A Final Upper Palaeolithic site at Nea Farm, Somerley, Hampshire (England) and some reflections on the occupation of Britain in the Late Glacial Interstadial

Ein später jungpaläolithischer Fundplatz in Nea Farm, Somerley, Hampshire (England) und einige Überlegungen zur Besiedlung Großbritanniens während des spätglazialen Interstadials

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Abstract - This paper reports on the discovery of a Late Glacial site at Nea Farm, Hampshire in southern England. It is one of only four substantial lithic assemblages with similarities to the Federmessergruppen tradition known from open-air localities in this region. The site consists of a dense flint scatter covering an area of 15 - 20 m² and made up of knapping debris and retouched tools including end-scrapers, burins and curve-backed points. The lack of disturbance is indicated by the very fresh condition of the artefacts and refitting evidence. One interesting feature of Nea Farm is that it is on the same river system as the much larger site of Hengistbury Head and separated from this by a distance of about 26 km. Similarities in the tools and blade technology, in the method of deliberately segmenting blades and even in some of the represented flint types imply that the two sites may have been more or less contemporary. It also highlights the importance of rivers to humans as communication routes in the Late Glacial. The closest continental affinities for the Nea Farm assemblage seem to lie within the older phases of the Federmessergruppen technology, represented by sites such as Conty and Hangest in northern France.

Zusammenfassung - *Die spätglaziale Fundstelle Nea Farm in Hampshire ist einer von vier umfangreichen Steinartefaktkomplexen von Freilandfundstellen in Südengland mit Ähnlichkeiten zur Tradition der Federmessergruppen. Die Fundstelle besteht aus einer dichten Flintstreuung über ein Areal von 15 - 20 m² mit Schlagabfällen und retuschierten Werkzeugen wie Kratzern, Sticheln und Spitzen mit geschwungenem Rücken. Der sehr frische Zustand der Artefakte und Zusammensetzungen weisen auf ungestörte Fundzusammenhänge hin. Nea Farm liegt in einer Entfernung von ca. 26 km am selben Flusssystem wie die viel größere Fundstelle von Hengistbury Head. Ähnlichkeiten bei der Werkzeug- und Klingentechnologie, bei der Methode der absichtlichen Segmentierung von Klingen und sogar bei einigen der vertretenen Flinttypen legen eine ungefähre Zeitgleichheit der beiden Fundstellen nahe. Dieser Umstand hebt die Wichtigkeit von Flüssen als Kommunikationswege für die Menschen des Spätglazials hervor. Die größten Übereinstimmungen zum Nea Farm-Inventar auf dem Kontinent liegen in der Technologie der älteren Phasen der Federmessergruppen, wie sie in den nordfranzösischen Fundstellen Conty und Hangest repräsentiert ist.*

Keywords - Late Glacial, open-air, Final Upper Palaeolithic, Federmessergruppen, intentional break
Spätglazial, Freiland, Endpaläolithikum, Federmessergruppen, intentionaler Bruch

Introduction

The record of human occupation in Britain is relatively well understood for the earlier part of the Late Glacial Interstadial (the Bølling chronozone: Mangerud et al. 1974, ~13 000 – 12 000 radiocarbon years BP). This phase is characterized by Late Upper Palaeolithic assemblages of Creswellian type (Garrod 1926; Jacobi 1991; Jacobi & Roberts 1992; Barton & Roberts 1996), for which there now exists a considerable number of associated AMS radiocarbon determinations on

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modified bone and antler (Housley 1991; Barton et al. 2003; Jacobi 2004) as well as on directly dated human bone (Barton et al. 2003; Blockley 2005). Less apparent, however, is the basis for interpreting human activity in the second half of the Late Glacial Interstadial, commonly referred to as the Windermere Interstadial (or the Allerød Interstadial of the European mainland: Iversen 1954; Mangerud et al. 1974), spanning the period of approximately 12 000 – 11 000 radiocarbon years BP. Apart from a current paucity of well-dated sites, comparatively few large lithic assemblages have been identified or published for this period. Most of the existing examples are either from unstratified open-air find spots or consist of relatively restricted lithic assemblages from caves and rock shelters (Barton & Roberts 1996). A notable exception is the open-air site of Hengistbury Head (Mace 1959; Campbell 1977; Barton 1992) from which over 16 000 lithic artefacts have been recovered, though the suspicion that it represents more than one phase of Upper Palaeolithic occupation has never been entirely discounted (Barton & Roberts 2002).

Since the discoveries of Hengistbury Head and the site of Brockhill in Surrey (Smith 1924; Barton 1992) two further significant open-air sites have now been uncovered, both in Hampshire, which shed fresh light on the nature of occupation during the second part of the Interstadial. One of them, La Sagesse Convent, was excavated in 2001 and has recently been published (Conneller & Ellis 2007). The excavators concluded that it was principally a knapping location with some tool-related activity (Conneller & Ellis 2007, 214-216). The second site, Nea Farm, is the subject of this paper. It was discovered in 2000 during exploratory excavation in advance of gravel quarrying and revealed a major scatter of flint artefacts. The relatively high proportion of retouched tools to waste and the presence of imported flint implements suggest subtle differences to La Sagesse as well as to the much larger site of Hengistbury. What follows is a presentation of the results of excavations at Nea Farm, including studies of the lithic artefacts, the palaeoenvironmental and chronological background and a discussion of comparative aspects of the site from regional and broader European perspectives.

Site location and excavations

The site at Nea Farm, Somerley, lies 6 km northwest of Ringwood, in Hampshire, on the eastern margin of Ringwood Forest in southern England (Fig. 1). It occupies a more or less flat terrace of the River Avon, identified as the Middle Pleistocene Terrace 7 of the regional sequence (Kubala 1980). The site lies approximately 1 km to the west of the main river and about 500 m from the terrace edge, where the ground drops away sharply to the main floodplain below. The site is at an altitude of ~ 47 - 48 m AOD. The only other local feature is a small tributary valley of the Avon

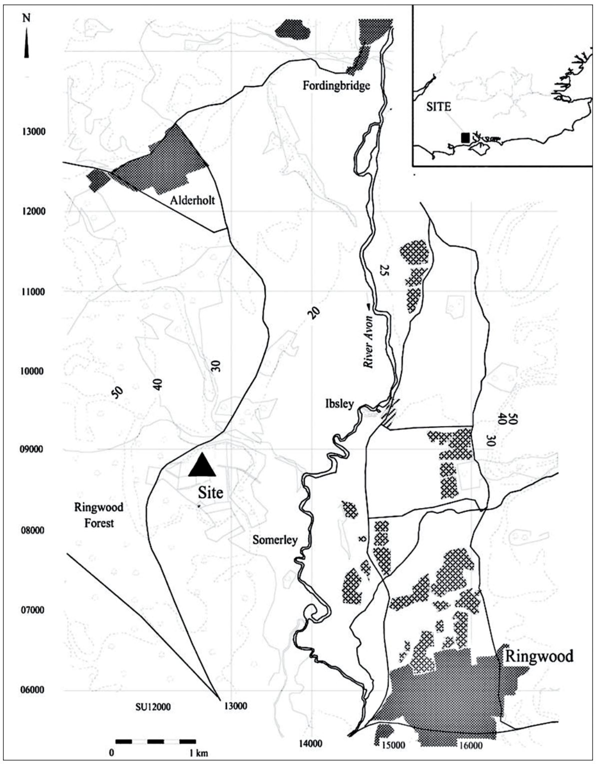

Fig. 1. Location of Nea Farm, Somerley (see also Fig. 26).

Abb. 1. *Lage der Fundstelle Nea Farm, Somerley (vgl. Abb. 26).*

300 m to the north of the site.

