

# WILLIAM DAWES: AUSTRALIA'S FIRST 'METEOROLOGIST'

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## ABSTRACT

Within months of the arrival of the First Fleet, Lieutenant William Dawes completed an astronomical observatory to look for an expected comet, and aid navigation. Fortunately Dawes was an enthusiastic weather observer as well as astronomer. At this observatory he kept records of temperature, pressure, wind speed and direction, etc., five or six times each day. The journal of Dawes' weather observations provides over three years of climatic information for the earliest period of European settlement in Sydney.

Commonly the first series of meteorological observations for Australia were considered to be those kept at Sydney between 1821 and 1822 (Loewe 1970, p. 39), although Gentilli (1967, p. 61) does point out that Surgeon John White of the First Fleet kept measurements for the first week after arriving at Port Jackson.<sup>1</sup> Recently I became aware of the existence of an early meteorological journal for Australia that had been donated to the Royal Society (London) in 1794. This journal was kept by William Dawes at his observatory in Sydney and covers the period from 14 September 1788 to 6 December 1791.<sup>2</sup>

The following is a preliminary report on this important find, intended to give the reader some information on Dawes, his observatory, and the content of his meteorological journal.

William Dawes (Fig 1) was born in 1762 at Portsmouth, England, eldest son of Benjamin Dawes. At the age of 17 he became a second lieutenant in the Marines, and saw action in the American Revolution at Chesapeake Bay, Maryland where he was wounded in 1781. After returning to England he acquired skills in surveying and engineering, as well as establishing himself as a competent astronomer. His astronomical expertise was such that when he volunteered for service with the First Fleet, the Board of Longitude supplied him with several thermometers and a barometer, along with instruments to observe an expected comet.

On arrival at Port Jackson, Dawes remained attached to HMS *Sirius* serving as an engineer and surveyor. He was responsible for laying out the first streets in Sydney, charting the harbour, and with Watkin Tench made one of the first attempts to cross the Blue Mountains. After receiving a shore assignment in July 1788 he completed his observatory. Although his practical skills were much in demand, he managed to pursue his scientific interests, and his observatory became the centre of scientific activity in the new colony.

After three years Dawes regrettably left New South Wales because of differences with Governor Phillip. When Dawes left he packed up the instruments to return them to the Board of Longitude and the observatory became a sentry post.

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<sup>1</sup> It is interesting to note that White certainly would have continued recording weather observations, but broke his last thermometer when leaving ship!

<sup>2</sup> The Bureau of Meteorology hopes to publish Dawes' journal annotated and edited by the present author in 1979-80, including a complete copy of the almost 200 pages of observations on microfiche.



Fig 1 William Dawes (drawn by Rod Bashford from a portrait in the Mitchell Library, Sydney).

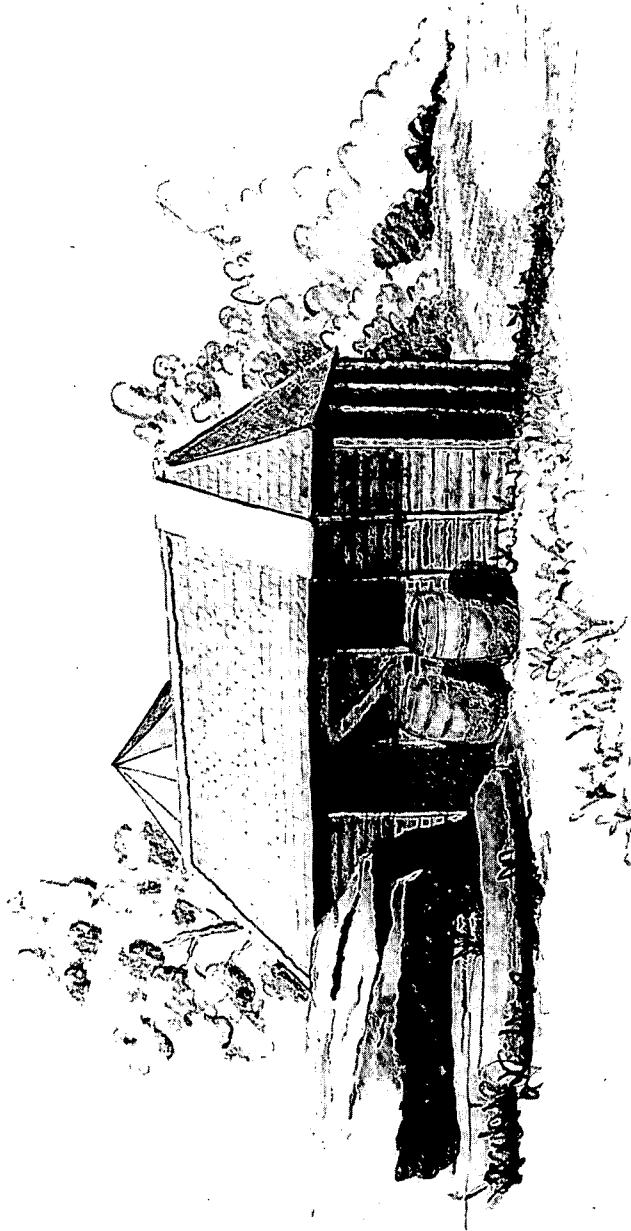


Fig 2 Dawes' observatory (sketch by Rod Bashford, after the reconstruction at Old Sydney Town).

