

WELLINGTON HISTORICAL ASTRONOMY WALKING TOUR

FROM THE WHAREWAKA HEAD NORTH ALONG THE WATERFRONT, TURN LEFT AT QUEENS WHARF (UNDER THE SAILS), CROSS JERVOIS QUAY AND PAUSE IN POST OFFICE SQUARE.

STOP 1

PROVINCIAL OBSERVATORY AND TIME BALL, QUEENS WHARF

In the mid-19th century, an accurate time service was of value to the local population but essential for the captains of vessels to enable them to correct their clocks and chronometers. Stephen Carkeek suggested in 1862 that a time ball and transit observatory should be set up at the Custom House that was about to be built at the Wellington waterfront. The Government duly ordered a time ball, transit telescope and two astronomical clocks from England.



CUSTOM HOUSE WITH TIME BALL

The Provincial Observatory, comprising a small wooden hut was built on Customhouse Quay near the site of the present Intercontinental Hotel. The observatory housed the transit telescope and two astronomical clocks.

The operation of the time ball was trailed in February 1864 and the observatory was completed early the following month when it was reported that "... the time ball was brought into operation for the first time ... and will continue to give the correct time at noon every day except Sunday." The release of the time ball from the top of the pole was triggered by an electrical discharging machine connected to the astronomical clock.

When, in 1869, a new Telegraph Office building obscured the line-of-sight from the transit telescope to a meridian reference mark on Tinakori Hill the Provincial Observatory had to be moved. Dr James Hector found a site in the Wellington Botanic Garden - refer Colonial Observatory later in this walking tour (at STOP 4).

The time ball remained on the Custom House until it was moved along the waterfront to Shed J, the site of which is the last stop (no. 7) on this tour.

NOW CONTINUE ALONG GREY STREET, TURN RIGHT ON TO LAMBTON QUAY AND TAKE THE CABLE CAR TO KELBURN. FROM THE CABLE CAR TERMINUS TAKE THE PATH TO THE NORTH TO SPACE PLACE (STOP 2).

STOP 2 CARTER OBSERVATORY / SPACE PLACE

Carter Observatory, funded by a bequest left by Charles Rooking Carter (1822-1896), was established under the Carter Observatory Act 1940 and was formally opened late 1941 with Murray Geddes as founding Director.



This modest building comprised two domes and associated offices with the Cooke refractor from the Wellington City Observatory installed in the larger dome.

Carter Observatory expanded over the years to provide a library and an office wing to accommodate an increase in staff, including professional astronomers.

When Carter's outstation at Black Birch was closed, the Ruth Crisp 41-cm Boiler and Chivens reflector was moved to the observatory.

In 1977 Carter became the official National Observatory of New Zealand. In 1991 the Golden Bay Planetarium was incorporated to become its visitor centre and theatre. Carter Observatory's priorities shifted from scientific research to public education. In February 2005 a review concluded that the Mt John Observatory was more suited for the title "national observatory" because it was widely accepted as the major NZ observatory in terms of national and international research.

The Wellington City Council has maintained the observatory since 2007, and in 2009 the Government transferred responsibility to the Council, and it officially lost the title of National Observatory. The complex is now known as Space Place and has, as a branch museum of the Wellington City Council, become a significant tourist attraction.

WELLINGTON CITY OBSERVATORY

The Wellington City Observatory, a small galvanized iron building with a run-off roof, was opened in 1924 by the Wellington City Corporation. It was located on the current site of the Space Place car park.

The observatory, also known as the 'green tin shed' due to its appearance, housed the 9-inch Cooke refractor which the Corporation had acquired in 1923 from the Marist Seminary at Meeanee near Napier for £500. With such a telescope now on hand, many of those who had previously used the King Edward VII Memorial Observatory now preferred the larger instrument and public night sessions transferred to the Wellington City Observatory.

The green tin shed was demolished to make way for the Carter Observatory and the refractor was handed over for the new observatory.

FROM SPACE PLACE EXPLORE THE OTHER THREE BUILDINGS NEARBY (STOP 3)

STOP 3A - THOMAS KING OBSERVATORY



This observatory was erected in 1912 by members of the Astronomical Section of the Wellington Philosophical Society and was known as the King Edward VII Memorial Observatory. Initially a 5-inch Cooke refractor was installed but this was replaced in 1918 by a 5 1/2-inch Grubb refractor made in 1882 which was once owned by Thomas King. You will visit King's grave at STOP 6.

