

The *Astronomical Register*, John Tebbutt, and astronomy in the antipodes

Dear Dr Mitton

Too little has been written about our nineteenth-century astronomical journals, particularly those extant during the founding years of astrophysics, and consequently I found Peter Johnson's recent paper about the *Astronomical Register* most interesting.¹

In his paper, Johnson mentions overseas support for this journal from Australia's leading astronomer of the day, John Tebbutt of Windsor, New South Wales.² In fact, Tebbutt published just nine papers in the *Astronomical Register* (out of a lifetime total of about 400 papers), and these dealt with comets, lunar eclipses and occultations, an occultation of Praesepe by Mars, planetary conjunctions, the planet Venus, and variable stars.³

The connection between the *Astronomical Register* and the abortive 'Observing Astronomical Society' (1869–71) brings to mind Tebbutt's unsuccessful attempt to found Australia's first national observing group in 1882, a 'Corps of Amateur Comet-seekers'. For various reasons, which are outlined by Orchiston,⁴ this group failed after just one year, and it was only in the 1890s that Australia received its earliest successful astronomical societies (and BAA Branches).⁵ These were all localized to the major cities, and were generalist rather than specialist in nature. Like its British predecessor, Tebbutt's Corps of Amateur Comet-seekers was an anachronism.

At the same time the Reverend John Jackson was fighting to keep the *Astronomical Register* in print, Tebbutt was examining the possibility of establishing a local journal for Australian amateur astronomers. The idea was first put to him by Dr William Bone of Castelmaine, Victoria, on 1883 November 14:

'I often think what a good thing it would be if we could have an "Amateur Astro. Journal" edited by yourself for the colonies. There is frequently a difficulty in procuring the necessary time and attention (however kind and willing they may be) from professional astronomers...'⁶

After carefully considering this proposition, Tebbutt decided against it and, along with the other leading Australian amateur astronomers, continued to submit his research papers mainly to *Astronomische Nachrichten*, *Monthly Notices*, and local scientific journals. The amateur astronomers of Australia were finally rewarded with their own national jour-

nal, *The Australian Journal of Astronomy*, more than one hundred years later, in 1985!

Finally, turning from Tebbutt to Australian professional astronomy, I must correct the statement on page 65 in Johnson's paper that Lassell's 48-inch reflector was relocated to Australia. Although this was indeed one of the options considered by the Southern Telescope Committee, they eventually opted for a new instrument.⁷ The 'Great Melbourne Telescope' was completed by Grubb in 1868 and became operational in 1869.⁸ The ultimate failure of the GMT (as we know it in this part of the world!) is one of the great tragedies of instrumental astronomy.⁹

Yours sincerely

Wayne Orchiston

Gisborne Museum & Arts Centre, P. O. Box 716, Gisborne, New Zealand.

- 1 Johnson, P., *J. Br. Astron. Assoc.*, **100** (2), 62–66 (1990).
- 2 See Orchiston, W., *Astron. Now*, **2** (5), 11–16 (1988).
- 3 See Tebbutt, J., *Astronomical Memoirs*, 99, Windsor, Hawkesbury Shire Council, 1986.
- 4 Orchiston, W., *J. Astron. Soc. Vict.*, **35** (5), 70–83 (1982); Orchiston, W., *Southern Stars*, **32** (4), 111–128 (1987).
- 5 Orchiston, W., *J. Br. Astron. Assoc.*, **98** (2), 75–84 (1988).
- 6 Bone, W., letter to John Tebbutt, dated 1883 November 14. In the Mitchell Library, Sydney.
- 7 *Correspondence Concerning the Great Melbourne Telescope*, London, Royal Society, 1871.
- 8 See Robinson, T. R., and Grubb, T., *Phil. Trans. Roy. Soc.*, **159**, 127–161 (1869).
- 9 See Hyde, W. L., *Optics News*, January, 6–11; Perdrix, J. L., *J. Astron. Soc. Vict.*, **23** (3), 54–67 (1970).

Polaris and the North Pole

Dear Editor

Several years ago, I wrote a computer program for the calculation of apparent places of stars. These apparent positions are requested for computations where high accuracy is needed, such as for grazing occultations of stars by the Moon, or occultations of stars by planets. That program, however, doesn't work well when the star is close to one of the celestial poles.

For this reason, I wrote recently a program specially for Polaris (α Ursae Minoris). It allows the calculation of the apparent right ascension and declination of this star for any date between AD 1700 and 2300. The program takes into account the effects of proper motion, precession, aberration and nutation. The J2000.0 mean position and proper motion of the star have been taken from the FK5 catalogue (Karlsruhe, 1988).

In a fixed reference frame, the proper motion of Polaris amounts to 4.12 arcseconds per century. This is rather small. As a comparison, the centennial proper motion of Aldebaran is 20'' per century, that of Regulus is 25'', Sirius 133'', and Arcturus 228''.

It is well-known that Polaris will be nearest to the Celestial North Pole around AD 2100. With my new program, it has been possible to find out exactly how close this will be, and when.

Let us first deal with the star's mean

position; that is, when only the effects of proper motion and precession are taken into account. The mean declination of Polaris was +88° 00' in December 1757, and +89° 00' in March 1944. It reached the value of +89° 10' in July 1978, and will be +89° 20' in May 2016, to reach a maximum of +89° 32' 23'' in February 2102.

Meanwhile, the star's mean right ascension increases at an ever increasing rate, until the star is nearest to the pole. The right ascension was 1h 23m at the beginning of AD 1900, and it will be 2h 32m at the beginning of 2000. Then the following values will be reached:

RA 3h in January 2022
4h in August 2055
5h in August 2080
6h in April 2102
7h in January 2124

Due to the annual aberration, the apparent declination of the star displays a variation with a period of one year, on which are superposed the slower effects of the nutation. I found that the apparent declination of Polaris will reach a maximum of +89° 32' 51'' on 2100 March 24, close to the March equinox of the last year of the 21st century.

Jean Meeus

Heuvestraat 31, B-3071 Erps-Kwerps, Belgium