

OBSERVATORIES IN AUSTRALIA 1788-1830

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It was First Fleeter, Lieutenant William Dawes, who set up Australia's first observatory at Port Maskelyne on the western side of Sydney Cove (now Dawes Point) in September 1788.

I got the clock scrwed [sic] to the frame which is let into the niche in a very large solid stone and there wedged exceedingly firm and propped in front by a short, stout piece of plank to another very large stone so that I believe it is impossible to fix a clock up much better. (Board of Longitude papers, Royal Greenwich Observatory, England, Herstmonceaux 36/290).

This clock would appear to be the Royal Society Regulator number 35, now in the National Maritime Museum in Greenwich, England, purchased in 1768 for £40 from the specialist English regulator maker John Shelton. The clock in all probability travelled with Cook on both his second and third voyages to the South Pacific and was used for setting the chronometers on which Cook relied for determining his longitude. When this timepiece returned to the South Pacific with Captain Arthur Phillip and Dawes, it became the most travelled of any in the world (Plate 1), at left.

In his observatory, Dawes also had Larcum Kendal's chronometer which, up to this date, had a similar interesting history. Constructed at a cost of £450 in 1769 for the Board of Longitude's prize to test the validity of Harrison's claim, it travelled on Cook's second and third voyages to the South Pacific. This magnificent timepiece, after more than three years at sea in 1775 on Cook's second voyage, was found on its return, to be gaining a mere 13 seconds a day. It was to visit Australia for the first time as the navigational timekeeper for the First Fleet in 1788 (Plate 2).

Dawes, a skilled mechanic, would have checked this chronometer, now known as K1, against the Shelton regulator in his observatory while not in use on the *Supply* or *Sirius*.



Plate 1. Dawes 1788. A simulated tent observatory suspended on a tripod showing a one foot astronomical quadrant by John Bird. This instrument would be identical to that issued to Captain Arthur Phillip. On the right is the Royal Society regulator Number 35, issued to Phillip for use by Lt William Dawes in the observation of the reappearance of Halley's Comet. This was the first time Comet had been viewed in the Southern Hemisphere. Photography courtesy National Maritime Museum, Greenwich.

