SHORTER CONTRIBUTIONS

FURTHER DISCOVERIES OF LOWER PALAEOLITHIC STONE TOOLS IN THE CROMER FOREST-BED FORMATION AT PAKEFIELD-KESSINGLAND.

by SIMON A. PARFITT[1, 2], ANDREW J. SNELLING[3], ADRIAN A. EVANS[4] & ROGER M. JACOBI[2, 5]

1 Institute of Archaeology, University College London, 31–34 Gordon Square, London WC1H 0PY, e-mail: s.parfitt@ucl.ac.uk

2 Department of Palaeontology, The Natural History Museum, Cromwell Road, London SW7 5BD

3 5 Poppy Close, Hemel Hempstead, HP1 2TJ

4 Lithic Microwear Research Laboratory, Division of Archaeology, Geography and Environmental Sciences, School of Life Sciences, University of Bradford, Bradford BD7 1DP

5 Department of Prehistory and Europe, The British Museum, Franks House, 56 Orsman Road, London N1 5QJ

ARTEFACTS from the Cromer Forest Bed at Pakefield-Kessingland are considered to be the oldest unequivocal evidence for the presence of humans in northern Europe (Parfitt *et al.*, 2005). The finds have significant ramifications for our understanding of the behavioural and environmental context of early humans in Europe as discussed by Roebroeks (2005, 2006) and Stringer (2006). Of particular significance is the fact that the artefacts are associated with an extensive array of exceptionally well preserved fossil remains, which provide an unparalleled window into the ecological context of this expansion of early human populations into northern Europe (Candy et al., 2006; Coope, 2006; Lee et al. 2005; Preece & Parfitt, 2000; Stuart, & Lister, 2001; Stuart, Parfitt & Breda, 2004; West, 1980). This note records the recent discovery of two Palaeolithic artefacts from the Cromer Forest-bed Formation at Pakefield-Kessingland, which provide additional information on raw material use, lithic technology and the distribution of artefacts at the site.

The Forest Bed at Pakefield-Kessingland is exposed at present for a distance of several hundred metres along the foot of the cliff between Lighthouse Gap (Pakefield) and Benacre Ness (Kessingland). The sequence includes a fluvial channel with sandy gravel at its base (the '*Unio*-bed' of Blake, 1877; 1884; 1890) and an overlying sequence of laminated silts and clays. The channel is associated with an extensive buried soil developed in fine-grained sediments, which form the floodplain of a large river (Lee et al., 2005; Rose, 1994). These sediments fill a much larger channel, which although mostly buried beneath the modern beach, has yielded marine molluscs (Reid, 1882), foraminifera and estuarine ostracods indicating that the site was close to the contemporary shoreline (John Whittaker, pers. comm.). Palaeogeographical reconstructions suggest that this river drained the English Midlands during the early Middle Pleistocene, but glacial ice obliterated this major drainage system during the Anglian Cold Stage (c. 450, 000 years ago).

