

Feeling rejected

World beater.

Alastair Reynolds

Report on the paper "Analysis of the gravitational signals from a newly discovered Kardashev II civilization in the Sombrero Galaxy: Part 1 by Whimbrel *et al.*", submitted to the *Journal of Xenoastronomical Studies*.

The authors present an analysis of gravitational signals of intelligent origin arising in the Sombrero Galaxy, detected in publicly available archival data from the System-Wide Imaging Network for Exo-astronomy (SWINE). The transmitting culture, which has not been the subject of an earlier paper, is shown to be a type II civilization on the Kardashev scheme, by which it is understood that they have the means to tap the entire energy output of their star. This classification is made partly on the basis of the strength of the SWINE signal (which in itself implies a basic competence in stellar husbandry) and partly on the basis of the cultural information embedded in the data themselves. This assessment is probably correct, but given the likelihood that both type I and type III civilizations may occasionally emulate type II civilizations for their own purposes (see, for instance, Chukar, Francolin and Dickcissel, 2051), a word of caution might well have been in order.

The species is shown to have originated on a rocky terrestrial planet about the size of Mars, and to have followed an evolutionary pathway that is well approximated by the uppermost track on the three-parameter model of Bataleur and Becard (2049). In their unmodified form, adult members of this species are 3-metre tall hexapodal oxygen-breathers with a DNA-based reproductive system. The species has a well-developed central nervous system with marked hemispheric asymmetry.

The authors apply standard analysis tools and methods to extract cultural information from the intercepted signal. Given the absence of anything startlingly new in their approach, the amount of space that the authors spend discussing this process is puzzling. It might have been better simply to reference one of the many review papers on the matter, such as the recent and comprehensive overview of analysis methods given in [omitted].

The authors then move on to the main

part of their paper: a lengthy discussion of the information content of the decoded message. They summarize the nature of the transmitting civilization, the physiology and evolutionary background of the inhabitants, their technology and culture. Although broadly satisfactory in its details, this section would benefit from shortening. As an example, the authors dwell on the construction methods used in the Dyson sphere that the aliens have erected around their star, despite the fact that broadly similar planet-dismantling, reforging and gravity-control methods have been used by at least 138 other Kardashev II cultures (see, for instance,



Takahe and Smew, 2045). In the very first sentence of subsection 3.2, the authors state that there is "nothing particularly novel about the construction methods", before nevertheless embarking on a blow-by-blow account of those selfsame methods. I agree with the first sentence.

They conclude this section by presenting, in excerpted form, several images and texts deemed to be of high significance within the culture. These include 18 'stanzas' of a much longer epic 'poem' written in commemoration of the collapse of part of the polar region of their Dyson sphere about 1.2 million years ago, an accident that resulted in the deaths of $\sim 5.6 \times 10^{12}$ sentient beings. Although undoubtedly touching, it is not clear that a great deal is gained from the inclusion of this somewhat taxing material.

The authors conclude their paper by moving on to a wider discussion of the significance of their newly found civilization against the known sample of other intelligent alien species. Here the authors place (in my view) undue emphasis on the position of their civilization in the 'cultural H-R diagram' (Wonga and Grebe, 2044),

in which the total information capacity of a transmitting culture, measured in bits, is plotted against the light-crossing time in light-seconds of their total colonized space. On the basis of Figure 8, the authors claim that their culture lies significantly to the right of the 'asymptotic singularity branch', which on the face of it would suggest that the culture had avoided a singularity despite occupying a total volume only 72,000 light-seconds in diameter. If true, this would extend the total number of known collapse-resistant cultures to eight.

The evidence, however, is very much less compelling than the authors claim. Close examination of their statistical sample

shows it to be derived from the Third Gonolek catalogue, which is now known to be afflicted by serious sampling errors. Visual inspection would suggest that a more reliable sample — such as that of [omitted] — would either bring their civilization into line with the singularity branch, or reveal it as no more than a mild outlier.

In short, although the new civilization undoubtedly provides a useful new datum point, I remain unconvinced that it merits an entire paper, and certainly not the multi-paper saga that the authors clearly have in mind. Thanks to the torrent of data supplied by SWINE, and the planned Obscenely Large Gravity Array (OLGA), we are fast moving into the era of statistical xenoastronomy — one in which the study of individual extraterrestrial civilizations has much less to offer than a global, survey-based approach. The authors might therefore be advised to wait until their archival enquiries have turned up several dozen such cultures, and then gather these results into a single paper. Otherwise, I fear, they may be open to accusations of [omitted] the [omitted].

Other matters:

Fig. 6 was incorrectly labelled (see Fig. 5).

This text has been swept by Semantic Anonymity Preserver Version 5.1 — certain stylistic or cultural markers may have been altered or removed. Complete legibility is not guaranteed. ■

Alastair Reynolds lives in the Netherlands. He worked at the European Space Agency for 12 years on a variety of astronomical projects before turning to full-time writing. His latest book is *Century Rain* (Orion, 2004).