## Channel Tunnel Rail Link London and Continental Railways Oxford Wessex Archaeology Joint Venture

## The radiocarbon dates from Eyhorne Street, Kent

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#### **1** INTRODUCTION

The aims of the radiocarbon programme at Eyhorne Street were:

- to establish the date of an unusual deposit associated with Grooved Ware pottery, and of the pottery itself
- to establish whether the pit in which this deposit was found formed part of a larger group of features
- to establish the chronological relationship between this Grooved Ware activity and that evidenced in other pits associated with Bell Beaker pottery
- to provide evidence for the chronology of some unusual, possibly imported, Iron Age pottery which linked the site to the Champagne region

Strict selection and scrutiny of material was made in an attempt to ensure that all items dated specific events (cf. Allen and Bayliss 1995; Allen *et al.* 2004) and were not just datable items.

Six radiocarbon results were obtained and are presented in Table 1 and Figure 1; all have been calibrated with the atmospheric data presented by Stuiver *et al.* (1998) using OxCal ver. 3.9 (Bronk Ramsey 1995; 2001) and are expressed at the 95% confidence level with the end points rounded outwards to 10 years following the form recommended by Mook (1986).

#### 2 LATE NEOLITHIC AND LATE NEOLITHIC/EARLY BRONZE AGE

#### 2.1 Late Neolithic

An unusual deposit consisting of Grooved Ware sherds, a decorated fired clay object and a charred crab apple was found in a small pit (19) near the centre of the site. It appeared to form part of a group of small pits, only one of which (21), however, could be associated with it on the basis of the presence of further Grooved Ware sherds. Three radiocarbon dates were obtained from this group of pits, two from pit 19 on the charred crab apple and charred residue on a Grooved Ware sherd, and one from charred cereal in pit 70. The aims of the dates were to establishing the date of the unusual deposit and the pottery it contained and to assess whether the pits formed a contemporaneous group.

A further two dates were obtained from charred hazelnut shells recovered from two pits (23 and 60) which lay just 1.5 m apart near the south-eastern end of the site. Both of these pits were associated Beaker pottery and very small quantities of cremated human remains. The aim of these dates was to establish the chronological relationship between the activity represented in these pits and that represented by the Grooved Ware-associated deposits which would then form the basis for a wider consideration of the relationship between the two styles of pottery on the site.

It is assumed that the charred crab apple and the charred residue (PRN 9) from the primary fill of pit 19 were contemporary with the construction or use of the structure. The two results, 4113±30

BP (NZA-20418) and 4044±35 BP (NZA-20417), are statistically indistinguishable at the 95% confidence limit and are contemporary within three generations (ie 75 years; Ward and Wilson 1978).

Garwood's (1999, 152) evaluation of radiocarbon dates associated with Grooved Ware suggested that it was in use in southern England from *c* 2900 cal BC to *c* 2100 cal BC with the Clacton substyle generally falling in the earlier half of this period and the Woodlands substyle falling in the later half, whilst the Durrington Walls substyle spans the entire period. The calibrated dates from Eyhorne Street - 2880-2500 and 2840-2460 cal BC - define only a rather broad range. Resolution and definition within this period is difficult to obtain because of the radiocarbon plateau from about 2800-2600 cal BC. Even with error margins of  $\pm 35$  BP the ranges for each of these is nearly four centuries. Nonetheless, the calibrated results from Eyhorne Street (2880-2500 and 2840-2460 cal BC), including the date on the residue, which is clearly securely associated with the use of the pot, place the pottery from pit 19 firmly in the earlier half of the period, in the same range as most of the dates for the Clacton substyle, as some elements of the pottery would lead us to expect.

The result obtained from the charred cereal grain from the primary fill of nearby pit 70, however, was significantly later - 2410-1980 cal BC (3777±60BP, NZA-12223) and suggest that it belongs to a later phase of activity, closer in date to the Bell Beaker associated deposits to the south.

