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CORRESPONDENCE

To the Editors of 'The Observatory'

Cosmic Confusion

Professor Liddle was perhaps a bit too polite in his response to Mr. Osmaston's statement¹ that the accelerated expansion of the Universe "is inferred from applying the relativistic Doppler formula to a linear distance–redshift relationship". A linear distance–redshift relationship exists, in general, only for small redshifts, where it can be used to measure the Hubble constant, while deviations from linearity provide information about the other cosmological parameters. In Friedmann–Lemaître–Robertson–Walker cosmological models, two parameters, apart from the Hubble constant, are necessary and sufficient for determining the entire expansion history (past and future) of the Universe. Thus, a non-linear distance–redshift relationship is essential for deriving the standard cosmological model Prof. Liddle discussed. (There is a linear distance–velocity relation, which holds for all Robertson–Walker models at all redshifts, but it does not involve observable quantities and does not play a role here, though this is a frequent source of confusion².) Furthermore, neither must cosmological recession velocities not exceed the speed of light nor is the relativistic Doppler formula used at all in modern cosmology³. (It is possible to use the relativistic Doppler formula in a cosmological context⁴, though I have never seen this actually done except as an exercise. Cosmological recession velocities, as usually understood, can nevertheless still exceed the speed of light.) When discussing cosmological models based on General Relativity, whether one thinks of cosmological redshifts as being caused by cosmological recession velocities or not doesn't change the theoretical relationship between observed quantities and the quantities derived from them; the result is still valid. There is no debate at all about this within the established cosmological community. (Somewhat similarly, while there are many different interpretations of quantum mechanics, there is no disagreement when it comes to calculations connecting theory and observation.) Certainly no serious cosmologist sees modern cosmology threatened by an experiment done by the US Navy in the 1960s.

I agree with Professor Liddle when he says “that there are significant problems of trying to find fundamental understandings of the data”, but this is not one of those problems. I also agree that “there should be more theoretical work”, but none is needed in this area. I would also “like to see the pendulum drift back a bit from experiment to increasing the funding for theoretical exploitation and understanding”, but readers shouldn’t get the impression that this is needed in order to resolve any uncertainty about the issues raised by Mr. Osmaston, since there is none.

Yours faithfully,
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REVIEWS

Scientific Writing for Young Astronomers, by Christiaan Sterken (EDP Sciences, Les Ulis, France), 2011. Pp. Part 1: 162; Part 2: 298, 25 × 16 cm. Price Part 1: €36 (about £30); Part 2: €61 (about £52) (hardbound; ISBN Part 1: 978 2 7598 0506 8; Part 2: 978 2 7598 0639 3).

These two books form the proceedings of the Astronomy & Astrophysics School: Scientific Writing for Young Astronomers, which was held in 2008 and 2009. During three-day seminars, astronomy PhD students in the early stages of their studies were introduced to the process of scientific writing and publishing.

The first part of the proceedings (EAS volume 49) focusses more specifically on the journal *Astronomy & Astrophysics*, its history and the refereeing, editorial, and publishing processes. These detailed chapters give readers a look behind the scenes of a professional journal and explain the reasoning behind editorial policies on, for example, language use or the single-blind-refereeing process. The various issues that confront editors and publishers of *Astronomy & Astrophysics* on a daily basis will not be dissimilar from what their counterparts at other journals in different disciplines encounter, though obviously editorial policies may differ for a variety of reasons. As such, these chapters provide a good comprehensive general introduction into the size and scope of the