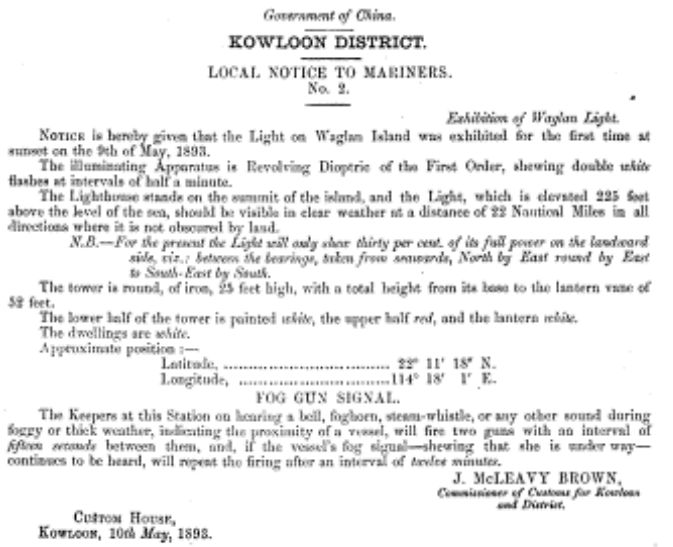
Light first lit on
9 May 1893
by Lady Robinson
燈塔亮燈由港督夫人主持

Figure 6 The Light was Lit by Lady Robinson

運送船舶
Revenue Cruiser 'Likin'
in Hong Kong harbour
was engaged in keeping
up communication with
Waglan Island during
lighthouse construction

Figure 7 Cruiser ‘Likin’ (Source: ASD)

Government Gazette 1893年5月10日憲報



Government of China.

KOWLOON DISTRICT.

LOCAL NOTICE TO MARINERS.
No. 2.

Exhibition of Waglan Light.

NOTICE is hereby given that the Light on Waglan Island was exhibited for the first time at sunset on the 9th of May, 1893.

The illuminating Apparatus is Revolving Dioptric of the First Order, shewing double *white* flashes at intervals of half a minute.

The Lighthouse stands on the summit of the island, and the Light, which is elevated 225 feet above the level of the sea, should be visible in clear weather at a distance of 22 Nautical Miles in all directions where it is not obscured by land.

N.B.—For the present the Light will only show thirty per cent. of its full power on the landward side, viz.: between the bearings, taken from seawards, North by East round by East to South-East by South.

The tower is round, of iron, 25 feet high, with a total height from its base to the lantern vane of 52 feet.

The lower half of the tower is painted *white*, the upper half *red*, and the lantern *white*.

The dwellings are *white*.

Approximate position :—

Latitude, ... 22° 11' 18" N.
Longitude, ... 114° 18' 1" E.

FOG GUN SIGNAL.

The Keepers at this Station on hearing a bell, foghorn, steam-whistle, or any other sound during foggy or thick weather, indicating the proximity of a vessel, will fire two guns with an interval of *fifteen seconds* between them, and, if the vessel's fog signal—shewing that she is under way—continues to be heard, will repeat the firing after an interval of *twelve minutes*.

J. McLEAVY BROWN,
Commissioner of Customs for Kowloon and District.

CUSTOM HOUSE,
KOWLOON, 10th *May*, 1893.

Figure 8 Waglan Light Gazetted on 10 May 1893 (Source: HK Gazette)

Since 1893, the establishment of a lighthouse on Waglan Island by the Chinese Authorities had rendered Cape D'Aguilar light unnecessary. In Dec 1900 the Master of Harbour Department recommended to remove the light to Green Island at a cost of $5,600, where, being a long distance light, it would cut in with the Gap Rock light, and a vessel after getting hold of the latter would have a leading light right up to the harbour. If this change is made, the present Green Island light would be recommended to be placed at Cape Collinson ($7,000), and the Cape Collinson Light, with a slight modification, would be placed as a harbour light on Kowloon Point. These changes were great improvement to the lighting of the approach to Hong Kong harbour. (Harbour Department 1892, Henry Blake, The Governor to Joseph Chamberlin of Downing Street dated 25 Aug 1900)

On 2nd March 1901 at 12:45 pm the island was taken over from Qing Government by Acting Harbour Master Mr. Basil Taylor, on behalf of Hong Kong Governor [Ref:CO129/304 Despatches:1901 Jan-Apr receipt and funds return to Chinese Qing Govt.] Mr. Taylor was accompanied by the representative of Public Works Department, and Mr E.V. Brehan the Acting Commissioner of Chinese Customs [Ref: Mar 20 1901, North China Herald, China Mail]. The lighthouse was managed by 3 Europeans and assisted by 6 Chinese; with a payment of $2,943.60 to the Chinese Government covering the expenses since 1st January 1901.

Newspaper: Taking Over by Acting Harbour Master, Acting Commissioner of Chinese Customs and an officer from PWD in the name of the British Government on *3 March* 1901

Harbour Report:
On *2nd March* taken over from the Chinese Government

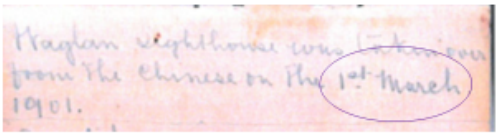


Figure 9 Taking over the Island and the Lighthouse

Due to the delay in transferring the lighthouse, the Colonial Government paid a sum of $2,943.60 to Chinese Government for the cost of purchasing from the Chinese Government the furniture at the light station and the maintenance cost from 1 Jan 1901, despite the Chinese side had asked for the compensation of the station maintenance of the Waglan Lighthouses and the buildings from 17 April 1899 to 28 Feb 1901. (letters 31 Oct 1899, 10 May 1901 from Sir Chamberlain, Secretary of State, Colonial Office to Sir Blake, The Governor of Hong Kong).

According to the record, no Chinese keeper served on the lighthouse until Messers. Wong Kai Chung and Leung Chiu Tung in 1930s. Reported by Mr. Deacon in November 1956, the Superintendent of the Navigational Aids, three Chinese all with surname Lee or Li served as lighthouses keepers until their retirement.

In Dec 1941, before the Japanese's occupation, the lens was destroyed and the light was disposed to the sea. On 13 Dec 10:30 am the keeper and staff were evacuated and taken to Aberdeen. [HK War Diary, Tony Banham quoted by Stephen Davis in Industrial News HK website]. During the Second World War, Waglan lighthouse was extensively damaged by aerial bombing. After the war temporary light was installed on 9 Sep 1945 and repairs were undertaken.

On 20 May 1950 the light was resumed [SCMP 16 May 1950; Contract No. 277/46 Waglan Lighthouse Repair – contractor Hang On Tai, 1950 HKRS156-1-628]. Besides staff of Marine Department in maintaining the light, technicians of Cable and Wireless Ltd., computers of the Hong Kong Observatory and the Navy Force had stationed on the island until 22 Aug 1989 3:00pm when automatic operation of the lighthouse and other equipment commenced.

The red and white Waglan lighthouse constructed of cast iron and stands at 16m high, was declared a monument in 2000.

Chapter 5 The Island and the Lighthouse

The Waglan Island is of about 1,000 sq.m. (29 acres; 11.75 ha by D. Waters, 0.041 sq. miles in 1973 Magazine), at a distance of 22 km southeast of Hong Kong, 5km from Cape D'Aguilar, 13 km from Lei Yue Mun [Waters] and 5.4 nautical miles from South-east of Stanley [SCMP Jul 2017]. Waglan consists of two islands with 7-9m sea-water channel between them. The lighthouse is at the crest of the southern island 22° 10.10'N and 114° 18.1'E. The southern island is about 800m length; and of 224 steps from pier to the hilltop. [CO129/12 Despatches:1867 Mar-Apr, Harbour Master recommendations on locations of lighthouses in HKG; HK Marine Department Navigation Aid serial no. 102].

Figure 10 Location of Waglan (Source: HK Map)

The lighthouse is 69m (225ft) above sea level. The lighthouse tower is 16 m (52 ft) by height and the cast iron tower consists of 45 steps, 17'- 6" dia. at base and 12'- 8" dia. at top. The tower is painted white / red / white on outside face, and is the twin with Dalian Lao Tieh Shan lighthouse (大連老鐵山燈塔) and manufactured by French Company Barbier, Benard & Turenne (BB&T).

Figure 11 The Light

Figure 12 The Lighthouse

Details of the Lighthouse:

The Lighthouse

- First order revolving light
- Double flashing light – characteristic
- 22 nautical miles, seen at 25 miles
- Cast iron tower 25 ft high, dia 17’ 6” at base, 12’ 8” at top
- Lower room for stores, upper for services
- Spiral stair, brass scuttles, ventilators , speaking tubes to dwellings, copper lightning conductor
- Foundation – Green Island cement concrete, tower secured with anchor bolts

- The low wall 7.5’ high of cast iron
- Two doors to the outer gallery, protect the flame from irregular air current
- Lantern has 16 steel standards and three tiers of curved plate glass glazing
- Dome is sheet copper carried on wrought iron rafters, surrounded by a fixed copper cowl and vane
- Ceiling is galvanised sheet iron

- Optical apparatus 8’ high, 7’7” in outer diameter
- Gun metal armature and supporting table = 4.5 tons total
- Octagonal in plan
- Flashing at 6 11/15 and 23 4/15 seconds with revolution in two minutes
- The light is floated on mercury and revolved on a pivot
- Float and tank are polished cast iron, space for mercury is a quarter of an inch
- The actuating machinery is a clockwork, driven by a falling weight and is wound up by hand

- The Tower, light and lantern cost 5,092 pounds
- The local expenditure for dwellings etc. = 3,711 pounds
- Derrick crane at the landing place for relief and stores landing

- Fog signalling is carried out with 18-pounder cannon

- Illumination power is equivalent to 45,000 candle power (later to 1 million, powered by 12 volt battery)

Figure 13 Interior of the Lighthouse

Lens and lamp – Originally in 1893, the 1st order of the 8-ton lens of 45,000 candela, was floated on mercury. It was BB&T first equipment with such newly invented design and the company sent the best workman to go to China with the lighthouse to carry out the assembly. As a result the Chinese Maritime Custom needed to employ an expensive employee.

The original lens and lamp, and the communication equipment were destroyed by the British Navy in Hong Kong before evacuation in Dec 1941. There were additional damages by the Japanese and by the bombing by Allied aircraft. After World War II, on 21 May 1950 [SCMP HK Civil Affairs Committee 1946 meeting] $2.05M was allocated to Marine Department to improve Waglan Lighthouse facilities and associated equipment in 4 years. The light was duplicated and some spares triplicated. 25 tons of new equipment was carried uphill by manual labour, and took 6 weeks to erect, assemble and commission.

The previously used acetone stored in gas cylinders to supply acetylene for light, was changed to AGA light of 1,500 Watt. [1961 May 13 KSYP & SCMP] On 25 Mar 1968 [WKYP] Cable & Wireless Ltd ordered 350 Watt lamp from the UK for Waglan Lighthouse. In 1972 the AGA UK light and in 1973 Nov [HK Standard] a 1,500 Watt light were used. In 1974 the weight of the lens and light was 1.5 tons and in 1989 automation commenced on 23 Aug 1989 with a 400 Watt light. The 4th order 375mm focal length catadioptric lens, was mounted on 12V battery driven gearless pedestal in 1974.

Light characteristics – In 1893 mineral oil was used for lighting. In 1951 with the electric light of 1,500 Watt and about 1 million equivalent candle power, the beam was seen about 40 km (maximum 26 nautical miles depending on height of viewer above sea level, 21 nautical miles in 1951). Four cylinders of acetylene gas each of 200 lbs. were carried manually from pier to hilltop, regarded as a difficult duty by Mr. Lai Kei, the lighthouse attendant.

Flash characteristics –from 1893 up to 1941 – the light gave 2 flashes (double white) every 30 seconds. Between 1945-1951 the flash appeared every 6 seconds; and 2 flashes every 20 seconds after 1951 [Fl(2)W20s] from 5:00pm to 6:15am during the old operating hours. [23 Aug 1989 Sing Po]

During the Second World War, the original lens was broken up and thrown down the cliff into the water and the lighthouse mercury was put out of the commission. [S. Davies]

Before automation, the lighting apparatus was housed within the structure at an elevation of 69 metres, consisted of a 4th order, 375mm focal length catadioptric lens mounted on a 12V battery driven gearless pedestal. The light source was a 110V d.c. with a 1,500 W pre-focus bulb. The option evolved at 1r.p.m. and produced a character of 2 flashes every 30 seconds (now 2 flashes in 20 seconds) The intensity of the light was over 1 million candelas and could be seen at night in clear weather at a distance of more than 26 nautical miles. Two 50kVA with one standby “brush” alternators coupled to 90 b.h.p. “Gardner” diesel engine provided the lighthouse with 200/345 volt power supply for cooking, operation of light, radio and radar transponder and other miscellaneous machinery.

The Government proposed cancellation / demolition of Waglan lighthouse on 12 Sep 1966 [p 12, 1973 4 Sept HK Standard]. The remote control of Waglan Island fog signal from Cape D’Aguilar did not replace the manual control on site. [1981 Sep SCMP]

Chapter 6 Maps, Layout Plans and Aerial Photos

Source: Crown Land and Survey Office survey plans and aerial photos

In 1780 the island was called “Waag Laang” in a map.

In the 19th century the island was named as “橫欄洲，如一字橫列”. Between mid to late 20th century, it was renamed as “橫瀾，橫障波瀾之意”。 [香港之鑰]

Figure 14 The Two Islands of Waglan (Source: 野外 Magazine)

In the 1845 Ordnance Map prepared by Lieutenant Collinson, “WANGLAN”, instead of “WAGLAN”, was used. In some years only one island was shown (instead of the northern and southern islands) and the layout was different from current survey; probably a mistake in surveying of the island.

“Wang Lan” appeared in a 1930 map and the Chinese name was “橫欄洲” in 1932 Bannister’s book.

Record plans for construction and maintenance works from Architectural Services Department and HKPRO files show the following buildings: Lighthouse tower, signal tower, offices, explosives store, European quarters, naval barrack block, Chinese quarters, water tanks, oil tanks, engine rooms, diaphone house, landing stage (platform), helicopter pad, pier and bridge, toilets, etc.

The Lighthouse

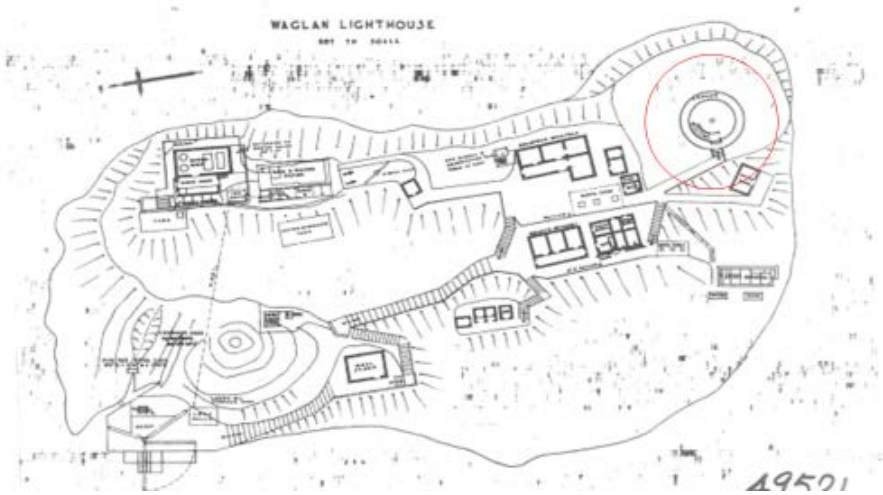


Figure 15 The Island and the Lighthouse
(Source: Architectural Service Department)

Figure 16 The Lighthouse (Source: ASD)

Figure 17 The Lighthouse Compound

Chapter 7 The Lighthouse Compound

On 17 Nov 1946 the tender for repair of water storage tanks and paths and tunnels (for air raid use in WWII) to be backfilled was invited. [SCMP]

Figure 18 Water Storage Tanks

In May 1950 [SCMP] – a new building was completed adjacent to signal tower to house 25-ton generator and machines.

