

Earliest Gravity Measurements in Australia

Note. The earliest measurements were in observatories. Otherwise exploration preferred
References are at the end.

- 1788-89 At Port Jackson. By William Dawes (Bosloper, 2010), (Laurie, 1988)
Equipment provided by Maskelyne. Observatory at south pylon Harbour Bridge
- 1793 At Port Jackson. April 1793. By D. A. Malaspina of *Descubierta* (King, 1990)
At observatory east of Sydney Cove where now stands Sydney Opera House.
- 1819 At Sydney. By L. S. de Freycinet (1826) (Day, 1966-67)
- 1821 At Parramatta observatory. By Sir Thomas Brisbane and J. Dunlop.
Using a Kater pendulum (Day, 1966-67)
- 1824 At Fort Macquarie. By Louis Duperrey of *Coquille* . (Morrison, 2020)
- 1828 At Parramatta observatory. By C. Rumker.
Using a Fortin pendulum (Day, 1966-67)
- 1840 ? Hobart Observatory?
- 1862 ? Melbourne Observatory?
- 1863 - 65 Neumayer's basement in Melbourne for absolute & relative (Day, 1966-67)
- 1882 Sydney. By Pritchett & Smith, U.S. Coast and Geodetic Survey.
Using Kater pendulums.
- 1893 -94 Melbourne & Sydney. By Baracchi & Love using Kater pendulums.
- 1899 Melbourne, Sydney & Hobart observatories and also Hornsby, Springwood &
Armidale, NSW. By Trelfall & Pollock, using own invented quartz
torsion meter. (Henderson, 2015).
- 1928 -30 I.G.E.S. Oertling gradiometer and Eotvos torsion balance at:
Lakes Entrance (Vic.) (for oil); Gulgong (NSW) (for deep leads);
Gelliondale (Vic.) (for brown coal). (Thyer, 1979).
- 1933 Corowa deep lead . By J. M. Rayner. ?Oertling gradiometer.
(Thyer, 1979)
- 1935 Freemantle, Perth and six inland stations by Vening Meinesz with Holweck
Lejay pendulum apparatus (Vening Meinesz, 1948)

1937/8 S. Aust. 34 stations based on Adelaide by Colin Kerr-Grant.
Cambridge Pendulum. (Jackson, 1960)

References

- Bosloper, C., 2010. William Dawes' gravity measurements in Sydney Cove, 1788. International Federation of Surveyors Congress 2010 Sydney Aust.
- Broughton Edge and Laby (eds.), 1931. The principles and practice of geophysical prospecting. Cambridge. University Press. 372 pp.
- Day, A A, 1966-67. The development of geophysics in Australia. Jnl. and Proc. Roy. Soc. NSW. **100**, 33-60.
- de Freycinet, L S , 1826. Voyage autour du monde 1817-1820. Observations du pendule. Paris. Pillet Aine, 292 pp.
- Henderson, R.J., 2015. The first gravity meter designed, built and used in Australia in the late 1890s and very possibly the first in the world. *Preview* **179**, 53-61.
- Jackson, J.E., 1960. The Cambridge Pendulum Apparatus. *Geophys. J.*, **3**, 375-388.
- King, R.J., 1990. The secret history of the Convict Colony, Allen & Unwin, Sydney.
- Laurie, P.S., 1988. William Dawes, and Australia's first observatory. *Quarterly Journal of the Royal Astronomical Society*, **29**, 469-482.
- Morrison, W.D., 2020. Measuring Terrestrial Magnetism. ASEG Publication. Pg. 30.
- Thyer, R. F., 1979. Georoots - early geophysical prospecting in Australia. *Bull. Aust. Soc. Explor. Geophys.*, **10**, 244-251.
- Vening Meinesz, 1948. Gravity expeditions at sea 1923-1938. Vol. III. Delft: Netherlands Geodetic Commission.