[RADIOCARBON, VOL. 35, NO. 1, 1993, P. iii]

EDITORIAL COMMENT

This CALIBRATION 1993 volume amends and extends the time series published in the 1986 CALIBRATION ISSUE. Whereas the 1986 issue provided age calibration over nearly 10,000 calibrated (cal) years, the current material more than doubles this age range.

The joint Seattle-Belfast bidecadal, and the Seattle decadal, calibration curves now cover about 8000 cal yr. Minor corrections, explained in the text, had to be applied to previously (1986) published ^{14}C dates of the Belfast and Seattle laboratories. The corrections are in the 10 to 20 ^{14}C-yr range. Most calibration curves are for decadal and bidecadal samples, but finer chronological detail can be found in Pretoria-Groningen (1900–3900 BC) and Seattle (AD 1510–1950) results.

The dendrochronologically dated tree-ring samples in the AD/BC realm cover nearly 10,000 cal yr. The earliest millennia of the German absolute oak chronology are discussed in Hohenheim, Heidelberg and Belfast reports. Heidelberg also reports ^{14}C data for a nearly 1600-yr floating (not connected to the present) pine chronology. A tentative estimate of the gap between the pine and oak chronologies allows the tree-ring chronology to be extended back to 11,400 cal BP.

The tree-ring-derived calibration curves are applicable to samples formed in equilibrium with atmospheric CO_2. To calibrate samples of marine origin, a Seattle curve, derived from the tree-ring information through carbon-reservoir modeling, can be used. A joint Gif sur Yvette/Lamont-Doherty effort allows the continuance of ^{14}C age calibration beyond 11,400 cal yr BP. Here, coral ^{14}C ages and (U/Th) ages are compared, yielding calibration data for the marine environment. As the ^{14}C variations in the oceans are smoothed relative to those in the atmosphere, the inferred approximate atmospheric curve that is obtained by deducting a fixed marine reservoir ^{14}C age from the marine measurements has less century detail than the calibration curve based on tree-ring data. Thus, the calibration of atmospheric samples beyond 10,000 ^{14}C yr is approximate only.

Computerized calibration facilitates age calibration and is discussed in Seattle and Groningen papers. The IBM-compatible computer program, CALIB 3.0, inserted in the back cover, integrates the new data, which can be used for age calibration as well as ^{14}C research. Calibration of decadal and bidecadal atmospheric samples is limited to, respectively, 0–7210 ^{14}C yr BP and 0–18,360 ^{14}C yr BP, whereas the range for marine samples is 460–18,760 ^{14}C yr BP.

To facilitate time-scale calibration by individual researchers, the CALIB 3.0 computer program can be copied freely. A Macintosh version can be obtained from the Quaternary Isotope Laboratory upon request. Proper credit, of course, should be given and the original program should be kept an integral part of this issue. To improve the compatibility of CALIB cal age results with other, existing or future, computerized calibration programs, the use of CALIB data sets is recommended for these programs.

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