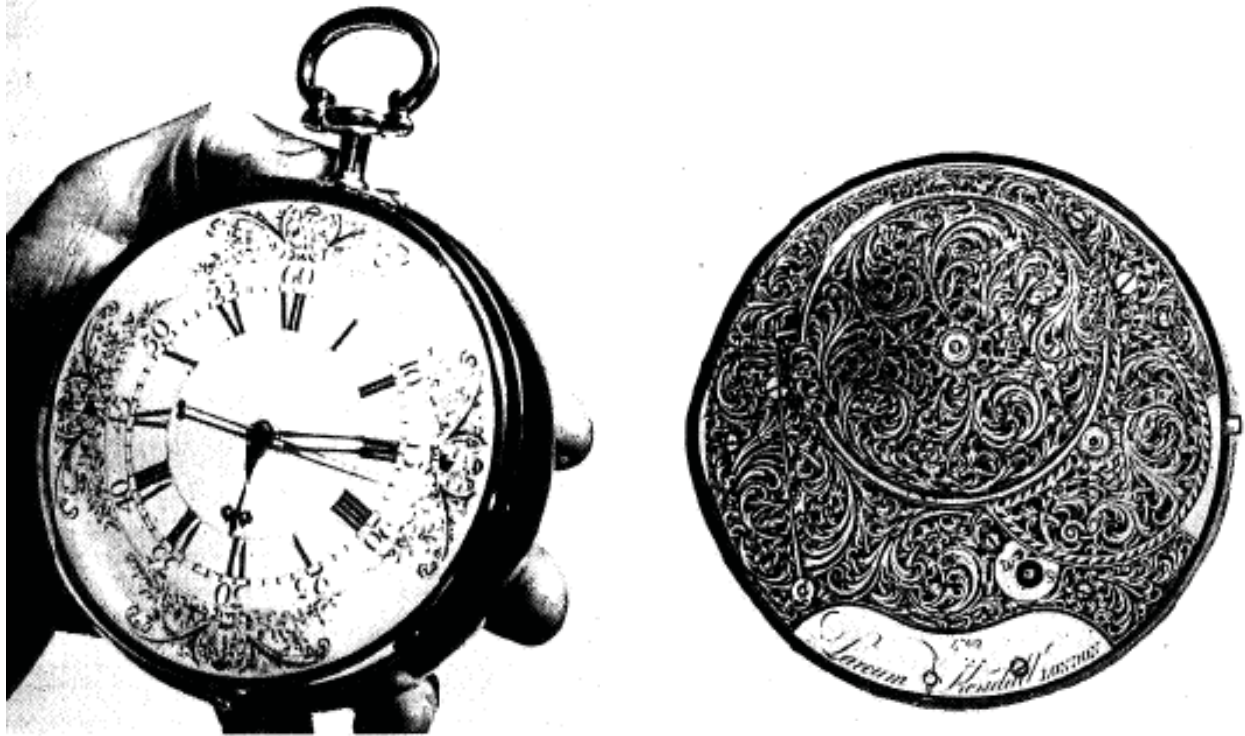


Plate 2. Daves 1788. Larcum Kendal's Chronometer K1. Navigated Cook on his second and third voyages to the South Pacific and the First Fleet under Phillip to Port Jackson. Photographs courtesy National Maritime Museum, Greenwich.

Plate 2a. The back plate of K1 showing the superb engraving.

The first portable or tent observatory would have appeared much as the illustration, Plate 1. The original list of instruments was:

- An astronomical quadrant by Bird
- A 3 ½ feet treble object Glass Acromatic Telescope by Dollond
- One Night Glass
- An astronomical Clock by Shelton
- A Journeyman Clock (probably Shelton)*
- An Alarm Clock, maker unknown
- A Pocket Watch with a Second hand and Ruby Pallets (possibly Ellicott, No. 4659)
- An old sextant by Ramsden
- A portable Barometer
- Two Thermometers
- A circular Protractor with a Glass having lines in it intersecting each other at the centre

It is interesting to note that these instruments were issued to Phillip, not to Dawes, for use in viewing the passage of Halley's Comet in the Southern Hemisphere.

The tent was soon replaced by a small wooden building of two rooms, one above the other, as shown in Dawes' original drawing in a letter to the *Astronomer Royal*, Dr Maskelyne, in April, 1788 (Plate 3).

On Dawes' return to England on the *Gorgon* in 1792, the astronomical clocks left Australia, K1 returning later in 1792 on the *Supply*. We have no knowledge of how accurate time was determined in the Colony until the arrival of Brisbane, who set up his observatory in 1822. The alternative to an observatory is a correctly calibrated sundial and equation clock (for use in the Southern Hemisphere) neither of which is mentioned in contemporary literature. Telling the time in Sydney for 30 years might, therefore, have been just guesswork based on the time shown by the clock on the clock tower completed in 1798.