The Palaeolithic site was discovered during archaeological assessment work in advance of commercial quarrying operations. Earlier evaluation work in the area had identified a series of dispersed Mesolithic flint scatters, a Roman building and boundary features of Roman and medieval origin (Ford 1992; Ford & Hall 1993; Weaver 1995; Smith 1996). In 2000, during a subsequent phase of assessment, the Upper Palaeolithic flint scatter came to light during machine stripping of the plough soil (Ford 2001a, 2001b). Work was immediately halted and a detailed excavation of the remainder of the scatter was undertaken (Fig. 2). Time was also allowed by the quarry owners for investigating areas immediately adjacent to the main scatter by means of test-pitting (see Anthony 2002 for the methodology). No further scatters or finds of Upper Palaeolithic type were revealed, nor were any recognized in a further watching brief of topsoil stripping near the eastern end of the quarry. As a result it was possible to define the whole of the scatter, which consisted of 1 609 artefacts and covered an area of approximately 15 - 20 m^2.

Excavation was undertaken by hand trowel in grid squares of 50 x 50 cm. As no clear stratigraphic boundaries were visible, the sediments were removed in nominal 20 mm spits. Finds greater than 20 mm maximum length were given 3D coordinates and digitally recorded by Electronic Distance Meter. Smaller finds such as flint chips were recorded by 50 x 50 cm grid square and spit. In addition the orientation and angle of dip were recorded for the

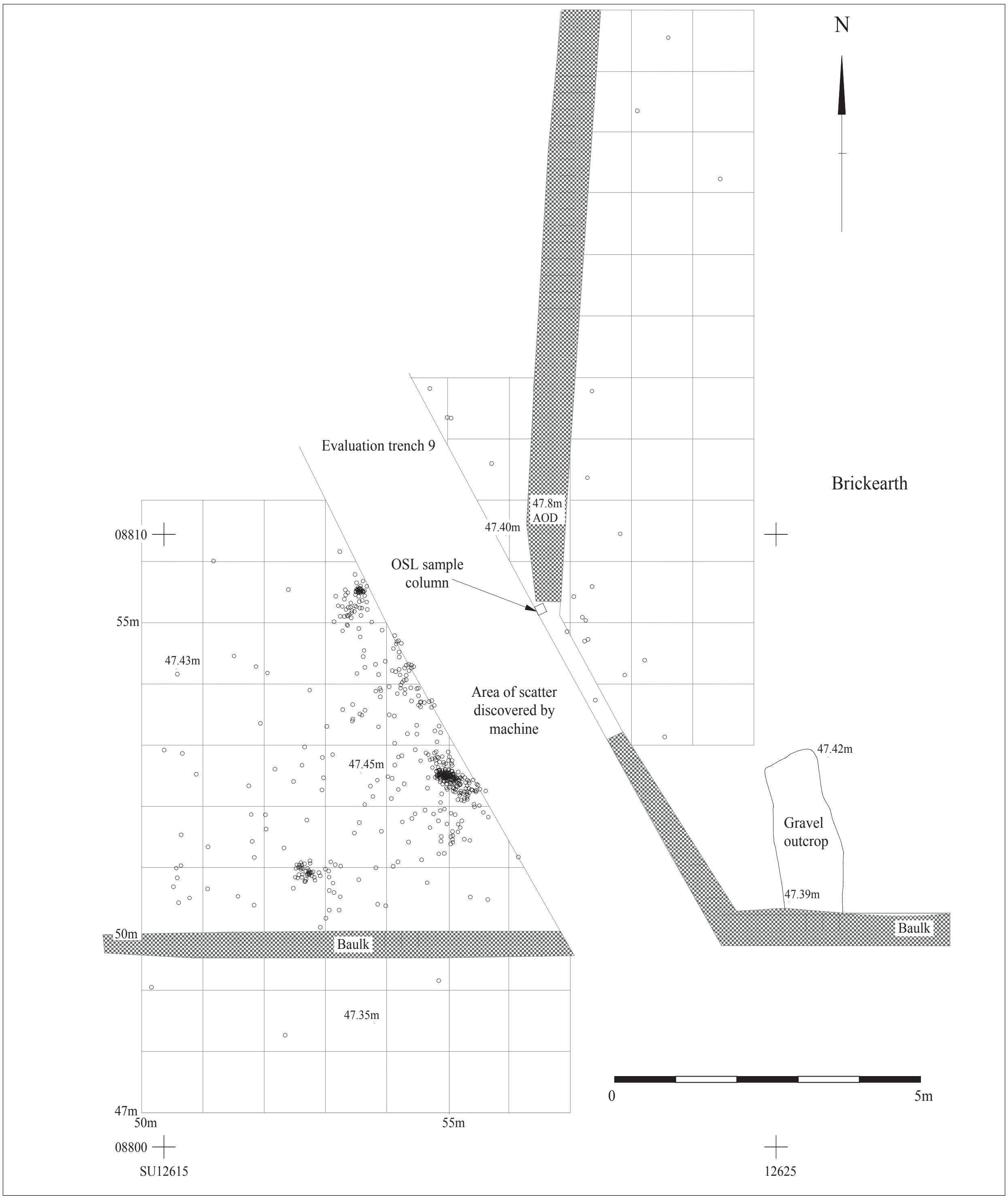

Fig. 2. Distribution of all struck flint. Unexcavated baulks are indicated by the grey stippled areas and the machine trench is clearly visible cutting NW/SE through the main scatter.

Abb. 2. *Verteilung des geschlagenen Flint. Nicht gegrabene Abschnitte sind grau unterlegt. Der Baggergraben verläuft gut sichtbar von NW nach SO durch die Hauptfundstreuung.*

longer artefacts, whilst the lateral inclination was also noted in simplified form (i.e. 'flat', 'sloping' or 'on edge'). Where the artefacts formed denser clusters they were photographed before lifting (Fig. 3). The spoil from each 50 x 50 cm spit was wet sieved through a 2 mm mesh, and a one litre sample from each square metre was sieved through a 0.75 mm mesh. Several sub-samples were also taken for phosphate and magnetic susceptibility analyses. Apart from the Upper Palaeolithic finds, excavation and sieving of the original evaluation trench spoil recovered small amounts of prehistoric, Roman and medieval potsherds (47 sherds) as well as 22 post-Palaeolithic flakes of flint and one of chert.

Fig. 3. Site under excavation. Scale in 10 cm. Note a rectangular concentration of blade and flake debitage in a 'box-like' configuration, west of the small scale bar. This small grouping of flints is unusual, especially in the alignment and the high angles of the lithics. It could mark the remains of an artificial container. A modern digger track can be seen at the top of the picture.

Abb. 3. *Nea Farm während der Ausgrabung. Maßstab 10 cm. Beachtenswert ist die rechteckige Konzentration von Klingen- und Abschlaggrundproduktion in einer „kastenähnlichen" Anordnung westlich vom kleinen Maßstab. Diese kleine Ansammlung von Steingeräten ist ungewöhnlich insbesondere durch ihre Ausrichtung und die scharfen Ecken. Es könnte sich hierbei um die Reste eines künstlichen Behältnisses handeln. Am oberen Bildrand sind moderne Grabungsspuren zu erkennen.*

Sediments, soil history and micromorphology

The flint artefacts formed a well-defined band at a depth of about 40 cm beneath the present surface (Fig. 4). They were stratified near the top of a sequence of sandy loams and clays that lies above fluvial terrace gravels. Although much of the sequence is indicative of alluvial activity (probably long pre-dating the archaeological presence), it is interesting to note that the upper loams and clays show high proportions of silt (mean 42%, n = 5) and fine sand (mean 24%) that imply a significant contribution of sediments of loessic windblown origin.

The soil profile is described in Fig. 5. The uppermost Ah/Ap and BW horizons are those of a typical modern (Holocene) soil of paleo-argillic brown earth type (Sonning 1 soil association; Findlay et al. 1983; 1984). Beneath this can be observed fragipan-like horizons (2B(t)/C(t) and 3B(t)/C(t)), which are probably the remains of a Late Pleistocene palaeosol. The flint scatter occupies a 10 - 15 cm band within the 2B(t)/C(t) horizon.