STOP 3B - HECTOR/DOMINION OBSERVATORY



Hector Observatory was established in 1907 near the top of the Wellington Botanic Garden to continue the time-keeping function of the Colonial Observatory (STOP 4) which was closed down the previous year. The small red brick building was a two-storey octagonal structure with a rectangular room at ground level for the transit telescope. The room adjacent to the transit housed four clocks and the upper octagonal room served as an office.

Initially the clocks were used to trigger the time ball installed on Shed J down on the waterfront (STOP 7), but after that building burnt down in 1909 the time ball system was not reinstated. Instead, time signals were provided by green, red and white lights on a mast erected alongside the Hector Observatory. The building was renamed the Dominion Observatory in 1925 and the following year an office wing was added.

Thomas King transferred from the Colonial Observatory to the Hector Observatory and remained there until his resignation in 1911. Dr Charles Adams was then appointed Director and became NZ's first Government Astronomer. Adams retired in 1936 and this marked the end of the Dominion Observatory's involvement in astronomy. In 1941 the building was renamed the Seismological Observatory. Dr Adams was an instigator, and first President of the New Zealand Astronomical Society (NZAS). Many of the early NZAS Council meetings were held in the Hector Observatory.

STOP 3B - IGYDOME



This small dome housed a Danjon Impersonal Astrolabe which was used during the International Geophysical Year (1958). A number of these instruments were located at various sites around the world and the observations provided more precise locations than was previously possible.

The astrolabe was a horizontal telescope, with an equilateral (60 degree) prism in front of the lens. The observer sees an image of a star refracted by the prism and another image of the same star reflected by a pool of mercury below the prism. When the two images coincide, the star is almost exactly 30 degrees from the zenith. This instant is recorded automatically by the astrolabe, not the observer - hence the word "impersonal" in the name. When a large number of observations are made and averaged, the location of the site can be determined accurately.

NOW TAKE THE PATH TOWARDS THE METSERVICE BUILDING THEN FOLLOW NORWOOD PATH DOWN TO THE ROSE GARDEN, TURN RIGHT AND STOP AT THE SEDDON MEMORIAL, THE SITE OF THE COLONIAL OBSERVATORY (STOP 4).

STOP 4 COLONIAL OBSERVATORY

The Provincial Observatory (STOP 1) was transferred from the waterfront to the Bolton Street Cemetery in 1869 and became known as the Colonial Observatory. The role of the observatory, continuing on from the Provincial Observatory, was to provide a time service. Dr James Hector was the Director of the observatory and had the assistance of a keen amateur astronomer, Archdeacon Arthur Stock, until he retired in 1887 due to ill health. You will visit Stock's grave at STOP 5. Stock's position was taken by Thomas King. The observatory was removed in 1906 to make way for Seddon's grave and monument.



The transit instrument, of 2% inch aperture and 32 inches focal length, was made by Troughton and Simms. It was mounted on a pyramidal brick pier resting on a solid foundation of rock, thereby isolated from contact with the building. The meridian-mark was a 3 inch iron pillar, set in concrete and standing about 6 ft. high on the sky-line of the Tinakori Range, a sufficient distance to the northward, near Wadestown.

The observatory housed four clocks - one being a sidereal clock, and the other three mean solar time clocks. They were mounted on brick and cement bases, and fastened to substantial timber frames stayed by steel rods to prevent disturbance of the adjustments.

The clocks were good time-keepers; and, as there are three mean time clocks, true time could always be given, even when bad weather prevented observations. The sidereal clock, and one of the mean time clocks were made by Dent, and had zinc and steel compensation. A second mean time clock, by Moore, of Clerkenwell, had a mercurial compensation; and the third mean time clock, by Moore, was used to drop the time-ball and sends signals to various parts of the colony. This clock was fitted with an electro-magnetic mechanism which enabled the clock to signal time automatically every hour to certain places in town (the Museum, the Telegraph Office, and the shops of the leading watch-makers) and to drop the time-ball on Waterloo Quay at noon each day.