According to the audit report in 1953, the offices include – Officer in charge room, senior officer room, junior officers room, mess room and passage. [1950 Oct 4 SCMP, 1953 audit report]

Figure 19 European Staff Quarters

European Staff Quarters and Signal Tower

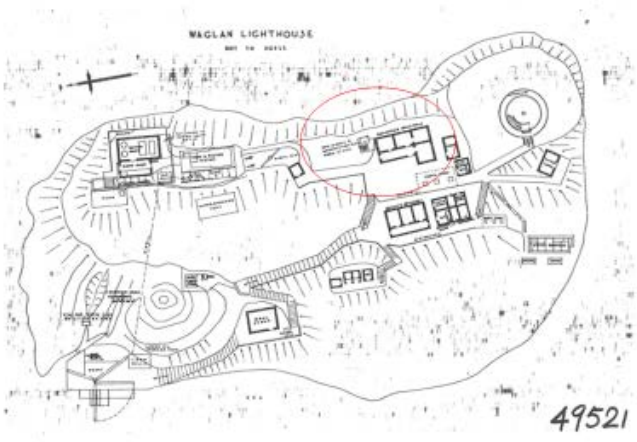


Figure 20 European Staff Quarters and Signal Tower (Source: ASD)

Figure 21 European Staff Quarters and Signal Tower

Signal Tower – kitchen, pantry, bathroom, lavatory, store room, light attendant room, station attendants room, watchmen room, Chinese quarter passage, battery room, switchboard room, godown [1953 audit report]; 1977 July – signal tower was enlarged and windows were changed. [SCMP 3 July 1977, WKYP Jul 31 1977]

Figure 22 Signaling Tower

Office building 4-storey high – G/F Cable & Wireless Ltd. office; 1/F and 2/F Royal Observatory office; 3/F Civil Aviation Department office. The radio operators were on 24 hrs duty. [Mr. Luke Yu]
The layout of Royal Navy buildings can be seen from a drawing in 1951. [HKRS 156-1-2970]

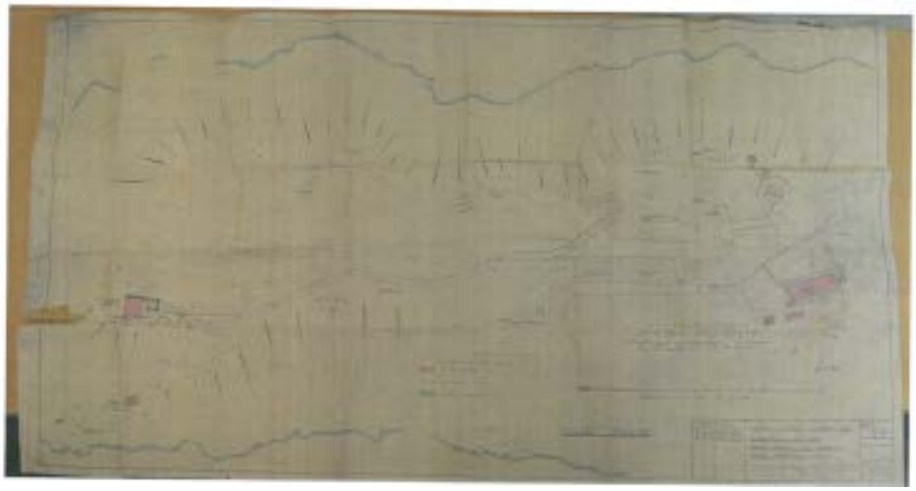


Figure 23 Drawing showing the Royal Navy Building (Source: ASD)

Radio and Weather Station

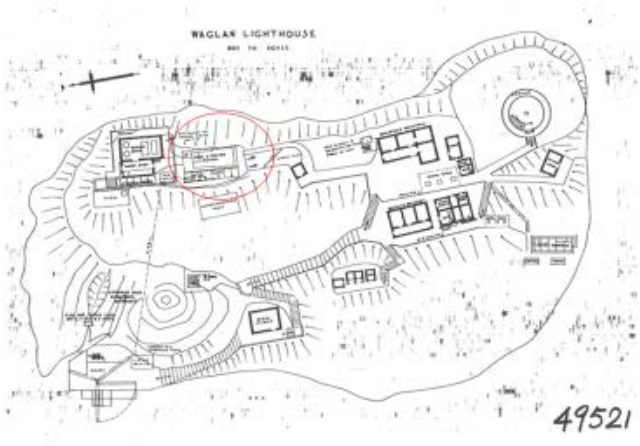


Figure 24 Radio and Weather Station (Source: ASD)

Figure 25 Radio and Weather Station

Under Defences (Firing Areas) Ordinance 1936, (Ord. No. 1 of 1936) –firing was practised at Firing Area B at Waglan Island [Ref: CO/129/559/2]. In the morning red flags were raised before firing and at night red light was shown. [Sec 5(1)(iii)); Firing Area 2 – for firing of cannons by Navy 194]

The Royal Observatory, Cable & Wireless Ltd. buildings, Radio and Weather Station, the Royal Observatory operation were started on 1 Dec 1952 until late 1963 [T C Lee and W H Lui 2018 paper]. Signal Masts were erected for hoisting the signals.

In 1960s - Fook Lee Construction Co was hired to construct the new staff quarters building. Rock blasting was not allowed and construction materials were transported by vessel. [Mr. Luke Yu)

Rooms of buildings at Waglan were numbered as seen from the 1981 RTHK video.

Figure 26 Rooms inside Radio and Weather Station

Incinerators were installed adjacent to the steps near the landing pier.

Number of water tanks [newspapers and HK Govt reports) was increased from 3 nos. (1945) to 6 nos. (1953).

Two oil tanks each of 24,000 gallons were constructed and filled up every year [Marine Department Annual Report 1964-65, WKYP 1960s Sep 20)

The Engine Room was described in Jimmy Deacon's article in Nautical Institute HK Branch as follows.

- “Two 50kVA (one standby) *Brush* alternators coupled to 90 b.h.p. *Gardner* diesel engine supplied to the lighthouse 200/345 volt power supply for cooking, operation of light, radio and radar transponder and other miscellaneous machinery. The sound for the fog signal was provided by two *ATLAS COPCO* (one standby) air cooled reciprocating compressors coupled to 100 b.h.p. *Gardner* diesel engine. Two sets of foghorn were installed on the island, which are apparently appeared in the photo. Each of them connected to the generator downstairs in the engine room. The horn would be operated when visibility is reduced down to two nautical miles.”

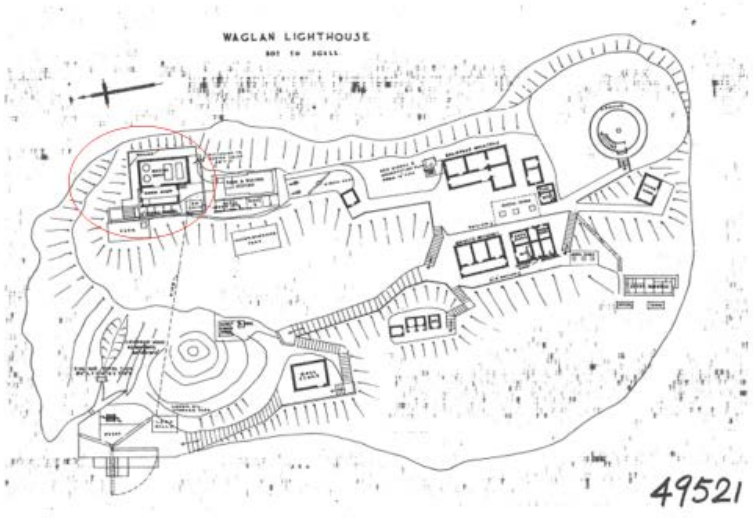


Figure 27 The Engine Room (Source: ASD)

Figure 28 The Engine Room

The new light got going in 1951 and was refurbished in 1972 by AGA U.K.

In 1989, the new multi-sealed beam array light was automated.

Water storage was a problem on the island because collection of rainwater was the only supply of drinking water. There was a shortage of water in May 1910 (12 May 1910 Hong Kong Telegraph) on the island leading to shipping water to the island, staff had to keep a good record and plan in water consumption.

The 375mm focal length lantern was first in operation in 1950 and continued in service until replaced by a modern sealed beam array in 1989. It is currently displayed at the Hong Kong Maritime Museum, as a kind of arrangement by Hong Kong History Museum.

The island had once been highly crowded with important operational section of various departments in mid 50s. Except the lighthouse keepers, there was the HMS Tamar who operated a radar station. The Civil Aviation Department also operated an aviation traffic control station, the Hong Kong Observatory staff there collected weather information of the area and Cable & Wireless Co. Ltd. maintained and serviced all radio equipment on the station.

In 1937 defective circuits were rewired, electric fog signal apparatus installed and underground cable renewed.

Chapter 8 Access to Waglan Island

On 24 May 1893, 3 buoys moored near the landing place to assist vessels to get near to the Island. [SCMP 1934 Jan 23 quoted HK Telegraph in 1893]

1929 Harbour Office report – Section 3 – the previous tender launch *HD 5* (Harbour Department) was replaced by the new steam launch '*Lila*' at $13,750 under special expenditure.

A cannon embedded in concrete was seen to act as bollard for anchorage at the old landing stage. [Waters and 野外 magazine 1976]

The gantry and basket were used for landing was shared by Bill Gutteridge (SCMP). "After he joined Marine Department in 1952, and when there was a rough sea, the boat used to lay off about 5' to 6' from the pier and we had to swing a big basket to lift the people to shore." [1970 HK Standard, Thirlwell] The rattan basket carried 3 persons each time and personal belongings were delivered carried separately. [Mr. Luke Yu]

Landing by Basket

Figure 29 Landing by a Basket (Source: Internet)

In July 1953, the Launch '*Lady Maurine*' was completed for lighthouse tender and the Governor's use.

It took about 90 minutes to two hours sea voyage from city and sea was rough in winter. The vessel would stay at Waglan Island pier for about 4 to 6 hours. [1953 Oct SCMP on Governor's visit, SCMP 1989 Jun 5]

Caissons were constructed at North Point Depot for the new pier, and towed to the place for sinking. [23 Jul 1957 SCMP]

Mr. J. C. Brown, the Chief E&M Engineer of PWD, went ashore in a basket to Waglan Island. 4 men each put one leg into the basket and kept the other ready for leverage if necessary. [1958 Jan 26 SCMP]

In 1960s, there were three assembly points in the city for boarding of staff of Royal Observatory. The vessel of Marine Department embarked from Blake Pier in Central, stopped over at North Point pier and Tsim Sha Tsui Railway station pier (i.e. Kowloon Public Pier) [Lui Yau Lok]; went through Lei Yue Mun, Tathong Channel before arriving at Waglan Island. [Mr. Lui Yau Lok and Mr. Luke Yu]

On 27 Jul 1964, reporters of Tai Kung Po Daily sat in basket to get ashore.

In Nov 1964, the launch was changed to a small one in transferring the men and equipment to the island. Three anchorage points near the pier were used for berthing. [1966 Sep 12 KSMP]

On 5 Feb 1965 the Gazette invited construction of the new pier at Waglan to replace the old pier (landing place) which was damaged by 1964 typhoon.

On 2 Jul 1965, the Governor in council approved under Foreshore and Seabed Ordinance, 6,000 sq. ft. near Waglan for pier construction. [Jul 5 1965 SCMP, Jul 23 LegCo meeting minute]

As reported by KSWP on 12 Sep 1966, the new pier and bridge construction were near completion. The frontage was 60' with 16' of water for lighthouse tender to berth.

On a Tuesday in 1970s Gutteridge boarded a vessel at 9:00 am at Kowloon Public Pier. [Gutteridge, 1979]

In 1970 Mr. Lai Kwok Keung requested for posting to work at Waglan upon joining Marine Department. There was a ferry service between Shek O (Lai's home) and Waglan.

In Jan 1973 the Marine Department launch No. 35 was 65' long, 18'- 6" wide, capable to take 7-member crew at 9 knots was costed at $0.45 million.

In 1981 the MD50 vessel was the lighthouse tender (RTHK TV)

Figure 30 The Pier and the Bridge

In 1985 Mr. Simon Mak, an engineer of Marine Department, boarded the MD28 vessel (MD's largest vessel) on an official visit to Waglan Island.

There were damages of the pier during various hit by typhoon – Typhoon Wanda in 1960s and the severe Tropical Storm Mangkhut on 11 Sep 2018.

Figure 31 The Damage Pier without the Bridge (Source: Internet)

In 1967 a proposal was raised to install the steel winch, trolley and rail system to carry goods from the pier to the hill top at an estimated cost of $110,000.

Helicopter pad – now located at the hilltop at northern part of the South island, construction was proposed in 1977 July (Jul 31 WKYP) to replace the ferry pier which was being used as the helipad [Lee Hin Chung old photo, 'Ⓗ' printed on pier top surface]. The new helipad was completed in 1982 [5 Jul 1982 SCMP]. Helicopters of the Government Flying Service pick up customers at Wanchai helipad near HKCEC, with a flight time about 5 to 6 minutes would arrive at Waglan. In summer the South-westerly wind and in winter the North-easterly wind are prevail.

Figure 32 An RAF Helicopter


Figure 33 The Helipad

Chapter 9 Fog Signal

Number of hours of fog in each year are detailed in Harbour Master annual reports.

Fog gun

The fog signal was originally a gun – the signal was two guns fired in quick succession on hearing a ship's fog signal, but in 1922 or so these were replaced by a diaphone, although a gun was still served as back up.

The gun would be fired by lighthouse keeper when hearing bell, fog horn, and steam whistle during foggy weather, as reported by North China Herald on Aug 30 1895.

In 1896 the Harbour Master's Report Section 45 highlighted that 'High Explosives' sound signal was replaced by old fashioned gun signal.

The guns were installed since taken over by the British in 1901. [Roger Banister, Chinese Maritime Custom Chapter II, Southern District, 1932]

Continuous explosive signal was given within an interval of 5 seconds between them, and at every 12 minutes. [1920 Mar 17 China Coast Inspector Notice, North China Herald; 2018 Apr 18, HK Lighthouse and their Eurasian Sentries, p. 266 Zolima City Mag]

Stock taking in 1953 included tonite guncotton and electric detonators in the annual return from Harbour Master. Also in 1909, a total of 2,108 times was fired.

Report from Waglan inaudible at 2 miles, previously heard at 5 miles. [1921 Shipping and Shipbuilding Sub-committee Report [(Economic Resources Committee 1921 June-Aug Despatch pp.329) – 1920/4/16 – Gazette No.17; 1921-28 Harbour Master Administration Report – return on nos. of automatic fog bell (Beckwith Bell) and fog gun (signal) per year]

The signaling guns were 18 pounders and carry charges of 2.75 lb. [1966 Sep 12 SCMP]

The two fog guns on Waglan, "with two blasts in quick succession every 15 secs fired at 15-minute interval during heavy fog and on hearing a ship's fog signal, each

blast 2.75 lbs explosives", was considered too expensive and might be disposed and replaced by fog horn completely. [1969 Sep]

"In the early days….to set off the fog gun by detonating gun cotton." [Thirlwell 1970 HK Standard]
The date when firing of fog gun was terminated was not known.

Figure 34 Cannons and Fog Horns (Source: Internet)

Diaphone
In April 1922 April - two tone blast, an upper tone followed by a full steady low tone of equal or greater duration than the first tone, sounds like a dying (disgruntled) cow, "Moos". The test was carried out at Government Wanchai workshop. [China Mail, MD Annual reports]

In Sep 1923 the diaphone fog signal was installed as an attempt to replace thefog guns.

In 1938 Harbour Master Report Heading 10 – An estimated expenditure for a proposed new diaphone at Waglan of $46,623 to replace existing dilapidated non-repairable diaphone, also the purchase of new batteries for Waglan at $5,500. [Ref: CO/129/561/10]

On 21 May 1950 – the twin type diaphone, at air pressure 35 lbs/sq in., with diesel engine and compressor, was heard for 5 miles in worst fog. [SCMP]

On 4 Oct 1953 – the fog explosives was served as standby, usual 50 lb. [SCMP]

In May 1951 - 2 'G' type of superimposed diaphone, of half a wave length apart, with 2 blasts quick succession per minute, can be heard up to 5 miles.

Fog horn

On 9 Feb 1955 the fog horn was installed at Waglan Island. [SCMP]

In May 1961 2 nos. 48 HP diesel air cooled air compressor (Atlas Copco) providing the compressed air for fog horn, and 1 no. 160 bHP Gardner diesel engine providing the power to the air compressor. The horn can be heard about 9 miles. [SCMP 1961 May 13] [SCMP 7 Jul 2017] The two horns have the conical shape at the roof of machine room.

2 units of electro-magnetic oscillator with a sound pitch of 300 cycles and 3 blasts for every 60 secs. [HKRS 156-1-628]

On 26 Jan 1972, the fog horn was reported in Marine Department Notice. [HKRS70-3-326]

On 25 Jan 1973 the visibility at Waglan was 200m, the fog horn signal was switched on. [1973 Apr 9 HK Standard]

Reported by Lee Hin Chung, "… visibility was only about 1 mile, went down the engine room to switch on the fog horn. It took about 7 minutes for the engine to warm up." [18 Sep 1973 SCMP]

Shared by K.H. Cheung "Remote control of light from Marine Department Headquarters after August 1989; fog horn was operated by automatic sensor".

The sound for the fog signal was provided by two “Atlas Copco” (one standby) air cooled reciprocating compressors coupled to 100 b.h.p. “Gardner” diesel engine. Two radio beacons (one standby) which emitted a coded “WL” signal to assist vessels in fixing their positions and a radar transponder also known as ‘RACON’ gave coded and amplified signal for ships to positively identify Waglan on their radar screen were installed on the island.

Figure 35 The Fog Horn

Chapter 10 Departments and Organizations Worked on Waglan Island

- Marine Department – The lighthouse and the lighthouse compound.
- Hong Kong Observatory, ex-Royal Observatory, (1952 weather monitoring staff on Island, took over by MD lighthouse staff in 1964).
- ex Public Works Department - Architectural Office, E & M Office; Port Works Office etc.; (Arch S D, EMSD, CESD afterwards).
- Civil Aviation Department and Hong Kong Flying Services.
- Hong Kong Royal Navy building erected after World War II – coast watching station constructed in 1951-52, abandoned in 1960.
- Cable & Wireless Ltd. – various communication equipment.
- Civil Aviation Department – radio beacon (note: CAD radio beam transmitted upward, Marine Department's radio beacon transmitted beam horizontally and could be picked up at 85 miles at sea)
- Agricultural and Fisheries Department – trim or remove heavy vegetation which obstructed lighthouse keepers observation of vessels.
- Contractors of Public Works Department carry out maintenance and construction works contract.

Chapter 11 Equipment Installations

Marine Department –

- In the early days - Submarine telegraph cable, Morse Code Light, flag signals.
- 1912 – radio.
- 1940 – details of submarine cable, wave length and wave frequency of equipment.[Government Report on Railway, Telegraph and Telephone]
- 1950s - Wireless communication equipment.
- 1969 - Radar Responder Beacon (RACON) reacts to electrical pulse of ships radar and emits signal which shows upon radar system screens [1969 Jun 12 HK Standard]. The radar transponder gave coded WL signal up to 20 miles distance.
- In the early 1970s, two powerful 200v AC generators were installed, a standard pier together with the winched trolley from pier was installed uphill. The mother ship can berth alongside right on the pier. Loading and unloading of people and gears became convenient and safe.
- 1980s - LORAN is the long range navigation – synchronized pulses transmitted from widely spaced radio stations to aircraft or shipping, time of arrival of pulses was being used to determine positioning. [Dan Waters]. The OMEGA electronic signal system and vessel traffic control system VTCS were used.
- 1990s - Global Positioning System (GPS).

