

Sir Thomas Brisbane (figure 1) was well known in social, political and scientific circles in Britain and already a Fellow of the Royal Society before he arrived in Australia in 1821. He had built an observatory on his estate at Brisbane House in Scotland in 1808 and was well versed in astronomical matters. He had pursued a distinguished military career, having served in Flanders, the West Indies, the Peninsular War and the American War. He rose to the position of Brigadier General and served with the Duke of Wellington in the Napoleonic wars. Being a member of the upper

Paramatta Observatory was Australia's first private observatory, built in 1822 by Sir Thomas Brisbane, the sixth Governor of New South Wales. It quickly gained prominence in astronomical circles in Europe. Ragbir Bhathal traces the history of this observatory and the astronomers associated with it.

(Banks 1817). Banks was a strong supporter of science for utilitarian purposes and saw the improvement of British territories as a means for advancing the self-sufficiency of the motherland. Banks was successful in institutionalizing his drive for imperial expansion through the medium of scientific exploration (Gascoigne 1998). Later, in 1823, President of the Royal Society Sir Humphrey Davy echoed the same sentiment when he wrote to Bathurst to say: "The measure of an Arc in New South Wales would not only be of importance to Astronomy in affording data for determining correctly the

A Governor's observatory

social classes in Britain, he was not only well connected but also had access to the powers of influence in government.

Brisbane had a passion for astronomy and was well aware that apart from the observations of the Transit of Venus, Edmund Halley's observations at St Helena in 1677 and Nicolas de la Caille's observations at the Cape of Good Hope in the 1750s, very few observations had been made of the southern sky. He was also aware that the Colonial Office would not provide him with funds to build another government observatory in Australia because the one at the Cape had already been designated a government observatory to study the southern sky, with the support of the Board of Longitude and the scientific establishment. The Cape was also of strategic importance to Britain's imperial programme and was closer to Europe than Australia (Evans 1988).

Despite this, Brisbane saw a tremendous opportunity "for carrying on extensive Astronomical Observations that are not only highly interesting to science but maybe beneficial to mankind" (Brisbane 1815). He had the means to build a private observatory in Australia and lobbied his influential contacts for the governorship of New South Wales. In 1815, shortly after the defeat of Napoleon, the victorious Duke of Wellington informed Brisbane that he had recommended him to the Secretary for War and the Colonies, Lord Bathurst, for appointment as the sixth Governor of New South Wales. However, Bathurst had remarked that he "wanted a man to govern, not the heavens, but the Earth" (Anon 1861). Wellington responded by saying that Brisbane had been useful in keeping the time of the Army as well as carrying out his regular military duties punctually. Brisbane's appointment was also supported by Sir Joseph Banks, the President of the Royal Society, who argued that Brisbane had strong administrative skills and would advance the cause of imperial science in the colonies



1: Sir Thomas Brisbane. (Mitchell Library)

figure of the Earth, a matter of great interest to Navigation, but would likewise be useful in laying a foundation for a correct Survey of our Colonies in the great and unexplored Country" (Davy 1823). In later years surveying the country became an important function of the colonial observatories in Australia.

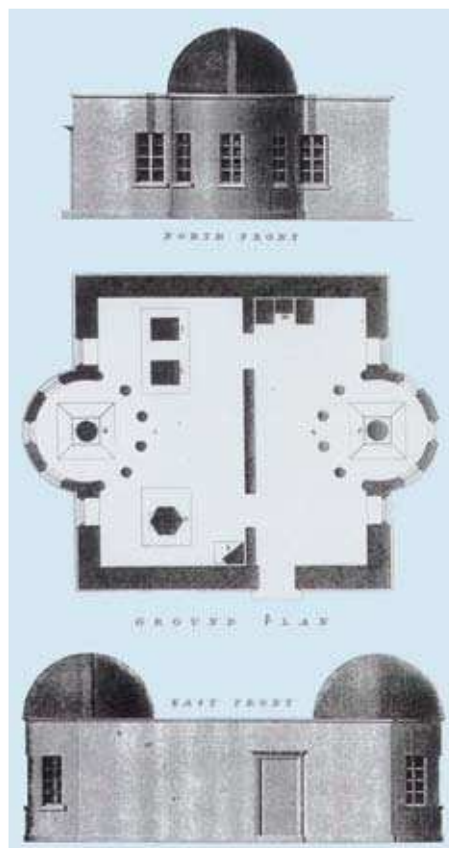
A private observatory

Brisbane arrived in Sydney in November 1821, not only to govern New South Wales and change the way it was governed, but also to build a private observatory. He built the observatory at the back of Government House in Paramatta (now called Parramatta), about 25 km from the centre of Sydney. The wooden building was of simple design and functional. It was approximately 7.4 m² and had two domes (each 3.5 m in diameter) facing north and south respectively (figure 2).

