[Supplementary information]

[For RESEARCH section]

Rows with the neighbours: the short lives of longhouses at the Neolithic site of Versend-Gilencsa

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1. Technical details of radiocarbon and stable isotopic measurements

All 68 measurements are conventional radiocarbon ages (Stuiver & Polach 1977).

The four samples dated at Mannheim (MAMS-) were processed by gelatinisation and ultrafiltration (Brown *et al.* 1988), combusted to carbon dioxide, graphitised, and dated by Accelerator Mass Spectrometry (Kromer *et al.* 2013). The 44 samples dated at the Scottish Universities Environmental Research Centre (SUERC-), East Kilbride were processed and dated in a similar manner as described by Dunbar *et al.* (2016). At ^{14}CHRONO , Queen's University, Belfast (UBA-), samples were prepared, graphitised using zinc reduction, and dated as described by Reimer *et al.* (2015).

All three laboratories maintain a continual programme of quality assurance procedures, in addition to participation in international inter-comparison exercises during the period when the measurements were made (Scott 2003; Scott *et al*. 2010).

Replicate measurements are available on six samples. All six pairs of replicate radiocarbon measurements are statistically consistent at 95% confidence (Ward & Wilson 1978; Table 1), as are the six pairs of replicate $\delta^{13}C$ values. Five of the replicate pairs of $\delta^{15}N$ values are statistically consistent at 95% confidence, although the pair on the cattle phalanges from Pit 148 (S1) diverge at more than 99% confidence. Both values are within the range of $\delta^{15}N$ values on cattle from this site and so it is not possible to determine which value is erroneous.

Stable isotope measurements ($\delta^{13}C$ and $\delta^{15}N$) on human and animal bones indicate that the humans consumed a diet predominantly based upon temperate terrestrial C_3 foods (Schoeninger & DeNiro 1984), and 'perfect pairs' of contemporary articulated human bone and cattle bone from Neolithic graves at Szederkény and Alsónyék are statistically consistent and so the radiocarbon results are unlikely to be affected by any significant reservoir effects (Bayliss *et al.* 2016, table 1; Jakucs *et al.* 2016, table 1).

2. Additional details on Bayesian chronological modelling

Figure S1. Radiocarbon measurements from Versend shown against the calibration curve (Reimer *et al.* 2013).