1961 Open	Time	Winds	Weather	Bar?	Ther?	Remarks (Under D)
2	2.15	NW 6 W. 2	Fine rather	29.66	69.5	Very black to Nward very heavy rain with 9° thunder & lightning
	8	NW - 1	hazy -	66	73.0	
	12			64	77.5	
	4.15	West gale	Thunder &	50	78.0	
	5.5	NW - 5	th. Li. & Rain	50	76.2	
3	5.15	Calm	Fine with	29.66	60.0	☉
	8	West - 2	broken blue	68	67.2	
	12	East 3		69	70.7	☉
	4	East - 1	☉	69	64.0	
	5	East 2		70	64.0	
4	7.15	West - 1	☉	29.67	59.5	
	8				63.8	
	12	NW 6 W. - 1	☉	.67	78.0	☉
	4	East. 4		.58	70.5	☉
	5.5	☉ - 4	Fine & clear	.60	69.8	
5	8	☉ - 4			69.0	
	2.15	West - 3	☉	29.62	60.0	
	8	☉ - 2	☉	.65	66.0	☉
	12	North - 1	☉	.66	82.7	☉
	4	East - 3	☉	.62	72.8	
5.5	Calm	broken clouds	.66	68.5	sea breeze out in at 10 <sup>h</sup> in morn	
6	2.15	West - 3	Fine w broken clouds	29.70	59.8	
	8	☉ - 2		.70	68.5	☉
	12	East - 4	☉	.69	74.3	☉
	4				72.4	☉
	5.5	☉ 5	Fine & clear	.61	70.0	sea breeze at 10 <sup>h</sup> in morn
7	5.15	Calm	☉ &	29.60	64.0	
	8	West - 2	Broken cl	.60	71.0	☉
	12	NW - 4	☉	.50	84.0	at 2. the 88.0 temp
	4	East - 4	☉ & hazy	.47	81.0	
	5.5	North - 4	☉ -	.47	81.5	
8			.46	81.0	s.b. at 10 <sup>h</sup> in morn	
8	5.15	West - 1	Fine hazy	29.40	69.5	
	8	North - 1	☉	.40	81.0	
	12	East - 4	☉	.33	91.0	93.0 Very Sultry
	4	West - 6	☉	.33	91.0	
	5.5	West - 7	☉	.47	82.5	
8	☉ 5	☉	.58	77.5	s.b. at 10 <sup>h</sup> in morn	

Fig 3 A page from Dawes' meteorological journal.

Upon his return to England he was suggested for Superintendent of Schools for New South Wales, and later Governor Hunter requested him as an engineer, but nothing came of either of these proposals. Dawes served as Governor of Sierra Leone during the 1790s, and in 1836 he died in Antigua.

Dawes constructed his observatory on the western shore of Sydney Cove near where the southern pylon of the Harbour Bridge stands (McAfee 1978)<sup>3</sup> (see Fig 2). To enhance its stability, the observatory was built against a rock outcrop. One of its two rooms was a rectangular study where Dawes recorded his observations and kept his Burton barometer; the other was an octagonal observatory with a canvas conical roof resting on cannon balls set in a wooden track for rotating the roof. The roofs of both rooms had canvas shutters that were opened to the night sky. Although the positions of the two Fahrenheit thermometers are not known, Dawes does mention that they were outside away from direct sunlight and about a metre above a stone surface.

Figure 3 is typical of the almost 200 pages of weather information contained in the meteorological journal of William Dawes. Five or six times a day readings were taken of temperature, pressure, wind direction, and wind speed. Besides his quantitative measurements, Dawes kept detailed observations on the occurrence and nature of clouds and rain. He employed more than fifty expressions to characterise different types of rain and over a hundred terms to describe the sky condition.<sup>4</sup>

It is apparent from the pages of this journal that Dawes was not alone in his interest in the weather (see Gibbs (1975) for more information on the early years of Australian meteorology), for he mentions other First Fleet individuals who had instruments and probably kept meteorological journals, but unfortunately they have gone astray. This mutual interest in the weather is also reflected in Dawes' awareness of the importance of instrument accuracy, since he compared his instruments to those of others that were available in the colony.

### ACKNOWLEDGMENTS

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<sup>3</sup> A replica of Dawes' observatory has been built at Old Sydney Town near Gosford, New South Wales. Dawes' original plans were used in the reconstruction.

<sup>4</sup> A statistical analysis of these observations is now in progress.

