

A RADIOCARBON DATE for *BOS PRIMIGENIUS* from CHARTERHOUSE WARREN FARM, MENDIP

by

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ABSTRACT

Radiocarbon age measurement of the *Bos primigenius* remains from Charterhouse Warren Farm, Mendip previously described in this journal (V. 14(1), 1975, p.75) has shown that these date to the Bronze Age and not to the Iron Age or later as at first suggested.

INTRODUCTION

We were most interested to read in this journal (Everton, 1975) of the finding of parts of two skulls and a large number of post-cranial bones of *Bos primigenius* from a cave site at Charterhouse Warren Farm, Blagdon, Somerset, which the author of the report suggested might be as late as the Iron Age or Romano-British period in date. Until now the latest substantiated record of well preserved remains of *Bos primigenius* in Britain is that of a skull and fore part of the skeleton of a bull excavated at Lowe's Farm, Littleport, Cambridgeshire (Shawcross and Higgs, 1961) which has been dated by pollen analysis to Godwin's Zone VIII in the Fenland sequence, that is Early Bronze Age. Besides this specimen there have been a few other finds, consisting of isolated limb bones, from Beaker and Bronze Age sites as for example those from Site IV of Mount Pleasant, Dorset which has a radiocarbon date of 2038 ± 84 bc* (BM-667; *Radiocarbon*, V.18, 1976, p.23) and Snail Down, Wiltshire (Jewell, 1963) which has a date of 1540 ± 90 bc (NPL-141; *Radiocarbon*, V.12, 1970, p.184). Rib bones showing cut marks from peat at Aston Mill, Worcestershire, were dated to 1440 ± 100 bc (Birm-667; *Radiocarbon* V.18, 1976, p.256).

A long term project is being carried out at the British Museum (Natural History) by Juliet Clutton-Brock and Antony Sutcliffe, in collaboration with Richard Burleigh at the Research Laboratory of the British Museum to try to establish authoritative dates for the introduction and extinction of Recent mammals in the British Isles. Accordingly we considered it important to obtain a radiocarbon date for Dr. Everton's

* 'bc' is used here to denote dates in radiocarbon years as distinct from true calendar dates BC.

finds of *Bos primigenius* from the cave at Charterhouse Warren Farm. His reasons for suggesting that they might be so late in date were that although, as is usual with cave sites, the stratigraphical context was unclear, the bones were found in conjunction with Iron Age and Romano-British pottery. Furthermore, on two of the horn cores there were clearly incised cutting marks that could have been made with an iron sword (Everton, 1975, Plate 3).

Due to the kindness of Dr. Everton who was most helpful in supplying us with a sample of *Bos primigenius* bone fragments we have now been able to obtain a radiocarbon date which more closely establishes the age of these remains.

METHODS AND RESULTS

To provide a suitable sample for radiocarbon measurement the proximal end of a left radius weighing 295 grams was completely demineralized with dilute hydrochloric acid in order to separate collagen. This is the most suitable constituent of bone for radiocarbon dating, dates on whole bone being invariably too young due to exchange with more recent carbon in the form of bicarbonate ions in ground water. The organic protein collagen is not subject to this process. In the present case the bone used to provide the dating sample yielded a large quantity of well preserved collagen free from any significant contamination by humic acids. This was converted to benzene for radiocarbon age measurement using the liquid scintillation counting method. References to the more detailed procedures used by the British Museum radiocarbon dating laboratory have been given in a recent datelist in the journal *Radiocarbon* (Burleigh *et al.*, 1976); these are common to most dating laboratories. The radiocarbon date we obtained is given below in radiocarbon years before AD 1950 based on the conventional Libby half-life for carbon-14 of 5570 years, the standard mode of reporting used at the present time.

BM—731. 3245 ± 37 bp (c. 1295 bc)

This date has been corrected for isotopic fractionation ($\delta^{13}\text{C} = -19.3\%$ relative to the PDB Standard — a value well within the range normally expected for bone collagen) so that the error term is based on measurement statistics alone and represents one standard deviation (1 sigma). Corrected for the now well established differences between radiocarbon and calendar years, which of course similarly affect the other dates quoted above, the real age of this *Bos primigenius* would be around 3570 ± 110 BP (1620 ± 110 BC) using, for example, the data of Damon *et al.* (1972) or the MASCA correction tables (Ralph *et al.*, 1973), which fits well with the other Bronze Age finds. Thus, the result contradicts the suggestion that the Charterhouse Warren Farm *Bos* might be of Iron Age or later date. As there are therefore still no confirmed records in Britain for the remains of *Bos primigenius* after the Bronze Age we must continue to surmise that wild cattle failed to

survive beyond the end of this period or at least they were no longer present in large enough numbers for their remains to be revealed as hunters' spoil in the archaeological record.

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