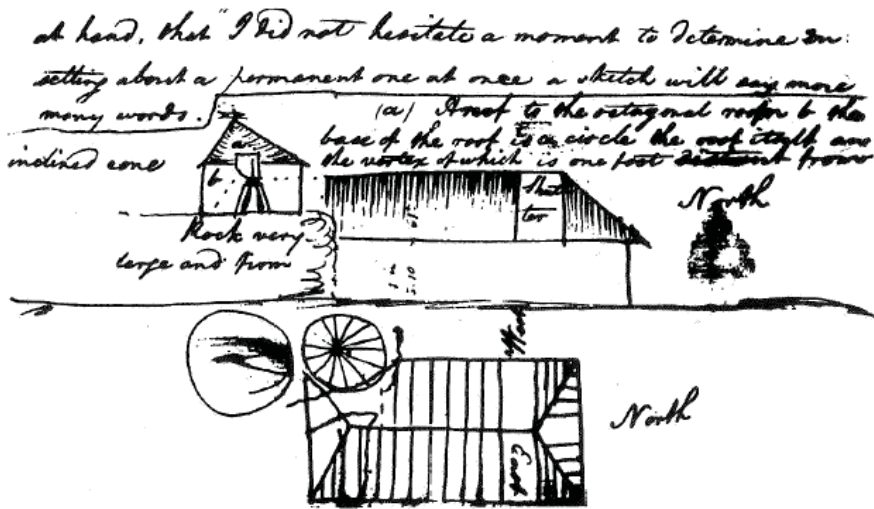
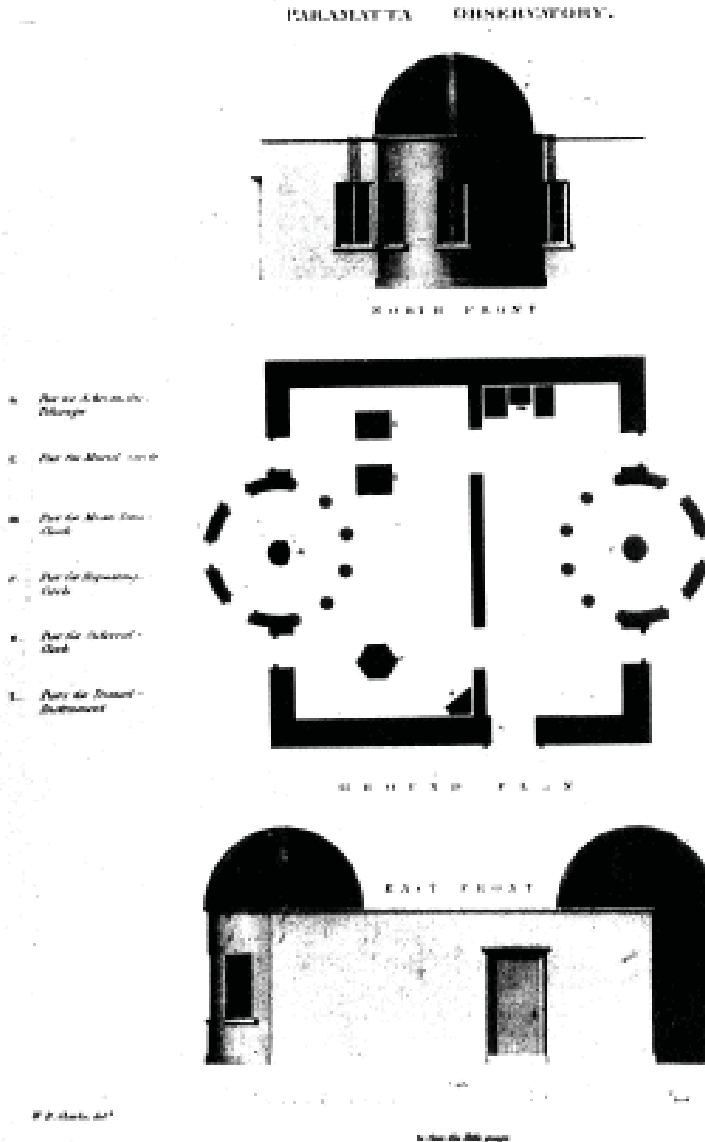


Plate 3. (left) Dawes 1788. A diagram of the Observatory, in a letter from Dawes to Nevil Maskelyne in April 1788. From the Board of Longitude Papers, held at the Royal Greenwich Observatory, England.

Plate 4. (below left) Brisbane 1822. Floor plan showing instrument positions and dimensions of Brisbane's Observatory. Frontispiece to 'A Catalogue of 7,385 Stars' prepared from observations at the Observatory, Parramatta. Published London, 1835. Sir Thomas Brisbane was Governor of NSW, 1821-25.

Plate 5. (below) James Dunlop (1793-1848), Brisbane's principal Astronomer, who was in the main responsible for the Star Catalogue.



