This is a short notice reporting on the renewal of excavations at the Broom Lower Palaeolithic sites near Axminster on the Devon/Dorset border (Figure 1). This work was begun in September 2000 by a team from the University of Southampton and King Alfred’s College Winchester, and will continue in 2001. The renewal of work at these sites was stimulated by a series of factors:

1. The status of the Broom sites as major non-flint assemblages (Marshall forthcoming). Examination of the existing collections alongside the recovery of new material therefore offered an opportunity to investigate the influence of chert raw material upon artefact morphology and artefact assemblage composition within the British Lower Palaeolithic (MacRae & Moloney 1988).

2. The claims of fresh material in the top of the lower gravels within the Middle Pleistocene sequences at Broom (Reid Moir 1936; Shakesby & Stephens 1984). Excavation and re-investigation of the existing collections offers an opportunity to evaluate whether these ‘fresh’ artefacts are in primary context or show traces of fluvial derivation.

3. The uncertain age of the Broom sequence (Shakesby & Stephens 1984). It is hoped to establish the chronology of these sites within the current oxygen isotope framework.

4. The extreme paucity of Levallois material in the Acheulean biface industry recovered from the Broom gravels during the first half of the 20th century (Wessex Archaeology 1993). The potential chronological significance of this pattern (Bridgland 1994: 440) requires evaluation in terms of possible collection bias.
less material, although a Quaternary Research Association visit during the 1970s produced a handaxe and flakes from the gravel scree and reject dump (Wymer 1977). It is therefore possible that the paucity of material from this site reflects insufficient observation. Chard Junction is the only remaining working pit in the Axe valley.

GEOLOGICAL BACKGROUND

Around Broom the River Axe cuts through Foxmould Chert Beds of Upper Greensand (bands of sandstone and chert up to 35m thick), explaining the vast numbers of chert artefacts recovered from the locality (Wessex Archaeology 1993: 160–161). The chert is a good quality raw material for knapping, in a region where such materials are relatively rare. The only other raw material sources are gravel flint and the chalk outcrop at Beer.

Shakesby & Stephens (1984) concluded that the likely depositional regime at Broom was one of braided streams under cold climate conditions. It is also suggested that the deposits are at least partly fluvioglacial, deriving from an ice margin somewhere to the north of the Chard Gap (Wessex Archaeology 1993: 166). An alternative model suggests that the deposits were largely derived from the remnant gravel patches of pre-Pleistocene age on the interfluves, and from the chert Head deposits on the slopes. Both agencies indicate a different fluviatile regime during the Middle Pleistocene. Stephens (1974) has emphasised the role of the Chard Gap (90m OD, compared to the local interfluves at 230–290m OD) in the origin of the Axe gravels. He argued that a pro-glacial lake may have existed in the Bristol Channel–Severn Valley as a result of ice blocking the western end of the Channel, and that the lake may have discharged southwards through the Gap. This event would have washed masses of rock debris into the Axe Valley, accounting for the thick gravel deposits south of the Gap and their absence along the Axe Valley east of Chard. This model follows Maws’ 1864 view of a Bristol Channel which was once blocked with ice. Green (1974) however has challenged this interpretation, pointing out the total absence of erratics that should have been discharged by the meltwaters of a glacier originating to the north.

During the late 1970s, investigations were undertaken by Professor Stevens and Dr’s Green, Scourse and Shakesby (Shakesby & Stephens 1984; Green 1988). This work confirmed the geological observations of Bean and Reid Moir (1936). It was also concluded from a re-examination of Bean’s records that the fresh palaeoliths were from the top of the ‘flinty’ gravels, beneath polleniferous clays and silts that were clearly interglacial (Wessex Archaeology 1993: 160).
The pollen assemblage in the clays and silts suggested a regional vegetation of boreal forest dominated by pine and birch. The presence of silver birch indicated that the clays and silts might represent the end of the Hoxnian interglacial or an interstadial within the Wolstonian Stage. The sediments did not produce mammalian fauna or molluscs (Wessex Archaeology 1993: 166–167).

**HISTORICAL BACKGROUND**

There has been a long tradition of archaeological and geological research in this region. John Evans made the earliest references to Palaeolithic materials along the Axe Valley (Evans 1872: 559), discussing four palaeoliths found by workmen erecting telegraph poles between Axminster and Chard. In 1878 subsequent discoveries were made in the Hawkchurch Railway Ballast pit (at Broom) by W. S. M. D’Urban (curator of the Exeter Museum at that time). Gravel had been removed to a depth of 12m, only 3m above the current river level, while at other pits the depth of the gravel was recorded as being lower than the river level. D’Urban observed the variety of artefact states present in the assemblage, with materials occurring in both sharp and waterworn condition. Gravels were subsequently exploited at Kilmington, Chard Junction, and in new pits in the Broom area (to the north and south of Holditch Lane), that were worked in the 1930s and 1940s.