The open porosity of the modern soil is observable down to 430 mm (Fig. 5), and is characterised by rare very thin (20 µm) dusty clay coatings that are likely to be a result of recent soil disturbance from agricul-

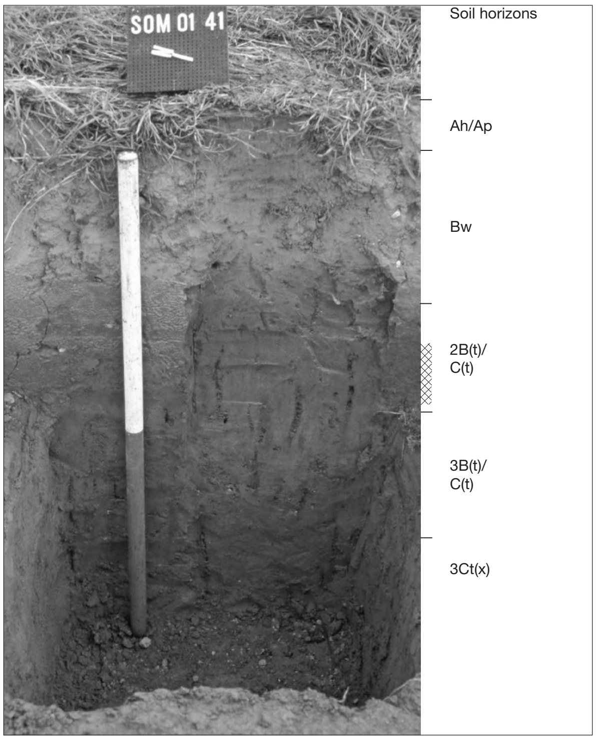

Fig. 4. Section through sediments indicating main artefact horizon (hatched) and soil horizons.

Abb. 4. *Sedimentprofil mit Hauptfundhorizont (schraffiert) und Bodenhorizonten.*

Depth	Soil Horizon	Soils and Sediments
0 - 100 mm	Ah / Ap	Very dark greyish brown (10YR3/3) fine sand with coarse clods; clear horizontal boundary.
100 - 330 mm	Bw	Dark yellowish brown (10YR4/4) fine loamy sand, with weakly formed coarse prisms; gradual horizontal boundary.
330 - 530 mm (Artefacts at 400 - 500 mm)	2B(t) / C(t)	Dark yellowish brown (10YR3/6) fine loamy sand, with common diffuse mottles and few coarse (5-7 mm) earthworm and root channels; weakly formed coarse prisms; very abundant artefacts; gradual horizontal boundary. MMNea 1 (390-470 mm); MMNea 2, MMNea 3 and bulk sample 3a from same horizon but NE face of evaluation trench. MMNea 4 from SW face of evaluation trench
530 - 780 mm	3B(t) / C(t)	Mottled strong brown (10YR4/6 and 10YR5/6) silty fine loam, with weakly formed coarse prisms and relic likely traces of cryoturbation; gradual irregular boundary.
780 - 970 mm	3Ct(x)	Strong brown (10YR4/6) medium sands with sub-lamina structure and evidence of relic bedding and weak cryoturbation.

Fig. 5. Summary soil profile description (Section 0141).

Abb. 5. *Zusammenfassung der Bodenprofilbeschreibung (Abschnitt 0141).*

ture or historical landscaping activities. One of the fragipan-like horizons (2B(t)/C(t)) displays only trace to rare (<2%) amounts of clay coatings (textural pedofeatures), probably partly due to clay translocation under woodland during the Holocene.

More generally, the fragipan-like horizons are best explained by periglacial processes acting upon a Late Pleistocene soil. In thin section the remains of a weakly formed laminated/lenticular microfabric is visible in the form of up to 5 mm thick elutriated (washed) fine sandy- and narrower (0.6 mm thick) clay-enriched laminae in the 2B(t)/C(t) horizon (thin section MMNea 2, Fig. 5). The soil is also compact in places with thin horizontal fissures. These features imply the past presence of frost lensing, freezing and thawing (Van Vliet-Lanoë 1985). Similar phenomena have been observed in upland northern Britain (Avery 1990, 106; Romans & Robertson 1974) but so far only very rarely in southern regions (Macphail 1992). Significantly one of the few locations where this has been recorded in the south is at the Late Upper Palaeolithic site of Hengistbury Head, Dorset (Macphail ibid.). The dark brown colour of the clay-enriched laminae in the 2B(t)/C(t) horizon is suggestive of staining by humic acids originating from a contemporary (Late Glacial) vegetation cover (Federoff et al. 1990). It can also be shown that some of the compact soil of the fragipan-like horizon is characterised by fine channels that could imply rooting by herbaceous plants during the Late Pleistocene. The presence of phytoliths, probably of grasses, in the same horizon is consistent with this suggestion.

Soil micromorphology (microfabric description and semi-quantitative analysis) and bulk analyses (grain size, LOI, P and magnetic susceptibility) were carried out selectively on four thin sections and five bulk samples, in order to identify site formation processes and to provide further contextual information for interpreting the nature and dating of the occupation. Details of the methodology have been published in previous studies (Crowther 1997, 2003; Courty et al. 1989; Lewis et al. 1992; Macphail & Cruise 2000).

The top of thin section MMNea 3 (Fig. 5) and bulk sample 3a covered the narrow band of flint artefacts. At the top of MMNea 3, there is a high concentration of phosphate-P and this may reflect former bone concentrations in the occupation horizon. Magnetic susceptibility measurements on the same sediments provided no evidence of the use of fire at Nea Farm, but this is hardly surprising given the absence of formal hearth structures and the comparatively low incidence of burnt flints. The presence of some burned fine mineral (whitish sand sized flint) in section could be explained by downward migration via earthworm and rootlet activity. Some of the iron currently in the soil (fragipan) may be of a Holocene pedogenic origin, thus post-dating the Late Upper Palaeolithic occupation. In terms of the position of the flint assemblage, only one gravel-size flint flake was recorded directly in thin-section (MMNea 1). It was located at the junction of the biologically-worked Holocene soil and the more compact fragipan-like lower subsoil. The absence of dusty clay coating on the piece implies that it is not absolutely in situ and has probably been reworked in a Pleistocene soil. This observation of some mixing is also supported by the occurrence of small clasts with finely dusted (papule-like) clay in the same horizon, probably relict features of the soil. Lithic artefacts occasionally found in the uppermost part of the fragipan-like layer (MMNea 2 - 4) may have been moved from their original positions by biological activity. It should also be noted that signs of deep ploughing tracks, caused by a mechanical 'mole' digger, were visible at the time of excavation and partly truncated the main find horizon. These tracks were carefully avoided in all of the specialised sampling but could account for some localised artefact displacement without resulting in bulk disturbance. However it is unlikely that natural processes could explain the concentration of artefacts of many different shapes and sizes in a single narrow band and the horizontal integrity of the scatter is further underlined by the refitting evidence (see below). In sum, on the evidence presented here, we believe that the site was buried quite rapidly soon after it was abandoned.

Luminescence dating studies

Four of five sediment samples collected for optically stimulated luminescence (OSL) dating formed a vertical column in the south-west face of the evaluation trench (the same section as monolith sample MMNea 4, Fig. 5). The fifth sample (NF01-05, X844, OxL-1311) was obtained from sediment surrounding the main flint scatter, and immediately adjacent to monolith sample MMNea 3. Two burnt flints from the main flint scatter were also taken for thermoluminescence dating. Results are presented below (Figs. 6 & 7).

