

FEATURE



Salvaging

SUNKEN TREASURE

WORDS Joëlle Gergis

A QUEST TO UNCOVER

AUSTRALIA'S CLIMATE HISTORY

HAS STARTED WITH THE LIBRARY'S

FIRST FLEET JOURNALS.

Vast quantities of our climate history lie buried in the diaries of Australia's early settlers, logbooks of the first European explorers and pastoral records — written decades before weather observations were systematically collected by the Bureau of Meteorology. Unlike Europe and the Americas, Australia's historical archives remain virtually unexplored for climate information.

In the early 21st century, it is surprising that we still do not have a good long-term history of cycles of Australian drought prior to 1900. Even less is known about Australia's flood, bushfire, dust storm and cyclone history and our society's response to past climate variability.

To improve our understanding of climate change in Australia, a team from the University of Melbourne is gathering this diverse information about south-eastern Australia's climate history. As reported in *SL* Summer 2009/10, the researchers have partnered with 10 organisations, including the State Library of NSW, on an Australian Research Council-funded project tracing our climatic past back to the foundation of European settlement in 1788.

With seemingly endless information, where to begin? As Sydney was settled first, combing through early colonial records seems the best place to start.

Journal of the Weather
 Situation each Day at Noon &c
 His Majesty's Ship Sirius

| | | | |
|-----|-------------|-------|---|
| Day | No. of Days | Winds | Commission'd at Deptford: October 25. 1786. |
|-----|-------------|-------|---|

| October 1786 | | | |
|---------------|----|------|--------------------------------|
| 12 | 5 | East | Fresh Breezes & Clear weather. |
| 13 | 6 | East | Fresh Gale & Clear weather. |
| 14 | 7 | SE | Fresh Gale & Cloudy |
| 15 | 8 | SE | Moderate Breeze & Cloudy |
| 16 | 9 | SE | Fresh Breezes & Cloudy W. |
| 17 | 10 | SE | Fresh Breezes & Cloudy |
| 18 | 11 | E. | Moderate & Cloudy |
| November 1786 | | | |
| 19 | 12 | SE | Fresh Gale & Cloudy weather. |



Meteorological observations from NSW are scarce from 1792 to 1820. Most of the weather measurements kept at Government House in Sydney from 1792 to 1810 have not been located (except for some published in the *Sydney Gazette* from 1803). Similarly, Watkin Tench, a famous figure in Australia's colonial history, is known to have kept a meteorological journal during the early years of settlement but it has never been found. Unearthing this early material would be of immeasurable importance to piecing together Australia's meteorological history.

In the meantime, we can use existing sources to examine our climate history. In October 2009, the Library's magnificent collection of First Fleet journals was added to the UNESCO Australia Memory of the World Register. We used the digitised diaries – accessible on the Library's website – of William Bradley, John Hunter, Philip Gidley King, George Worgan, Ralph Clark and Arthur Bowes Smyth to study the weather conditions that influenced the first settlement of Sydney.

The earliest weather records kept in the colony of NSW by William Bradley and William Dawes were used to reconstruct climate conditions in Sydney Cove from January 1788 to December 1791. To assess the reliability of these records, weather extremes identified in the temperature and barometric readings were compared against accounts written by the First Fleet diarists. The meteorological and historical sources agreed remarkably well, providing a fascinating glimpse of what life 'behind the numbers' may have been like.

We discovered that not long after Governor Arthur Phillip anchored in Australian waters in January 1788, the First Fleet was hampered by cool and stormy conditions. After just five days in Botany Bay, Governor Phillip gave orders for the entire fleet to set sail for Port Jackson, a large sheltered bay with a freshwater stream flowing into it. The surgeon on the *Sirius*, George Worgan, reported that a howling wind prevented the ships from leaving the cove. A huge sea rolling into the bay continued to buffet the ships, causing ripped sails and a lost boom as the boats were blown dangerously close to the rocky coastline. 'If it had not been by the greatest good luck,' wrote Marine Lieutenant Ralph Clark, 'we should have been ... on the rocks ... and ... the whole on board drowned ... we should have gone to pieces in less than half of an hour.'