FIG. 140

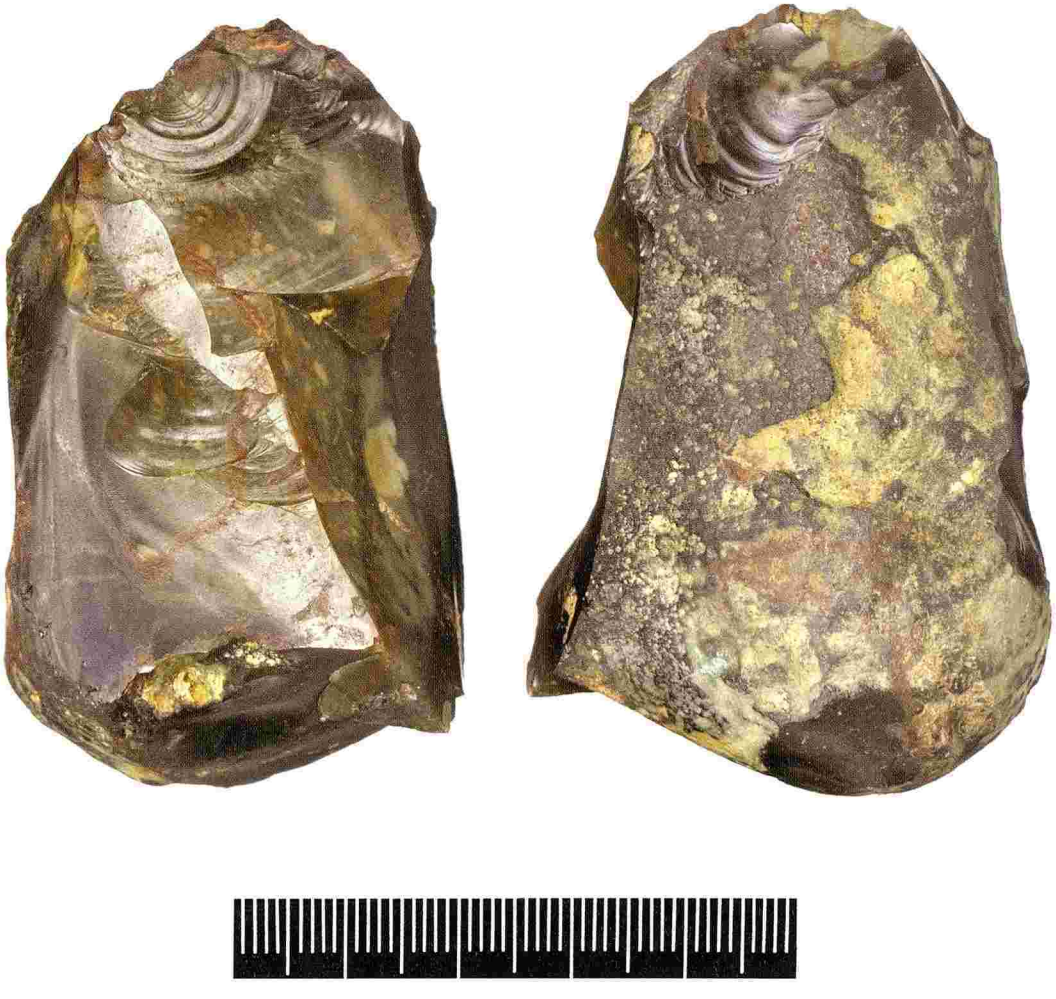

FIG. 141

The first humanly-struck flint from the Forest Bed at Pakefield-Kessingland was recovered by Tim Lawson in 2000, during a visit by the Quaternary Research Association (Lawson & Allen, 2000; Preece & Parfitt, in press). Subsequently, additional flint artefacts were found by a group of local workers (especially Bob Mutch and Paul Durbidge) about 300 m south of the initial site and approximately 470 m south of R.G. West's datum at Lighthouse Gap ('Crazy Mary's Hole', TM 53678868). And in 2003, excavations co-ordinated by the *Ancient Human Occupation of Britain* project recovered several large flakes as well as microdebitage (i.e. small struck flakes and chips) retrieved by fine-mesh sieving. Most of the artefacts come from the '*Unio*-bed', but occasional pieces have been found in the floodplain silts and the underlying estuarine deposits. Microdebitage demonstrates that flint knapping was undertaken at the site and the condition of the cortex suggests that the raw material source was fluviatile gravel, probably collected locally from the banks of the channel. The assemblage is small, consisting of about 30 hard-hammer struck flakes and a core (Parfitt *et al.*, 2005), all indicative of a simple core and flake technology.