For all of the Optically Stimulated Luminescence (OSL) samples, low infra-red stimulated luminescence (IRSL) values were observed, suggesting good quartz separation was achieved. A high degree of variability between aliquots was observed for the samples. In the case of samples X841 and X842, this was extreme and in the form of younger outlying points. It strongly suggests that younger grains have been introduced into the sample, probably by bioturbation, either by animal burrowing or root activity. Introduced grains probably originated in directly overlying horizons, although it is also possible that grains were transported directly from the surface. For sample X842, a very clear grouping of the highest dose (corresponding to oldest age) 8 of the 12 aliquots measured is observed, seen as a well-defined peak in the cumulative probability distribution of D_e at around 30 Gy. In this case the presented age estimate is based solely on the 8 tightly grouped values. This effect of mixed dose distributions, caused by the introduction of grains with different dose values, was considered in detail by Rhodes (2007). Using numerical simulations of multiple grain aliquots, based on measured single grain sensitivity distributions, Rhodes demonstrated that the interpretation of such distributions is potentially ambiguous. Where tightly grouped dose values for the majority of aliquots define a dose value (as for sample X842), this value may correspond to the depositional age of the sediment, but for less clear cut distributions (such as that of X841), the apparent age estimates must be treated with a high degree of caution.

The OSL samples that relate most closely to the archaeological material, X841 and X844, have mixed dose distributions. In both cases there are lower dose

Field code & location	Lab. code	Depth below surface (mm)	De (Gy)	Dose rate (mGy/a)	Age estimate code	Age (years before 2000 AD)
NF01-01	X840	350	4.12 ± 0.19	1.54 ± 0.08	OxL-1307	2 670 ± 180
NF01-02	X841	570	16.4 ± 1.2	1.91 ± 0.08	OxL-1308	8 590 ± 710
NF01-03	X842	780	29.8 ± 0.8	1.86 ± 0.07	OxL-1309	16 000 ± 730
NF01-04	X843	990	23.4 ± 0.7	1.20 ± 0.04	OxL-1310	19 400 ± 910
NF01-05	X844	350	11.7 ± 0.6	1.75 ± 0.08	OxL-1311	6 670 ± 460

Fig. 6. Optically Stimulated Luminescence (OSL) dating results for sediment samples. The results are based on OSL of sand-sized quartz grains. The samples were measured using a Single Aliquot Regenerative-Dose (SAR) protocol (Murray & Wintle 2000, 2003). Gamma dose rates were measured in situ and beta dose rate values were calculated using Neutron Activation Analysis (NAA). A value of 10 ± 5% water content was assumed for all samples.

Abb. 6. *Ergebnisse der OSL-Datierungen der Sedimentproben, die auf der optisch stimulierten Lumineszenz von sandkorngroßen Quarzkörnern beruhen. Bei der Messung der Proben wurde ein SAR (Single Aliquot Regenerative-Dose)-Protokoll (Murray & Wintle 2000, 2003) verwendet. Die Gamma-Dosisleistung wurde in situ gemessen, die Beta-Dosisleistung wurde mithilfe der Neutronenaktivierungsanalyse (NAA) berechnet. Für alle Proben wurde ein Wassergehalt von 10 ± 5% angenommen.*

Field code & location	Lab. code	Depth below surface (mm)	De (Gy)	Dose rate (mGy/a)	Age estimate code	Age (years before 2000 AD)
FLT533	X972	350	8.4 ± 1.3	0.91 ± 0.09	OxL-1312	9 300 ± 1 700
FLT173	X973	350	4.9 ± 0.8	0.93 ± 0.08	OxL-1313	5 300 ± 950

Fig. 7. Thermoluminescence (TL) dating results for burnt flint samples. The results are based on combined additive and regenerative dose TL. Gamma dose rates were measured in situ and beta dose rate values were calculated using NAA. An internal value of 1 ± 1% water content was assumed for both samples.

Abb. 7. *Ergebnisse der Thermolumineszenz (TL)-Datierung der gebrannten Flintproben. Die Ergebnisse basieren auf einer Kombination der TL additiver und regenerativer Dosen. Die Gamma-Dosisleistung wurde in situ gemessen, die Beta-Dosisleistung wurde mithilfe der NAA berechnet. Für beide Proben wurde ein interner Wert für den Wassergehalt von 1 ± 1% angenommen.*

Description	Total	
Debitage & cores	1,548	(22)
Retouched tools	52	(1)
Utilized pieces	5	
Retouched tool debitage	4	
Combined total	1,609	

Fig. 8. Total number of Final Upper Palaeolithic flint artefacts from Nea Farm. In brackets are post-Palaeolithic flints.

Abb. 8. *Gesamtzahl der endpaläolithischen Flintartefakte von Nea Farm. Postpaläolithische Steingeräte stehen in Klammern.*

value aliquots, which have been omitted for these age calculations, but there is not a single well-defined peak in either D_e distribution. The ages represented by the highest dose aliquots of X841 and X844 are 11 300 years and 8 400 years respectively. However, if every aliquot contains some admixed grains, every one will provide an age underestimate (Rhodes 2007). In our view therefore, with the possible exception of X843 (the lowest sample) all of the sediment OSL dates should be treated as minimum age estimates. This situation might be resolvable for these samples by using single grain measurements in the future.

Good linearity of the thermoluminescence (TL) response was observed for both burnt flint samples. Sample X972 displayed virtually no sensitivity change between additive and regenerative dose measurements, while sample X973 underwent an increase of around 35%. Differences in sensitivity change between individual samples are common, and are not considered to be of any particular significance. The ages determined are appreciably lower than to be expected from the nature of the archaeology and the two TL dates are also significantly different from each other.

Description of the lithic assemblage

Classification of the assemblage follows the same methodology as that employed for the analysis of the Hengistbury collections (Barton 1992). Descriptions of the tools follow the typological conventions established by de Sonneville-Bordes (1963) and by Demars & Laurent (1989) with some modifications (Barton 1992). A small number of artefacts that show utilisation damage or are by-products of making or resharpening tools is listed separately (Fig. 8).

Utilised raw material

The knapped raw material consists of translucent grey-black flint with a buff-coloured cortex, similar to the Cretaceous Chalk flint that outcrops five or six kilometres north of the site at Fordingbridge (Fig. 1). More immediate sources are available in the flood-plain gravels of the River Avon but this material tends to occur as small cobbles with internal fissures, making them less suitable for flaking purposes, and they were not noticeably exploited by the Upper Palaeolithic knappers.

The artefacts in the assemblage are generally in fresh, unabraded condition, with only light surface patination. Despite the general uniformity of raw material it is nonetheless possible to recognise variation in terms of flint colour and internal texture (coarser inclusions). One of the potential sub-groups comprises five artefacts in a distinctively striped flint (Fig. 9). They are all on blades or portions of blades

