UCL DEPARTMENT OF PHYSICS & ASTRONOMY

GENTLEMEN,—

A quarter-century ago, correspondence[1,2] in this *Magazine* lauded the signal achievement of the 100th paper[3] in the series of *Spectroscopic Binary Orbits from Photoelectric Radial Velocities*. How much more remarkable that the series has continued without interruption since that landmark, and we join with others in extending our congratulations to Professor Roger Griffin, the lead (and usually sole) author of all 250 papers now published, on this most noteworthy feat.

There is, perhaps, a danger that familiarity with the series may cause the casual reader to overlook the unfailing quality of the content: every orbit can be trusted to be of the highest standard (or to be subject to scrupulous qualification in the rare cases where some scintilla of uncertainty exists), and is invariably based on appropriately extensive observations of excellent quality (exemplified by the $\sim$40 years' data reported in Paper 250). That such work is reliably packaged in an eloquent text with a comprehensive critique of previous investigations is a welcome bonus.

Although we hope that Griffin will conduct his own synopsis of the series in due course (cf. ref. 4), publication of the sestercentennial paper prompted us to assemble some statistics which brought home to us the scale of his achievement. For example, the span of well-established orbital periods approaches five orders of magnitude(!), ranging from 11 hours (HD 31738; Paper 209[5]) to 86 years (39 Cyg; Paper 200[6]), with orbital eccentricities running up to 0.912 (HD 117901; Paper 173[7]). We have also revisited[8] the 'Barr effect' in the Griffin SBO sample; subjectively, the cumulative distribution function of ω, the longitudes of periastron of eccentric orbits in the sample, is sensibly linear (Fig. 1) – an impression quantitatively confirmed by the Rayleigh statistic (e.g., ref. 9), which verifies that the ω determinations show no detectable departure from a uniform distribution in angle.

The SBO series was initiated more than 40 years ago[10], but, far from flagging, the rate of publication of orbits is accelerating. The first 150 papers presented orbits for somewhat fewer than 160 systems; but, if our counting is reliable, the 500th orbit in the series appeared, unheralded, in Paper 245.[11] We look forward to the 50th-anniversary paper, and to the 1000th orbit.

We are, Gentlemen,

Yours faithfully,

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References

(1) H. A. Abt, *The Observatory,* **111**, 251, 1991.

(2) A. H. Batten & G. Hill, *The Observatory,* **111**, 252, 1991.

(3) R. F. Griffin, *The Observatory,* **111**, 201, 1991.

(4) R. F. Griffin, *The Observatory,* **128**, 448, 2008.

(5) R. F. Griffin, *The Observatory,* **129**, 317, 2009.

(6) R. F. Griffin, *The Observatory,* **128**, 176, 2008.

(7) R. F. Griffin, *The Observatory,* **123**, 344, 2003.

(8) I. D. Howarth, *The Observatory,* **113**, 75, 1993.

(9) N. I. Fisher, *Statistical Analysis of Circular Data,* Cambridge University Press, 1995.

(10) R.F. Griffin & B. Emerson, *The Observatory,* **95**, 23, 1975.

(11) R.F. Griffin, *The Observatory,* **135**, 321, 2015.

(12) D. Pourbaix, *et al., A&A,* **424**, 727, 2004.

