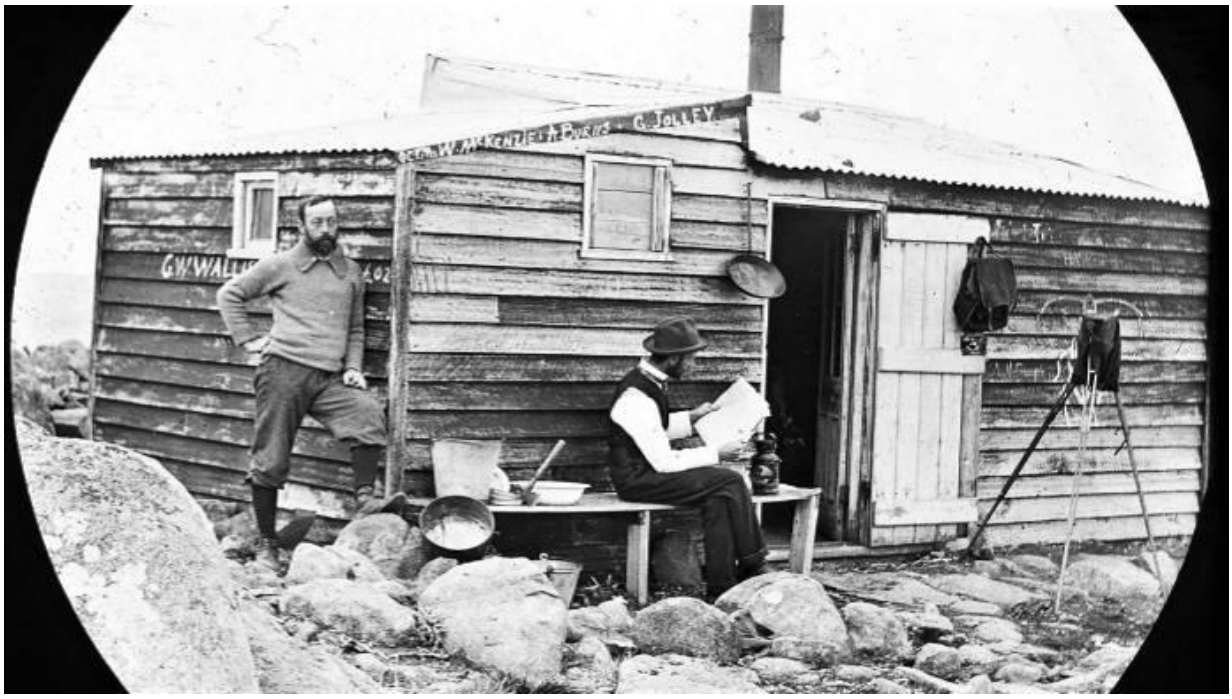
Wragge's Mountain Observatory – The Other One

A History of the Kunanyi/Mt Wellington Meteorological Observatory 1895-1909

David Scott July 2025



Mt Wellington Observatory, probably the last summer of operations 1897-98, J&M Grist Collection via Tasmanian Times.

The following contains images and text reference to persons who are deceased.

The establishment and operation of Clement Wragge's Meteorological Observatory on the summit of Mt Kosciuszko 1897-1903 is arguably the most inspiring story of scientific endeavour and life in extreme conditions above the snowline within our history, illustrated through the accounts of observers Ingleby, De Burgh Newth and Jensen, and the immortal photography of Charles Kerry. Two years prior to Kosciuszko however, Wragge established a meteorological observatory on another snow-clad summit within Australia, that of Kunanyi/Mt Wellington overlooking Hobart.

The term Mt Wellington is used in lieu of the traditional name Kunanyi throughout this report, entirely for the sake of consistency with the historical references.

Clement Lindley Wragge

Clement Wragge is widely recognized as one of Australia's most outstanding meteorologists. Tall, wiry and athletic, with a mop of fiery red hair and tempestuous nature to match, he reportedly could swear like a bullock-driver and soon earned the nickname 'Inclement'. An eccentric of his time, he was a spiritualist and vegetarian, exponent of nature conservation and physical fitness, and collector of ethnographic material.[1]

Born in 1852 in Worcestershire, he thwarted his parents' intentions to follow his father into the law by becoming a seaman and travelling the world, spending time in Egypt, India, California, NSW and South Australia through the 1870s. Back in England in 1878, he studied the rapidly emerging science of meteorology. He returned to Australia in 1883, taking up a role as the Queensland Government Meteorologist in 1887, where his temper and a particularly wet summer following his arrival earned him the nickname 'Inclement'.[2]

Wragge undertook pioneering work in the study of anticyclonic and cyclonic weather systems, established a vast network of weather stations feeding data via telegraph to his central weather bureau where they generated Australia-wide synoptic charts, and produced the first weather forecasts and warnings on a daily basis within Australia. At a time when each colony had scientists doing multiple roles such as astronomy and meteorology, he advanced the latest thinking from the UK and proved the benefit of centralised data collection and forecasting that led to the Commonwealth taking over meteorology immediately following Federation through a central office (today's Bureau of Meteorology). [3]

Wragge possessed a remarkable flair for working the media, and beyond the science he did more to promote meteorology in the public realm than anyone before or since. Internationally, he is perhaps best remembered for initiating the system of giving major storms human names. Milder storms he christened - perhaps not-quite-PC - with the feminine names of 'island beauties' he could recall from travels in the South Pacific, larger storms with biblical names or friendly advocates. Destructive storms were named after unsupportive politicians – shrewdly linking public perception of devastating storms with government neglect of his weather service![4]

Based on the work of Austrian meteorologist Eduard Bruckner, Wragge developed theories around long range weather forecasts and trained one of the greatest proponents of long-range forecasting — Inigo Jones.[5] He also produced early meteorological publications including *Australia's Weather Guide and Almanac* and the journal *Wragge,* and experimented with rainmaking, through trials of Stiger vortex cannons being fired into cumulus cloud formations.[6]