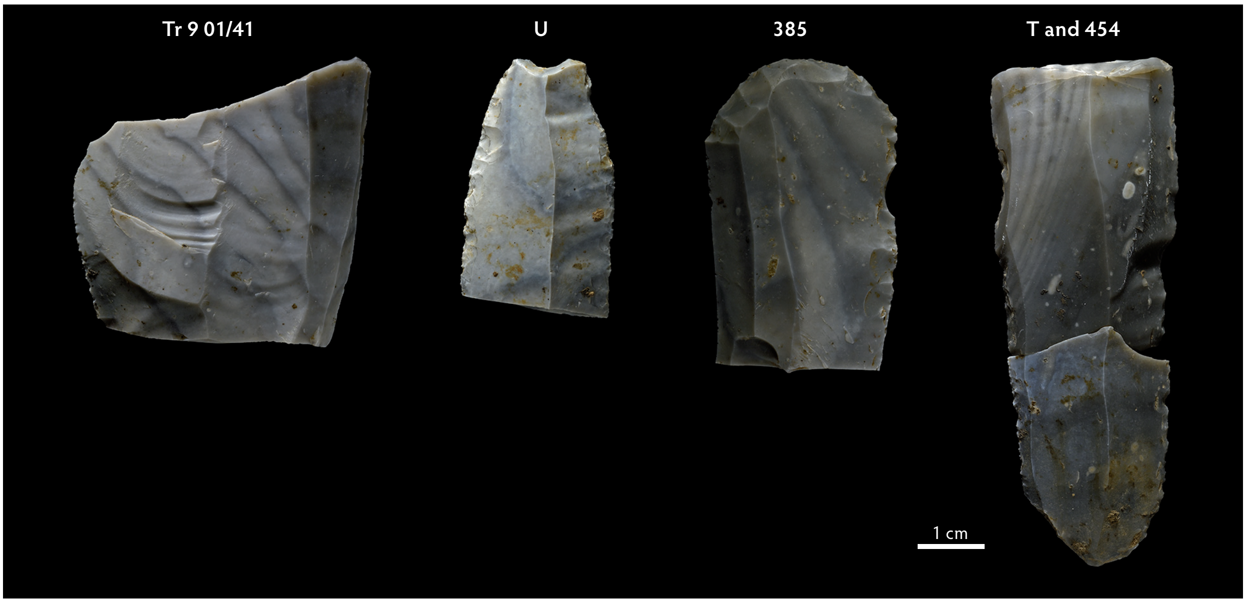

Fig. 9. Striped flint. Left to right: Tr 9 01/41 - retouched broken flake; U - truncated blade; 385 -end-scraper; T and 454 - refitting blade segments.

Abb. 9. *Gestreifter Flint. Von links: Tr 9 01/41 – gebrochener Abschlag mit Retusche; U – Klinge mit Endretusche; 385 - Kratzer; T and 454 – Zusammensetzung von Klingensegmenten.*

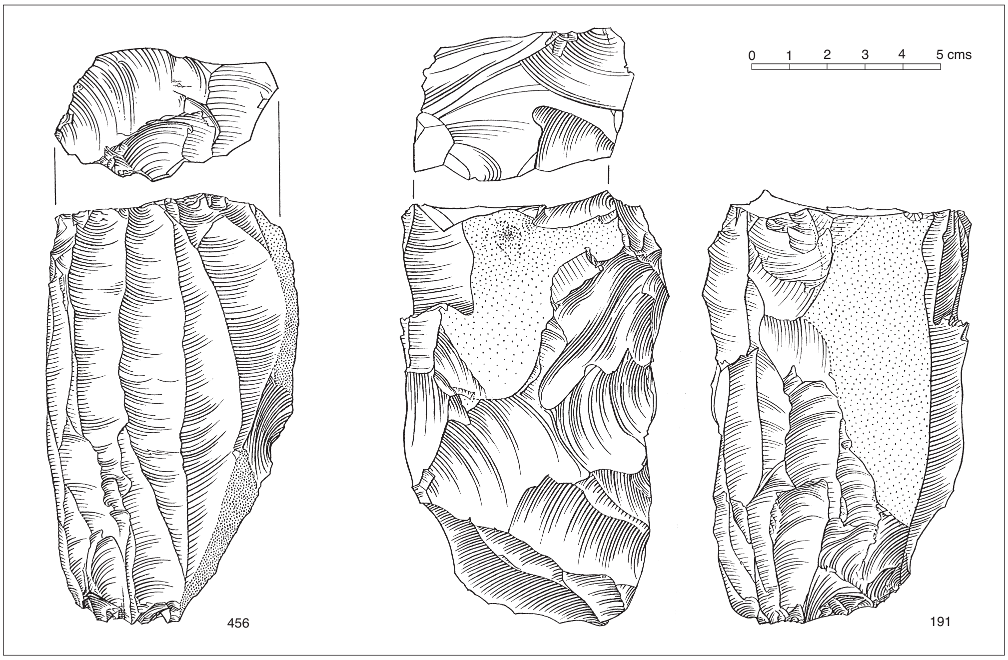

Fig .11. Opposed platform blade cores. 191 refits to a second blade core (see Fig. 19) (½ nat. size).

Abb .11. *Klingenkerne mit gegenüberliegender Schlagfläche. 191 lässt sich mit einem zweiten Klingenkern zusammensetzen (siehe Abb. 19).*

and, interestingly, three have been secondarily modified into an end-scraper, a truncation and an intentionally broken blade. There are no connecting refits but it is highly probable they are from the same *chaîne opératoire*. A second distinctive material is a speckled grey flint with tiny white flecks or inclusions, blades and flakes of which could be refitted (see Refit Group 2). Neither of these sources has been specifically identified but it is likely, based on exterior cortical features, that the speckled flint comes from the Fordingbridge area.

A minor admixture of post-Palaeolithic lithics is represented by artefacts of very poor quality material with heavily brown-stained surfaces. They include a small number of hard hammer struck flakes (17), shatter (2), a hammerstone (1), tiny multi-platform cores (2) and a retouched piece all of which would fit comfortably within a Bronze Age assemblage (cf. Barton 1992, Fig 5.6). A few small fragments of degraded coarse pottery were also found, which tends to confirm this classification and implies there were no gross intrusions of later material into the Upper Palaeolithic horizon.

Principal technological characteristics of the debitage

The nodules used for knapping are elongate in shape and generally no more than 112 mm long, though in

Debitage types	Total (excavation)	Total (surface and disturbed)	Combined Totals
Flakes	357	240	597
Blades	145	177	322
Bladelets	31	47	78
Chips	416	42	458
Shatter	15	16	31
Blade core, opposed platform	1	3	4
Blade core, one platform	2	1	3
Crested blades, bidirectional	1	1	2
Crested blades, unidirectional	7	9	16
Crested flakes, unidirectional	6	7	13
Core tablets	12	11	23
Flancs de nucleus	1	0	1

Fig. 10. Nea Farm, Debitage assemblage.

Abb. 10. *Nea Farm, Grundformproduktion.*

Attributes recorded	Flakes	%	Blades	%
Butt type (F=141; B=95)				
faceted	3	*2.1*	4	*4.2*
dihedral faceted	9	*6.4*	8	*8.4*
linear	11	*7.8*	3	*3.1*
plain	116	*82.2*	71	*74.7*
punctiform	2	*1.4*	9	*9.5*
Butt abrasion (F =127; B=97)	43	*33.8*	79	*76.6*
Flaking mode (F =108; B=94)				
hard hammer	18	*16.6*	0	*0*
soft organic	18	*16.6*	36	*38.2*
soft stone	44	*40.7*	44	*46.8*
soft undifferentiated	28	*25.9*	14	*14.8*
Dorsal scar pattern (F =200; B=158)				
bidirectional	18	*9*	42	*26.6*
unidirectional	96	*48*	97	*61.4*
crossed	65	*32.5*	19	*12*
transversal	21	*10.5*	0	*0*
Cortication (F=285)				
0%	160	*56.1*	0	*0*
1-40%	73	*25.6*	0	*0*
41-89%	33	*11.6*	0	*0*
90-100%	19	*6.6*	0	*0*
Profile (B=81)				
straight			49	*60.5*
curved			30	*37*
twisted			2	*2.5*
Burnt (F =285; B=322)	4	*1.4*	8	*2.5*

Fig. 12. Flake (F) and blade (B) attributes.
Abb. 12. *Abschlag- und Klingenmerkmale.*

one case a raw block of 218 mm in total length was recorded.

Most of the stages in the *chaîne opératoire* are represented in the assemblage, from initial core preparation to the production of retouched tools. The fact that knapping was a major activity is indicated by the presence of typical knapping debris, including many discarded blades and flakes with flexional breaks and *languette* fractures (Bordes 1970), and by the direct evidence of blades that could be refitted to cores (see below). Perhaps the only knapping stage minimally represented is the preliminary roughing out of nodules, as indicated by the very low presence of totally cortical flakes (6.6%). This stage may have taken place elsewhere, possibly nearer the source of raw material.