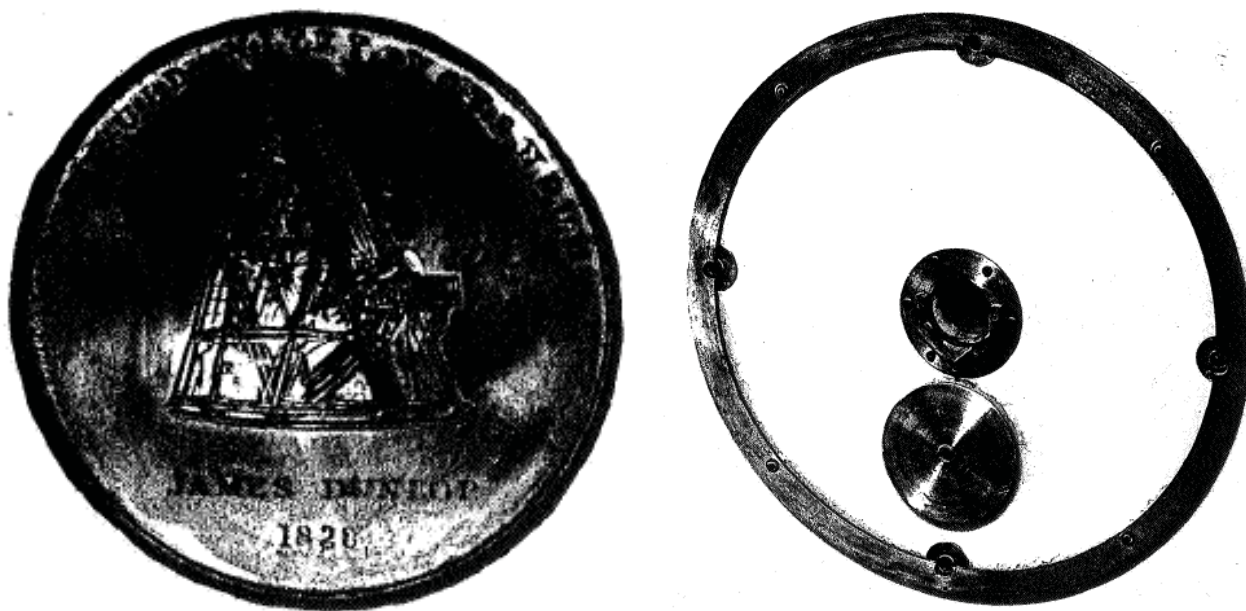


Plate 6. (above left) Gold Medal of the Royal Astronomical Society presented to Dunlop in 1828 for his services to astronomy while at the Parramatta Observatory.

Plate 7. (above right) Remains of the mural circle by Troughton. Two-thirds of the instrument are missing.

With the arrival of Brisbane in 1821 all this changed. He brought with him, at his own cost, a complete private observatory, two assistant astronomers, James Dunlop (1793-1848) (Plates 5 & 6) and Carl Rumker (1788-1862), and a keeper of clocks and instruments, James Robertson.

The observatory was completed at Brisbane's personal cost on May 2, 1822. It was sited some 100 yards to the rear of what is now Old Government House at Parramatta. It would be a highly desirable project to recreate Brisbane's 1822 observatory. For this purpose there are already available the original plans and instruments, as described later. The cost of rebuilding the observatory in sandstock brick as shown in the plan, would approximate to \$40,000. The observatory would then be located as it was in relation to the original Government House. The two would complement each other and would add to the interest and educational value of this National Trust property within the city of Parramatta. The observatory would be seen, as Sir John Herschel indicated in 1828, as the locus of Australia's first great scientific achievement, and a memorial to our first true scientist, Sir Thomas Brisbane.

A line drawing (Plate 4) shows how the observatory actually looked. It was 28ft long and 11ft high, with a flat roof from which projected two domes, north and south, 11ft 6in. in diameter. On the northern and southern sides were five windows. The principal instruments were a 16in repeating circle by Reichenbach placed under the northerly dome (Plate 9), a 46in equatorial telescope by Banks under the southerly dome (Plate 10), a mural circle (Plate 7), and a 5 ½ ft transit instrument (Plate 8), both by Troughton, and two regulators, one by Hardy showing sidereal time (Plate 11), and the second by Breguet showing mean time (Plate 12). All these instruments were mounted on piers of solid masonry. An obelisk was erected in 1880 to mark the site of the transit instrument and still survives today.

With these instruments, Brisbane and his two assistant astronomers compiled a star catalogue of 7385 stars, from observations made between 1822 and 1826 at the Parramatta Observatory, known as the *Brisbane Catalogue*. For this work Brisbane received the Gold Medal of the Royal