The two artefacts, which are the subject of this note, were excavated from '*Unio*-bed' in July and October 2006 by Andrew Snelling. Both pieces were found approximately 10.5 m from the southern edge of the channel at a point where a scatter of stones overlying the 'rootlet bed' develops into a gravel some 5 cm thick. A description and interpretation of the pieces is given below:

PAK. 23 (Fig. 140). Dimensions: 46.5 mm long, 43.2 mm wide, 18.1 mm thick. This is a flake with ancient distal break, perhaps a knapping accident. It has been struck from a core of opaque and mottled grey-black flint. Its large, plain platform has been formed by a previous transverse removal which has travelled across its whole width and by a smaller removal originating from its left hand side. It is obviously unclear whether these removals should be perceived as evidence for deliberate platform preparation or whether they are relict from a phase of knapping when the core was being worked at right angles to the episode during which this flake was produced. There is a single clear point of impact where the flake has been detached from its core and a prominent but compact bulb, with clearly defined rings radiating from the point of impact, leaving no doubt that this is a mechanically struck flake. On the dorsal face there are three principal flake scars. A short, central flake scar is of roughly triangular outline, this outline being due to the convergence of subsequent removals on either side. These do not meet on the surviving portion of the flake, but are separated by a narrow strip of cortex. The central flake scar is only the distal portion of a flake bed, the flake which it represents having been struck from a platform behind the line of that now present. Since it had been removed either platform preparation had taken place or flakes had been removed at right angles to it, the last of these leaving the flake bed which forms the present platform.

The artefact is sharp, but its edges are very slightly nicked. This nicking appears ancient. There is some yellow staining and on its ventral face traces of former rootlets picked out by concreted iron.

PAK. 24 (Fig. 141). Dimensions: 74.5 mm long, 46.8 mm wide, 44.1 mm thick. This is a failed core on a water-worn cobble of glossy grey and black mottled flint. The cobble shows evidence for the preparation of a flaking face and a striking platform with the subsequent removal of two flakes. It has also possibly been used as a hammerstone.

Part of the cortex has been removed by means of flakes struck approximately at right angles to each other and both perpendicular to the long axis of the cobble. The effect would have been to produce a sharp ridge where the flake beds intersected running the length of the cobble. Technically, this would have resembled the cresting applied to cores of later periods. A striking platform has been prepared by the removal of two flakes at one end of the cobble and slightly off-set from the line of the ridge. Two attempts have been made to obtain flakes from this core, both making use of the striking platform. The first flake was slightly off-set from the line of the ridge. It would have been without cortex, but encountered a fault in the flint and ended short with a partial step termination. The second flake would have been wholly cortical. It was short and would have had a feather termination. Both flakes would have possessed only limited cutting edges and been difficult to grasp.

There are a number of small areas of contusions of the cortical area of the cobble, but it is unclear whether these result from its use as a hammerstone or from abrasion when it was in a high-energy environment.

The flaked surfaces are sharp and unstained. There are patches of iron concretion.

DISCUSSION

A fundamental issue in European Lower Palaeolithic archaeology is the behavioural interpretation of the variability in stone tool assemblages, particularly between sites with a simple flake and core technology and those with handaxes (e.g. White, 2000). Explanations for this variability include differences in the type of raw material available and cultural preferences, but specialization of activities requiring different tool types may be an additional factor. The Pakefield-Kessingland assemblage has been assigned tentatively to a 'Flake and Core' or Mode 1 industry. However, it must be noted that the size of the assemblage is still rather small and another possible reason for the absence of more complex tools (i.e. handaxes) is that raw material suitable for their manufacture was not available in close proximity to the site (cf. Parfitt, 2005). Additional investigations may shed light on whether large nodules were available locally and whether handaxes were also made at the site.

Although it might not be feasible to mount a large-scale excavation at Pakefield-Kessingland, important information can still be gleaned from searching exposures, especially after storms have stripped off the modern beach. It is hoped that this note will encourage other collectors to report similar discoveries, which would otherwise be lost to the North Sea.

ACKNOWLEDGMENTS

We are indebted to Phil Crabb (The Natural History Museum, London) for the photographs. S.A.P. and R.M.J's work is made possible by the *Ancient Human Occupation of Britain* project, funded by the Leverhulme Trust.

Figure 140. Flake from the Cromer Forest-bed at Pakefield (scale=50mm). Photographs by Phil Crabb.