The debitage is clearly oriented towards the production of blades (Fig. 10). The preferred blade length is mainly in the size range 80 - 120 mm with many of these blades displaying a straight profile. The longest blade measured 145 mm. A further estimate of desired length can be gained by considering the dimensions of negative flake scars on blade cores (Fig. 11). A study of these reveals that the point at which blade production ceased rarely fell below

Tool type	Total (excavated)	Total (surface)	Combined Total	*Combined % of tools*
End-scrapers	6	10	16	*30.7*
End-scraper on flake	3	2		
End-scraper on blade	3	5		
Double end-scraper		1		
Broken end-scraper		2		
Piercers/*becs*	1	4	5	*9.6*
Burins	2	1	3	*5.7*
Retouched truncations	3	2	5	*9.6*
Curve-backed blades	-	2	2	*3.8*
Retouched flakes	2	3	5	*9.6*
Retouched blades	9	2	11	*21.1*
Intentionally broken blades	1	4	5	*9.5*
Total retouched tools	**24**	**28**	**52**	*99.6*
Edge damage & utilisation				
Rubbed end	2	2	4	
Macroscopic damage	0	1	1	

Fig. 13. Retouched tool types.
Abb. 13. *Retuschierte Werkzeugtypen.*

60 - 70 mm. The moderately high percentage of bladelets (width < 12 mm) is probably linked to the method of abrading the core edge rather than deliberate production. Similar by-products have been observed to occur accidentally during knapping experiments (RNEB) and there are no bladelet cores in the assemblage.

The methods of core reduction are fairly uniform. Although the natural convexity of the nodules may have enabled blades to be detached without much prior preparation, the more usual method involved the production of an anterior crest, as indicated by refits and the presence of crested blades (Fig. 10). Four out of the seven blade cores exhibit opposed platforms; one is a single platform example with refitting plunging blades. Refitting sequences and the analysis of blade scar pattern show how one platform was often dominant, with removals in the opposite direction generally used in order to correct the shape of the main flaking face (Fig. 11: 456). The progression of debitage was generally frontal or involved continuing removals down the side (*semi-tournante*). Rejuvenation of the core platforms was often achieved by the removal of core tablets (Fig. 10).

Detaching the blades did not entail much preparation of the platforms (Fig. 12). The blade butts of the main sequence (*plein débitage*) show only rudimentary abrasion at the intersection of the striking platform and the dorsal surface (*corniche*). Most of the butts are plain (75%) or punctiform (9%), faceting is relatively uncommon (~ 13%) and there are no examples of *talons en éperon* of the kind present in British Creswellian assemblages (Barton 1991). A soft mode of percussion is indicated in most instances. Only 38% of blades could be identified as having a lipped butt and flat bulb characteristic of soft organic (antler) hammers (Pelegrin 2000, Fig. 2). Many of the rest were probably made using a soft stone percussive technique, according to the straightness of profiles and pronounced conchoidal ripples on their ventral surfaces (Pelegrin 2000).

A final observation is that with the exception of

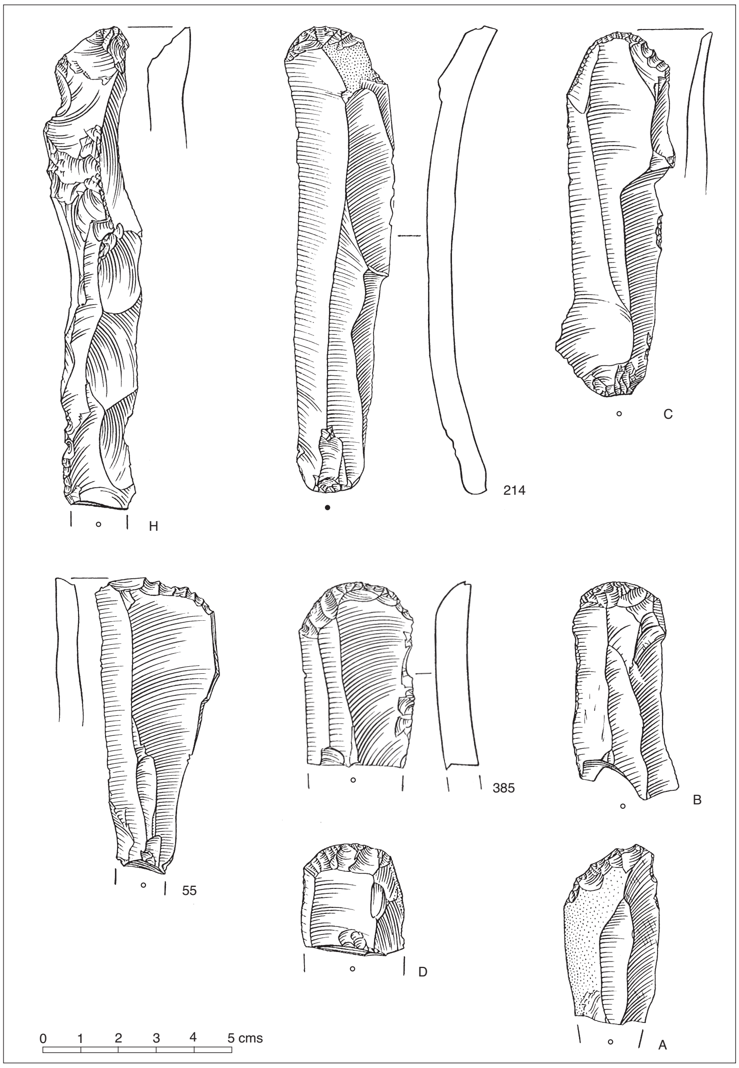

Fig. 14. Scrapers on the ends of blades. H is on a crested blade (½ nat. size).

Abb. 14. *Klingenkratzer. Die Grundform von H ist eine Kernkantenklinge.*

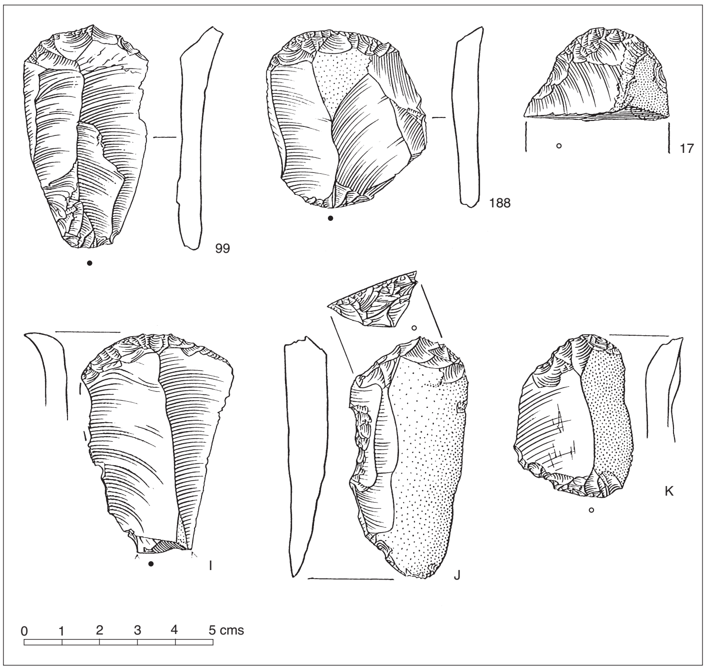

Fig. 15. Flake end-scrapers (½ nat. size).