Brisbane had not only purchased the instruments at his own expense, but had also paid for the services of Charles Rumker, a well known astronomer from Germany, and James Dunlop from Scotland, who was technically skilled for maintaining the instruments in the observatory. The instruments included four astronomical clocks, a mural circle, a repeating circle, a transit instrument, an equatorial telescope, a sextant, Bourdon's pendulum, barometers and thermometers. The principal instruments were placed on masonry piers. By May 1822 the observatory was ready to use. They began systematic observations of the night sky. Since Brisbane was busy with duties of government, he was unable to devote much time in assisting with the observations. The task fell mainly on Rumker and Dunlop.

Comet Encke

The detection of comet Encke on 2 June 1822 catapulted the observatory to international fame. The official government observatory at the Cape missed discovering the comet. The



2: Plan and elevations of Paramatta Observatory.

comet had been seen previously in November 1818 by Jean Louis Pons of Marseilles and had been given the name Encke in honour of Johan Franz Encke who had calculated its orbit. According to Agnes Clerke (1893): "Encke at once took the calculations of the elements in hand, and brought out the unexpected result that it revolved round the Sun in a period of 3 years ... he fixed May 24, 1822, as its next return to perihelion. Although on that occasion, owing to the position of the earth, invisible in the northern hemisphere, Sir Thomas Brisbane's observatory at Paramatta was fortunately ready equipped for its capture, which Rumker effected quite close to the spot indicated by Encke's ephemeris." She further noted: "The importance of this event can be better understood when it is remembered that it is the second instance of the recognised return of a comet, and that it moreover established the existence of a new class of celestial objects, somewhat loosely distinguished as comets of short period." The first had been Halley's Comet and it confirmed that comets, like planets, obeyed Newton's laws of gravitation.

The Royal Astronomical Society awarded Rumker £100 in recognition of his work while Brisbane gave him a grant of 1000 acres of land near Picton, about 100 km from Sydney. Although it was Dunlop who had spotted the comet in the telescope, the honours went to Rumker who had calculated the position and guided Dunlop in its search. Rumker and Dunlop were to discover other comets. Rumker discovered one in 1824 and holds pride of place as being the first discoverer of a comet in the Australian sky. Dunlop discovered one in 1833. They began a tradition of comet hunters in Australia that continues to the present day.

Catalogue of southern stars

The main reason for establishing Paramatta Observatory was to prepare a catalogue of bright stars of the southern sky. It was necessary to obtain accurate star positions for navigational, surveying and astronomical purposes. In a short period of time some 40 000 observations of more than 7000 stars were made for presentation in a catalogue. Brisbane used his contacts in the Royal Society and the Royal Astronomical Society to get approval for the publication of the catalogue of stars at government expense. The services of William Richardson, an assistant at Greenwich, were used to supervise and complete the reduction. The catalogue was finally published in 1835 as the *Catalogue of 7385 Stars Chiefly in the Southern Hemisphere* (sometimes referred to as the Brisbane Catalogue, figure 3). In the preface Richardson (1835) noted: "Although the places of the stars in the *Catalogue* cannot be supposed as correct as those determined in great national observatories, yet it is hoped that it will be of considerable serv-

ice in astronomy, by exhibiting the positions of upwards of 7000 stars, properly arranged, being the result of a very extensive survey of the southern portion of the heavens, the greater part of which is invisible in Europe, and has not been so minutely examined since the time of Lacaille, and the *Histoire Celeste Francaise* of Lalande, works of acknowledged utility."