Stormy weather continued as the convicts finally disembarked the ships on 6 February 1788. Arthur Bowes Smyth described landing during the startling intensity of a summer storm in Sydney. 'I never heard it rain faster,' he wrote in his diary. 'About 12 o'clock in the night one severe flash of lightning struck a very large tree in the centre of the camp ... it split the tree from top to bottom, killed five sheep ... and one pig'.

It seems not even a raging storm could stop the celebration that erupted after the last of the convicts finally reached land. 'It is beyond my abilities to give a just description of the scene of debauchery and riot that ensued during the night,' wrote Bowes Smyth, 'some swearing, others quarrelling, others singing not in the least regarding the tempest, though so violent that the thunder shook the ship exceeded anything I ever before had a conception of.'

He spent the night in fear that the ship would be struck by lightning, and the drunken crew unable to provide assistance.

According to David Collins, ‘inclement, tempestuous weather’ persisted throughout the winter of 1788, making life in the new colony difficult. In August building work was suspended as heavy rains pounded the settlement. Floodwaters made many roads impassable and huts become ‘so far injured as to require nearly as much time to repair them as to build them anew’. By February 1789 the weather was still ‘extremely unfavourable; heavy rains, with gales of wind, prevailing nearly the whole time. The rain came down in torrents, filling up every trench and cavity which had been dug about the settlement, and causing much damage to the miserable mud tenements which were occupied by the convicts.’

But, of course, Australia being the land of drought and flooding rains, it wasn’t long before a severe dry spell gripped the colony. By September 1790 Watkin Tench described the impact of a worsening drought on the food supply. ‘Vegetables are scarce ... owing to want of rain,’ he wrote, ‘I do not think that all the showers of the last four months put together, would make twenty-four hours rain. Our farms ... are in wretched condition.’

David Collins recorded the temperature of a heatwave experienced at Rose Hill (Parramatta) on 10 and 11 February 1791 which reached 105°F (40.6°C) in the shade. He documented the extraordinary effect of a heatwave on the local wildlife: ‘immense numbers of the large fox bat were seen hanging at the boughs of trees, and dropping into the water ... during the excessive heat many dropped dead while on the wing ... in several parts of the harbour the ground was covered with different sorts of small birds, some dead, and others gasping for water’.

Governor Arthur Phillip elaborated on the staggering scale of the scene. ‘From the numbers that fell into the brook at Rose Hill,’ he wrote, ‘the water was tainted for several days, and it was supposed that more than twenty thousand of them were seen within the space of one mile.’ Imagine strolling through Sydney’s Botanic Gardens to be met by a writhing carpet of bats and birds dying of heat stress!

In fact, these events are not unheard of in modern times. During the February 2009 heatwave in Victoria at least 1000 grey-headed flying foxes from the Yarra Bend colony in Melbourne died from extreme heat.

By November 1791, the severe drought led to the first documented account of water restrictions imposed on Sydney. The Tank Stream — the small freshwater stream that ran into Sydney Cove — got its name from the holding tanks that were cut into the sandstone banks to store the water. This may be the earliest example of water regulation in Australia’s European history.

Historical weather records are vital for providing clearer estimates of natural variability, so scientists can better quantify human-caused global warming. This collaboration between the Library and scientists will help provide a firmer basis for climate change predictions and plans to adapt to life in an increasingly warmer world.

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OPPOSITE: FLOOD ON THE HAWKESBURY RIVER (DETAIL), JUNE 1816, ARTIST UNKNOWN, WATERCOLOUR VIB/WIND/16

BELOW: JOËLLE GERGIS, PHOTO BY JOSH BASSETT
METEOROLOGICAL RECORDS KEPT BY WILLIAM BRADLEY ABOARD HMS SIRIUS (DETAIL), JANUARY 1788, FROM BRADLEY’S JOURNAL, DECEMBER 1786 - MAY 1792, SAFE 1/14



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