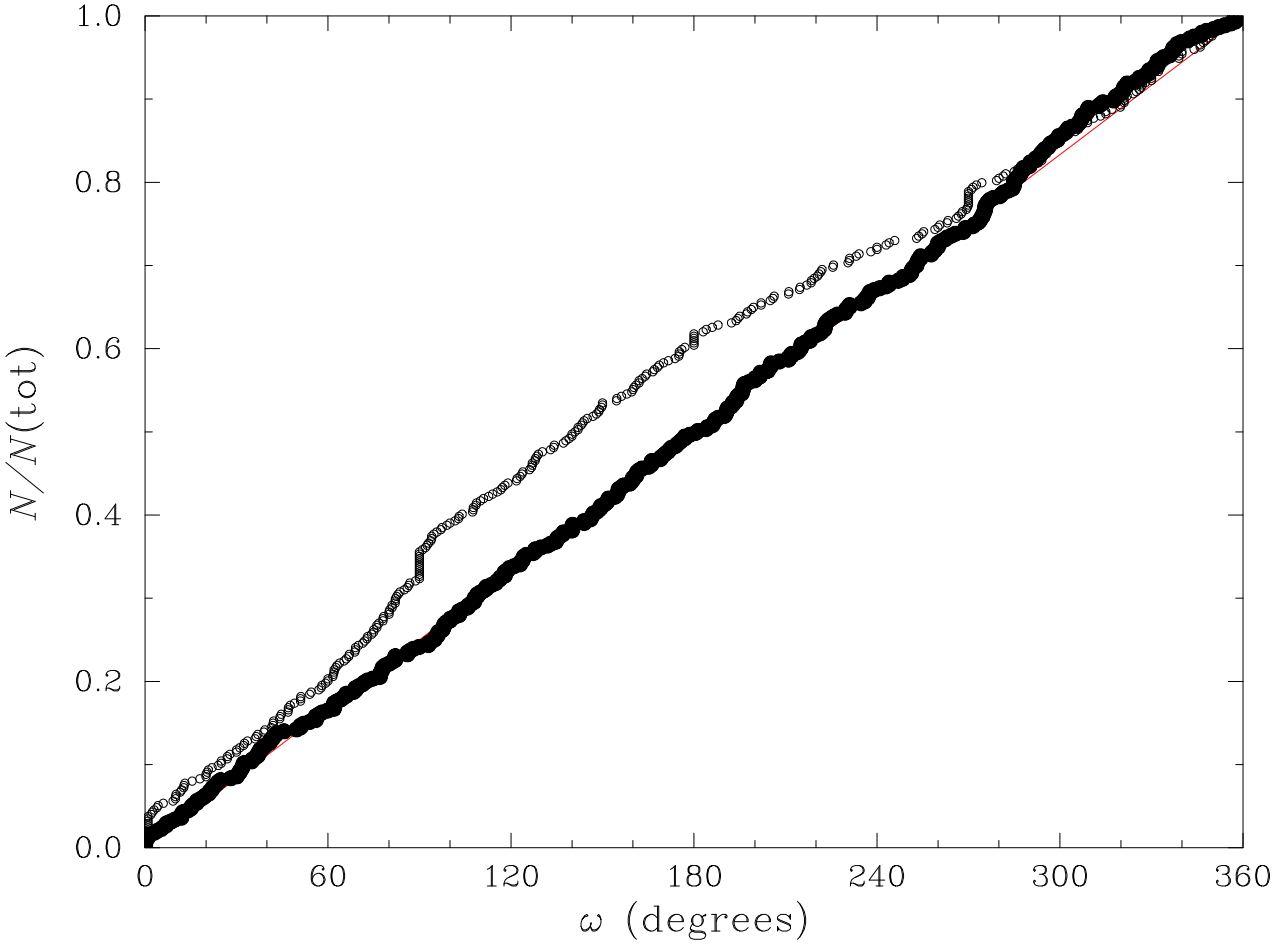

FIG. 1. The cumulative probability distribution of longitudes of periastron for 444 eccentric orbits in Papers 1–250 of Griffin's *Spectroscopic Binary Orbits* series (large filled circles) and for 374 eccentric orbits with periods 0.5–5.0 d in the *Ninth catalogue of spectroscopic binary orbits* (ref. 12; 2016-02-19 digital release). The S_{B9} results are very unlikely to be drawn from a uniform distribution (probability P = 0.003%), while the distribution for Griffin orbits is practically uniform (P = 65%; the straight line representing a uniform distribution is almost entirely concealed by the large dots).