Wragge's weakness was a tactlessness and ready ability to put politicians and government officials offside. To the chagrin of officials in the other states, Wragge entitled his nationwide weather reports as being from Australasia's 'Chief Weather Bureau'. His personality traits appear to have directly influenced his career. In Scotland he was overlooked for an appointment to the Ben Nevis Observatory in 1883, and in Australia to the Commonwealth Weather Bureau c1903. After the last rejection he moved to Auckland, where he spent the remainder of his life up to his death on 10 December 1922, and where in 1920, Sir Arthur Conan Doyle christened him Auckland's most remarkable personality — *"Dreamer, mystic and expert on all matters of ocean and air."*[7]

A High and Low Level Passion

Wragge was passionate about one theory that elevated him to being the most popular meteorologist, if not scientist, in Australia through the 1890s and 1900s, and which he pursued his whole life. Building upon early meteorological theor – a science developed only in the

1 Russell Macgregor, Clement Wragge: Objects of Possession website James Cook University QLD

2 Paul D Wilson, 'Wragge, Clement Lindley (1852–1922)', Australian Dictionary of Biography, Volume 12 Melbourne University Press 1990, National Centre of Biography, Australian National University

3 Gibbs, W. J. 1998 'The Origins of Australian Meteorology', Research Paper No. 12 June 1998, Bureau of Meteorology, online at the Australian Science and Technology Heritage Centre

4 Simon Miller 2012: online article 'Inclement' Wragge: Pioneer Weather Forecaster, John Oxley Library, State Library of QLD

5 Gibbs, ibid

6 QLD State Archives webpage: Clement Lindley Wragge and Queensland Meteorology, Stories From the Archives 2016

7 Ian Frazer 2023: *Rain God* – Ian J Frazer website via link

decade before he commenced studying it – Wragge held a strong belief that the comparison of barometric air pressure from high altitudes and low altitudes at nearby locations or along the same latitude, had application in predicting the movement of low- and high-pressure cells and thus predicting storms and rainfall.

As a student in 1878, he began to test this theory by establishing two stations near his home in the midlands. In 1881 he volunteered to record data from a newly established weather station on the summit of Ben Nevis – the highest peak in the United Kingdom at 1343m – necessitating a daily ascent of the summit between June and October. Data was compared with that obtained by his wife Leonora at Fort William on the coast 18km to the east. The findings proved useful in identifying the approach and likely path of storms into the UK from out of the North Atlantic, based on modelling the depth of low pressure cells and their effect on the movement of adjoining high pressure cells and in predicting whether coming rain would be heavy and widespread or light and sporadic.[8] For this work, Wragge was awarded the Scottish Meteorological Society's Gold Medal in 1882.

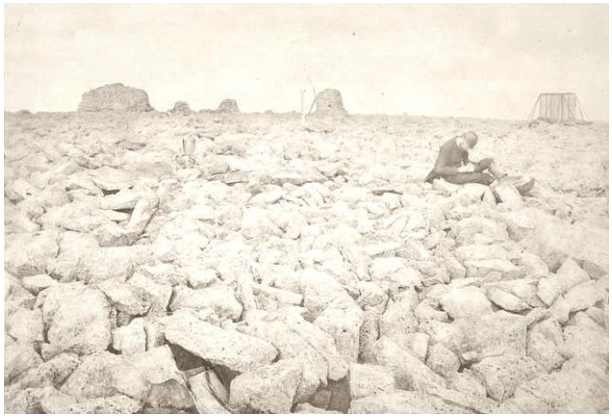


Fig 1 & 2. Wragge taking observations and at the shelter hut on Ben Nevis 1881. Peter Macfarlane, Royal Collection Trust[9]

Wragge continued his observations at Ben Nevis through 1882 and returned to South Australia in 1883 after the Scottish Government erected a 'permanent' meteorological observatory on Ben Nevis without appointing him an observer.

In South Australia Wragge established a high- and low-level weather station at Mt Lofty and Walkerville in Adelaide. A commission from the Queensland Government to investigate the benefit a meteorological office could play in averting shipping losses from cyclones and storms, led to Wragge's appointment as Government Meteorologist where he pioneered the innovations noted previously.

Noting the similarities of high latitude, elevation and coastal proximity between Mt Wellington in Hobart and Ben Nevis, in 1895 Wragge proposed to the Australian Association for the Advancement of Science the establishment of a meteorological observatory on the summit of Mt Wellington. His proposal was taken up by the Royal Society of Tasmania who lobbied the Queensland Government to sponsor Wragge in implementing it.

Wragge was quickly dispatched southward. Building upon his Ben Nevis learnings, the plan was to gather comparative data from sea-level at the Anglesea Barrack's observatory, at a halfway station at 720m (The Springs) and upon the summit at 1270m. The establishment in Hobart of the second bi-level observatory setup in the world, and first in the southern hemisphere, would facilitate the study of cyclonic and anticyclonic systems circulating Antarctica around the great Southern Ocean. Comparing findings with that from Ben Nevis, the first such setup, would be of international meteorological interest and benefit in the study of global weather patterns.

Establishing An Observatory for Mt Wellington

Two days after his arrival in Hobart on 15 May 1895, Wragge led a party to install the first meteorological instruments on the summit. Eight men carried the equipment in a large coffin-like box, accompanied by surveyor Arthur Wherrett – who had volunteered to be an observer, JJ McDonald, head of the Telegraph Department. The equipment included a barograph, thermograph, wet and dry bulb thermometers, a rain gauge and other hygrometric instruments. In the face of falling snow, the workmen were recalcitrant, and only succeeded in making a temporary installation partially screened by stones before a retreat had to be made down the mountain.