Abb. 15. *Kratzer an Abschlägen.*

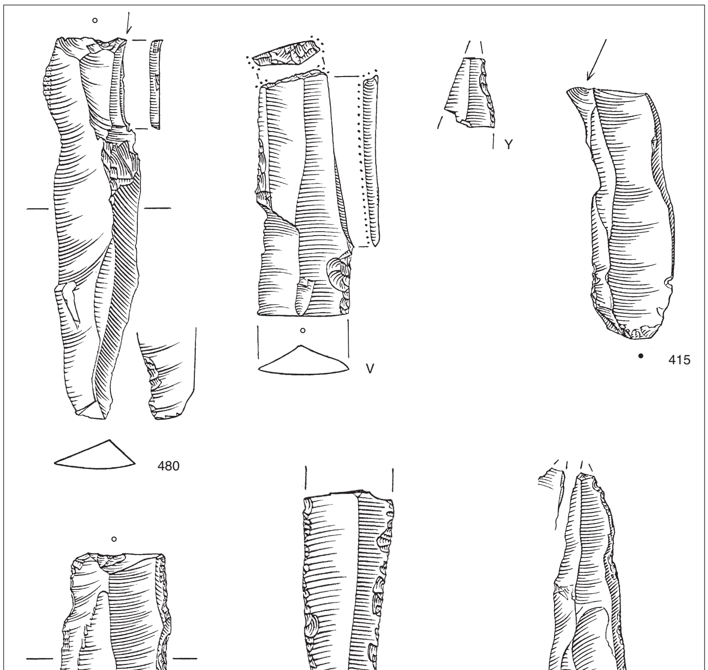

Fig. 16. Burins and other retouched tools. 480 and V - burins on truncation; 415 - burin on a break; Y - retouched point fragment; T - retouched blade segment; L - blade with scalar retouch and 'rubbed end'; 190 - retouched blade with preserved microwear traces (½ nat. size).

Abb. 16. *Stichel und andere retuschierte Werkzeuge. 480 und V – Stichel an Endretusche; 415 – Stichel an Bruchfläche; Y – retuschiertes Spitzenfragment; T – retuschiertes Klingensegment; L – Klinge mit schuppiger Retusche und 'abgeriebenem Ende'; 190 – retuschierte Klinge mit Mikrogebrauchsspuren.*

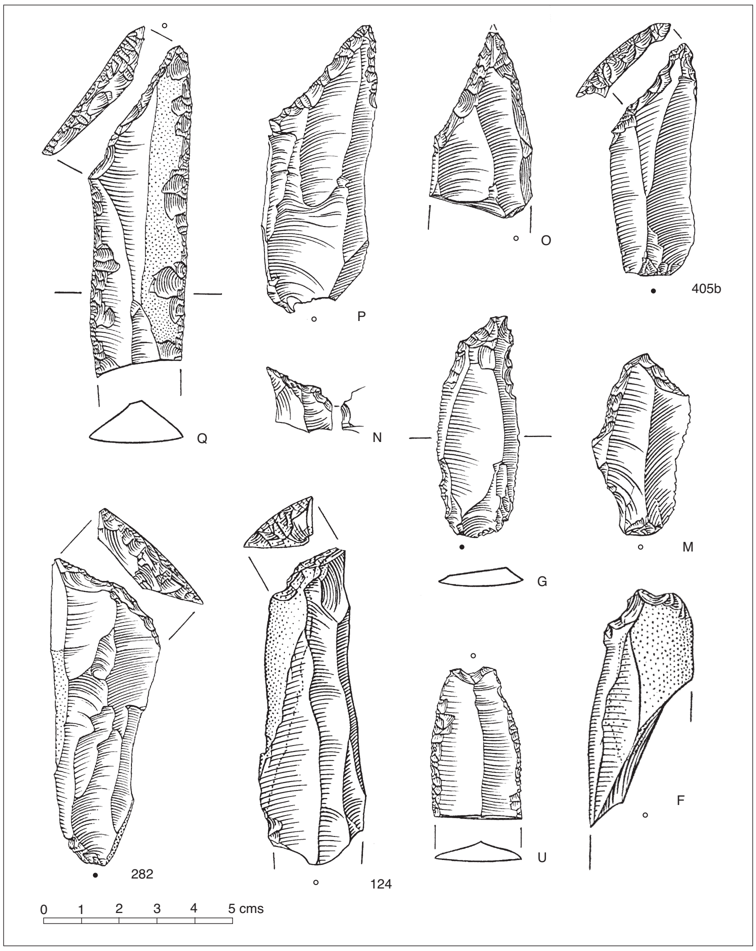

Fig. 17. Piercers, becs and truncations. Q, P, O, 405b and M = becs; N, 282 and 124 = truncations; U = concave truncation on blade with scalar retouch; F = truncation/bec (½ nat. size).

Abb. 17. *Bohrer, Grobbohrer (Becs) und Endretuschen .Q, P, O, 405b and M = Becs; N, 282, 124 = Endretuschen; U = konkave Endretusche an Klinge mit Schuppenretusche; F = Endretusche/Bec.*

chips (11%) very little of the debitage or retouched tools showed any sign of burning. It is curious why the chips should have been affected in this way and there are no clues from their distribution which show a general scattering across the site.

The retouched tool assemblage

A summary of the retouched tool assemblage by class is given in Fig. 13. The number of tools is comparatively low but nonetheless forms 7% of the potentially utilisable blanks (blades and flakes). It is interesting that blades from the earlier stages of reduction (partly cortical) were used for end-scrapers and some for truncations. Non-cortical blades from the main sequence (*plein débitage*) provided the supports for burins, becs and a few truncations, while the two backed tools appear to have been made on relatively narrow blades (< 20 mm in width). Some laminar flakes were used as blanks for end-scrapers.

Nothing exceptional can be said about the main categories of tools. The scrapers show a predominance of specimens on the ends of blades and these include one made on a unidirectionally crested blade (Fig. 14). Another sub-category comprises short end-scrapers (*grattoirs courts*), some with a more fan-shape outline (Fig. 15). The burins comprise two on truncation (*burins d'angle sur troncature*) (Fig. 16: V and 480) and a burin on a break (*burin d'angle sur cassure*) (Fig. 16: 415). The burin facets are relatively broad (2.6 mm, 3.8 mm and a very wide one at 7.3 mm) reflecting the overall thickness of the blade blanks. Surprisingly, no definite burin spalls were recovered from the site. Amongst the truncations (Fig. 17), the most distinctive is a concave truncation on a blade with elaborate invasive scaled and stepped retouch covering its lateral edges (the blade was probably broken after retouch, Fig. 17: U), which has a precise parallel in the assemblage from Hengistbury Head (Barton 1992, Fig. 4.15: 4 & 5). The other distinguishing feature of this tool is the striped flint of which it was made (Fig. 9).

The two backed points in this assemblage (Fig. 18) are relatively thick and straight in profile: the maxi-