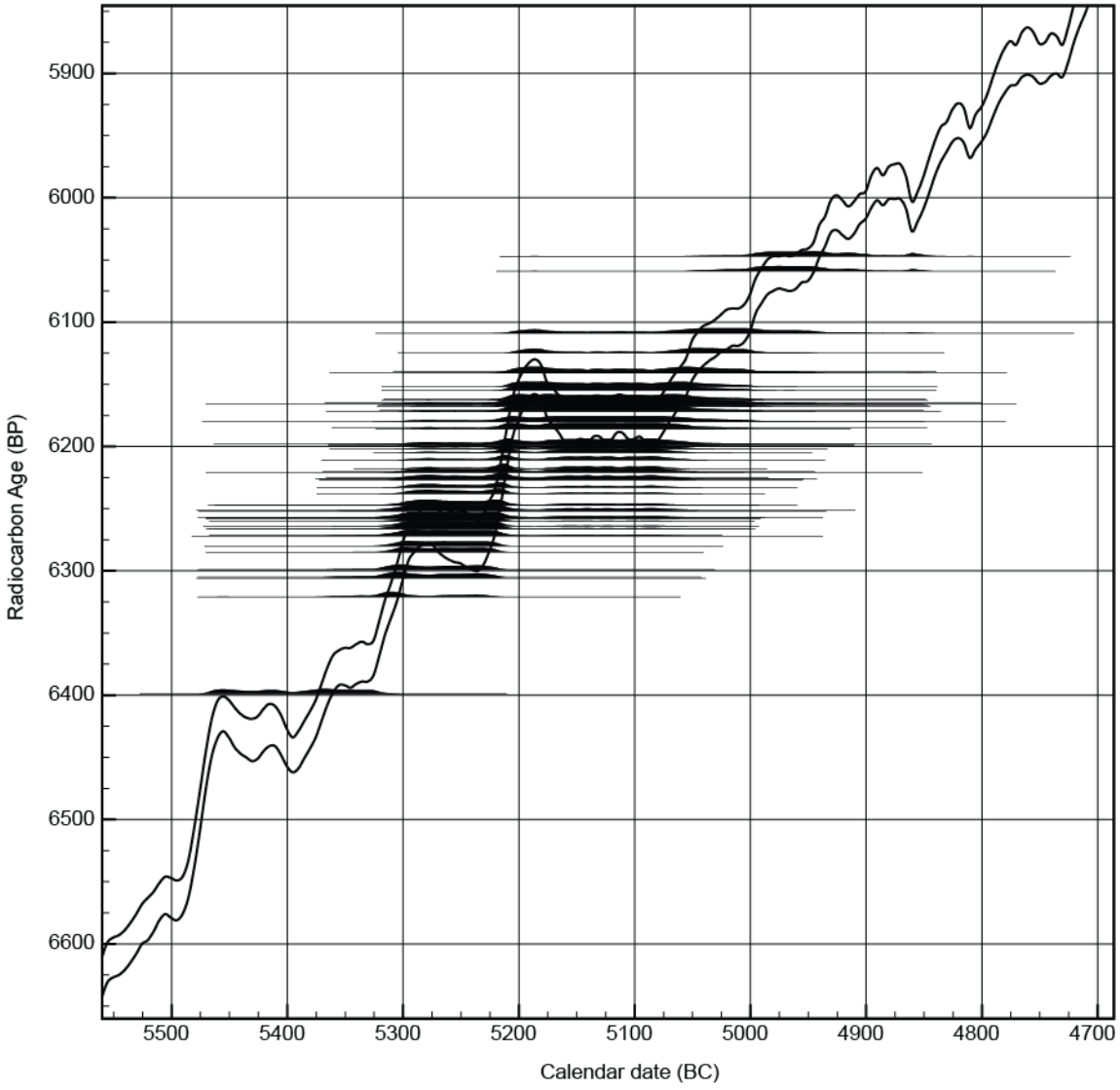

Table S1. Summary of simulations of likely scenarios for the date of Versend: 'yes' indicates that the Highest Posterior Density interval for the named parameter includes the actual date input into the simulation, 'no' indicates that it does not; values in bold indicate that a model does not achieve the recommended threshold for model agreement or convergence (Bronk Ramsey 1995: 429; 2009: 356–7).

Actual dates	**Amodel**	**Convergence**	**HPD interval (*start*)**		**HPD interval (*end*)**		**HPD interval (*span*)**	
			(68%)	**(95%)**	**(68%)**	**(95%)**	**(68%)**	**(95%)**
5130–5100 BC	79.7	97.6	yes	yes	yes	yes	yes	yes
5140–5110 BC	70.0	98.9	no	yes	yes	yes	yes	yes
5150–5120 BC	74.6	99.0	no	yes	yes	yes	yes	yes
5160–5130 BC	71.4	95.6	yes	yes	yes	yes	yes	yes
5170–5140 BC	61.8	95.9	yes	yes	no	yes	yes	yes
5180–5150 BC	**47.0**	99.4	yes	yes	yes	yes	yes	yes
5190–5160 BC	61.5	98.0	yes	yes	yes	yes	yes	yes
5200–5170 BC	71.2	98.5	no	yes	yes	yes	no	yes
5210–5180 BC	65.7	96.1	yes	yes	no	no	yes	yes

5220–5190 BC	80.7	**65.2**	yes	yes	yes	yes	yes	yes
5230–5200 BC	62.3	**69.9**	yes	yes	no	yes	yes	yes
5240–5210 BC	**47.5**	96.8	no	yes	yes	yes	no	yes
5250–5220 BC	75.5	96.9	no	no	no	yes	yes	yes
5260–5230 BC	**53.9**	95.9	yes	yes	no	yes	yes	yes
5270–5240 BC	62.4	95.8	yes	yes	yes	yes	yes	yes

3. References

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