After heavy snow, Wragge returned to finalise the installation on 21 May. Accompanied by Henry Kingsmill, senior Tasmanian Meteorological Observer, his assistants BE McDonald and A Wherrett, a party of six sailors from HMS Penguin, a journalist from the Hobart Mercury and expedition cook Howard Wright. They set off in a pair of horse drawn carts from Hobart and at

8 CL Wragge 1898: The Special Value of Mountain Meteorology, article in Wragee's Weather Guide 1898, p84-85.

9 *Royal Collection Trust online collection RCIN 2082069 & 2082077 via link & via link2*

Fern Tree alighted for the trek on foot to Constable Charles Gadd's house at *The Springs*. Later, on the way back down the mountain, they installed instruments in a screen at *The Springs* and Wragge gave Gadd's daughter Edith '*lessons in elementary meteorology'* after which she was able to relay daily reports to Hobart by phone. [10]

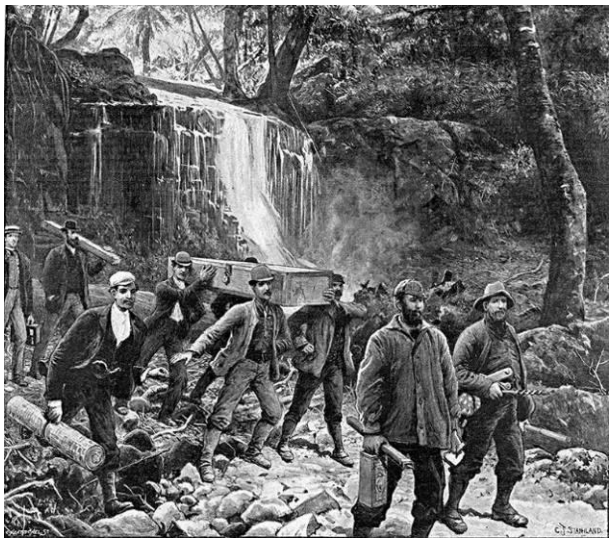
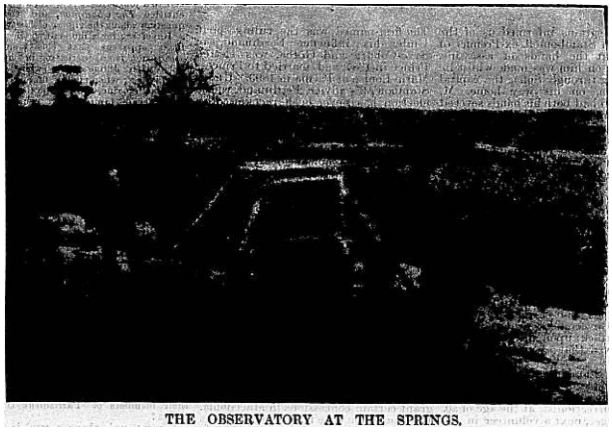


Fig 3 & 4. Wragge and party carrying equipment to the summit 17 May 1895, via J Thwaites 1982 and The Graphic 12 Oct 1895

Wragge's party arrived on the summit at 1:15pm. Atop a rocky knoll 100m west of the summit trig the sailors constructed a cairn of stones reinforced with horizontal logs to enclose the instruments.

> *Here the necessary instruments were placed. They are mostly self-registering . . a little distance off is the rain gauge . . . Once a week it is proposed they shall be read . . and ere long observations will, it is hoped, be taken daily. It is hoped in time to have an observer stationed on the spot at all times, two assistants being detained for the duties, working in weekly shifts. In that case a hut will be needed, and work in that direction will be shortly commenced.*[11]



THE OBSERVATORY AT THE SPRINGS.

Fig 5. Poor but only image found of the Springs Weather Station, Tasmanian Mail 3 Aug 1895, p10

Erection of an observatory hut on the summit by a gang of five men commenced just a fortnight later, on the east side of the rocky knoll for protection from the prevailing wind:

> *The hut is a fairly commodious little structure, about 12ft by 8ft (3.6 x 2.4m) . . built . . by Mr WH Cheverton. The material, weighing over 3 tons, was conveyed entirely by hand from the Finger-post to the summit . . [in which] Arthur Wherrett, one of Mr Kingsmill's volunteer assistants . . carried two loads . . to the hut one day before lunch, each load weighing between 60lb and 70lb [27 – 32kg]. The man has the endurance of a Stoic and . . he's been coming up here in all sorts of weather every week for some time past, taking observations, with no sort of shelter.*[12]
>
> *[The hut] is built, ceiled, and floored entirely of wood, with a substantial iron roof, however, with heavy rafters, and piled around, as well as on the roof, with the heavy basaltic stones which obtain on the summit It is, in fact, fitted exactly as a ship's cabin is, and with the orthodox bunk, and all has been made snug to withstand the heavy gales of the 'roaring forties' that sweep over the 'ironbound' mountain, so aptly named after the old Iron Duke.* [13]
>
> *An artist and friend last week paid a visit to the summit for the purpose of making some black and white sketches of the surroundings, the instrument cairns, etc., and were not altogether satisfied with the comforts and conveniences attendant upon drawing in such an atmosphere . . ink as soon as it was applied to the brush froze hard . . the cold formed minute ice crystals upon the paper, and some frost pictures were unintentionally produced . . .*[14]

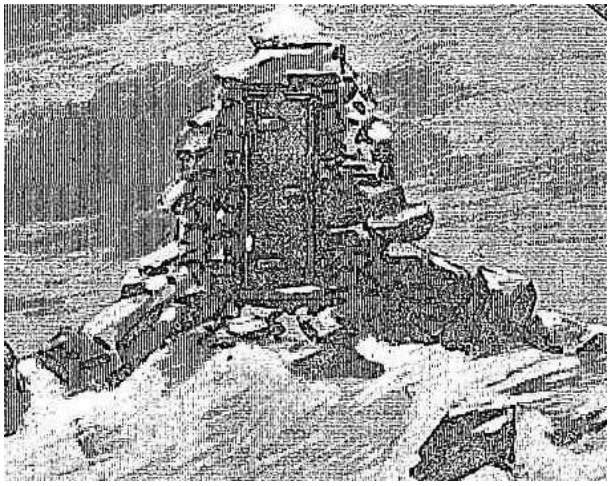
10 Sydney Mail 27 Jul 1895 p177 http://nla.gov.au/nla.news-article162671182