Waglan Light and Telecommunication Equipment (SCMP)
[The Light at HK Maritime Museum]

Figure 36 Waglan Light and Telecommunication Equipment (Source: SCMP)

Hong Kong Observatory –
Typhoon signal mast, equipment for measuring wind speed, wind direction, air temperature, sea water temperature, air pressure, humidity, rainfall, visibility, tide observation, wave recorder [SCMP 1971 Jul 2, Royal Navy to assist installation outside north end of Waglan Island]

- 1909 Typhoon – Keepers quarters flooded, chicken house gone

- HK Observatory 259 km/hr (1962 Wanda)
- Waglan 216 km/hr (1962 Wanda) & 230 km/hr (1964 Ruby)

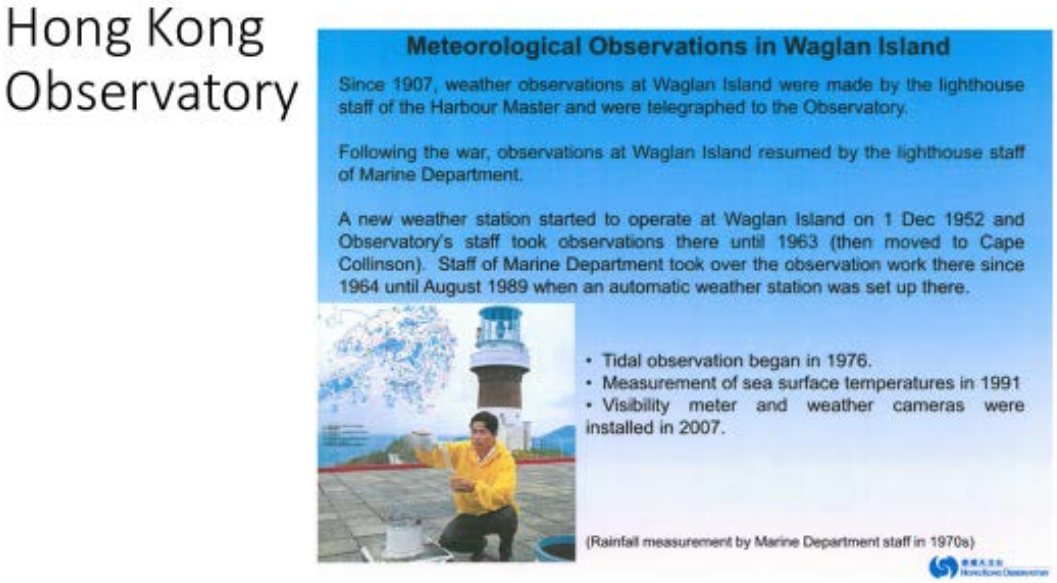


Figure 37 Meteorological Observations
(Source: Hong Kong Observatory)

Figure 38 Automatic Weather Station
(Source: Hong Kong Observatory)

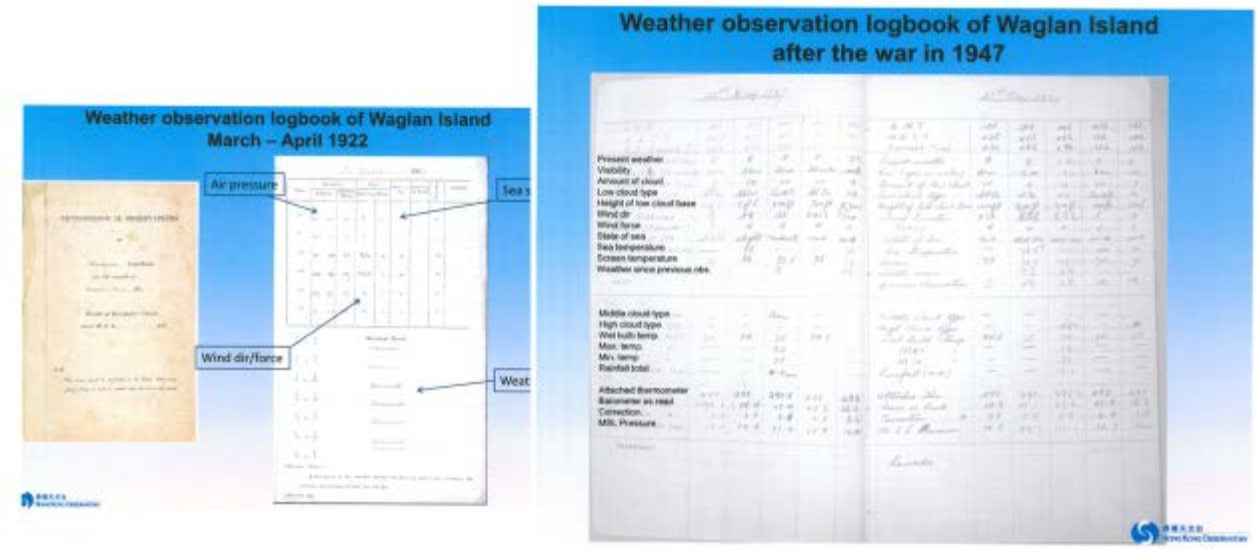


Figure 39 Weather Observatory Logbook
(Source: Hong Kong Observatory)

Civil Aviation Department –
The aviation traffic control station was set up on Waglan in 1959 and the radio station facilitates aircraft entering and leaving HK Kai Tak airport. [HKRS156-1-6775]

Figure 40 Vessel Traffic Management System Building (Source: AMO)

Royal Navy (HMS Tamar) –
Firing Area 2 under 1936 Defences Ordinance. The naval station, the coast watching station and the radar station were used for Royal Air Force air traffic control.

Cable & Wireless Ltd. –
There were four officers as technicians and mechanics on duty in 24 hrs on 3 shifts. The duplicate set of equipment were installed, with one set in use and the other stand-by. Once slept on the large table in the office until construction of staff quarters. [Mr. Luke Yu]

Post Office, Engineering Branch Report on 8th, 24th, and 26th Dec 1941 activities – "Radio equipment at ….on the lighthouse of Gap Rock and Waglan, and on three cruising police launches was destroyed." [CO129/591/5 24 Dec 1943]

The Cable & Wireless Ltd, Royal Observatory and Civil Aviation Department set up stations at Waglan Island. [1953 HKGCC Report (p.31)]

Chapter 12 Lighthouse Staff

Source: HK Blue Book and Government Reports

Superintendent of Lights, Principal Lighthouse Keeper and various posts - change of titles, grades and establishment with time.

Chinese Lighthouse Keepers before WW2 - Wong Kai Chung from 1930 and Leung Chiu Tung from 1933.

The keeper and his eight staff were evacuated at 1030 on 13 Dec 1941 by auxiliary patrol Vessel *Frosty Moller* and taken to Aberdeen.

After World War II

i. Europeans – Brown (2 brothers), Gutteridge, Harris, Thirlwell, McGrann;
   - Henry Christian Brown 1898-??, Grandfather was a mariner worked in Xiamen and his father was a lighthouse keeper. Spoke Xiamen dialect and studied in DBS in Hong Kong. Had served on Green Island, Gap Rock and Waglan lighthouses, German origin but Danish nationality. [SCMP 1972 Feb 25] he went to Macau during WW2, was recalled back to Marine Department after the War. He liked to wear double breasted suit and bow tie. He died at 74 years old [D. Waters]
   - Richard Peter Brown, 1896- ??, elder brother of Henry Christian Brown.
   - Second generation – Paul Brown, Chief Information Officer, HK Government Information Services Dept. [1999 Feb, D. Waters private interview]
ii. Chinese in Nov 1956 – 3 Lees: Tom –李智島 C.T. Lee , Dick – S.L. Lee 李'金式'樑 and Harry (Henry? from Mrs Lee's interview) - 李顯忠 H. C. Lee.
iii. 6 lighthouse keepers worked on Waglan Island. [1979 Sep HK Standard]

Superintendent of Lights (Navigation Aids)

i. James Arthur William Deakin 狄占美 – joined HK Government in 1950s, PWD, EMSD, then transferred to MD. His father was a British soldier and mother was Chinese; married in 1935 in HK. James died in 1995 and

buried at Chiu Yuen Eurasian Cemetery, “A fighter to the end” on plague.

ii. Yip Kin Sang, retired in 2010s, recalled that keepers were a very special group of people.

Waglan Island.

Lighthouse Keeper,	George Frederick Hunt Taylor.	4th January, 1901.	S. of S. Desp. No. 371 of 1900.	1,620.00	...
Senior Assistant Lighthouse Keeper,	Edward Arthur Johnson.	"	Do.	1,560.00	...
Junior Assistant Lighthouse Keeper,	William Francis Hust.	"	Do.	1,500.00	...
Chinese Assistant Lighthouse Keeper,	Liû Yung Mi.	1st March, 1901.	Schedule of Establishment.	228.00	...
Do.,	Chû Iû Mû.	"	Do.	192.00	...
Do.,	Laû Chi.	1st August, 1902.	Do.	192.00	...
Coolie,	Cheung Hung.	1st March, 1901.	Do.	168.00	...
Do.,	Ling Saû.	1st August, 1902.	Do.	168.00	...
Do.,	Ching Chun.	12th December, 1902.	Do.	168.00	...
Watchman,	Li Siû.	6th April, 1902.	Do.	144.00	...
Do.,	Chû Mi.	1st August, 1902.	Do.	144.00	...

Figure 41 Staff List 1901 (Source: HK Annual Report)

Photos of various lighthouse keepers (from old newspapers and interviewees) are shown in the following.

Charles Edwin Nicholas 燈塔總管理員

Figure 42 Charles Edwin Nicholas (Courtesy of Mr. Heather Williams)

The main reason for CEN as a lighthouse keeper was his sentiments about guarding weary hearts of sailors and fishermen, especially as he had grown up with the example of his father who was a missionary to seamen.

Chinese Lighthouse Keepers

- In 1930 Wong Kai Chung (黃啟松/黃啟忠) became a Second Class at Gap Rock after serving as an Apprentice since 1925. Later he stationed at Waglan.

- In 1933 Mr. Leung Chiu Tung (梁朝棟) started as Apprentice at Gap Rock and was promoted to Second Class in 1934. He was transferred to Waglan in 1935.

1920s -1930s

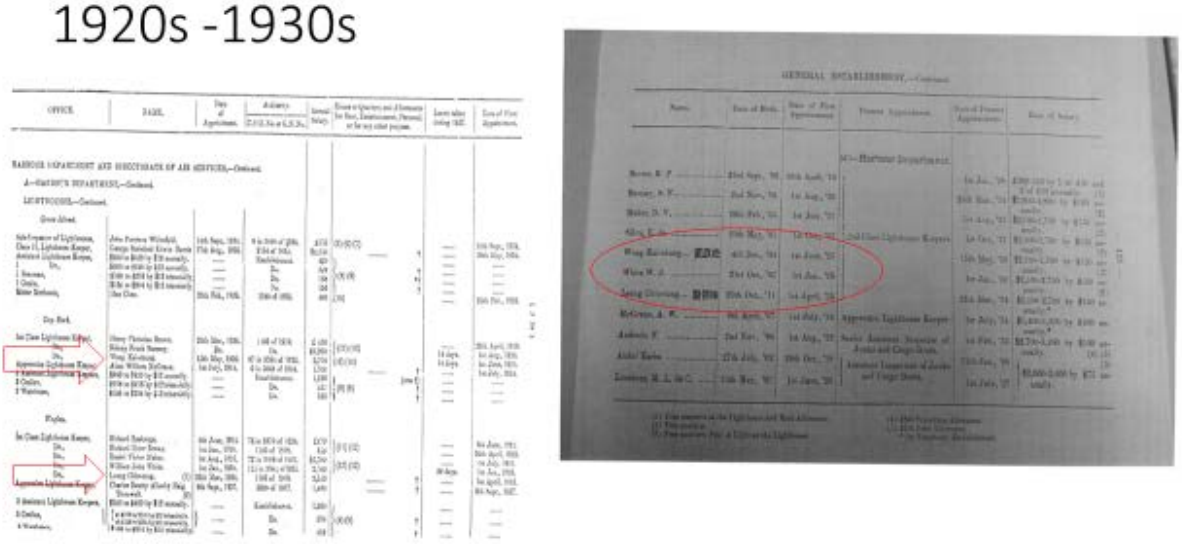


Figure 43 Wong Kai Chung and Leung Chiu Tung (Source: HK Annual Report)

Wong Kai Chung Visited Gap Rock on 9 Aug 1927 (HK Scout Asso)
2nd Class Lighthouse Keepers:
Henry Christian Brown, Richard Peter Brown and Daniel Victor Maher

Figure 8, *The Scout Silver Cross for Gallantry.*
童軍銀英勇十字獎章。

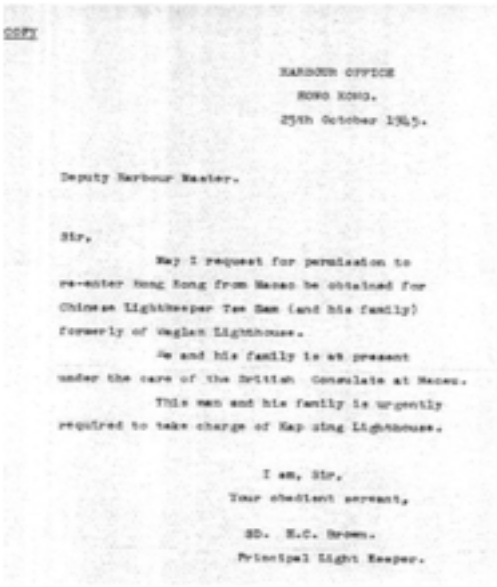
Figure 7, *Wong Kai-chung, in full Sea Scout Uniform when he was younger.*
年輕時代穿著整齊海童子軍制服的黃啓忠。

Figure 44 Wong Kai Chung (Source: HK Scout Assoication)

Leung Chiu Tung
Resigned in 1937, deceased in 1941

Figure 45 Leung Chiu Tung (Courtesy of Mr. Kelvin Chan)

Tse Sam (1945)



COPY

HARBOUR OFFICE
HONG KONG.
25th October 1945.

Deputy Harbour Master.

Sir,

May I request for permission to re-enter Hong Kong from Macao be obtained for Chinese Lightkeeper Tse Sam (and his family) formerly of Waglan Lighthouse.

He and his family is at present under the care of the British Consulate at Macao.

This man and his family is urgently required to take charge of Kap Sing Lighthouse.

I am, Sir,
Your obedient servant,

SD. H.C. Brown.
Principal Light Keeper.

Figure 46 Tse Sam (Source: HKGRO)

Mr. Luke Yu of C & W Ltd. (1964)

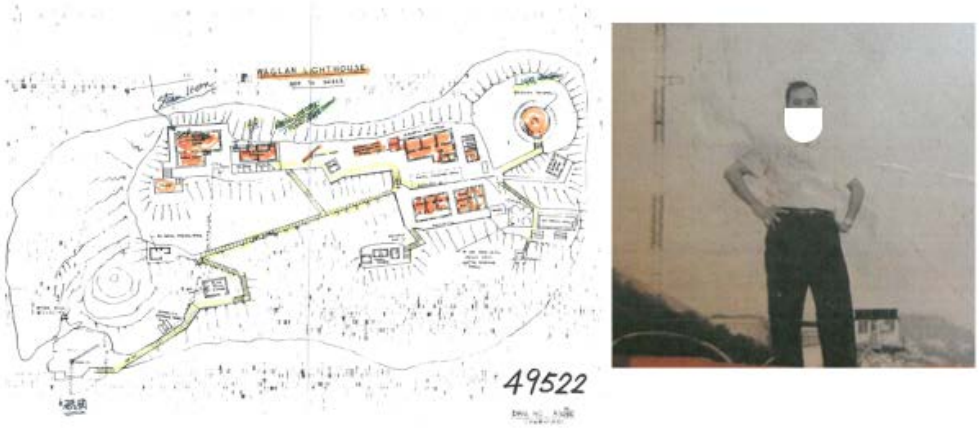


Figure 47 Mr. Luke Yu and his Memory of the Buildings on Waglan (Courtesy of Mr. Luke Yu)

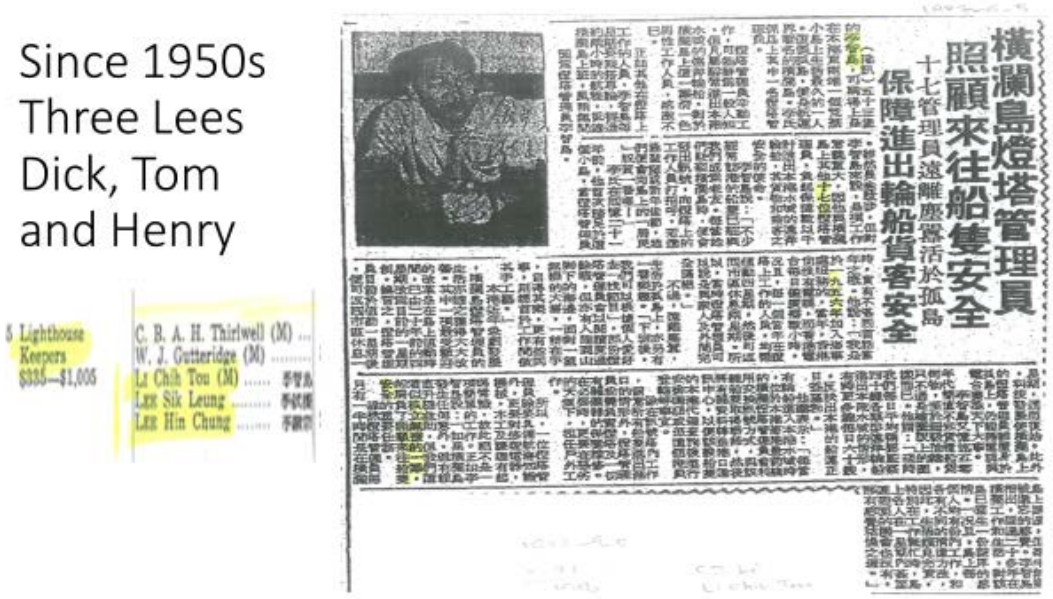


Figure 48 Three Mr. Lees

Figure 49 Charles Thirlwell and Assistants (1940 -60s)
(Courtesy of Family of Charles Thirlwell)

Figure 50 Dr. S.W. Poon and Mr. and Mrs. Lai Kwok Keung
(Courtesy of Mr. and Mrs. Lai Kwok Keung)

Stories and experience shared by those once working on the island or their descendants are attached in the Appendices.