#### 2.2 Late Neolithic-Early Bronze Age / Beaker pits

Alongside the charred grain from pit 70, two samples of charred hazelnuts from deposits of charred material in the primary fills of pits 23 and 60, both associated with Beaker pottery, were submitted for dating with the aims of establishing the chronological relationship between the Grooved Ware-associated activity and that associated with Bell Beaker pottery.

The three results obtained (Table 1; Fig. 1) were clearly later than the Grooved Wareassociated deposits in pit 19, and, as a whol, occurred some 200-300 to 600-700 years later than Grooved-Ware-associated activity (Figure 1), with a minimum of two centuries between the two groups of events.

Because of the large error of  $\pm$  60 years associated with determination NZ-12233, and the shape of the calibration curve, the date for pit 70 is considerably less precise than the other two dates. The period it spans at two standard deviations - 2460-2030 cal BC - almost covers the first five hundred years of the period (*c* 2500-1700 cal BC; Kinnes *et al.* 1991) in which Beakers were in use. The three dates are, however, statistically indistinguishable at the 95% confidence level and could have occurred within a period of three generations (75 years).



Figure 1. Radiocarbon distributions of the late Neolithic and lateNeolithic/early Bronze Age events

#### **3** IRON AGE CERAMICS

One of the Iron Age pits (226) contained a small, thin-walled conical cup with a solid pedestal base (Form R3). No parallels for this cup have so far been found in England. Comparable examples have, however, been found in La Tène I cemeteries in the Champagne regions (Rozoy 1987, 109). This pit also contained rusticated vessels (eg form R4 ovoid jar in fabric QF1), the dating of which is of regional importance since this surface treatment is highly distinctive and a technique derived from the Continent, but is date of use in Kent is poorly known. Previously published examples are most commonly seen in the period 550-400 cal BC in Britain but the upper date limit for the technique is unknown.

A deposit of charred grain, thought to have been discarded into the uppermost surviving fill of this pit (223) provided the datable material most closely associated with the cup (which was recovered from the primary fill (225). Grains of barley (*Hordeum vulgare*) returned a result of 2295±30 BP (NZA-22594) which calibrates to 410-210 cal BC. The radiocarbon distribution of this result is clearly bimodal suggestion the more likely date is either 410-350 cal BC (64%) or 300-230 cal BC (30%), rather than the central or mid point of this range (Fig. 2).

This result parallels the known date range for these cups on the Continent, and shows that the use of rusticated vessels continued considerably later than previously published examples have suggested (e.g. Macpherson Grant 1991, 41-8).



Figure 2. Radiocarbon distribution of the bimodal result from the upper fill of pit 226

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| Feature | Context | Sample | Context details                  | Material                              | Result no. | $\delta C^{13}$ | Result BP     | cal BC    |
|---------|---------|--------|----------------------------------|---------------------------------------|------------|-----------------|---------------|-----------|
| pit 19  | 18      | 5      | primary fill                     | charred crab apple (Malus sylvestris) | NZA-20417  | -25.5           | 4044±35       | 2840-2460 |
| pit 19  | 18      | PRN 9  | primary fill                     | residue on pot                        | NZA-20418  | -27.6           | 4113±40       | 2880-2500 |
| pit 23  | 22      | 1      | primary fill                     | hazelnut                              | NZA-20419  | -25.4           | $3742 \pm 40$ | 2290-2020 |
| pit 60  | 6       | 3      | primary fill                     | hazelnut                              | NZA-20420  | -25.04          | 3648±35       | 2140-1910 |
| pit 70  | 71      |        | primary fill                     | charred cereal grain                  | NZA-12233  | -25.9           | 3773±60       | 2410-1980 |
| pit 226 | 223     | 35     | Upper-most surviving fill of pit | Hordeum vulgare                       | NZA-22594  | -23.69          | 2295±30       | 400-260   |

Table 1. Radiocarbon results from Eyhorne Street