11 Zeehan and Dundas Herald 3 June 1895 p4 https://trove.nla.gov.au/newspaper/article/79985079

12 The Mercury 9 Jul 1895 p4 http://nla.gov.au/nla.news-article9317447

13 Article *Scientific and Useful: Tasmanian Weather Service*, Queenslander 3 Aug 1895 p214

14 Tasmanian News 21 Jun 1895 p2 via link



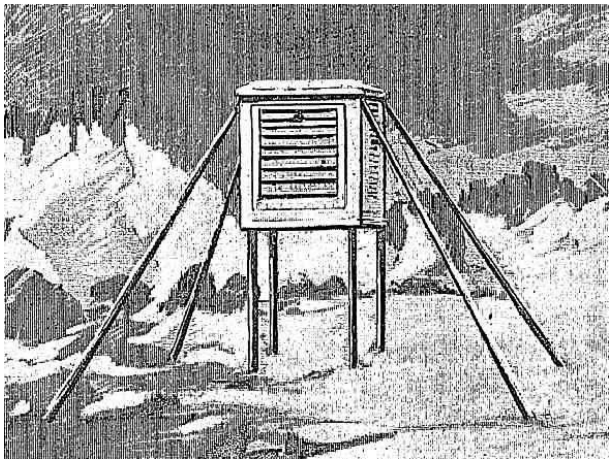


Fig 6 & 7. Sketch of observatory cairn structure and Stevenson screen on summit, Australian Town & Country Journal 13 Jul 1895, p28

Early photos show the hut with stones stacked around the rear and sides of the external stud frame, whilst weatherboard cladding was affixed to the front wall and there was a double entry door with a half-glazed internal door and a solid external door. Whilst the hut was being built, a few instruments were relocated from the stone cairn to a Stevenson screen to ensure reliability and consistency with readings from other stations.[15]

Wragge officially opened the observatory on the Sunday 7 July 1895, a small party of observers and supporters trekking to the summit:

> *Thirty feet or so above the Springs we strike . . snow and ice and boulders . . hard climbing. At 3 o'clock we reached the Ploughed Field — a good tract covered with immense rock masses of all shapes thrown higgledy-piggledy. A little above this we get the full force of the 45-mile [72kmh] breeze which whistles madly across the summit . . . Staggering along as best we might we reached the Pinnacle at 3.45. [In] the observatory-building . . we soon had a genial fire blazing, and before dark instruments were adjusted and all was snug within. Without, the wind howled, dolorously . . as the echoes of a Dantean purgatory.*

Figs 8-11. Images from the trip to open the Mt Wellington Observatory 7 July 1895, the last one being Clememt Wragge crouched over a cooking stove in the doorway, ER Ash Auckland Museum online collection

[15] Editorial, The Mercury 3 Jul 1895, p2

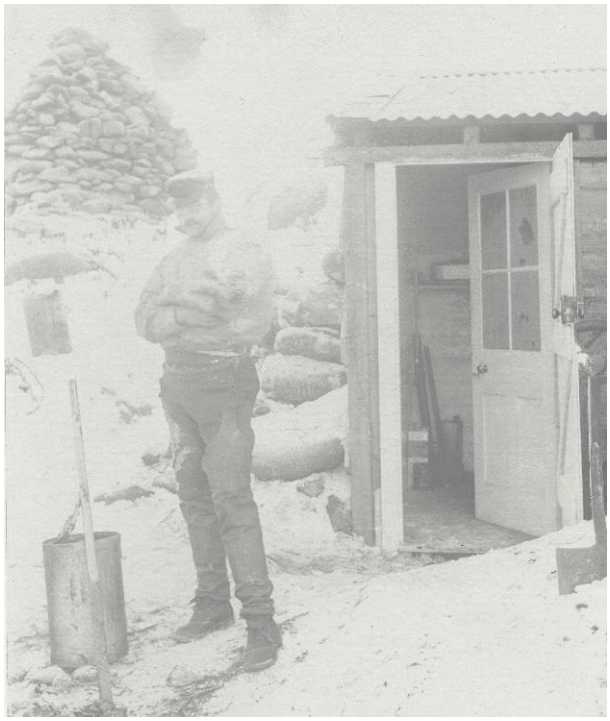


Fig 12 & 13 Images from the trip to open the Mt Wellington Observatory 7 July 1895, the last one being Clement Wragge in front of the hut and instrument cairn, ER Ash Archives Office of Tasmania

> *Mr Wragge had brought his harp along, and made much music as the shades fell . . we were a jovial, happy party in that eyrie of ours . . but about 10 o'clock woe befell. The hood of the chimney was . . suddenly wrenched off . . smoke, pouring voluminously in upon our cosy warmth, put an end to pleasure . . . Nothing remained but to let the fire out . . It was cold as the claws of charity. But scientific ardour is a warm quality . . we tried to sleep and to persuade each other that we rather enjoyed that sort of thing. Morning broke at length. A doleful enough group we made as we assembled to see the sunrise. But what a sunrise![16]*

Before departing Tasmania, Wragge reorganized its meteorological service under Kingsmill, with assistants McDonald, Wherrett and Chepmell, whom he instructed in meteorological observation. He also inspected the weather station network across Launceston, Low Head, Stanley, Corinna, Waratah and Southport, and established new stations at Strahan and Swansea.[17]