Chapter 13 Duties and Life

Duties changed throughout the years, and were reported in various old newspapers and government reports.

In the early days the crews worked for four weeks on each duty cycle and there was no communication between staff and their families. Their only amusement after work was fishing swimming reading books, farming and gardening.

Team roster (changes with time):

i. 4 weeks duties and 2 weeks off, only change half of team. [D. Waters]
ii. 2 weeks duties and 1 week off.
iii. 1 week duties and 1 week off.

18 (then 16) staff split into 2 teams; reduced to 10, 9 and 8 staff split into 2 teams (changes with time); Mrs. H C Lee said 4 members in a team, 1 LH keeper, 1 assistant LH keeper, a cook was self-appointed amongst lighthouse attendants.

Crew - Principal lighthouse keeper, lighthouse keepers, lighthouse attendants, cook; other MD staff – artisans (changes with time).

Work of 24 hours – 3 shifts of 8 hours; 2 shifts of 12 hours – change of shift at 04:00 hr. (from Mrs H C Lee), Mr Lee woke up at 03:00 am to prepare change of shift and such habit continued after retirement.

Two groups of eight worked in shift, [Gutteridge 1973 Apr 9 HK Standard] with 12hours per day, 2 nos. 4 hours watches in 24 hours. [1979 HK Standard, Gutteridge] 3 lighthouse keepers, 5 Navigation Aids attendants in a team, 8-hour shift. [1974 Jun 2 SCMP Sunday Post – S L LEE]

Change of team on Tuesdays and nos. of delay of relief due to bad weather was reported in old annual reports by Harbour Master.

Details of duties of lighthouse keeper –
Reporting information of inward and outward bound vessels to Marine Department Headquarters; operation and maintenance of lighthouse; record and report meteorological information to Royal Observation and Kai Tak Airport

meteorological office. (changes with time)[Government advertisements in various years]

Wear the summer and winter uniforms while on duty – hats, badges, icons.

A gun is probably kept at office for emergency use by the Principal Lighthouse Keeper or officer in charge while on duty. [Mr. Luke Yu]

Advertisement for Lighthouse keepers – free quarters while on duty

1. 1954 Jun 21 – WKYP – 19-35 years old, graduated from Secondary School, 2-year on probation.
2. 1955 Oct 31 - SCMP
3. 1956 Jun 10 – SCMP
4. 1964 Mar 23 – SCMP – knows Morse Code, transmit and receive International Code, lonely life, wear uniform, works 4 weeks and off 2 weeks.
5. 1973 Oct 13 - SCMP
6. 1978 Jul 15 -SCMP
7. 1979 Jun 9 – SCMP

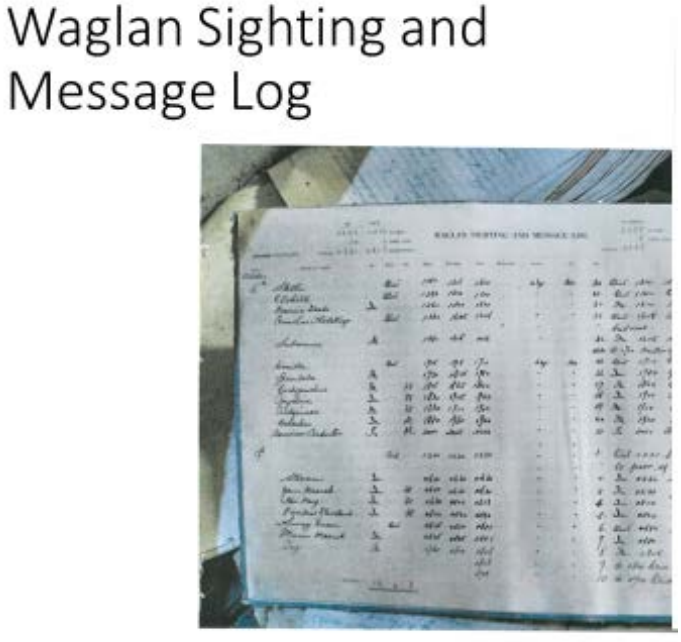


Figure 51 Message Log (Source: Marine Department)

Allowances for Waglan lighthouse staff (HKRS1448-1-124):

On 15 Mar 1901 – Governor's letter to the UK, recommend "Waglan lighthouse keepers $10 each for lodging during the fortnight they spend at Victoria town…..previously similar lodging for Gap Rock, which was cancelled, should also be paid." [CO129/304]

1962 - Extra allowance for carrying out weather observation due to evacuation of Royal Observatory staff in late 1962 - $30/staff/fortnights.

1968 Aug - Board (subsistence) allowance for lighthouse staff – extra $70 per staff for purchasing food on 14-day duty on Waglan Island.

1971 July 14 - Extra duties allowance for Waglan lighthouse staff based on the high record of accident.

All were provided with free quarters while on duty on Waglan.

Life and leisure activities of lighthouse staff:

In 1930 – a poem was written by a lonely lighthouse keeper (SCMP).

- *Waglan is our island home,*
- *And when we're here we cannot roam.*
- *We stay and watch the ships go by,*
- *And for sweet dames, we often sigh.*

- *In fog the signals must be started,*
- *Or from our jobs we will be parted.*
- *And when we hear that awful blast,*
- *We hope and pray the fog clears fast.*

• A couple of roosters and their mates,
• We like to watch them keep their dates.

• Four weeks meat, cooked boiled and stewed,
• Then half the time it can't be chewed.
• You ask what we do if we get sick?
• We just don't do so, that's the trick,

• Our folks at home miss us out here,
• As we miss them, who are so dear.

• The fresh winds start to blow,
• If off duty to bed we go.
• When it is dry we hope for rain,
• And then we long for the sun again.

• Our pastimes are strange you know,
• We plant our veg and watch them grow.
• Sometimes we do a spot of fishing,
• To get the Big One we're always wishing.

Charles Edwin Nicholas

- "I am lonely love without you
- Lonely like on Christmas Night
- Nothing but the waters round me
- And the stars above that shine so bright
- .....

- I am thinking more of you love
- And wishing I was home again.

- But my duty call me here love.
- For to guard the weary hearts
- Of the Fishermen and the Sailors
- Coming home from foreign parts,

Officially the crew's family were not allowed on the island because transportation of sick and injured person ashore was extremely difficult. Besides, education for children was impossible on the island. However, it was learnt from their younger generations whom did spend part of their summer holiday on the island.

From late 1970s and onwards, life on the island was highly advance. Air conditioners were installed in the watch tower and recreation room. Radio cassette and television were provided. DEL telephones were installed for work communication and family talks.

Leisure activities

Swimming, fishing (1953 Oct 4 SCMP – caught 118 lb. grouper/garoupa 龍躉 and shared by staff), table tennis, 康樂棋 , tai-chi, 4-hole golf course (14 Mar 1987 SCMP) , darts.

Breeding cats and chicken. Thirlwell breed Rhode Island Thoroughbred for eggs. The chicken once flew into water tank and water was contaminated, subsequently given up.

Ducks [1953 Oct 4 SCMP], caged birds, minor farming, and gardening. [The red leafed flowers grown in shape of WL]

Newspapers, magazines, books, radio, TV of which the 1st set was donated by Institute of Navigation HK Branch's overseas shipping lines companies. [Jan 1970 – SCMP].

Recorded by Deacon: Staff had got used to the simple and hard life in those days. Relief days in every other Tuesdays were big days but only half of them could go home as each person had to work on the station for four weeks in each duty cycle. On the relief day all staff except the one keeping watch in the signal tower were at the landing to welcome their returning colleagues and visitors. They were busy in transporting food provisions, stores, fuels, etc. from a small boat which served as the bridge between the landing and the mother ship anchored a few hundred yards away. In the early days, transportation was based on a basket lifted by a manually operated derrick on the landing. Large drums of dieseline, bags of coal, loads of firewood and other heavy gears were carried on shoulders.

One of the retired officers, Mr. Sidney Frank Bamsey died in 1971 at an age of 70. He was so fond of the island and at his request he was buried on the island. Later his remains was removed by his wife from the island after the lighthouse became automated.

In the early 1970s, two powerful 200v AC generators were installed, a standard pier together with the winched trolley from pier was installed uphill. Since then, the mother ship can berth alongside right on the pier. Loading and unloading of people and gears became convenient and safe, and life on the island became more interesting.

Playing cards but Mahjong should need special approval.

Chapter 14 Food Catering, Water Supply and Power Supply

Food:

1926 Kelvinator refrigerators for Gap Rock and Waglan were purchased, a special expenditure under Harbour Master at $1,125. [May 28 SCMP]

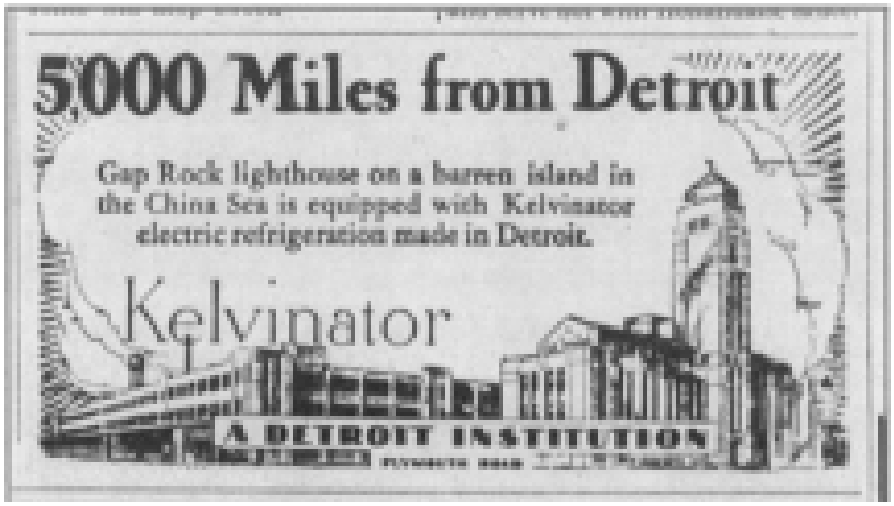


Figure 52 Kelvinator Refrigerators (Source: Internet)

Two numbers of kerosene refrigerator were installed from l945 to late 1960s.

Emergency food supply was kept in Waglan, the detailed list can be seen from 1953 audit report.

Cost estimates on 14 days food for lighthouse staff as subsistence allowance in 1968.

Food provisions carried by lighthouse tender during change of duty shift every 2 or 1 week. [SCMP 1989 Jun 5]

Each man on the Island is responsible for his own food, but cooking and laundry plus living facilities are provided by Marine Department. [Sunday Star, 1968 Mar 1] A cook in the lighthouse team in late 1960s and a lighthouse attendant would act voluntary as cook [1970 HK Standard]. He served staff of three government departments: Marine Department, Royal Observatory and Civil Aid Department. [Mr. Luke Yu]

5 MD staff dined in canteen; including the Principal LH keeper, LH keepers and LH attendants. [1981 RTHK TV]

Mr. Lai Kwok Keung's favourites: abalone, garoupa, 海膽, 石狗公, 紫菜

Water supply (water rationing was not unusual):

Rain water collected from roof of buildings and paved areas drained into channels, pipes and stored in water tanks for drinking and cooking. The Observatory's staff on change of duty team would measure the water level in water tank to ensure proper supply. [HKO website video 2012]

In May 1910 China Mail – due to severe shortage, 22 tons of fresh water pumped from steam tender 'Stanley' to water tanks. [China Mail] Launch 'Stanley' was used to carry Japanese Prince Hirohito 裕仁 visiting Green Island lighthouse at 9:30AM on 12 March 1921. [SCMP July 2017]

1945 Oct 7 reported destruction of one of the main water tanks. But the three tanks collecting water from the roof of the main building were intact.

1953 – there were 6 large water storage tanks on Island to store water. [4 Oct SCMP]

1964 Nov 2 – 100,000 gallons capacity water tanks were constructed. Two wells were sunk but water derived too salty and abandoned. [KSMP]

Fishermen stole fresh water from the water storage tank near the pier.

Water:
Rain, runoff on roof and paved area
Well – little water

Drinking and washing

WAGLAN LIGHTHOUSE.

WATER FAMINE RELIEVED.

The other day we reported that the Europeanlighthouse keepers and Chinese assistants stationed at Waglan were reduced to short commons owing to the water supply on the island giving out. We added that arrangements had been completed by the Harbour authorities to despatch a sufficient supply of water to replenish the empty tanks on the rocky islet. The tender *Stanley*, which has done duty in all manner of service, from a despatch vessel on the Governor's ceremonial visits to neighbouring territories to a scavenger vessel after a severe typhoon, was commissioned for service yesterday as a water-boat also. The manner in which Capt. G. L. Willoughby, of the steam tender, carried out his novel commission is creditable to that officer at the same time as it is interesting to record. The ship's tanks are capable of holding only some 16 tons of water. Having filled them to the brim twelve beer barrels, which had been loaned by Messrs. H. Price & Co., Ld., were also filled with water and carried to the site on deck. Besides, the loan was also obtained of a one-ton canvas tank from the Fire Brigade Department; this was also carried on deck. So that when the *Stanley* steamed up for Waglan she had a liquid freight on board of not less than 22 tons altogether.

Arriving at Waglan the *Stanley* was anchored with her stern some 20 feet off the landing stage and then a line was sent ashore and the hose passed to the rock. It may be of interest to know that some 800 feet of hose was used in passing the water from the ship to the tank on the summit of the rock. The height to which the water had to be pumped was 175 feet. The *Stanley's* pumping appliances were quite equal to the task and after sixteen tons of water had been filled into the tanks, the work was completed, and the tender returned to Hongkong. It is believed that the lightkeepers at Waglan will have a supply enough to last them seven or eight weeks independent of any rainfall.

Figure 53 Water Collection and Consumption

Figure 54 Water Collection Tank

Power supply: From old newspapers

From 1945 to late 1960s, coal and firewood were used for cooking. 2 nos. DC generators (1 is standby) for electricity supply to lighthouse beacon.

In 1963 modernization of power supply - 24,000-gallon fuel tanks and new diesel driven generators were installed. [1964-65 Marine Department Annual report]

In early 1970s – 2 nos. 200V AC generators and 2 nos. 50 kVA brush alternators coupled to 90 bHP Gardner diesel engine and 200/345V power supply were installed.

In late 1970s, air conditioners installed in recreation room. TV and radio cassette were provided.

In 1982 DEL (direct exchange line - wireless) telephone was installed for communication with family members.

In 1987 Staff checked the engine room every hour. [Mar 14 SCMP]

In 1968 the winch, trolley and rail system from pier to hilltop were under construction. [March 17 Sunday Star photo]

Chapter 15 Typhoon Damages, Accidents and Emergency Cases

Just a few years after lit, on Jul 29 1896 sea waves with sand rushed up to the lighthouse. The spray reached the lantern 225' above high water, pitting the panes with sand and gravel and flooding the fresh water tanks, and completely carried away derrick used for landing stores. [China Mail, Chinese Custom book, Chapter 2, Banister 1932]

The Harbour Director appreciated and appraised Waglan Island and Gap Rock Lighthouse keepers for works done during typhoon 8 Sep 1908. [1908 July 27 & 28: 1908 Despatches July – Oct: Director of the Observatory / Harbour Master Report]

In Oct 1909 the cookhouse chimney was blown away and the chicken house was carried into the sea. [China Mail, SCMP 2017]

On Sep 1 and 2 1937 the typhoon signal no. 10 was hoisted at 1:58 hr on 2.9.1937. [ref: CO129/564/6]

Other typhoon reports:

- 1960 – Typhoon Mary
- 1962 Sep 1 – Typhoon Wanda – Mr. Lai Kwok Keung said the whole team was trapped on the Island for 4 days. [1989 Aug 23 Tin Daily News, during either 1960 or 1962 typhoon]
- 1964 Sep 5 Typhoon Ruby – the pier was damaged.
- 1971 – Typhoon Rose
- 1979 Aug 2 Typhoon Gordon – Royal Observatory staff were unable to hoist typhoon no. 10 signal at Waglan station signal mast, as the sea waves rushed to 200' and covered all buildings. The metal railings along the footpath was ripped from concrete base. [1989 Aug 3 SCMP]
- 1983 Oct 12 Typhoon Joe – tropical cyclone signal was damaged on the Island. (SCMP)
- 2018 Sep 11 – the pier was severely damaged by the severe Tropical Storm Mangkhut.
- Lai Kwok Keung said "during the hit by the typhoon 浪濤更是驚人，像是一頭餓狼向燈塔撲去。". [SCMP 1989 Aug 23 TinTin Yat Po]

Figure 55 Typhoon Damages to the Pier and the Bridge (2018)
(Source: Hong Kong Observatory)

Accidents and Emergency Cases

1893 Oct – The Chinese lighthouse man fell while painting the tower and was badly injured. [SCMP 2017 Jul]

1957 Oct 9 – Mr Yusaf, the radio operator, got internal hemorrhage and was rescued by CAD helicopter. Without a helipad to land on, the helicopter stayed near the roof of a small hut to pick up the patient to Kai Tak airport for transfer to Kowloon Hospital. [SCMP]

1950 or 60s – The Royal Observatory staff fell into sea during taking the sample for measurement of sea water temperature. The body was found later. Also, the Royal Observatory staff Mr Yeung Tak Lam was taken to the hospital due to emergency. [oral history notes provided by Mr. Lui Yau Lok]

1960s –PWD survey staff fell into sea during works and was dead. [Tai Kung Po Daily 1964 Jul 27]

1960s – Marine Department staff fell into sea during washing of Elsan closet bowl. By closing his mouth, he managed to swim back to shore without injury. After taking

a shower, he went back to work.