The trade in palaeoliths during the late 19th and early 20th centuries is well documented (e.g. Roe 1981), and Broom was no exception. Included here are partial fragments of letters from W. G. Smith to Sir John Evans relating to the price of Broom artefacts (Mark White pers. comm.). The first letter, from Smith to Evans, is undated and includes part of a letter from the Devon and Exeter Museum:

*Brook, Chard.*

I got none of these (they are all rather good) for under 10s/ ea, generally 12s/. The larger specimens cost 16, 18, 20 & 22s — some are the best that have been found.

Of late I have not been able to get any at any price. Same with D’Urban who bought everything — here is a scrap of one of the letters where he says he can get nothing: “High as prices are, the men get better — where I know not”.

The second letter is a fragment of a communication from Worthington Smith to Sir John Evans on the 25th December 1882, regarding the purchase price of the artefacts:

*There are 94 stones — the two hammers not included. The 4 from Broom cost me between 12s/ and £1 ea.*

Pratt’s Pit on the northern side of Holditch Lane (immediately east of the modern railway level crossing) was worked in the 1930s. C. E. Bean FSA (Borough Surveyor for Sherborne) undertook extensive observations while acquiring a collection of at least 899 palaeoliths (Marshall in press). The overwhelming majority of this collection consisted of handaxes with Wessex Archaeology (1993: 163) recording 1804 handaxes, 1 Levallois core and 2 Levallois flakes for the Broom sites. Identification and evaluation of these Levallois artefacts is naturally an important element of the current research.

Bean recorded the exposed stratigraphy in a series of sketches and photographs. Work with Reid Moir (1936) led them to conclude that the deposit was tripartite, with “stratified gravel and old land surfaces” in between ‘cherty’ gravels above and ‘flinty’ gravel below. They argued that fresh palaeoliths were coming from the middle bed and derived palaeoliths from the gravels above and below. In the late 1930s Pratt & Son opened their new pit (part of the current investigation), on the southern side of Holditch Lane.

**CURRENT FIELDWORK**

Work was concentrated in the Railway Ballast Pit during 2000 due to relative ease of access and the more extensive exposed gravel sections (Figure 2) which offered excellent opportunities to address the
critical questions of the depositional environment and chronology at the Broom locality.

The 2000 excavations in the Railway Ballast Pit confirmed the sequence of deposits as described by Reid Moir (1936) and more recently by Shakesby & Stephens (1984). Clays and silts were sandwiched between upper and lower gravels, although this pattern was apparently not continuous throughout the pit. The sequence was exposed in sections 2 and 3 and also evident (although rather less clearly) in section 5. Sections 1 (Figure 2), 4 and 6 at the north end of the pit indicate that the clay and silt deposits are not uniformly present across the site, as no deposits separated the 'upper' and 'lower' gravel. This gravel deposit was a minimum of 8m in thickness (the base of the gravel could not be established due to flooding of section 4). Dr Rob Scaife has undertaken preliminary pollen analyses of clay samples from section 3. No pollen of the type recorded by Scourse (Shakesby & Stephens 1984) has been detected (Scaife pers. comm.), although further sampling and analysis is planned for spring 2001.

Cross-laminations in one of the sand lenses within the clay deposits of section 2 indicated the complex nature of channel flow within the contemporary floodplain (Hosfield & Terry forthcoming). A localised south–north flowing channel was indicated, in contrast to the north–south flow of the modern river Axe. This type of evidence points to the intricacies of floodplain site formation during the Middle Pleistocene and the dynamics of these palaeo-environments.

Lithics were conspicuous by their absence during the 2000 season. Four flakes were recovered, all of highly questionable status (Figure 3). This situation

Figure 2: 2000 Excavations, Section 1, Railway Ballast Pit
was surprising in light of the extensive collections made from the Broom sites over the last 100 years. It was evident from sections 3 and 5 that there has been extensive disturbance of the deposits (Hosfield & Terry forthcoming) - a common problem encountered in the re-excavation of this type of site. An interesting question for evaluation this season concerns whether the locality’s lithic ‘population’ has been predominantly recovered. Recent watching briefs and renewed fieldwork at other Lower Palaeolithic localities such as Dunbridge (Bridgland & Harding 1993; Harding 1998) suggest that such a situation is unlikely. Wessex Archaeology (1993: 163) and local knowledge suggest that the majority of the 20th century finds may have came from Pratt’s New Pit rather than the Railway Ballast Pit. This summer’s fieldwork season will examine those deposits and evaluate existing claims for the stratigraphic origins of the Broom palaeoliths.

Figure 3: Possible flakes (1-4), Railway Ballast Pit, Broom, Devon

ACKNOWLEDGEMENTS

RTH would like to take this opportunity to thank Mr and Mrs Lunt for their generous permission to excavate on their land during September 2000. Thanks also to Dr. Rob Scaife for his work with the clay samples from the site and to Dr. Mark White for drawing RTH’s attention to the communications between W.G. Smith and Sir John Evans. This research was made possible by a Small Research Grant from the British Academy, whose support is gratefully acknowledged. The research was carried out and this paper prepared while RTH was undertaking a British Academy-funded Postdoctoral Research Fellowship.

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Renewed Excavations: Broom Palaeolithic Sites


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