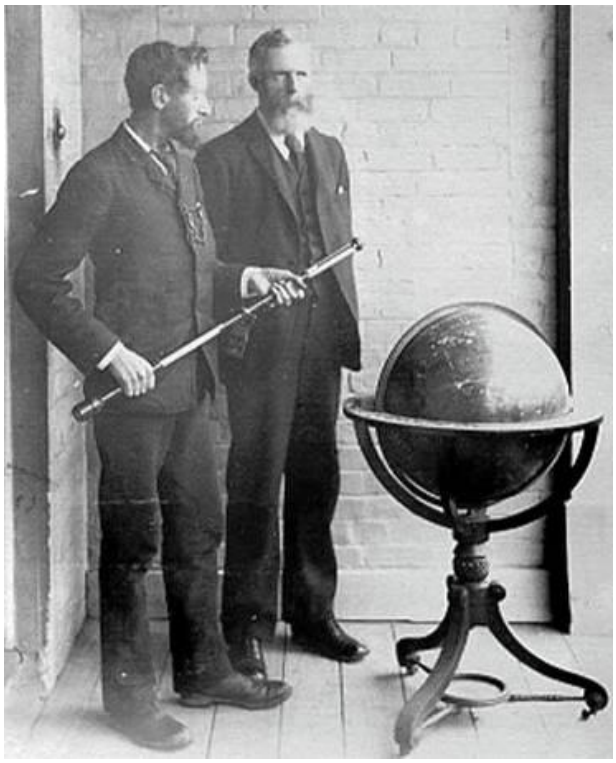


Fig 14. Clement Wragge and Henry Kingsmill 1895, (probably) ER Ash Archives Office of Tasmania PH30-1-6840

Kingsmill and his observers continued to take observations at the hut over the following years. By the summer of 1897-98 a second room had been added and a well excavated nearby to supply the observers and visitors to the summit with fresh water,[18] however meteorological recordings had become intermittent.

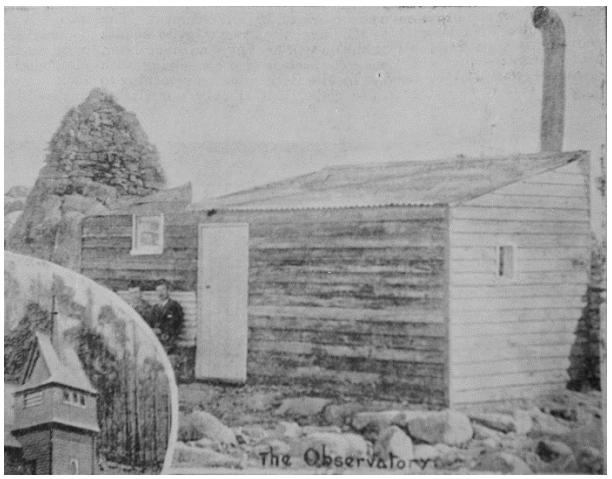


Fig 15. Observatory hut with north wall clad in weatherboards c1896-97, Tasmanian Mail Christmas Supplement 17 Dec 1898, piii

16 Sydney Mail 27 Jul 1895 p177 via link & The Mercury 9 Jul 1895 p4 via link2

17 Article *Scientific and Useful: Tasmanian Weather Service*, Queenslander 3 Aug 1895 p214

18 Three Months on Mt Wellington, The Mercury 6 Apr 1898, p3

Fig 16. Observatory Hut with south room added, Beattie Colln Archives Office of Tasmania NS3195-2-1312

Toward a Kosciuszko Observatory

For Clement Wragge, the establishment of the Mt Wellington Observatory was the springboard to the ultimate venture to capture of high and low altitude weather data in Australia. The idea must have arisen during planning for Mt Wellington, as within a week of the Mt Wellington Observatory being opened in 1895, Wragge announced:

> *I am most anxious . .to establish a high level observatory on Mount Kosciusko . . a most Important position in connection with the nearest coast stations for investigating . . V shaped Antarctic disturbances which usually pass these latitudes . . these storms are deflected by the Australian Alps, and in order to investigate the extent of vertical deflection and other conditions [ie any distortion of isobars arising from the topography of the mountains] . . results from Mount Kosciusko would be of the greatest importance.*[19]

NSW Government Astronomer and Meteorologist Henry Russell proclaimed the proposal nonsensical, [20] and so commenced 2 ½ years of political and scientific sparring with Wragge, who stated – quite unfairly - that whilst Russell was an eminent astronomer he knew as much about meteorology as Wragge did astronomy! Wragge broadened the debate to advocate for a ring of meteorological stations around the Antarctic Circle, inclusive of a base at Cape Adare in Antarctica (later the site of Mawson's Hut), South America and Southern Ocean Islands, with data to be shared between nations.[21]

Little progress was made toward a Kosciuszko Observatory until the Paris international meteorological conference of September 1896, which acknowledged the great success in forecasting being achieved in Australia and – at Wragge's instigation - passed a resolution supporting the establishment of the Kosciuszko Observatory. The English Royal Society threw its weight the proposal in December, followed by the Scottish and English Meteorological Societies [22]

By April 1897, a sum of money had been raised through private subscription, Wragge and the Queensland Government had committed to providing the necessary instruments, and 'two young scientific aspirants' had volunteered to become observers – one being Wragge's nephew Bernard Ingleby.[23] In early June, Robert Barr-Smith of Adelaide offered to gift the entire amount necessary to establish the Observatory, in response to which Wragge offered to name it the 'Barr-Smith Observatory', but this name was not adopted.[24] Wragge was granted three weeks' leave of absence in order to assist in establishing the Observatory.[25]

Weather and snow conditions delayed establishment of the Kosciusko Observatory until 8 December 1897. For the first summer season it was to be a temporary camp of a specially made Arctic tent of 'hurricane canvas', 4.4m square, lined with grass, fitted with sheepskin lined sleeping bags, kero stoves and cookers, with a second calico tent to store provisions. As at Mt Wellington, instruments were distributed between a stone cairn and Stevenson screen. The station was to be managed by Capt Charles Iliffe, a master mariner from Brisbane, with two observers trained by Wragge - Bernard Ingleby from Adelaide, and Basil De Burgh Newth from Candelo NSW.[26]

Fig 17. Mt Kosciuszko Observatory upon its establishment Dec 1897, Charles Kerry Colln NLA,