Brisbane and Dunlop were each awarded the Gold Medal of the Royal Astronomical Society in 1828. Rumker was to receive his medal in 1854. In awarding the Medal to Brisbane, the President of the Society, John Herschel (1829) said: "We give this medal, accompanied with the strongest expression of our admiration for your patriotic and princely support to Astronomy in regions so remote ... Your name will be identified with the future glories of that colony in the ages yet to come, as the father of her science." Later observers found that the *Catalogue* was spoiled in part because the instruments at Paramatta Observatory had been defective. Herschel himself found that there were wide differences in the positions of the stars in the *Catalogue* and the observations he made between 1834 and 1838, while he was at the Cape of Good Hope (Evans 1969). By 1860 the *Catalogue* had lost much of its value.

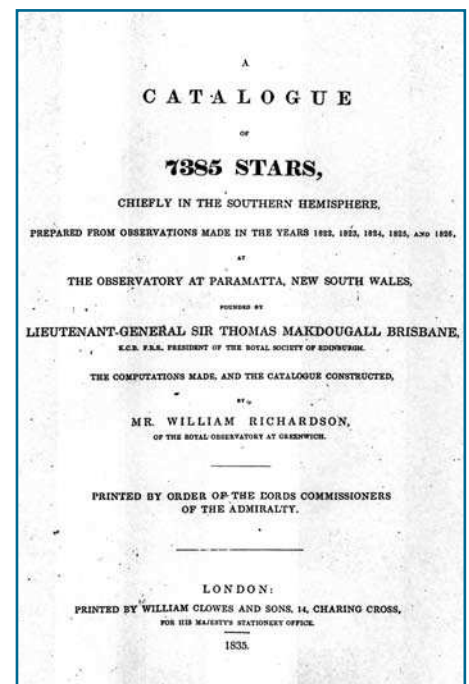
Apart from the major work on the *Catalogue*, Rumker and Dunlop also carried out observations of star clusters and double stars which are still referred to by their Paramatta numbers. Dunlop also discovered several nebulae and star clusters and published a catalogue of 621 nebulae and star clusters in the *Philosophical Transactions* of 1828. However, some of these nebulae could not be found by later day astronomers and it appears that Dunlop made some errors in his observations. In fact, Dunlop's observations of nebulae were criticized by Herschel and the catalogue lost much of its credibility.

Royal Society of New South Wales

Brisbane was also active in the promotion of science in the colony. He was elected the first President of the Philosophical Society in Australia, which had been formed on 27 June 1821 for "the purpose of collecting information with respect to the natural state, capabilities, productions and resources of Australasia and the adjacent regions and for the purpose of publishing from time to time such information as may be likely to benefit the world at large" (Liversidge 1910). The Society was later reconstituted as the Royal Society of New South Wales. In the 20th century it gave rise to some of the major scientific and engineering societies in Australia.

Brisbane recalled

By 1824 Brisbane was having difficulty with the administration of the colony. He had few competent administrators to assist him in the work of government. He was unable to resolve the



3: The 1835 Paramatta Catalogue.

conflicts between the emancipists and the exclusives. His colonial secretary refused to carry out his instructions and suppressed letters or answered them without reference to Brisbane. Some of them made vicious misrepresentations about his administration to the authorities in London. There was also criticism in the press regarding Brisbane's astronomical activities and the impact they were having on his government duties. He was accused, among other things, of neglecting his duties as Governor of the colony to make astronomical observations and shoot parrots (Heydon 1966). Despite his attempts to refute these accusations, Lord Bathurst recalled him to London. He relinquished the administration of the colony in December 1825, never to see his observatory again.

The observatory and Brisbane's equipment were acquired by the government and became part of Banks's scheme of imperial science, although later events showed that it did not get the same support as the observatory at the Cape, which had closer connections with the Admiralty.

Rumker and Dunlop

Rumker was appointed the first Government Astronomer in 1827 and, at the request of the Royal Society, he was asked to measure an arc of meridian of New South Wales. In January 1829, Rumker left Sydney for London to purchase new instruments for the observatory and also to persuade the Royal Society to publish his *Astronomical Observations Made at the Observatory at Paramatta in New South Wales*. These were published as a supplementary volume to the *Philosophical Transactions* at government expense and annoyed Brisbane because Rumker did not acknowledge him in



4: The stone piers of the transit telescope – in Parramatta Park, Sydney – are the only structural remains of the observatory.

