

CORRESPONDENCE

To the Editors of 'The Observatory'

*Cosmology and Cosmogony*

Like Alan Batten<sup>1</sup>, I too noticed the matter-of-fact use of the word 'cosmogony' in David Hughes' review<sup>2</sup> of the book on the origin of our Solar System by Chambers & Mitton<sup>3</sup>. Batten's remarks reminded me of a series of articles 20 years ago with identical or similar author(s) and titles<sup>4-9</sup> — usually 'Testing Cosmogonic Models with Gravitational Lensing' — which were followed by another with the title 'Testing Cosmological Models by Gravitational Lensing: I. Method and First Applications'<sup>10</sup> (there doesn't seem to have been a Paper II). I remember thinking that 'cosmogonic' was inappropriate, since to me it meant 'regarding the origin of the Universe' whereas those papers discuss testing cosmological models, in this case simulations of the Universe based on different values of the cosmological parameters (*i.e.*, nothing directly to do with the origin of the Universe), in line with my view (then and now) that cosmology is 'the study of the Universe'. My understanding of the distinction between those terms was influenced by their etymology; I don't know if this distinction was standard anywhere at any time.

Batten remarked on how the meaning of the term 'cosmogony' has changed over time, the most important development probably being that it originally was applied to the origin of the Universe when it was thought to be much smaller than it is, essentially a collection of planetary systems, so the meaning later shifted to 'regarding the origin of planetary systems'. An ADS<sup>11</sup> search (with 'Synonym Replacement' turned off; the default is on) for 'cosmogony' in the title finds 259 works, a mixture of cosmogony in Hughes' sense (*i.e.*, planetary origins), cosmology, and cosmogony in the original sense (*e.g.*, ancient creation myths), but also such gems as 'In Furtherance of Militant Soviet Cosmogony'<sup>12</sup>. Searching for 'cosmogonic', on the other hand, turns up 80, mostly planetary, themes; this is also the case for 'cosmogonical', which finds 32, but among these is *The Universe and its Origins: From Ancient Myth to Present Reality and Fantasy*<sup>13</sup>.

Searching for 'cosmology' finds 15462 and for 'cosmological' 20267. (Some of these, though, are concerned with cosmogony in the sense of the origin of the Universe.) Interestingly, 14 works can be found by searching for 'cosmologic'. This is not really an English word, and it is no coincidence that all of these appear to be by non-native speakers of English. In many languages, there is one word for the corresponding English adjectives ending in 'ic' and 'ical', *e.g.*, German '*elliptisch*' means both 'elliptic' and 'elliptical'. (Thus, a non-native speaker of English might translate '*kosmologisch*' as 'cosmologic'.) Not always do both forms exist; there are electrical engineers but no magnetical engineers, nor does anything magnetical exist at all. (Presumably, an electric engineer would be some sort of humaniform robot, perhaps a cousin of a high-energy physicist.) The rule seems to be that the basic form ends in 'ic' while later variants end in 'ical' (though 'cosmological' is an obvious exception). It is not clear to me, though, why cosmologists are concerned with elliptic integrals (used to solve the Friedmann equations) and astronomers with elliptical galaxies.

Yours faithfully,  
PHILIP HELBIG

Thomas-Mann-Straße 9  
D-63477 Maintal  
Germany

Email: helbig@astro.multivax.de

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### References

- (1) A. H. Batten, *The Observatory*, **135**, 95, 2015.
- (2) D. W. Hughes, *The Observatory*, **134**, 299, 2014.
- (3) J. Chambers & J. Mitton, *From Dust to Life: The Origin and Evolution of our Solar System* (Princeton University Press, Woodstock), 2013.
- (4) J. Wambsganss, *Astron. Gesell. Abstr. Ser.*, **11**, 57, 1995.
- (5) J. Wambsganss *et al.*, in J. P. Mücke *et al.* (eds.), *Large-Scale Structure in the Universe* (World Scientific, Singapore), 1995, p. 316.
- (6) J. Wambsganss *et al.* in H. Böhringer *et al.* (eds.), *Seventeenth Texas Symposium on Relativistic Astrophysics and Cosmology, Ann. New York Acad. Sci.*, **759** (The New York Academy of Sciences, New York), 1995, p. 563.
- (7) J. Wambsganss *et al.*, *Science*, **268**, 274, 1995.
- (8) J. Wambsganss *et al.*, in *Dark Matter, AIP Conference Proceedings*, **336**, 347, 1995.
- (9) J. Wambsganss *et al.*, in C. S. Kochanek & J. N. Hewitt (eds.), *Astrophysical Applications of Gravitational Lensing* (Kluwer, Dordrecht), 1996, p. 65.
- (10) J. Wambsganss, R. Cen & J. P. Ostriker, *ApJ*, **494**, 29, 1998
- (11) [http://adsabs.harvard.edu/abstract\\_service.html](http://adsabs.harvard.edu/abstract_service.html).
- (12) *Problems of Cosmogony*, **3**, 1, 1964.
- (13) S. Shaked, in S. F. Singer (ed.), *The Universe and its Origins: From Ancient Myth to Present Reality and Fantasy* (Paragon House, New York), 1990, p. 27.