1960s – Mr Chan Ho Man, an artisan of Arch S D, slipped during embarking from launch and caught between pier and launch. He was buried at Fanling Gallant Garden 浩園. [shared by Cheung Koon Hoi]

1961 Apr 27 – Waglan lighthouse staff Lo Fuk (age 40) committed suicide by taking poison as he was fear of being fired by the Government arising from a nearby ship wreck incident. [WKYP]

1963 – The Cable & Wireless Co. staff suffered appendicitis and was taken to hospital by helicopter. [Tai Kung Po 1964 Jul 27]. Mr. Luke Yu joined C&W Ltd in 1952 and posted to Waglan Island. He was asked through a telephone call and a telegram to replace the sick staff as immediate as possible, the next day following after his marriage. [Mr. Luke Yu]

A staff suffered from berserk was physically restrained in the signal tower, so he used an axe to chop open the door. [SCMP 1989 Aug 3]

Other accidents were reported in HKRS1448-1-124.

Chapter 16 Other Issues

Source: old newspapers/reports, oral interviews

1920 Nov 10– “Salaries of lighthouse staff will be paid by the Senior Clerk who will proceed to the lighthouse with the monthly relief, taking the salaries with him.” [Harbour Master Note Order No. 50 (HKRS173-1-1)]

1921 Jan 21 — “when a ship be observed standing into danger, she should be warned by signal and if it is deemed necessary bombs or sound signals should be fired in order to attract attention and act as an immediate warning of her approaching danger.” [Lighthouse Circular No. 53 to All Lightkeepers (HKRS173-1-1)]

1929 Jan/Feb – Coroner Jury of Steamship ‘Hsin Wah’ inquiry disaster on Jan 1929, the vessel was aground Waglan northern rock during a gale on a clear night resulting over 300 deaths. The Chief Secretary replied to a question from Mr. Pollock that Waglan Island was equipped with telephone, telegraph and wireless telegraphy. [Feb 28 1929 LegCo meeting]

1940 Sep 20 – A snake (python) of 15’ long with 16 lbs weight was caught on Waglan Island, become known after several chickens were lost. [HK Telegraph, KSYP, TKP]

An air raid tunnel existed on Island, but the location was not known and was backfilled after WWII. [Dan Waters] Later the tunnel was located from ASD drawings.

1950-early 60s - Royal Observatory Waglan Island staff, while on leave and were back in the city, did not know how to cross the road. [Lui Yau Lok]

1953 Oct 4 SCMP – there were three guns left from Chinese Maritime Customs on Island, now directing towards Royal Observatory Building. In early 20th century cannons (with marks of “CROWN B.P. 1844” – Bailey Pegs inn UK manufactured) were installed at hilltop. It was rumoured 2 guns had been removed to Queen’s College [Principal of QC Lee Kar-hung communication to Waters], 1 buried at the landing stage of Waglan for anchorage. [Waters, 野外 magazine photo]

1955-56 – Mr. Cho Kwong Wing 曹廣榮 worked for Royal Observatory and stationed at Waglan Island, reported that the illegal immigrants were landing on the Island.

In 1957 a group of sharks up to 18 ft. seen off east side of Waglan Island. [SCMP]

1960s – A proposal for construction of flushed latrines to replace Elsan closet bowls and the sewage would be discharged into sea via sewer pipes. [HKPRO file]

1960s – kerosene lamp was lit at night while off duty in order to reduce use of electricity. The kerosene heater was on in winter but needed to keep the room door open. There was no air conditioner to be used in summer, and the strong wind forced through window gaps created a lot of noise. [Mr. Luke Yu]

Fishermen brought newspapers, fishes and food to lighthouse staff when passed by or provision of marine transport services for Government contractors.

Charles Thirlwell – founded Chai Wan Fishermen Recreation Club 柴灣漁民娛樂會 in 1961. The fishermen and boats berthed at Waglan during bad weather period up to one week. Lai Kam Tai and Lai Ngau (黎金帶，黎牛) share stories about their father working at the waglan.

1970s – installation of high speed water wipers on windows of signal tower to remove water efficiently so as to facilitate observation of the sea conditions during heavy rain and fog. [by Gutteridge, HK Standard 1970 Oct 4]

Sidney Frank Bamsey story – retired in March 1956 (SCMP 1956 Mar 10 with photo), and went to greet lighthouse colleagues every Tuesday release day at pier after retirement. The burial of the ashes urn at south-western slope below the lighthouse (1971 Aug 10 SCMP – St John's Cathedral ceremony, cremation, wife – Annie, Malaysian Chinese), ashes urn removed after 1989. [1978 Mar 13 KSYP].

1979 Sep HK Standard – one of the station attendants hang up the calios curtains which protects the 375mm lens during the day.

Ladies and girls are not allowed to stay over-night on Waglan Island.

Lighthouse staff were scared of the unpleasant deafening noise 震耳欲聾 generated from the fog horn / diaphone. [various sources]

Two Japanese ghosts stories – buried under floor of recreation room. [Dan Waters]

The temperature inside lighthouse lantern room could be up to 50 degrees C, very hot and humid. [Mr. Lai]

During typhoon signal no. 10, some lighthouse staff preferred to stay inside the lighthouse, as it is considered safer compared with other buildings. The lighthouse staff erected timber boards to protect glass windows of lantern against typhoon damage. [Luke Yu]

Copper lightning conductors of the lighthouse was occasionally stolen by Hong Kong and Mainland fishermen. [Luke Yu]

Metal railings and other metallic equipment were quickly corroded by sea water, therefore needed major maintenance works. [Cheung KH]

Marine Department maintenance staff visited the Island monthly and carried out those works which could not be handled by lighthouse staff. [Dan Waters]

Major clean up exercise was done every Sunday, including cleaning the windows in particular. [Dan Waters]

The lighthouse staff clean the glasses of lighthouse lantern every day. [Luke Yu]

Mosquitoes were found on the Island, and wire meshes were provided at sleeping room doors and windows. Mosquito repelling incense was burning at night. [RTHK TV 1981]

Excursion / tour places - 老鼠石，接吻石，天池，横欄門，天后神龕… [野外 Magazine).

Chapter 17 Conclusions

Waglan Island was once among the earliest choices for lighthouse construction in mid-nineteenth century. Situated within China's territory no agreement with Imperial Qing Government was reached. As part of the deal for the Gap Rock Lighthouse in 1892, the Waglan Lighthouse was built one year later by the Imperial Maritime Customs Service. In 1896, the Cape D' Aguilar Lighthouse was closed due to its overlapping function with the Waglan Lighthouse. The Waglan Lighthouse was transferred to Hong Kong in 1901 as a result of the lease of the New Territory from 1898.

Waglan was beyond a single function island. It has been a signal and reporting station by telegraph linking to Hong Kong, a radio direction beacon installed post war, later the Royal Navy radar station and used for the Royal Air Force in air traffic control, a fog signal and a weather observatory which provides even today the approaching extreme weather condition.

Since August 1989, the Waglan Lighthouse has become automated and in 2000, the lighthouse was declared a monument. Despite the wide use of GPS by seafarers, the light from Waglan in still functioning and has always been a warm and familiar welcome home sign for over one and a quarter century.

Irrespective of the different types of work on the island, the people stationed there faced the common challenges of the hot and the cold, the rains and the gusts, let alone the hard living on the island facing the Pacific Ocean. Yet the beaming of the light always stays in the minds of those getting close to the island, whether travelling far or near.

References

Old photos sources:

- HK government annual reports and other departmental reports
- Chinese and English newspapers – local and overseas
- HK magazines
- Websites
- Relatives and friends of the following Marine Department, Hong Kong Observatory staff and other staff :
  i. David M Henderson's great grand-daughter – Felicity Somers Eve
  ii. Charles Nicholas's great grand-daughter – Heather Williams
  iii. Leung Chiu- tung's 梁朝棟 grandson – Kelvin Chan
  iv. Charles Thirlwell's 花維路 wife and son James; friend's (Chai Wan Fishermen Recreation Club Lai Ngau's 黎牛 son Lai Tim)
  v. Lee Hin Chung's wife
  vi. Lui Yau Lok 呂友樂 (Hong Kong Observatory)

Videos and audios related to Waglan Island:

- Government Information Services Department HK Film Unit –
  1. 1960 – Hong Kong Today 今日香港 No. 7 "The operation of the lighthouse on the Waglan Island" B&W film – 3 minutes
- Radio Television HK - TV
  1. 1981 - 島的故事 "父與子" 單慧珠導演 – 25 minutes
  2. 2001 April - 山水傳奇 第五集 "孤島明燈" – 23 minutes
  3. 201? - Hong Kong History III, 航運連城 – 22 minutes
- Hong Kong Observatory 氣象冷知識 (HKO website)
  1. 2012/7/13 - 橫欄島氣象站第一部份
  2. 2012/7/20 - 橫欄島氣象站第二部份
  3. 2018/10/26 - 橫欄島山竹前後
- Radio Television HK – Digital Audio (from HK Public Library MMIS)
  1. 2002/6/9 Waglan Lighthouse and its keepers, Hong Kong Heritage by Annie Marie Evans and Dan Waters
  2. 1995/11/26 海港史(二) 燈塔與浮泡 - 張建浩
- TV advertisement
  1. 2012 Dec 3 - Michael Wong by Giorgio Fedon 1919 – Accessories Range Photo Shoot (from Youtube)

List of lighthouse staff and relatives, persons with work associated with Waglan Island interviewed:

i. Mrs. Felicity Somers Eve - David M Henderson's great grand-daughter
ii. Mrs. Heather Williams - Charles Nicholas's great grand-daughter
iii. Dr. Dan Waters and Mr. Louis K L Ha – Members of Royal Asiatic Society Hong Kong
iv. Mr. Kelvin Chan - Leung Chiu- tung's grandson
v. Mrs. Thirlwell and Mr. James Thirlwell – wife and son of Charles Thirlwell
vi. Mr. Lai Chi Keung 黎志強, Mr Lai Tim 黎添 and others – relatives and descendants of Charles Thirlwell's friends at Chai Wan Fishermen Recreation Club
vii. Mrs. Lee Hin Chung – wife of Lee Hin Chung, ex-Principal Lighthouse Keeper, Waglan
viii. Mr. Shun Chi Ming 岑志明– Ex-Director of Hong Kong Observatory
ix. Mr. Leung Wing Mo 梁榮武 – Retired Assistant Director Hong Kong Observatory
x. Mr. Lui Yau Lok – Retired Chief Scientific Assistant, Hong Kong Observatory
xi. Mr. Lai Kwok Keung 黎國強– Retired lighthouse attendant, Waglan
xii. Mr. Luke YU Yuan Chi 余潤池– Retired technician, Cable & Wireless Ltd.
xiii. Mr. Cheung Koon Hoi 張冠海–Retired Building Services Inspector, ASD
xiv. Mr. Simon Mak Shui-wing 麥瑞榮– Retired Senior Marine Officer, Marine Department
xv. A crew member of helicopter flying service
xvi. Mr. Lam Chiu Ying 林超英– Retired Director of Hong Kong Observatory
xvii. Mr. Sin Fook San – Retired Clerical Officer in charge of the duty rooster and transportation to and from the lighthouse

Acknowledgements

The grant received from Lord Wilson Heritage Trust has made this study possible.

Members of Research Team

S.W. Poon, K.Y. Deng, K.F. Man,

K.Y. Ma, T. W. Tsin, W.M. Leung, J. Farrell, Winson Wo

Appendices

Appendix A Lao Tieh Shan Lighthouse

中国文物报/2014 年/4 月/18 日/第 008 版 应用

老铁山灯塔

谓知

在辽东半岛的南端，也是大连市旅顺口的最南端，有一座老铁山，它系千山山脉的余脉，与 山东半岛隔海相望，其间的老铁山水道是我国最凶险、最涌急的水道。老铁山地势险峻陡峭，军 事地理位置重要。在老铁山西南端有一处伸入大海、海拔 86.7 米的岬角，被称为“老铁山山岬”。 这里三面环海，北面为渤海、西面和南面为黄海。在这处山岬上，矗立着一座白色圆柱形灯塔， 被称为老铁山灯塔。

1880 年，清政府在旅顺斥巨资为北洋水师建设军港，为保障北洋水师出行安全，同时也为了 给频繁经过这里的商船、货船和渔船提供导航便利，1892 年，由清朝海关出资，请法国人设计制 造内部构件、英国人完成勘测和修筑任务，在老铁山西南近海平缓处，建造了一座灯塔，是为老 铁山灯塔。该灯塔呈下粗上细的圆柱形，靠近顶部有一圈开放式的围廊，顶部是伞形圆顶。塔高 14.2 米，外径 6 米，用优质石料和水泥筑成。灯塔三面环海，一面靠山，装备有大型光学透镜， 光源采用油灯，灯光射程可达 48 公里（可照射到山东半岛的北隍城岛），传动部分系机械结构。 每当入夜，灯塔旋转着两条交错的光柱，划破海空，为南来北往的船舶指引着航向。

1905 年日俄战争爆发后，老铁山灯塔相继被俄、日占领并利用，1945 年 8 月，苏联红军接 管旅大，同时接管灯塔。 1955 年 5 月，苏军撤离旅大回国，旅大海域的航标设施全部交给海军 旅顺基地管理。1959 年，灯塔接入市供电网。 1980 年，海军旅顺基地管辖的海上公用航标移交 交通部天津航道局管理，并在大连设立航标区。

新中国成立后，电灯代替了油灯，电机代替了古老的机械，还新建了无线电指向标塔。1977 年增设全球卫星高精度定位系统，2002 年装备船舶交通管制雷达站，2004 年又建设了船舶自动 鉴别导航系统，老铁山灯塔以崭新的面貌为我国的航海运输事业继续发挥着重要的作用。如今， 它仍为亚洲照度最强、能见距离最远的航标灯塔。 1998 年，它被国际航标协会认定为世界 100 座著名灯塔之一。

老铁山灯塔前沿南北方向的海面恰好是黄海和渤海的分界线。黄渤海分界线，即指辽宁旅顺 老铁山与山东蓬莱田横山之间的连线，是一条天然分界线，全长 57 海里。老铁山前的岬角是观 看黄、渤海分界线的最佳地方。临风远望，浪潮激涌，蓝色的黄海水和黄色的渤海水泾渭分明， 形成一道清晰

的界线，天然地划分出两个海域，堪称一奇。1999 年 12 月，老铁山灯塔的“塔观 双海”被评为大连新八景之一。
1907 年，大连老铁山灯塔、上海泖塔、温州江心屿双塔、舟山花鸟山灯塔和海南临高灯塔通 过了国际航标协会(IALA)的审定，入选世界历史文物灯塔之列。2002 年 5 月 18 日，国家邮政局 发行了这 5 座世界历史文物灯塔的特种纪念邮票。2003 年，老铁山灯塔被公布为辽宁省文物保护 单位。2013 年 5 月，国务院公布大连老铁山灯塔为第七批全国重点文物保护单位。

2012 第 5 期 帮助勘测，决定在老铁山西南隅海边建一座灯塔，就是 老铁山灯塔。1892 年，老铁山灯塔建成投入使用后，由清 政府海关管理。灯塔的使用，不仅方便了北洋水师出海 巡逻、航行，也为频繁从这里进出渤海的各国商船、沿海 打渔的渔船和往返山东、辽宁之间的运输船只提供导航 便利。 1894 年，中日甲午战争爆发，旅顺口被日军占领，老 铁山灯塔也变成日军的战利品，由日本人管理了几个月后， 于 1895 年 11 月交还清政府海关管理。1898 年，沙俄侵占 旅大后，灯塔由俄国人管理。1904 年至 1905 年，日俄战争 在旅顺爆发，日本战胜沙俄，灯塔又被日本当局利用。直 到 1945 年 8 月，苏联军队进驻旅大后，灯塔由苏军代管。 1955 年 4 月，苏军撤离旅顺，我国将灯塔交由海军管理。

1983 年 1 月，灯塔由海军移交国家交通部，现隶属于天津 海事局大连航标处。 老铁山灯塔经历了中国近代史的炮火烽烟，见证了日 俄战争、甲午海战及八国联军从海路进入京津等苦难，也 见证了新中国的诞生。虽历经百年岁月，几经战火洗礼，仍 保存完好，不改国际一流灯塔的独特地位，屹立在辽东半 岛的最南端，发挥着重要作用。夜晚，由灯塔发射出的两条 中国海事 77 海事博览 Maritime Browse 光柱犹如盘旋在海上的神龙，交错旋转，划破茫茫海空， 为南来北往的船只指引航向，成为辽宁、山东二省的海上 守护神。现已被开发为旅顺的一处旅游自然历史和人文景 观——“塔观双海”。行船航行的指引 老铁山灯塔座落在辽东半岛最南端的老铁山国家自然 保护区内。海拔 100 多米，所处位置北纬 38°43'37”.4，东 经 121°08'02”.6，为进出渤海海峡的船舶导航。在老铁山 灯塔下方，是险峻陡峭的悬崖峭壁，它与山东蓬莱的理论 连线即为黄、渤海两海分界线。

1892 年，老铁山灯塔的主体部件在法国制造，第二 年，英国人来到旅顺口，完成勘测和修筑任务。该塔为圆 形平台式钢制结构，塔高 14.2 米，外径 6 米，灯塔采用优质 石料和水泥筑就，光源采用油灯（后改用电灯），转动部分 采用机械传动。 灯塔的核心部分，安装着一部工艺精湛的水银浮槽式旋转镜机，就是它，在每一个晚上指引着过往船只的方 向。这里注的是水银，灯罩晚上转动肯定有摩擦，如果靠 轴承摩擦的话，它的磨损是相当高的，如果给它放上水银， 水银浮槽法，减轻它的磨损，之所以使用一百年，和它的工 艺有很大的关系。 最令人叹为观止的是镜机最上端有八面牛眼式透镜， 是用天然水晶人工磨合而成，堪称世界一绝。灯泡在里面 发光，聚光以后从这出来，每隔两分钟转一圈，光程能照 到 25 海里（可照射到山东半岛的北隍城岛）。粉红色的帷 幔在白天遮挡太阳光线，防止灯塔聚光达到着火点从而防 止失火。夜晚，引航的光束就从这里射出。