19 Article *Mr Clement Wragge*, Daily Telegraph 13 Jul 1895, p11

20 Notes and Notices, The Australasian 27 Jul 1895, p32 & Mountain Observatories, Sydney Mail 27 Jul 1895, p167

21 An Antarctic Expedition, SA Register 2 Aug 1895, p4 ; High Level Meteorological Stations, Daily Telegraph 4 Sep 1895, p3 & Antarctic Explorations, Brisbane Telegraph 27 Mar 1897, p4

22 Meteorological Stations, Launceston Examiner 30 Sep 1896, p5 & Editorial, SMH 2 Dec 1896, p4

23 On Mount Kosciusko, The Australian Star 8 Apr 1897, p4 & High Level Meteorological Stations, Daily Telegraph 6 Jul 1897, p5

24 Observatory on Kosciusko, The Age 18 Jun 1897, p6 ; Robert Barr-Smith (1824-1915) entry in Obituaries Australia online & Editorial, Mercury 17 Sep 1897, p2

25 Mt Kosciusko Observatory, The Age 6 Dec 1897, p7

26 Kosciusko Expedition, Daily Telegraph 15 Dec 1897, p9

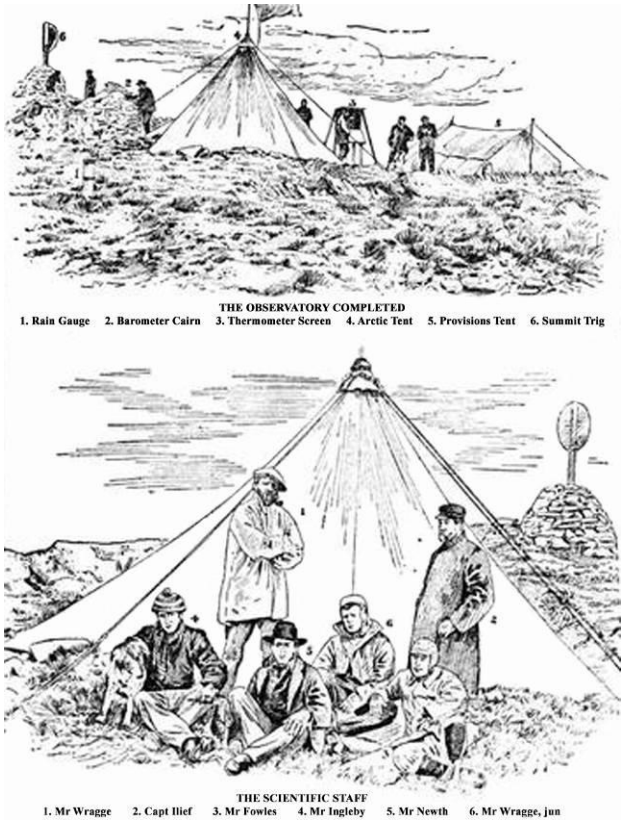


Fig 18. Sketches of the the Mt Kosciuszko Observatory and staff upon its establishment, Daily Telegraph 15 Dec 1897, p9

The Kosciuszko Observatory was declared fully operational on 11 December. Wragge returned to Sydney and then took a steamer to Merimbula to establish the sea-level observatory.[27]

Sea-level Observatories

By early January, the main sea-level station to compare the Kosciuszko findings to was established in the grounds of Corunga (today Tower House), a residence owned by local business Armstrong Lockhart Munn. Wragge's son (Clement) Egerton Wragge, was to be principal observer, with Munn's two sons being trained as observers, with Armstrong Munn – who had probably provided substantial financial contribution - superintendent of the facility. Egerton served until 1899, when he was transferred to Kosciuszko, and Merimbula continued operational to 1902 when all the equipment was removed.[28]

Concurrent with Merimbula being established, two further coastal stations were established by Wragge that summer to correlate data from the two high-low attitude sets at Kosciuszko-Merimbula and Mt Wellington-Hobart. One was established by a member of Wragge's Queensland office, with instruments and an observer provided by the Victorian Government for four months – a Mr Macdonald - but funded through private subscription obtained by Wragge.[29] The location of the Sale observatory has not been ascertained.

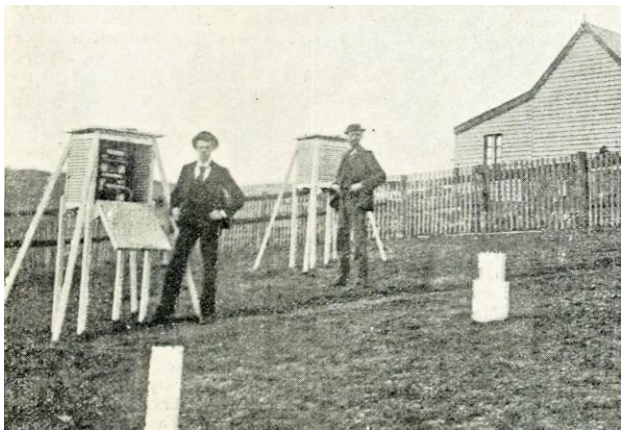


Fig 19. Egerton and Clement Wragge at the Merimbula Observatory, Wragges Almanac 1900, p95

The second correlative station was initially proposed to be established at Blandville on Parramatta River in Sydney under Capt Oliver Stokes RE, but was soon relocated to Glebe Point, where it was later operated by a son of the Rev GD Buchanan.[30] Whether this was part of, or separate to, the existing Sydney Observatory (astronomical and meteorological) is unclear.