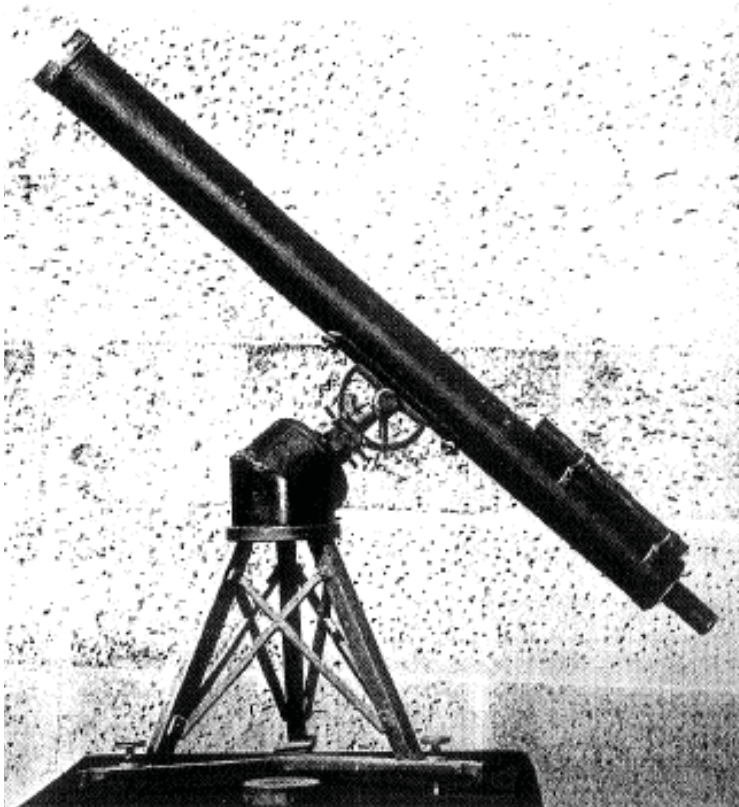
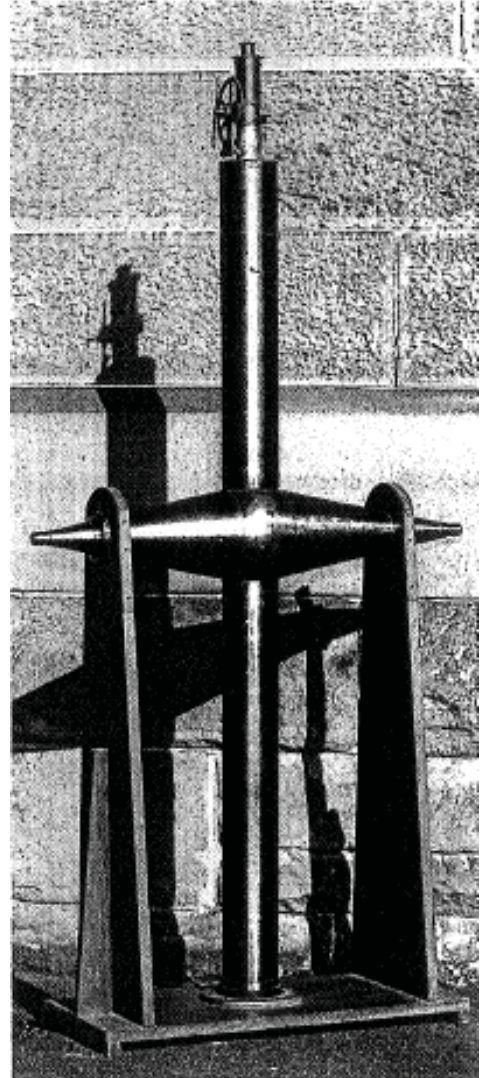
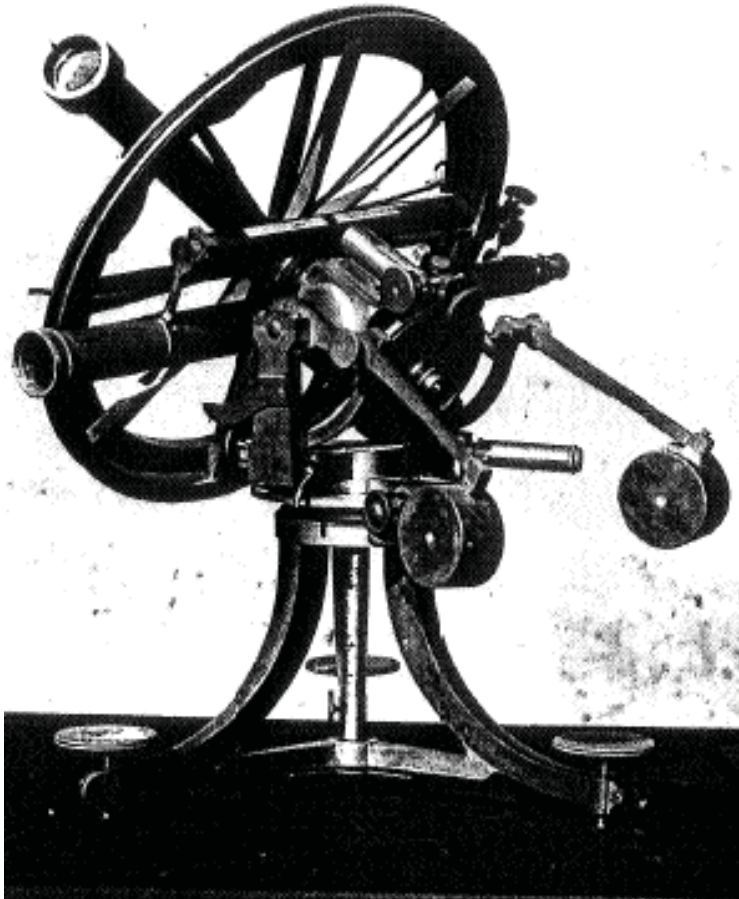