1977 年增设了 全球卫星高精度定位系统。解放后由电灯代替了油灯，用 电

机代替了古老的机械，还新建了无线电指向标塔。但不 论是用油灯还是电灯，由于水晶灯罩的作用，灯塔的射程 总能保持最远，现仍为亚洲照度最强，能见距离最远的引 航灯塔。 默默奉献的坚守 现任大连航标处旅顺航标管理站站长兼党支部书记 的孙国民同志，在星级文明灯塔创建活动中，根据旅顺百 年灯塔深厚的文化底蕴和本站航标设施功能多样、品种齐 全的特点，充分利用废弃的航标设备，带领职工们对其仔 细除锈，重新刷漆，经过三个多月的辛勤努力，终于建起了 一个栩栩如生的“航标园”，内容包括微缩的灯塔、灯浮 标、雾号、无线电指向标、雷达应答器，同时配设了大连航标处辖区分布图、职能简介以及老铁山灯塔志。航标园以 其实物化、立体化、美观化的特点，使一批又一批前来参 观的社会各界人士驻足观看，照相留念，对宣传航标意义、 扩大航标影响起到了很好的作用。

2010 年 2 月 14 日至 15 日，渤海湾遭遇了百年不遇的冰 流潮，此时正值春运期间，过往该水域的船舶大增，特别 是国家重点工程项目——烟大火车轮渡航行频繁。于有 来、孙广海等党员同志主动放弃春节休假，亲赴现场抢修浮标，直到灯标恢复正常工作，有效保证了国家重点工程 项目烟大火车轮渡和所有进出渤海航道船舶的航行安全。 经过孙国民等职工们的不懈努力，旅顺航标站先后被大 连市评为精神文明规范服务单位和新八景之一；被辽宁省列为重点文物保护单位。1997 年，巴黎国际航标协会 会议批准老铁山灯塔为世界著名历史文物灯塔。2002 年 5 月该灯塔被国家邮政局列入《中国历史文物灯塔》特种 邮票发行。 夜幕降临，山、海一片寂静，此刻，从老铁山灯塔里发 射出的光束划破夜空，不知疲倦地为夜航的大小船只引领 航程。走过百年，在代代航海人心中，灯塔是有生命的，它 给船只指引方向，人和灯塔则彼此温暖。

大臣了

在芝罘日本領事館

卅年十一月一日受 主管 通商局

公第一〇八號 一二七一號

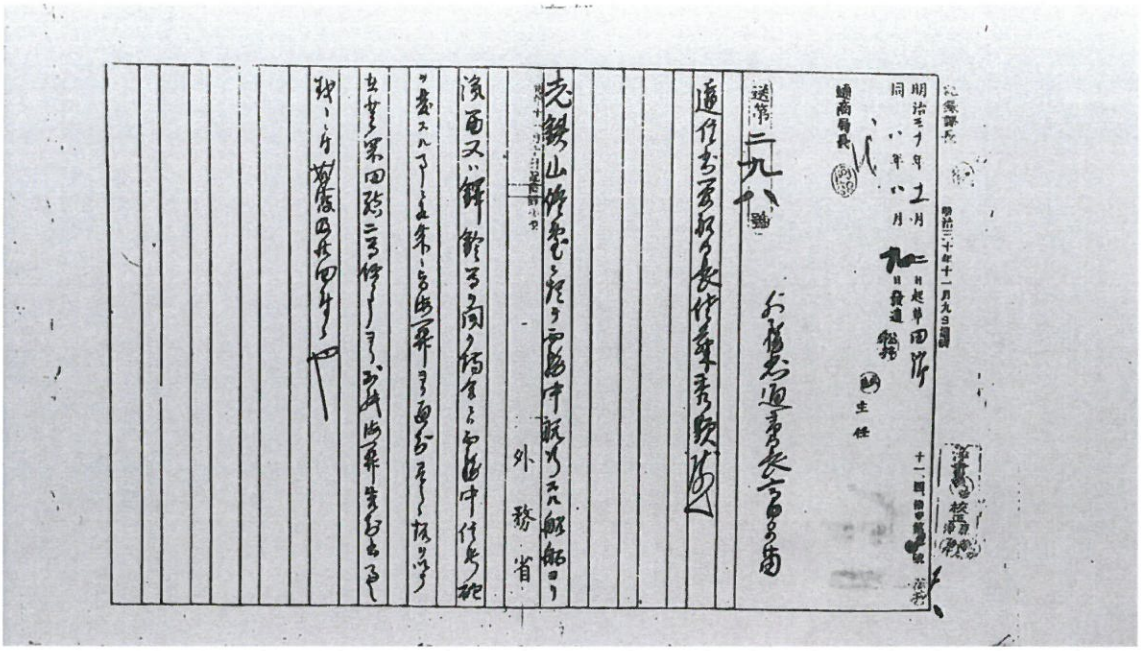
老鉄山燈臺ニ於テ霧中航行スル船舶ヨリ汽笛又ハ鐘鈴等ヲ聞ク場合ニハ霧中信号砲ヲ發スル事ニ相成候旨當地海関ヨリ別紙ノ通リ通告有之候付右差進候此段申進候 敬具

明治三十年十月二十一日

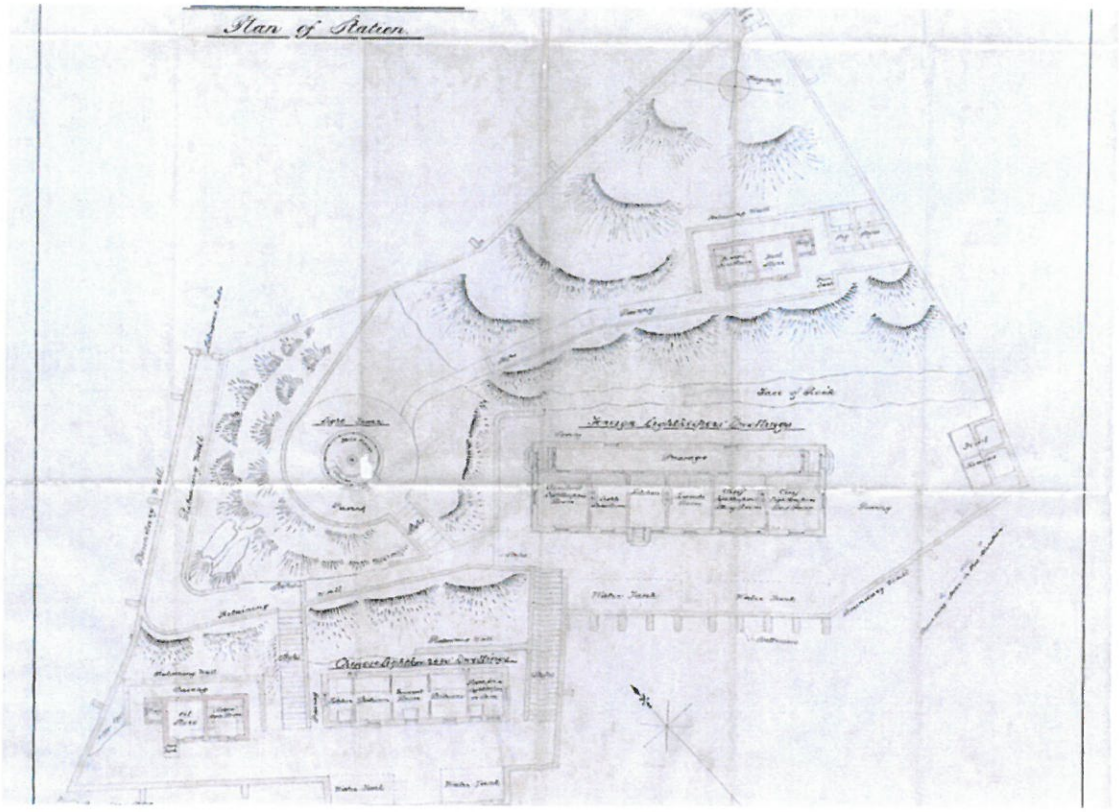
在芝罘

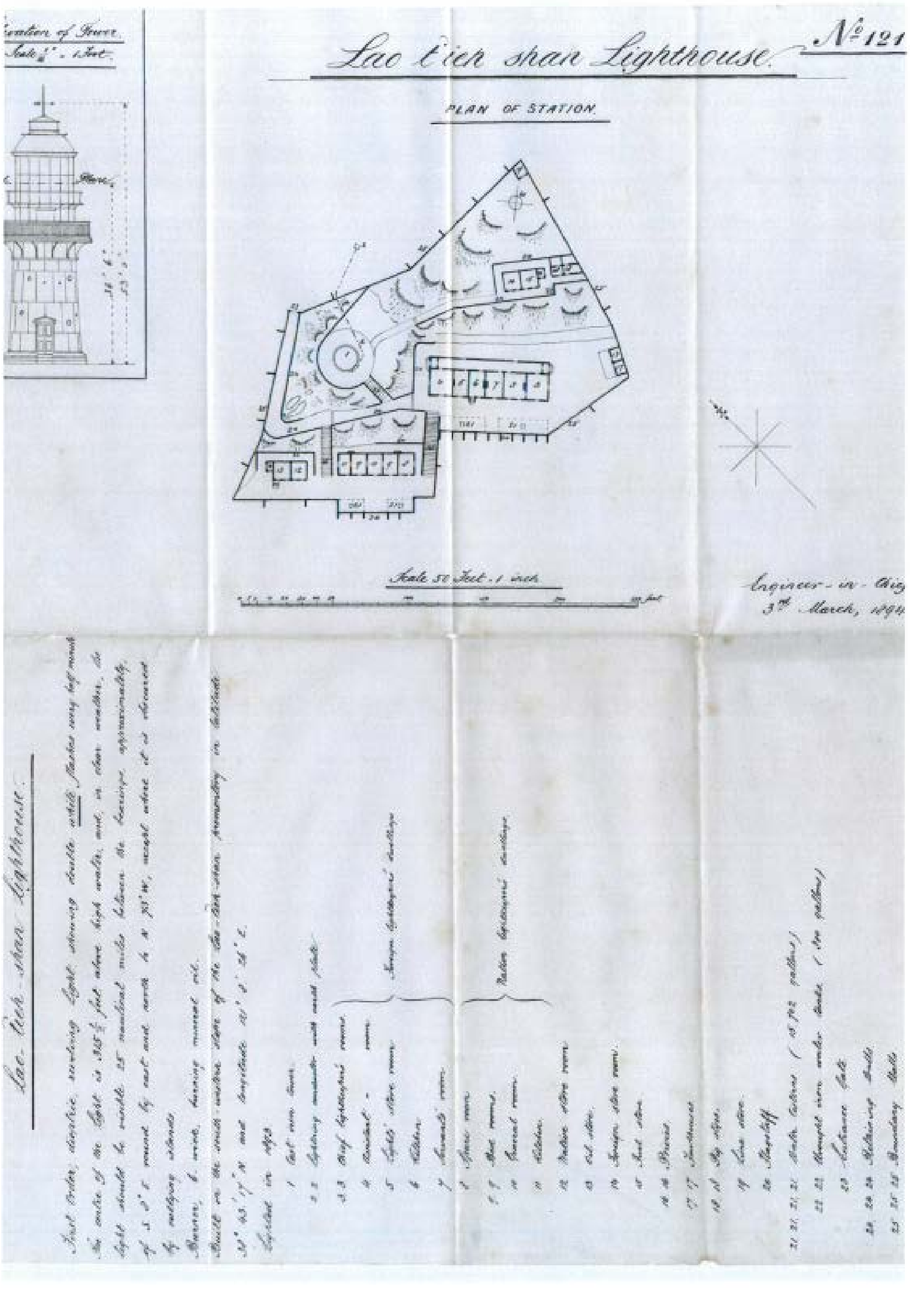
二等領事田結鉚三郎

外務次官小村壽太郎殿



外務省




Lao t'ieh shan Lighthouse.
No. 121
PLAN OF STATION.
Elevation of Tower
Scale 50 Feet - 1 inch.
Engineer - in - Chief
3rd March, 1894
Lao-t'ieh-shan Lighthouse.
First Order, dioptric, revolving Light showing double white flashes every half minute
The centre of the Light is 315½ feet above high water, and, in clear weather, the
light should be visible 25 nautical miles between the bearings, approximately,
of S 0° E round by east and north to N 75° W, except where it is obscured
by outlying islands.
Burner, 6-wick, burning mineral oil.
Built on the south-western slope of the Lao-t'ieh-shan promontory in latitude
38° 43' 17" N and longitude 121° 8' 26" E.
Lighted in 1893.
1 Cast iron tower.
2.2 Lightning conductor with earth plate
3.3 Chief lightkeeper's rooms.
4 Assistant - room
5 Lights' store room
6 Kitchen
7 Servants' room
Foreign lightkeepers' dwellings
8 Spare room
9.9 Bed rooms.
10 General room.
11 Kitchen.
Native lightkeepers' dwellings
12 Native store room
13 Oil store.
14 Foreign store room.
15 Fuel store.
16.16 Privies.
17.17 Outhouses
18.18 Pig sties.
19 Lime store.
20 Flagstaff
21.21.21.21 Water Cisterns (15,702 gallons)
22.22 Wrought iron water tanks (300 gallons)
23 Entrance Gate
24.24.24 Retaining Walls
25.25.25 Boundary Walls

百年历史灯塔之一：

The Laotieshan Lighthouse, one of the century old lighthouses

老铁山灯塔

文/伏　彧，叶维国

依傍大海，大连有海一样的性格，她周边的十几座灯塔则是这海边的哨兵。白天，灯塔是城市的标志；夜晚，灯塔引导过往船只安全通过。在这些大小灯塔中，有一座灯塔意义不同寻常，它就是老铁山灯塔。

这里是辽东半岛最南端，素有北方“天涯海角”之称的老铁山，百年灯塔就屹立在这处海拔100多米的岬角坡地上。举目远眺，三面临海、一面靠山的老铁山灯塔虽已走过百年，却依然充满活力……

“塔观双海”是大连新八景之一，“塔”即百年灯塔——老铁山灯塔，“双海”指黄、渤两海。辽东半岛与山东半岛隔海相望，环抱渤海。2000年8月8日，中国铁人张健就是在这里下水，历时50小时22分，成功地横渡了渤海海峡，成为横渡渤海海峡的世界第一人。

饱经沧桑的历史

1880年，清政府决定在旅顺口大兴土木，建造中国一流的海防设施，为保障北洋水师的航行安全，他们除了在旅顺口军港内外建造了一批炮台及附属设施，还请英国人

帮助勘测，决定在老铁山西南隅海边建一座灯塔，就是老铁山灯塔。1892年，老铁山灯塔建成投入使用后，由清政府海关管理。灯塔的使用，不仅方便了北洋水师出海巡逻、航行，也为频繁从这里进出渤海的各国商船、沿海打渔的渔船和往返山东、辽宁之间的运输船只提供导航便利。

1894年，中日甲午战争爆发，旅顺口被日军占领，老铁山灯塔也变成日军的战利品，由日本人管理了几个月后，于1895年11月交还清政府海关管理。1898年，沙俄侵占旅大后，灯塔由俄国人管理。1904年至1905年，日俄战争在旅顺爆发，日本战胜沙俄，灯塔又被日本当局利用。直到1945年8月，苏联军队进驻旅大后，灯塔由苏军代管。1955年4月，苏军撤离旅顺，我国将灯塔交由海军管理。1983年1月，灯塔由海军移交国家交通部，现隶属于天津海事局大连航标处。

老铁山灯塔经历了中国近代史的炮火烽烟，见证了日俄战争、甲午海战及八国联军从海路进入京津等苦难，也见证了新中国的诞生。虽历经百年岁月，几经战火洗礼，仍保存完好，不改国际一流灯塔的独特地位，屹立在辽东半岛的最南端，发挥着重要作用。夜晚，由灯塔发射出的两条

光柱犹如盘旋在海上的神龙，交错旋转，划破茫茫海空，为南来北往的船只指引航向，成为辽宁、山东二省的海上守护神。现已被开发为旅顺的一处旅游自然历史和人文景观——“塔观双海”。

行船航行的指引

老铁山灯塔座落在辽东半岛最南端的老铁山国家自然保护区内。海拔100多米，所处位置北纬38° 43′37″ .4，东经121° 08′02″ .6，为进出渤海海峡的船舶导航。在老铁山灯塔下方，是险峻陡峭的悬崖峭壁，它与山东蓬莱的理论连线即为黄、渤海两海分界线。

1892年，老铁山灯塔的主体部件在法国制造，第二年，英国人来到旅顺口，完成勘测和修筑任务。该塔为圆形平台式钢制结构，塔高14.2米，外径6米，灯塔采用优质石料和水泥筑就，光源采用油灯（后改用电灯），转动部分采用机械传动。

灯塔的核心部分，安装着一部工艺精湛的水银浮槽式旋转镜机，就是它，在每一个晚上指引着过往船只的方向。这里注的是水银，灯罩晚上转动肯定有摩擦，如果靠轴承摩擦的话，它的磨损是相当高的，如果给它放上水银，水银浮槽法，减轻它的磨损，之所以使用一百年，和它的工艺有很大的关系。

最令人叹为观止的是镜机最上端有八面牛眼式透镜，是用天然水晶人工磨合而成，堪称世界一绝。灯泡在里面发光，聚光以后从这出来，每隔两分钟转一圈，光程能照到25海里（可照射到山东半岛的北隍城岛）。粉红色的帷幔在白天遮挡太阳光线，防止灯塔聚光达到着火点从而防止失火。夜晚，引航的光束就从这里射出。1977年增设了全球卫星高精度定位系统。解放后由电灯代替了油灯，用电机代替了古老的机械，还新建了无线电指向标塔。但不论是用油灯还是电灯，由于水晶灯罩的作用，灯塔的射程总能保持最远，现仍为亚洲照度最强，能见距离最远的引航灯塔。