Wragges High & Low Altitude Meteorological Program Summer 1897-98

Wragges 1897-98 programme entailed simultaneous weather observations being captured every four hours over a three to four-month period at the two bi-level observatory setups: Mt Wellington-The Springs-Anglesea Barracks and Mt Kosciuszko-Merimbula, and at two correlative observatories: Sale and Glebe Point.[31]

Wragge and Kingsmill appear to have persuaded the government to fund the requisite three-month program across the three Hobart sites. Observations commenced on Mt Wellington on 15 December 1897, attended by Kingsmill's assistants BE McDonald and HD Chepmell, along with PG O'Mahoney of Wragge's Brisbane team, who had recently visited the observatories on Mt Kosciuszko and at Sale enroute and briefed the team on the necessary practices to ensure processes would be uniform across all the observatories. The summer program was to be the last hurrah of the Mt Wellington observatory. The interstate nature of the program drew interest in the observatory once more, which Kingsmill and Wragge utilised to lobby government for £100 to continue operations and install a telephone line connection to aid communications, but were unsuccessful. By April 1898 the assistant observers had

27 Kosciusko Observatory, Evening News 15 Dec 1897, p4
28 Merimbula Also Once Had an Observatory, Recollections 24: South Coast History Society journal Oct-Nov 2020, pp7-8
29 Mt Kosciusko Observatory, The Age 6 Dec 1897, p7
30 Editorial, SMH 17 Dec 1897, p6 & Mr Wragges New Observatory, SMH 1 Jan 1898, p7
31 Kosciusko Observatory, Australian Star 17 Dec 1897, p8

all been dismissed and the observatory hut was locked up with the instruments left in place.[32]

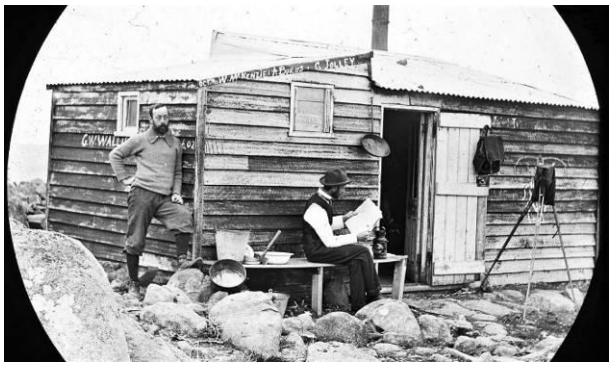


Fig 20. Observatory Hut with Arthur Wherrett at left and probably Henry Kingsmill seated, probably the last season of operations in the summer of 1897-98, J&M Grist Colln via Tasmanian Times Tas That Was – Clement Wragge's Meteorological Observatory - Tasmanian Times

Fig 21. Mt Wellington Observatory Hut, sometime after its closure in 1898, J&M Grist Collection

Fig 22. Last published photo of the Mt Wellington Observatory, Tasmanian Mail 20 Jul 1907,p20

The decision to close down Mt Wellington was likely influenced by the destruction of the Mt Kosciuszko Observatory on 14 February 1898. The Arctic tent, provisions tent and Stevenson screen were blown to pieces by 160 kmh winds at 3:30am, the staff retreating to a nearby cattle camp in the dark before walking 50km out to Jindabyne. The instruments were saved and new tents soon sent up to continue operations, whilst Wragge urgently sought support for a permanent building.[33] The commitment to the building did not occur until April; erstwhile the uncertainty as to whether this - the main NSW observatory - would continue operating may well have killed off support for further parallel operations at Mt Wellington.

Following the erection of a new weatherboard hut on Mt Kosciuszko at the end of April, the Kosciuszko and Merimbula Observatories kept operating through to June 1902, when the state meteorological offices were wound up.[34] The history of the Mt Kosciuszko observatory is well-documented in the writings of Matthew Higgins and Klaus Hueneke.

Beyond 1898

In 1901 Wragge unsuccessfully lobbied for the re-activation of operations at the Mt Wellington Observatory to complement the scientific programme proposed for the British National Antarctic Expedition 1901-04 led by Robert Falcon Scott with Ernest Shackleton in attendance.[35] Soon after the instruments appear to have been removed. The hut is believed to have left as a visitor shelter until it burned down on or about 21 April 1908 after someone left the stove alight. At the time its relocation to the 'Corporation Reserve' was being considered.[36]

What useful knowledge the scientific knowledge the world gained from Wragges 1897-98 Summer programme is unclear. It certainly generated a vast set of data from only the second and third bi-level meteorological observatory setups to be established anywhere in the world, and the only two in the southern hemisphere. Wragge later followed up with the private establishment of high- and low-level weather stations at Auckland five years later. Unfortunately, Wragge's own notes and records were destroyed at a fire in his home in the 1920s.

As for the Mt Wellington Observatory, in 1972 the fireplace and cairn structure were still clearly evident. In 2007 scattered artefacts included building nails, window glass, boot leather, and bullet cartridges, were reported at the site, in 2025 small fragments of window glass and

32 Three Months on Mt Wellington, The Mercury 6 Apr 1898, p3 & Meteorological Observations on Mt Wellington, Mercury 27 Apr 1898 p4

33 Storm at Mt Kosciusko, Daily Telegraph 17 Feb 1898, p6

34 Mt Kosciusko Observatory, Manaro Mercury 29 Apr 1898, p3 & Recollections 24, Oct-Nov 2020, South Coast Historical Society journal, pp7-8

35 Inland Wires: Meteorological Station, Launceston Examiner 30 Sep 1901, p6

36 Mt Wellington Observatory Destroyed, The Mercury 22 Apr 1898, p4

ceramic China remain evident near the prominent pile of fireplace stones.[37]