FOLLOW THE MAIN PATH AND TAKE OBSERVATORY PATH, TURN ON TO TRUSTEES PATH TO THE FIRST BEND IN THE TRACK FOR STOP 5.

STOP 5
VENERABLE ARCHDEACON ARTHUR STOCK (1823-1901)



Arthur Stock came to New Zealand in 1853 as a member of the Church Missionary Society. Stock was appointed Vicar of St Peter's Church, Willis Street, Wellington in 1856. Stock had a keen interest in science, and in 1863 became an observer at the Provincial Observatory. He continued in this role when the observatory was moved from the waterfront and became the Colonial Observatory until he retired due to ill health in 1887.

NOW RETRACE YOUR STEPS BACK ALONG TO OBSERVATORY PATH AND TURN RIGHT ON TO HART PATH AND CARRY ON STRAIGHT AHEAD ON REACHING THE SEALED PATH. CONTINUE ON WOODWORTH PATH, AT THE START OF BENJAMIN SMITH PATH TO YOUR RIGHT IS STOP 6.

STOP 6
THOMAS KING (1858 - 1916)



Thomas King, was a prominent Wellington amateur astronomer who became a part-time professional astronomer in 1887 when he took over from Arthur Stock at the Colonial Observatory. King transferred to the Hector Observatory when this was built but resigned four years later in 1911.

Thomas King was born in Glasgow in was brought out to New Zealand by his family at 2 years of age and educated in Auckland. He was a Fellow of the Royal Astronomical Society and you saw the observatory named in his memory earlier in this tour. He never married.

NOW RETRACE YOUR STEPS ALONG THE SEALED PATH, TURN LEFT AND FOLLOW THE PATH OVER THE MOTORWAY, THROUGH THE LOWER CEMETERY AND CROSS TO THE PARLIAMENT SIDE OF BOWEN STREET AT THE TRAFFIC LIGHTS. CONTINUE DOWN BOWEN STREET, CROSS LAMBTON QUAY, TURN LEFT TO WALK ALONG THE FRONT OF THE OLD GOVERNMENT BUILDING, TURN RIGHT INTO BUNNY STREET, PASS THE RAILWAY STATION AND CROSS OVER JERVOIS QUAY TO STOP 7

STOP 7 SHED 21



By the early 1880s, the city was beginning to grow to the extent that the background of houses behind the Customs House (STOP 1) reduced the visibility of the time ball. A new location for the time ball took some time to be agreed and finally in the late 1880s Shed J, a timber store, was built with a tower on which the time ball installed.

Shed J was destroyed by fire in March 1909 and the large 3-storey brick building which you see before you (Shed 21) was built in its place. The time ball was not replaced as the coloured time signal lights at the Hector Observatory (STOP 3b) took over its function.

NOW WALK ALONG THE WATERFRONT BACK TO THE WHAREWAKA.

Sources:

Kinns, Roger. (2017). The Principal Time balls of New Zealand. *Journal of Astronomical History and Heritage*, 20(1), 69-94.

Orchiston, Wayne. (2016). The Historic Astronomical Observatories in the Wellington Botanic Garden: A Brief Introduction. 10.1007/978-3-319-22566-1_9.

Orchiston, Wayne. (2016). Stephen Carkeek, the Wellington Time Ball, and New Zealand's Oldest Surviving Observatory. 10.1007/978-3-319-22566-1_8.

Transactions and Proceedings of the Royal Society of New Zealand Volume 35, 1902. Art. LV.—On New Zealand Mean Time, and on the Longitude of the Colonial Observatory, Wellington; with a Note on the Universal Time Question. By Thomas King, Transit Observer, Colonial Observatory. [Read before the Wellington Philosophical Society, 18th March, 1903.]

<http://www.friendswbg.org.nz/newobservatories.html>

Photo credits:

Custom House with Time Ball: Queens Wharf area, Wellington. Murray, H N: Photograph of Queens Wharf and an album. Ref: PAColl-0824-1. Alexander Turnbull Library, Wellington, New Zealand. /records/22427384

Colonial Observatory: Alexander Turnbull Library, Canterbury Times 27 June 1906, Ref. 1/2-044047-F

Shed J and Time Ball: Wellington Harbour Board - Wellington Harbour Board Records, Wellington City Archives. 2012/2:6725.

All colour photos courtesy Glen Rowe