NOTE ON CALIBRATION OF RADIOCARBON DATES

Almost all archaeological research in Australia’s deserts has relied on an uncorrected radiocarbon chronology. However, calibration of the radiocarbon timescale is now unavoidable, if archaeological records are to be fully integrated with palaeoenvironmental and climate data, or with global marine isotope stages (MIS). Few archaeologists today would be unaware that fluxes in atmospheric $^{14}$C have distorted the radiocarbon timescale, so that radiocarbon years are not calendar ages. However, calibration programs to convert radiocarbon ages (years BP) to sidereal years (years cal. BP) over the full span of the last 50,000 years have only recently become available.

In this book, I have attempted to put everything on a common timescale by working primarily with calibrated ages (quoted as ‘ka’ or ‘years cal. BP’). Ages were calibrated using OxCal 4.1 and the INTCAL09 dataset. Marine09 has been used for shell dates, applying a marine reservoir correction of 450 ± 35 years, plus a regional offset delta-R correction 70 ± 70 for samples younger than 8 ka. For samples older than 8–7 ka, shifts in sea levels and currents may have affected rates of mixing, so the delta-R correction is effectively unknown. For these samples, I rely on the base correction of 450 ± 35 years, widely used in reporting Pleistocene shell dates from archaeological sites. The SHCal04 data set and calibration curve allows for a Southern Hemisphere offset of 55–58 years back to 11,000 BP. A full listing of the original radiocarbon ages for Australian desert sites is available in the AustArch1 database, at http://palaeoworks.anu.edu.au/databases.html.

For most archaeological use, a centre-point age estimate is more convenient than the unwieldy, non-normalised, 2SD age ranges routinely generated by calibration programs (even if these are technically more correct). Following Telford et al. (2004), I use the median of the calibrated age-distribution (median IntCal09 age ± 1SD), which is more robust than mode or intercept methods and not as sensitive to small changes in the calibration curve. Throughout this book, calendar ages are quoted as ‘ka’ (thousands of years ago) and rounded up, to avoid implying more chronological precision than the context allows.