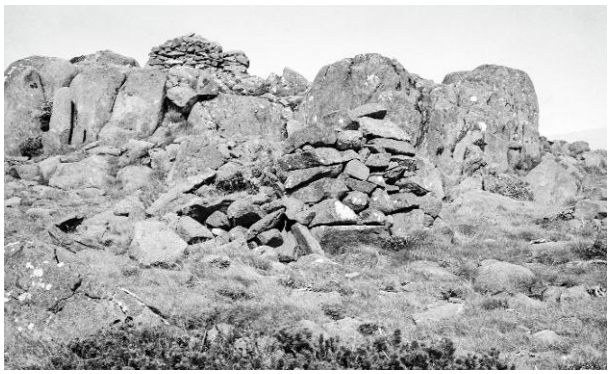
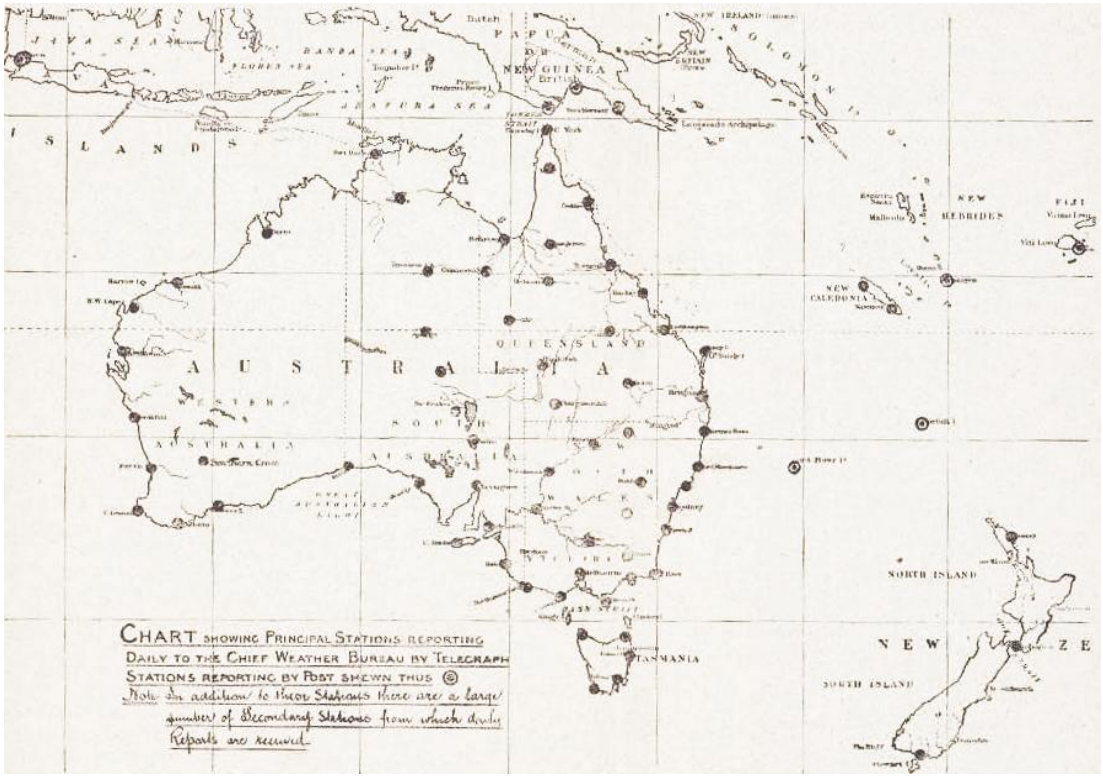


Fig 23 & 24. 1972 images of cairn and fireplace stonework, Archives Office of Tasmania NS3195-2-1292 & 1293

Fig 25 & 26. Mt Wellington Observatory site, D Scott 2025

[37] AOT images (shown); A Time-Line For The Pinnacle, Mount Wellington, report by M Grist 2015 & site inspection D Scott 2025,



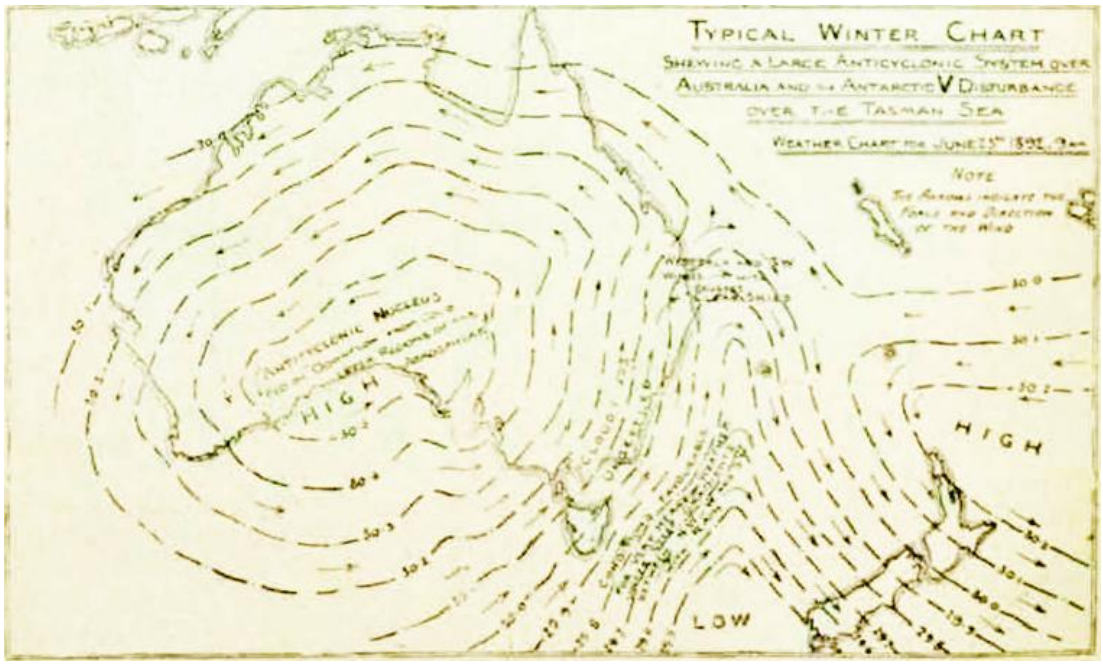


Fig 27 & 28 The network of weather stations Clement Wragge used in generating his daily synoptic charts and weather forecasts and an example of one of Wragge's synoptic charts – the proven benefit of his approach and forecasts on a nationwide scale being perhaps his greatest legacy. Wragges Australasian Weather Guide and Almanac 1898 via NLA