默默奉献的坚守

现任大连航标处旅顺航标管理站站长兼党支部书记的孙国民同志，在星级文明灯塔创建活动中，根据旅顺百年灯塔深厚的文化底蕴和本站航标设施功能多样、品种齐全的特点，充分利用废弃的航标设备，带领职工们对其仔细除锈，重新刷漆，经过三个多月的辛勤努力，终于建起了一个栩栩如生的“航标园”，内容包括微缩的灯塔、灯浮标、雾号、无线电指向标、雷达应答器，同时配设了大连航标处辖区分布图、职能简介以及老铁山灯塔志。航标园以其实物化、立体化、美观化的特点，使一批又一批前来参观的社会各界人士驻足观看，照相留念，对宣传航标意义、扩大航标影响起到了很好的作用。

2010年2月14日至15日，渤海湾遭遇了百年不遇的冰流潮，此时正值春运期间，过往该水域的船舶大增，特别是国家重点工程项目——烟大火车轮渡航行频繁。于有来、孙广海等党员同志主动放弃春节休假，亲赴现场抢修浮标，直到灯标恢复正常工作，有效保证了国家重点工程项目烟大火车轮渡和所有进出渤海航道船舶的航行安全。经过孙国民等职工们的不懈努力，旅顺航标站先后被大连市评为精神文明规范服务单位和新八景之一；被辽宁省列为重点文物保护单位。1997年，巴黎国际航标协会会议批准老铁山灯塔为世界著名历史文物灯塔。2002年5月该灯塔被国家邮政局列入《中国历史文物灯塔》特种邮票发行。

夜幕降临，山、海一片寂静，此刻，从老铁山灯塔里发射出的光束划破夜空，不知疲倦地为夜航的大小船只引领航程。走过百年，在代代航海人心中，灯塔是有生命的，它给船只指引方向，人和灯塔则彼此温暖，彼此牵挂。

Appendix B Mr Lee Hin Chung's experience related to lighthouses (from Mrs. Lee)

- The duty roster on Waglan Island lighthouse was divided into two shifts of 12 hours. The handover time was at 04:00 am and 16:00 pm. Mr Lee used to wake up at 03:00am in the morning, to facilitate preparation works before taking over the duty. This early wake up time continued even after Mr Lee retired.
- The sea trip from city to Waglan Island took about two hours. The lighthouse staff would board the government vessel at the Marine Department pier located at the seaside of Jordan Road Government Office. The sea was very rough after leaving Hong Kong Island harbour and the job of lighthouse keeper was considered not suitable for most persons.
- The Marine Department duty team on Waglan Island lighthouse, apart from the lighthouse keepers and assistants, included four watchmen and one cook. The cook should be the guy with the least workload and pressure. Most of the MD duty staff brought and prepared their own food. Mrs Lee noted that the cook would only prepared food based on his favour, thus only two to three MD staff were his customers, including Mr Lee. Mrs Lee had not prepared any food for her husband during his service on Waglan Island.
- Mr Lee worked with Mr Tsui Kwok Leung for many years. They were on the same duty team.
- There were cases when the weather conditions in the city area were severe or the sea beyond Hong Kong harbor and adjacent to Waglan Island pier were too rough, the government vessel carrying the next team of MD duty staff and supplies to the Island had to cancel or return to the city. Under such situations, the original off duty team had to continue another two weeks duty based on MD's policy.
- Mr Lee noted that he felt feared when working on Waglan Island during typhoon period.
- Lighthouse keepers were also required to observe and monitor weather conditions and report to the Hong Kong Observatory at regular intervals.

Appendix C Meeting with a Senior Marine Officer, Marine Department

Navigation Knowledge and Navigation Aids / Systems

- Sextant is generally used by sailors to determine the position of vessels at sea. Calculation after obtaining measurements is based on spherical geometry principle. Observation of the location of the sun, stars and moon relative to the position of vessels are other common methods used by sailors and fishermen.
- Light beam emitted from lighthouse lantern can reach a distance of up to 40 nautical miles but only visible at night time. In the 1970s, radar was used but only covered a radius of about 12 nautical miles. In the early 1980s, electronic position fixing system like OMEGA, LORAN, etc. were introduced. In the mid-1980s, global positioning system (GPS) was invented and used in USA. However, use of GPS was restricted until the 1990s when USA opened its use to the public. In late 1990s, differential global positioning system (DGPS) was introduced. RACON (radar beacon) is also installed at lighthouse.
- Light emitted from lighthouse is usually white because it can reach longer distance. Red and green light can only reach about 2 to 5 nautical miles.
- Before a vessel enters another country's port, the Master has to acquire a complete set of nautical charts of the port which show the location of all lighthouses and other navigation aids to facilitate navigation into the port. The chart will provide the characteristics of the light emitted from lighthouses (colour, duration etc.), fog horn characteristics (no of blows, duration), RACON availability etc amongst other navigation information.
- Lighthouses are still used nowadays to provide supplementary information arising from failure of other wireless and electronic systems. Old Masters in favour the use of lighthouses would double check the position of vessel derived from other means.
- Simon visited Waglan Island lighthouse in 1985 using vessel MD18 (the then largest government vessel) as part of the duties in the MD patrol team. Radio system using Morse Code as communication means between lighthouse and vessel was still common and there were diesel engines on the Island for electricity generation. Later, VHF (very high frequency) equipment which facilitate direct oral communication between vessel and land largely replaced use of Morse Code.
- Use of hoisted flags at vessels and on land for communication (which can be used within daytime and visible distance) is rare nowadays. Different flags are assigned to the 26 alphabet A to Z. Usually a combination of 1 to 3 flags are used to communicate. For example, "HNN" means "seek for immigration clearance", "A" means "divers working below vessel, please keep away…", "B" means "dangerous goods on board etc", and "Q" means "request for quarantine". There are various International Maritime Signal Flags system.
- Use of signal lamps, using pulse of opening and closing shutters mounted in front of the lamp, between vessels are mostly confined to naval vessels at night with a distance of up to 5 to 6 nautical miles. The flashing of lights is based on the use of Morse Code although special codes may be used for naval vessels. Common questions are "WHAT SHIP", "WHAT COUNTRY", and "AR" means "OVER". Sometimes, signal lamp is used when the radio and electronic means of communication fail.

- Fog horn is usually provided in association with lighthouse to provide information to vessels during heavy fog and misty weather when the lighthouse beam cannot be seen by vessels. Fog horn is best used in the ports located near congested areas. Waglan Lighthouse is located at open waters and thus use of fog horn may not be very effective for moving vessels.

Appendix D Meeting with Charles Thirlwell family members and Members of Chai Wan Fishermen Recreation Club

I. Charles Thirlwell's Life

- Charles was born in 1918. Grandfather was a marine merchant. Mother was a Portuguese. 13 (?) nos. of brothers and sisters. Charles was the second son. Elder brother James Thirlwell. James worked in Cable & Wireless Co. as Accountant. (Thirlwell family know Mr Wilfred Ayock (father an African, son Francis) who also worked in C & W).
- Charles lived at Taikoo Dockyard quarters in his childhood. He once climbed to a high crane in the dockyard, fell accidentally and broke his foot.
- Charles was kept in Stanley Prisoner of War Camp during World War II for 3 years and 8 months. Most family members moved to Canada, UK and Australia before World War II.
- Charles passed away in June 1985. Buried at Chai Wan Catholic Cemetery.

II. Charles - Lighthouse Keeper

- Appointed as Apprentice Lighthouse keeper at Waglan Island in 1937.
- Family members visited Waglan Island and Green Island Lighthouse during holidays.
- For most of the time, Charles chose to live at Chai Wan (?) instead of staff quarters provided by the Government.
- Family once lived at staff quarter adjacent to Green Island Lighthouse, there were Pakistan security guards on duty. Guards cooked delicious curry for them during Christmas.
- Warned children to aware of snakes on Green Island, need to carry sticks while walking along the steps between the pier and lighthouse. They had kept two dogs, Bruno and Betsy; dog had beaten snakes and brought back to quarter.
- Loved taking photos and owned personal cameras. A few photos in family album published in Hong Kong Standard in 1970.
- Told children about the story of witnessing Japanese soldier holding a human head with his hands in the lighthouse.
- Charles swallowed mercury accidentally during the operation of filling up mercury floating pot for the Fresnell lens of Waglan Island lighthouse, no special harmful effects resulted.
- Charles went to Australia for his pre-retirement trip. Mrs Thirlwell did not accompany Charles.

III. Activities after lighthouse duty

- Acquainted with Chai Wan fishermen after WWII when they worked as carriers of food, construction materials and personnel to Waglan Island.
- Charles could not read and write Chinese characters (apart from writing his Chinese name). He could speak Cantonese fluently and a bit 水上話.
- Charles could not play Mahjong.
- Children talked to Charles in English, talked to mother in Cantonese.
- Charles spent not much leisure time with his children and wife. While on leave after duty, Charles chose to visit his Chai Wan fishermen friends in their boats, went out to sea for fishing,

drinking beer, etc. Reckoned that the fishermen and family members could not receive proper education and inadequate recreation activities, Charles founded Chai Wan Fishermen Recreation Club with Mr 黎牛.

- First club house located at Block 2 of old Chai Wan Estate. Mainly played table tennis and 康樂棋. Charles also arranged sports activities with Roundtable Club (tug of war and other games).
- During his leave after lighthouse duty, Charles provided English class for fishermen and their children. He also prepared recommendation letters to assist the fishermen family members to work in the Labour Department of Hong Kong Government, mainly posts in lighthouses and Mines Department.
- Loved painting, in particular fishes, using colour pencils and water colours. Designed logos of Chai Wan Fishermen Recreation Club and other Dragon Boat Clubs.
- Club is registered as charitable organization under Section 88 of Inland Revenue Ordinance to avoid need of submission of audited annual accounts.
- Charles specifically included in the Club Regulations that 'No gambling is allowed in the Club'.

IV. Matters related to Hong Kong Lighthouses and Chai Wan fishermen

- Mr Lai Kei
  - Joined HK Government after 1967. Worked in Labour Department for 26 years before retirement. Already retired 24 years up to 2017.
  - Water supply at Waglan Island come from rain water and collected in large water tanks. Capacity of about 40,000 gallons. Need to clear up surface drainage channels leading to the water tanks when rain started. Taste of rain water not different from house hold water.
  - Life on Island was difficult in particular of its remoteness and loneliness.
  - Not known of any dispute or fighting between lighthouse staff.
  - Most uneasy feeling was sick while on duty.
  - Sharks were witnessed adjacent to Waglan Island.
  - Felt frightened during heavy typhoon and severe lightning.

- Mr Lai Chi Keung and others
  - Mr Lai Chi Keung's father and the elder brother of Mr Lai Kei were responsible for provision of vessels for transporting cement, aggregates and other materials for the construction of pier and steps at Waglan Island. They had visited various lighthouses in Hong Kong.
  - 'Lai' and 'Cheng' are the two major clans of Chai Wan fishermen.
  - Caught sea urchin around Waglan Island. Very delicious.
  - Most of the Chai Wan fishermen over 70 years old still worship 'Tin Hau'. Some of them are Catholic due to the fact that the church distributed 救濟包 (containing milk powder, canned foods) to the relatively poor residents in the 1950 and 1960s. There was 海星堂 at that time and 文神父 was the leader. A large portion of the fishermen younger

generations are Catholic.

- They know Mr Lai Kwok Keung 牛奶叔 of Shek O. The Lai's at Chai Wan and Shek O are close family members.
- The light emitting from lighthouse is very important to fishermen. When they see a ray of light emitting from the 水平線 while travelling back to Hong Kong after fishing from Hainan Island or other parts of ocean south of Hong Kong, they feel the warmth of coming home soon.

Appendix E Meeting with Mr. Cheung Koon Hoi, ex-Marine Department Staff

I. Education, Qualifications and Employment History

- Studied at Aberdeen Technical School.
- Joined Hong Kong Government in 1960, completed Apprentice training scheme in Electrical & Mechanical Department's Air Conditioning Division.
- Attended Hong Kong Technical College, Ordinary Diploma (?) Part Time Day Course in Electrical Engineering. Left Government in 19?? and worked in North Borneo in an Oil Drilling Company and British Air Force until 1972.
- Joined Architectural Office (AO) Hong Kong Government again in 1972. Application in 1976 for transfer from Assistant Inspector of Works in AO to Assistant Superintendent of Lights in Marine Department (equivalent to Inspector of Works post) was successful. Returned to work in AO in 1978 after spending two years in Marine Department. Retired in 2001 from Arch. S. D. at the age of 58 as Senior Building Services Inspector.

II. Experience related to Lighthouses

- Worked in Marine Department Navigation Aids Section from 1976 to 1978 and visited various lighthouses in Hong Kong including Waglan Island.
- He was posted to work as Assistant Superintendent of Lights. Marine Department's navigation aids maintenance team vessels were stationed at the pier at Canton Road Government Office. His boss was Mr Jimmy Deakin, Superintendent of Lights. The Navigation Aids Section's maintenance gang consisted of 4 to 5 persons (artisans) and led by a foreman.
- In 1977-78, about 25 staff worked in the Navigation Aids Section.
- No training was provided by the Department for newly recruited lighthouse keeper (燈務員) and other staff in Navigation Aids Section. On-job training was provided by the supervisor and colleagues.
- Main duties of lighthouse keepers :
    i. Ensure smooth, continuous operation and carry out routine

maintenance of the Lighthouse.

ii. Communicate with Captain of vessels passing Waglan Island on location of vessel, country of vessel registration, vessel's agent in Hong Kong, arriving Hong Kong from where, leaving Hong Kong to where, etc. Fill in appropriate items in Marine Department's log-book.

iii. Coordinate with staff of Marine Department Headquarter, E&M Department, Royal Observatory, Public Works Department, Cable and Wireless Co. and other outside parties on various matters to facilitate operation of the lighthouse.

- He was not aware of Gap Rock Lighthouse which is located outside Hong Kong waters.
- He had worked and stayed on one of the rooms of the staff quarter on Waglan Island for 3 days. The copper bell, hung at the wall of a building at junction of T- shaped footpaths on the Island, was used to inform staff working at various locations to return to the canteen for meal or office for urgent matters. There was a cook responsible for staff catering. Television was available at the living room of staff quarter and air-conditioner were installed at staff quarters in the late 1970s. He learned Tai Chi from one of the lighthouse keepers, who was a Tai Chi Master.
- He was a team member responsible for assembly and installation of Fresnel Len (lantern) of the Waglan Lighthouse (Fresnel lens currently kept in Hong Kong Maritime Museum) and later assisted in maintenance of the lantern.
- Lighthouse staff on roster duty with 2 weeks on Island and 2 weeks off. Marine Department staff need to wear uniforms while on duty.
- During his time, an artisan (Mr Chan Ah Man) was killed due to accidental fall into the gap between MD's vessel and the pier fenders and subsequently squeezed. He was buried in the Government's cemetery 浩園.
- Involved in installation of air conditioning system for Waglan Lighthouse in 1978. Electricity on Island was still generated from two diesel generators. Before installation of the cable way transport system between the pier and upper buildings in 1968, diesel tanks and other supplies were carried by manual labourers via staircases.
- Legal requirement specified by FSD for emergency diesel generator to start operation in not more than 15 seconds from shut down of normal electricity supply. Generally, all such generators are designed to start within 13 seconds from initiation.
- Two fog horns were installed at the roof of a building on Waglan Island. The horn was triggered automatically based on sensors. Sound from the horn could

be heard at Shek O, but not at Kai Tak Airport.

- Water consumption on Waglan Island was derived from rain water collected in special designed tanks.
- Agricultural and Forestry Department was responsible for removing heavy trees and vegetation grown on the Island which obstructed Lighthouse keepers' observation of passing vessels.
- Types of navigation aids in Hong Kong :
    i. Lighthouses (associated with land) – Waglan Island, Tung Lung Chau, Green Island, North and South Lei Yue Mun.
    ii. Lighted Buoys – a) lights driven by batteries, and b) lights driven by gas (need to replace compressed gas cylinder at regular interval). All lights converted to electricity derived from solar panels later.
    iii. Typhoon shelters – emission of lights at entrance / exit of shelters. Red and green flash lights located at left / right depending on sailing into or out of the shelters. Signal was given by GPS to ensure emission of alternate red and green light.
    iv. Piers – emission of fixed yellow or white light.
- Staff quarters at lower part of the Waglan Island lighthouse had been damaged by heavy sea waves. Metal hand railings on the Island were corroded quickly by sea water and painting and replacement of corroded railings were the main items for recurrent maintenance.
- Replacement of mercury in the container of the Waglan Island lantern was not carried out by the Government staff.
- Worked with Ex-Waglan Lighthouse Keepers Mr Lee Hin Chung 李顯宗 (83 years old and lives at Hung Hom) and Mr Lee Chih Tou 李智島. Knows Mr Yip (ex-Superintendent of Lights and retired in November 2017, lives at Ngau Tau Kok) who worked under him in 1976-78. Coordination with Mr Lee H C and Mr Yip for interview with the study team would continue.
- Knew Mr Lai Kwok Keung 黎國強 and some Cable & Wireless staff who worked on Waglan Island Lighthouse.