Figure 141. Core from the Cromer Forest-bed at Pakefield (scale=50mm). Photographs by Phil Crabb.

REFERENCES

Blake, J.H. 1877. On the age of the mammalian Rootlet Bed at Kessingland. *Geological Magazine* 4, 298-300.

Blake, J.H. 1884. *Horizontal Section 128.* Geological Survey, England and Wales, London.

Blake, J.H. 1890. *The Geology of the Country near Yarmouth and Lowestoft.* Memoir of the Geological Survey of England and Wales.

Candy, I., Rose, J., and Lee, J.R. 2006. A seasonally 'dry' interglacial climate in eastern England during the early Middle Pleistocene: palaeopedological and stable isotopic evidence from Pakefield, UK. *Boreas* 35, 255-265 .

Coope G.R. 2006. Insect faunas associated with Palaeolithic industries from five sites of pre-Anglian age in central England. *Quaternary Science Reviews* 25, 1738-1754.

Lee, J.R., Rose, J. Candy, I., & Barendregt, R. 2005. Sea-level changes, river activity, soil development and glaciation around the western margins of the southern North Sea basin during the Early and early Middle Pleistocene: evidence from Pakefield, Suffolk, UK. *Journal of Quaternary Science* 21, 155-79.

Parfitt, S.A. 2005. A butchered bone from Norfolk: evidence for very early human presence in Britain. *Archaeology International* 8, 14-17.

Parfitt, S.A., Barendregt, R.W., Breda, M., Candy, I., Collins, M.J., Coope, G.R., Durbridge, P., Field, M.H., Lee, J.R., Lister, A.M., Mutch, R., Penkman, K.E.H., Preece, R.C., Rose, J., Stringer, C.B., Symmons, R., Whittaker, J.E., Wymer, J.J. & Stuart, A.J. 2005. The earliest record of human activity in northern Europe. *Nature* 438, 1008-1012.

Preece, R.C. and Parfitt, S.A. 2000. The Cromer Forest-bed Formation: new thoughts on an old problem. In: Lewis, S.G., Preece, R.C., and Whiteman, C.A. (eds.) *The Quaternary of Norfolk and Suffolk. Field guide.* Quaternary Research Association, London. 1-28.

Preece, R.C. and Parfitt, S.A. in press. The Cromer Forest-bed Formation: some recent developments relating to early human occupation and lowland glaciation. Quaternary Research Association, London.

Reid, C. 1882. *The Geology of the Country around Cromer.* Memoirs of the Geological Survey, England and Wales.

Roebroeks, W. 2005. Life on the Costa del Cromer. *Nature*, 438: 921-922.

Roebroeks, W. 2006. The earliest colonisation of Europe: where are we? *Journal of Quaternary Science* 21 (5), 425-435.

Rose, J. 1994. Major river systems of central and southern Britain during the Early and Middle Pleistocene. *Terra Nova* 6, 435-443.
Stuart, A.J. & Lister, A.M. 2001. The mammalian faunas of Pakefield/Kessingland and Corton, Suffolk, U.K.: evidence for a new temperate episode in the British early Middle Pleistocene. Quaternary Science Reviews 20, 1677-1692.
Stuart, A.J., Parfitt, S.A., and Breda, M. 2004. An early Middle Pleistocene mammalian fauna from Pakefield-Kessingland, Suffolk. In: D.C. Schreve (ed.) *The Quaternary Mammals of Southern and Eastern England. Field Guide.* Quaternary Research Association, London. 19-27.
Stringer, C. 2006. *Homo britannicus: the Incredible Story of Human Life in Britain.* Allen Lane/Penguin, London.
West, R.G. 1980. *The pre-glacial Pleistocene of the Norfolk and Suffolk Coasts.* Cambridge University Press, Cambridge.
White, M.J. 2000. The Clactonian question: on the interpretation of Core-and-Flake Industries in the British Lower Palaeolithic. *Journal of World Prehistory* 14: 1-63.