Plate 8. (above) The 5 1/2 ft transit instrument by Troughton.

Plate 9. (top left) The 16in repeating circle by Reichenbach. This magnificent instrument stood under the north dome.

Plate 10. (left) The equatorial telescope by Banks which stood under the south dome.

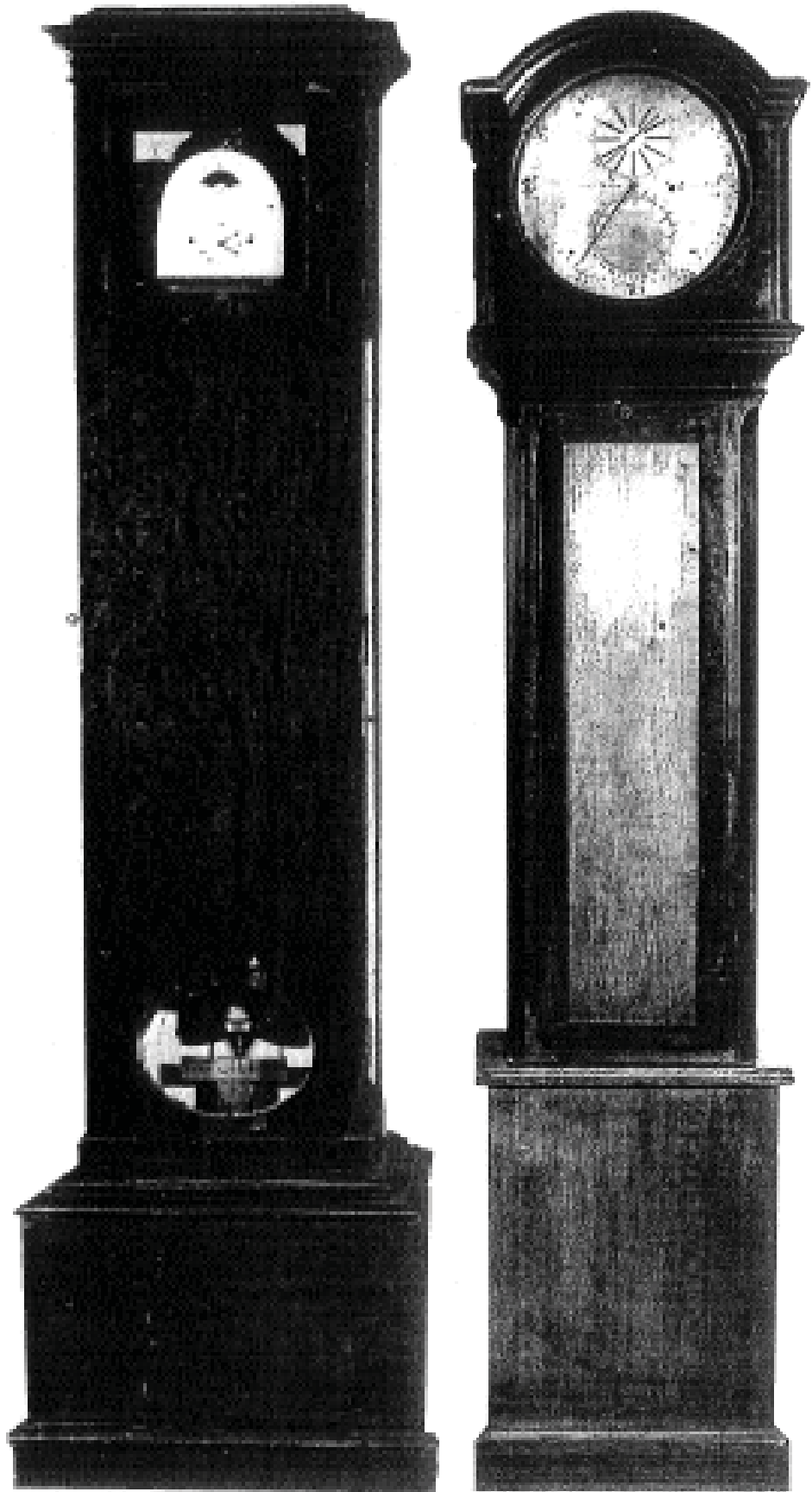


Plate 11 (far right). Hardy sidereal regulator. Original escapement removed. Hour disc substituted for hand on dial. The plinth has been removed circa 1928 and placed on the base of the Breguet. The whole in distressed condition.

Plate 12 . Highly important Breguet two pendulum mean time regulator standing on the plinth of the Hardy. Original pendulums lost. A single mercurial pendulum has been substituted and the escapement has been changed. Case cut down and badly mutilated.

Astronomical Society in 1828. Sir John Herschel, during its presentation, called him ‘the founder of Australian Science’.

With the departure of Brisbane in November 1825, the observatory was run by Rumker, who was appointed by Governor Darling as first Government Astronomer. Rumker left for England in 1829 to induce the Royal Society to print his astronomical observations made at the observatory. These were published in 1829 but, after quarrelling with Brisbane, he returned to Hamburg in Germany, eventually to become director of the Hamburg Observatory.

Dunlop succeeded Rumker in Sydney and due to his failing health, the observatory gradually declined until his retirement in 1847. The observatory was itself demolished in 1855.

On Brisbane’s return to England, he sold his instruments to the Colony and in a letter to Earl Bathurst written in London in August, 1826, he states:

I do myself the honour to transmit to your Lordship the copy of an address, laid before me by the Council of New South Wales, before I quitted that Colony, requesting that I would leave behind me my Astronomical apparatus and consent to receive an indemnification from His Majesty’s Government... The valuation of them is herewith annexed, which is stated much lower than what I originally paid for them; and I beg to remark that, as they are in a most efficient state of performance... This apparatus was only possessed by me for private recreation... (see list below).

Annexed Valuation of Brisbane’s Astronomical Instruments

Four Astronomical Clocks, best description, by Breguet, Hardy, Barraud and Grimaldi	490.00