Appendix F Meeting with Mr. Lui Yau Lok, ex-Chief Scientific Assistant and retired Hong Kong Observatory Staff

I. Waglan Island Lighthouse Memories

- Mr Lui joined the Hong Kong Observatory (HKO) in May 1967. HKO stopped placement of staff to Waglan Island from 1964. He was responsible for the installation of new equipment and maintenance of existing equipment in the HKO meteorological station at Waglan Island. Going to work on Waglan Island was by Marine Department's vessel. There were three piers in the city for boarding the vessel; i.e. Tsim Sha Tsui Railway Station Pier, North Point Pier and Blake Pier in Central district. There was no helicopter landing pad on Waglan Island at that time. The sea voyage from the city to Waglan Island took about two hours. The sea was generally rough beyond Hong Kong Island, particular in the winter months. During his first visit, Mr Lui felt serious sea sick and needed to rest on the pier for about one hour before starting work on the Island. For his second visit, Mr Lui took drugs against motion sickness before boarding the vessel, but the drugs was found to be not very effective. Mr Lui did not know the Marine Department lighthouse staff.
- Based on the colleagues' recollections, Mr Lui pointed out that HKO staff on duty at Waglan Island worked on 14-day shift roster. They need to bring their own food sufficient for the duty period. Before construction of the Waglan Island pier in 1960s, the staff need to land from the vessel through conveying within a big basket supported from a derrick crane mounted on the shore. Fishing around the pier area was common after work, as personal interest and a way to catch fresh fishes for food.

- Accident in early 1960s - one of the HKO staff felt into the sea while recording the sea water temperature at the Waglan pier. His body was probably bitten by sharks, the remaining of only one thigh was discovered the next day.
- Waglan Island and Cape Collinson lighthouses are located below the normal flight paths where aircrafts approached Hong Kong Kai Tak Airport. Meteorological information recorded at Waglan Island was transmitted to the HKO airport station at 30-minute interval using wireless call. Special codes to represent various meteorological data were adopted to ensure accuracy. Under special weather conditions like typhoon, strong wind, heavy rainstorm and fog etc., the meteorological information was transmitted immediately.
- Other notes prepared by Mr Lui are reproduced below:

1. 橫瀾天氣觀測:

橫瀾的天氣資料, 與其他氣象站的一樣重要. 除了為航海, 航空界, 香港本地天氣報告及預報提供基礎數據外, 亦會經世界氣象網絡傳播到世界各地. 因而, 裝置在橫瀾的氣象儀器, 天氣觀測及報告規格, 是完全依據世界氣象組織所定. 所有儀器, 必須符合世界氣象組織所定標準, 定期維護保養; 觀測人員必須有足夠培訓.

在 1964 年天文台停止駐站前, 海事處員工長期與天文台同事一起工作, 有足夠的在職培訓及經驗; 所以在天文台同事停止駐守, 橫瀾氣象儀器完全自動化前, 海事處人員

仍然能夠繼續提供天氣報告.

對當時香港來說, 橫瀾地理位置非常重要. 在航海方面, 燈塔的重要性, 不用多說; 海霧由東面湧入維港, 颱風及巨浪由東面迫近, 橫瀾位於香港東側前哨, 其天氣資料更是不能忽略.

在航空方面, 橫瀾及哥連臣正位於當時出入啟德機場飛機航道之下, 其天氣資料實為飛機升降安全貢獻甚大.

2.橫瀾天氣內容:

正如前述, 橫瀾的天氣觀測及報告規格, 是完全依據世界氣象組織所定. 內容包括:

2.1 雲層狀況 - 總雲量; 各層雲的分別雲量, 種類, 雲底高度, 雲的變化;

2.2 風 - 風向, 風速, 陣風;

2.3 天氣 - 依據世界氣象組織所定 100 種情況選報; 大致上是: 雲, 煙霞, 霧, 雨, 雷暴等等; (雪, 沙暴, 塵暴, 山火, 火山灰等等, 在香港就不用). 這裡的雲是指特別的雷暴雲, 漏斗雲, 水/陸龍捲, 等等, 不包括在 2.1 的;

2.4 最短視程 (當時是由觀測人員肉眼判斷) ;

2.5 氣溫, 露點溫度 (由乾球及濕球溫度計算出); 每 12 小時最高, 最低溫度;

2.6 平均海平面氣壓 (由站水平氣壓與氣溫計算出) ;

2.7 海浪狀況; 海水溫度;

2.8 雨量.

Appendix G Experience Sharing by a Helicopter Pilot

- Flight time from Wanchai to Waglan Island takes about five to six minutes at average height of 500 ft, depending on weather conditions. Under strong wind, the flight height is increased to about 800 ft to reduce turbulence. The helicopter will fly to Waglan via Lei Yue Mun.

- Helicopter generally lands against the wind direction. Before landing, the pilot has to inspect the helicopter pad condition by making a full circle over the landing pad, to identify any unwanted persons or obstacles that could hinder proper landing. The pilot would approach the landing pad by steering the bow against the wind. The prevailing wind at Waglan Island comes from easterly and south-easterly directions.

- The helicopter would be orientated and parked on the landing pad which allows the passengers to get off from the right hand door, directly facing towards the steps leading to the Waglan lighthouse compound.

- The Waglan Island pier was badly damaged during Super Typhoon Mangkhut in September 2018. It would take about two years for to repair the pier. Hence, more helicopter service would be needed to transport staff and equipment to Waglan Island for routine maintenance and construction.

Appendix H Meeting with Kelvin Chan, Grandson of Mr. Leung Chiu Tung (CT)

- CT was born on 29 October in 1911. Copy of his birth certificate shown that CT's father Leung Tim (1882-1940, merchant with address at second floor, 38 Kwong Wah Street) and mother Wong Chiu Lan (1886-1942, second wife of Leung Tim).

- CT was admitted to Class Three of Tai Tung College Hong Kong in September 1931 and left in July 1932 when in Class Two.

- CT joined the Hong Kong Government on 1 April 1933 as an Apprentice Lighthouse Keeper on Gap Rock Island. He was promoted to second class lighthouse keeper on 25 March 1934. He worked on Waglan Island lighthouse from 1935 to 1936. In 1937 he worked as first class lighthouse keeper on Waglan but resigned on 5 August 1937.

- CT married Ms Lee Yeuk Lan on 7 November 1937. Wedding took place at Nathan Hotel, Kowloon. Mr Ho Shun Hing (an Engineer and included in the 1937 Juror's list) officiated the ceremony.

- After leaving Government, CT opened/owned International Motors Company (中國汽車商行), offices were located at 12-14 Queen's Road Central and 749 Nathan Road.

- CT's family lived near Mong Kok Sai Yeung Tsoi Street area. He was killed by Japanese soldier at Happy Valley near Blue Pool Road area on 22 December 1941 during World War II. He was buried with his mother Ms Wong at Diamond Hill (?) cemetery. Their tomb's stone plague revealed that the tomb was maintained and re-erected in 1970.

- CT's wife Ms Lee Yeuk Lan passed away several years ago (2013) at the age of 95. CT's children erected a memory plague to commemorate their parents and grandparents in Toronto.

- CT had three children. Eldest son Richard, daughter Virginia and Margaret (Kelvin's Chan's mother) who was born in January 1942. Richard emigrated to the United Kingdom in 1960s and moved to Canada after 1970s. Margaret emigrated to Canada after 1967 and Virginia emigrated to Canada around 1986/87. Ms Lee also emigrated to Canada with Richard.

- Kelvin was born in Canada. His grandma Ms Wong could not speak English.

Appendix I　Sharing by Mr. Leung Shiu Chung, ex-Hong Kong Observatory Staff

橫瀾島位於果州群島以南約12海里，石澳東北約10海里，在香港水域東陲，由大小二小島組成。大島海拔數百尺，島上有橫瀾燈塔、香港海事處船隻出入監察站、天文台氣象站、無線電航空導航訊號站、發電和通訊設備。此外，島上更設有霧笛和直升機坪。橫瀾燈塔是進入香港水域的地標，燈光特強，照射程很遠，聽說在晴朗的晚上，視野良好的話，船隻離開汕頭港不久，便會看見橫瀾燈塔發出的燈光訊號。小島叫橫瀾頭，是一列荒涼矮小的岩石山。島上沒有居民或設備，颱風襲港或吹強烈東北季候風時，海面掀起的巨浪，會把小島淹沒，海上有濃霧時，它也會完全被隱蔽。

橫瀾島上駐有海事處燈塔管理人員，專責管理燈塔和監察船隻出入香港水域；天文台計算員，負責觀察香港東面的天氣情況，定時向天文台總部及啟德機場氣象站發出天氣報告；大東電報局技術人員，負責管理及維修導航儀器、通訊設備及站內其他設施；天文台派出一名廚師，負責氣象站內工作人員的膳食。站內一切事務，包括管制食水使用，由較資深的計算員管理。

天文台計算員要輪流到橫瀾當值，每六個月一次，每次兩星期。在橫瀾期間的膳食，要自行負責，每人可獲發膳食津貼50元。以當時的物價，50元的伙食費，也算得合理。由於有廚師負責膳食，各人都會將津貼交給他一手包辦，免卻很多煩惱。廚師

也很能幹，他除供應三餐不錯的飯菜外，還供應下午茶，雖然只是自製的清水蛋糕或煎餅和奶茶，但那已是很好的享受。有漁船靠近的話，他會向漁民購買一些海鮮加菜，調劑一下每日相同的菜色。廚房的冰箱，不用電發動，而是用火水發動，冰箱背面有火水燃燒器，裏面的火一定要保持不滅，否則不能維持箱內低溫，食物會變壞。

由於觀察天氣必須在四周視野無阻的地方進行，天文台氣象站建在島上山頂最當風的地方。宿舍在二樓，從宿舍可遠眺南面的擔杆山，西北面的鶴嘴、石澳、藍塘海峽和鯉魚門。向東望是無際的南中國海，打開窗戶便感受到四方八面吹來的海風，可以說風水很好。氣象站所有窗戶外面，都裝上厚厚的防風木門，颱風或狂風暴雨侵襲時，內外門窗都必須緊閉。除需要到室外工作的人員外，所有人員都要留守在室內，不得外出。

夏天的時候，島上涼風習習，是個避暑勝地。氣象站是觀看日出的好地方，早上天將發白的時候，從樓頂向東望海，不久便可見太陽從水平線下，緩緩地冒出，四周魚肚白色的天空，漸漸變為橙黃色，海面隨着發出閃爍耀眼的金黃色。巴金散文《海上的日出》描述的日出情景，一一呈現在眼前。晚上適逢陰曆十五月圓的話，皎潔的月光，照射在無風浪的海面上，閃耀着銀色。夜深人靜，島上靜寂無聲，此時此地欣賞月色，別有一番詩意，

初秋魚汛來臨，漁船集結在附近海面。晚上漁民亮起汽燈下網捕魚，不時引爆魚炮。巨響過後，水面浮出大量暈迷的魚，漁民在一片歡呼和叫喊聲中，緊張地把魚撈到船上，吵鬧喧嘩的捕魚工作，直到晨光熹微的時候才結束，卻苦了在宿舍休息的工作人員，他們往往被吵醒，得不到好睡眠。

冬天島上氣溫比市區低得多。早上五點，室外還是一片黑漆，工作人員便走到室外記錄溫度，量度雨水，估計視野，觀察雲層，測度雲層高度，及進行其他氣象探測。然後將收集的資料，寫成報告及翻成氣象碼。在凜冽寒風中，走到山的另一面，爬上海事訊號塔，用該處的海底電纜電話，經香港上環海事訊號塔，把天氣報告第一時間送到啟德機場氣象站及天文台總部。橫瀾海面的天氣情況，對早上開出的航班，和當日的天氣預報都很重要，所以無論天氣如何惡劣，工作人員必須準時將天氣報告發出。有時風勢十分強勁，工作人員站不住腳，便須要扶着欄杆走，如果寒風中夾雜冰冷的雨水，那就更辛苦了。幸而氣象站人員都是壯健和吃得苦的年輕人，雖然在這種苦況下，他們的天氣報告從未間斷。

春天和暖潮濕的天氣，往往帶來濃霧，籠罩着整個橫瀾島，終日不散。濃霧出現時，霧笛不斷發出響號，警告船隻不要靠近，聲音震動整個大樓。對於島上的工作人員，濃霧天是沒好睡眠的日子。有一次，是四月的一個早上，我在島上當值，須要量度雨水。雨水收集器裝置在霧笛喇叭前面，這番工作是先取出桶內的玻璃瓶，將瓶內的雨水倒入一個量杯，量度得到雨水多少，然後記錄數字。當時下着雨，視野有點模糊，但不致需要開動霧笛，發出警告。我如常地走到喇叭前，取出瓶子，預備倒出雨水，能見度驟然降至十數碼，霧笛隨即響起來，聲音震耳，我在毫無準備下，被突然發出的響聲嚇得跳起來，我本能地把瓶子扔出去，瓶子被摔得粉碎，雨水也沒有量度到。回到大樓後，我仍心有餘悸，心情還未平復時，主管計算員卻走過來責備我疏忽打破了雨水瓶，要我書面解釋以及賠償。幸而這件事後來沒有下文。

橫瀾島是個遠離市區，與現代文明設施隔絕的小島，島上沒有水源，也沒有食水輸送管連接島上。自來水供應更是天方夜譚。要政府按時運送食水到島上，簡直是妄想。建築師卻想出一個解決食水的方法，就是把島上主要建築物頂部，改建為雨水收集區，在屋前用三合土建造密封的貯水庫，用水管接駁屋頂，把雨水引入水庫內貯存。水庫頂打三個井孔，旁邊裝上手動抽水機，方便取水。島上人員食用的水，就是從水庫抽取，未經消毒及過濾的雨水。夏天是雨季，冬天雨水少。收集雨水主要在夏天。冬天的食用水，是夏天貯存下來的水。水在島上十分寶貴。因此，清潔水庫只能每年進行一次。水庫內潔淨程度十分有限，

抽出來的水，不時含有昆蟲和細菌，必須煮滾才可飲用，味道也不大好。腸胃或抵抗力弱的工作人員會不適應，很容易患腹瀉。有一次，大東電報局的一名技術員發高燒及患腹瀉，起因就是食水不清潔。當時島上沒有醫護人員，沒有藥物，連探熱針也沒有。情急之下，主管計算員拿了探測天氣使用的最高溫度計（maximum thermometer）當作探熱針使用。看着他把那巨型的水銀針，放入病者的口中探熱，令人覺得既恐怖又可笑。雖然天文台已即時要求水警協助，海事處亦發出緊急求救訊號，水警輪在多個鐘頭後才到達橫瀾海面。工作人員將病者放在鐵筐內，用繩索綁緊，用弔機從岸上把他弔到水警輪上，送到石澳轉送瑪麗醫院救治。幸而當時海面風平浪靜，不然，水警輪便沒法靠近岸邊接他上船，他也沒有那麼快獲得適當的治療。經過診治後，他沒有大礙，很快就復原過來。從這件事可見，50年代在橫瀾島上工作，有一定的風險。

橫瀾島是禁區，不對外開放，沒有公共交通工具連接島上。要到橫瀾島，就要靠漁船或政府船隻。海事處補給船"海事1號"每兩星期一次，開往橫瀾，運送接班人員以及補給品到島上。遇上惡劣天氣，補給船便不能如期開出。如果惡劣天氣持續多天，島上工作人員就逗留島上多幾天，無法如期回家。但是他們不愁缺糧，因為島上有糧食貯備。

"海事1號"是艘航行緩慢的舊式拖船，航行速度每小時不到5海里。如果天氣良好，又沒有風浪的話，從香港出發到橫瀾，航程最快也要4個小時。途中，補給船會在藍塘海峽海面下碇停泊，海事處人員會轉乘小艇上岸，檢查在岸上的藍塘燈塔。留在船上的人可以看書、睡覺或做自己的事情，等候他們回來。冬天吹大東北風時，海峽潮水漲退落差頗大。補給船雖然在海面拋了錨，但仍然被海浪推得左搖右擺，上下顛簸。航程還有一大半，不習慣風浪的人，已開始暈船了，所以很多人都害怕在冬天出海前往橫瀾。

橫瀾島沒有碼頭，只有一個在近岸岩石上用三合土填出來的平台，平台上面除了一部人手操作的弔機外，什麼設備也沒有。補給船到達橫瀾海面，在附近停泊。船員用小艇運送接班人員和補給品到岸上。如果風浪不大，小艇可以靠近平台，方便搬運貨物和人員上岸。如果吹大東風，潮水高漲的話，小艇就不能靠岸，岸上人員便開動平台上的弔機，用弔籮把人和貨物弔到岸上。弔籮裝滿人和貨物，在半空中搖曳，下面是波濤洶湧的海面，安全着陸與否全賴操作弔機的人和他的技術，如果你與他的關係不好，他可能給你驚喜來個海水浴。乘坐弔籮的經歷實在令人難忘。

從岸邊平台到山頂氣象站，要走數百梯級。所有行李和貨

物，都是員工自己搬運上山，他們少一點氣力也不行。有一位肥胖的計算員，他飲用島上的水，會腹瀉不適。因此，他每次到橫瀾當值，必攜帶多瓶蒸餾水自用。他喜愛壽星公煉奶，每天無奶不行。所以，除蒸餾水外，他會同時帶大箱罐頭煉奶。五十年代的蒸餾水是用大玻璃瓶裝載，十分笨重。看到他拖着肥胖的身體，背着沈重的蒸餾水和煉奶，沿着山邊的梯級，吃力地拾級而上，不時要停下來喘氣，實在令人擔心他會因心臟不勝負荷而暈倒。不過，他卻安然無事，可見他的健康也不錯，完全適合在橫瀾氣象站當計算員。

我在天文台工作的數年間，曾多次在橫瀾氣象站工作。以上是一些當時的工作體驗，有苦也有樂。這些經歷只有在島上工作過的氣象人員才會回味無窮。

1 島上可盡覽中國南海的景色。
There is an unobstructed view of the South China Sea on the Island.

2 梁紹中（右一）與前台長岑柏（左一）似屬50年代的老同事。在2008年天文台慶祝125週年活動中重逢，自是談笑甚歡。
Leong Shiu Chung, Arthur (1st right), and ex-Director Patrick Sham (1st left) were colleagues back in the 1950s. Naturally, they have much to talk about in a reunion occasion to celebrate the 125th anniversary of the Observatory.

3 橫瀾島近貌。
A recent scene at Waglan Island.

4 從岸邊平台到山頂氣象站，要走數百梯級。
It takes several hundred steps to reach the weather station at the top of Waglan Island from the seashore.

- END -