the paper. While in London, Rumker unfortunately became involved in an acrimonious dispute with the quarrelsome Sir James South, the President of the Royal Astronomical Society, about the price of the instruments he had come to purchase. Furthermore, there was a dispute about the return to Brisbane of the logs of the observations made at Paramatta Observatory. There seems to have been a misunderstanding between Rumker and Brisbane as to what constituted the original logs and the notebooks that Rumker had used to record his observations. South used his influence to have Rumker dismissed in 1830 from British government service (Bergman 1960). Later, Rumker (1831) wrote in a pamphlet: “That no fault was found with me in respect to the discharge of my scientific duties has also been admitted by the Committee and the President of the Royal Society wrote to me: ‘I can only therefore lament that any combination of circumstances have deprived Astronomers of your scientific labours in the Southern Hemisphere. And that this combination of circumstances has been explained to me by the Secretary and other members of the Royal Society as consisting in the rows between the Royal and Royal Astronomical Society (but in reality only between their leading members)’ and that I had been sacrificed to oppose the President of the Royal Society, because I had been patronized and supported by him. Is it then not a lamentable confession of the leaders of science in England that for the sake of opposition and party spirit a man must be displaced from a station of infinite importance to Astronomy when his arduous exertions have been acknowledged useful by the scientific world?” Rumker returned to Hamburg, where he became the director of the School of Naviga-

tion and later of the observatory. He led a very productive scientific life and was elected a Fellow of the Royal Society of London. The 1871 *Catalogue of Scientific Papers* compiled by the Society lists 233 papers which he published in various scientific journals.

Dunlop was appointed the Superintendent of Paramatta Observatory and took over its running in 1831. Unfortunately he did not have the theoretical and intellectual expertise for this task. He had always been a follower rather than a leader and had prospered under the guidance of Brisbane and Rumker. Nor did he have the standing of either Brisbane or Rumker in political and scientific circles in London and Sydney to obtain the resources to run the observatory effectively. The instruments and the building were allowed to deteriorate. These problems were compounded by Dunlop’s ill health; from about 1837 he found it a chore to look after the observatory and carry out observations of the night sky, or manage its day-to-day operations. Hardly any papers were being published by the observatory and questions were being asked in London by George Airy, the Astronomer Royal, and the Colonial Office which was footing the bill in the colony of New South Wales. The productive years of the observatory in terms of publications were from 1823 to 1829. From about 1830 it began its slow decline.

In 1847 a Committee of Enquiry headed by the naval hydrographer Captain Phillip Parker King was set up to investigate the lack of progress of the observatory. A government report led to its eventual closure in 1848. All that remains today are the stone piers of the transit telescope in Parramatta Park. At the insistence of John Tebbutt, an obelisk was erected at the site to mark the remains of Brisbane’s observatory.

Back in Scotland, Brisbane went on to build another observatory at Makerstoun. He became the President of the Edinburgh Astronomical Institution and was involved in making the Royal Observatory in Edinburgh more efficient. In 1832 he was elected President of the Royal Society of Edinburgh (Heydon 1966).

Conclusion

Brisbane established Australia’s first private observatory, which shot to fame by the discovery of Encke’s comet. Although found to be defective at a later date, it produced Australia’s first catalogue of about 7000 stars of the southern hemisphere. His achievements can be best summarized in the words of Herschel (1829): “It will be a source of honest pride to him while he lives, to reflect that the first brilliant trait of Australian history marks the era of his government, and that his name will be identified with the future glories of that colony, in ages yet to come as the founder of her science. It is a distinction truly worthy of a British governor. The colonial acquisition of other

countries have been but too frequently wrested from unoffending inhabitants, and the first pages of their history blackened by ferocious conquests and tyrannical violence. The treasures of gold and silver they have yielded – the fruits of rapine – have proved the bane of those who gathered them, and in return ignorance and bigotry have been the boons bestowed on them by their parent nation. Here, however, is a brighter prospect. Our first triumphs in those fair climes have been the peaceful ones of science, and the treasures they have transmitted to us are imperishable records of useful knowledge, speedily to be returned with interest to the improvement of their condition and their elevation in the scale of nations.” ●

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Further information

The Powerhouse Museum in Sydney holds several of the original instruments from the Paramatta Observatory. See images at <http://tinyurl.com/Paramatta-obs>

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