Mural circle by Troughton	200.00
Transit Instr. 5 1/2 do.	105.00
Repeating Circle 16in (Reichenbach)	130.00
Equat’I Telescope, etc. (Banks)	60.00
French do.	42.00
Declination instrument, complete, by Dollond	30.00
Inclination do. Gemby, Paris	42.00
Borda’s Pendulum, complete for determining the figure of the Earth	85.00
Magnetic transit by Jecker, Paris	15.00
2 Mountain Barometers by Troughton	11.00
Observatory Barometer and four Thermometers	10.00
Pair 18in Globes, London	19.00
Levelling Telescope, complete	12.00
Astronomical books, etc.	353 13 0
TOTAL	£1,614 13 0

These instruments were duly purchased.

By 1847, due to the dilapidated state of the observatory, the instruments and books were virtually rotting. The Grimaldi astronomical clock, having been removed from the observatory to the entrance hall of Old Government House, has subsequently vanished, as has the Barraud. By the end of 1848 the instruments had been packed up and Governor Fitzroy, writing to Earl Grey, suggested that: ‘the proper steps might be taken for selling to the best advantage certain



Plate 13. The celestial globe by Smith circa 1819; its companion is missing. Valued as a pair by Brisbane at £19.

instruments belonging to the observatory at Parramatta... but in my opinion, there would be no competition here for the purchase of the large instruments'.

It would appear from contemporary correspondence that these large instruments, the meridian circle, transit instrument, mural circle and the repeating circle were returned to England, leaving the two regulators by Breguet and Hardy. All the instruments remained in the colony and still survive in the present observatory on Observatory Hill, which was completed in 1858 as Sydney's third observatory.

The two regulators by Breguet and Hardy have now been in Australia for over 150 years and have kept time for the Colony for at least 50 years. Their present dilapidated (and disgraceful) condition surely warrants attention, for, apart from the Packer Cabinet at Old Government House, the Macquarie Chairs and the Hyde Park Race Trophy, we have nothing here that predates them in the applied arts with an Australian history. The same applies to the balance of Brisbane's surviving instruments, all of which are illustrated in this article.

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Acknowledgement

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