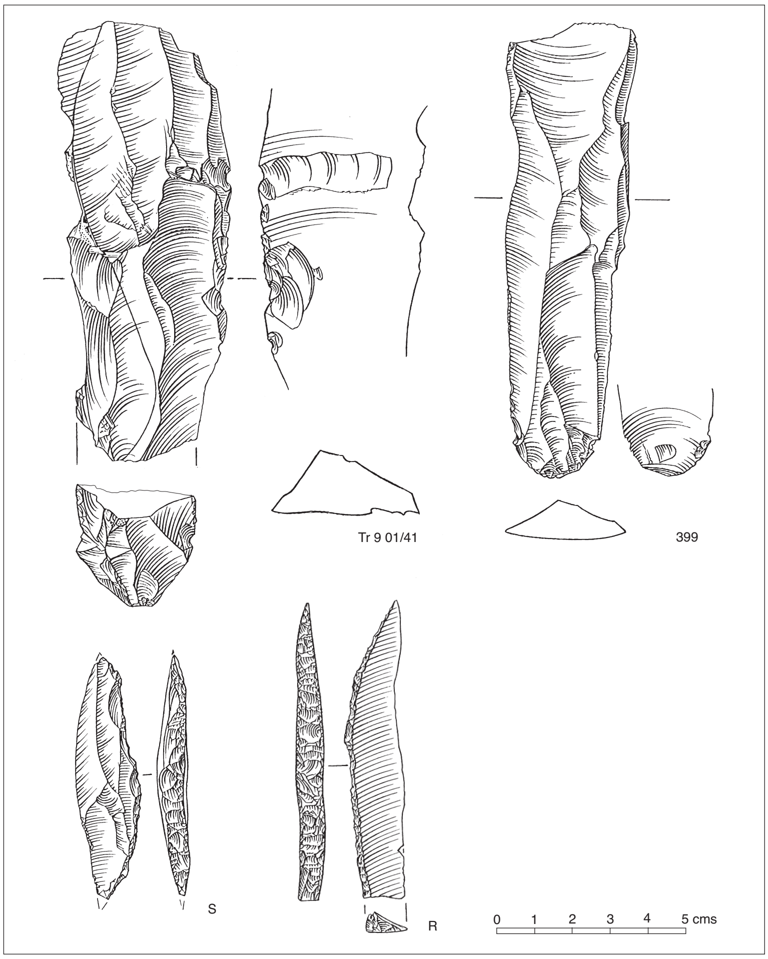

Fig. 18. Backed blades and refitted intentional breaks. Tr 9 01/41 Bruised blade and refit to intentional fractured proximal segment; 399- unretouched blade; S - curve-backed bi-point; R - curve-backed point with a straight proximal truncation (½ nat. size).

Abb. 18. *Rückenretuschierte Klingen und Zusammensetzungen intentionaler Brüche. Tr 9 01/41 Beschädigte Klinge und Zusammensetzung an intentional abgebrochenes Proximalsegment; 399- unretuschierte Klinge; S – Doppelspitze mit geschwungenem Rücken; R – Spite mit geschwungenem Rücken und gerader proximaler Endretusche.*

mum dimensions of the bi-point are 63 x 17 x 7 mm, while the basally truncated specimen measures 79 x 14 x 6 mm. Opposed retouch scars on the latter indicate that it was retouched on an anvil. Both tools can be described as variants of Federmesser points (Schwabedissen 1954) and have equivalents at Hengistbury Head (Barton 1992, Fig. 4.23: 4 & 10).

Of the other categories, two are worthy of mention because they are only rarely noted in Final Upper Palaeolithic assemblages in Britain. The first are becs (Fig. 17), which are defined by two retouched edges that converge to a point (Barton 1992, 270). The tips are all fairly thick and offset to the main axis of the blank. Despite the robusticity of the tip none have the characteristics of true *Zinken* (Brézillon 1977, 379). One example on the end of a blade modified by continuous scalar retouch down both lateral edges (Fig. 17: Q) has an exact counterpart in the Hengistbury Upper Palaeolithic assemblage (Barton 1992, Fig 4.15). The becs at Nea Farm also display signs of utilisation. In four of them, the apex of the tip is missing and in three examples (Fig. 17: 405b, P & Q) there is scarring on the ventral surface near the point. The latter is consistent with damage produced by drilling or perforating and has been reproduced experimentally (RNEB). Artefact 405b was submitted for micro-wear analysis but unfortunately its surfaces were affected by post-depositional alteration. It is noteworthy that there appears to be a morphological continuum between the becs and some of the truncations (e.g. Fig. 17: 282 & 124).

The second category consists of artefacts not formally described as tools. These items are pieces with intentional breaks (*fractures volontaires*) and are defined as having "a percussion induced fracture which produces two substantial pieces. The resulting break surfaces are usually transverse to the long axis of the blank and have no pronounced concavity. The blow is delivered well away from the lateral edge and clearly differs from the microburin technique" (Barton et al. 1983). Diagnostic of this form are features such as negative or positive cones of percussion (associated with the break surfaces), lipping and conchoidal fracture marks emanating from the break surfaces

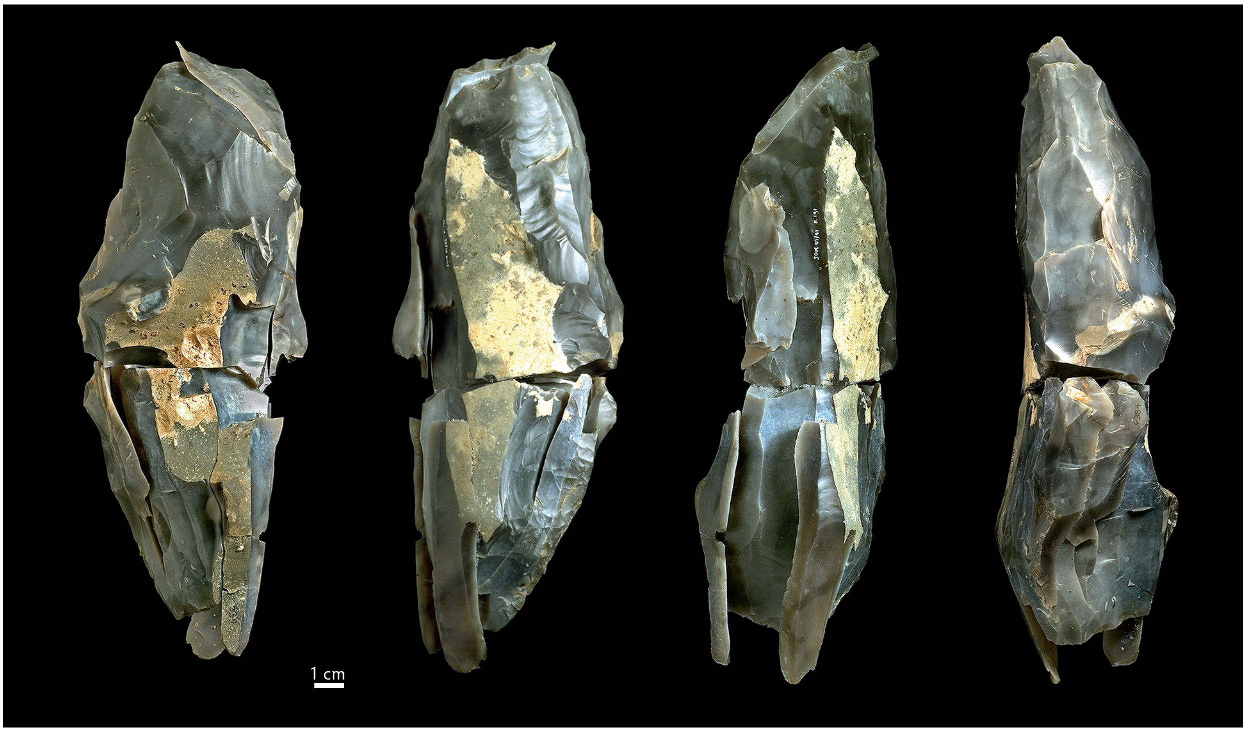

Fig. 19. Block consisting of two refitting cores (RG-1), joined across surfaces used as platforms. The cores are both opposed platform types (upper: 191, lower: Tr 9 01/41).

Abb. 19. *Stück aus zwei zusammengesetzten Kernen (RG-1), bei denen die Bruchfläche als Schlagflache genutzt wurde. Beide Kerne besitzen gegenuberliegende Schlagflachen (oben: 191, unten: Tr 9 01/41).*

(Bordes 1953). Four of the segments in this assemblage can be conjoined to form substantial portions of two thick and relatively long blades (Fig. 9: right & Fig. 18: Tr 9 01/41). The same technique of segmenting blades was used more prolifically at Hengistbury Head (Barton 1992, 130-132), as will be discussed below.

Fig. 20. Opposed platform blade core (RG-2) in a distinctive speckled grey flint.

Abb. 20. *Klingenkern mit gegenüberliegenden Schlagflächen (RG-2) aus auffällig geflecktem grauen Flint.*

Fig. 21. Opposed platform blade core (RG-3) with only the early stages of the reduction sequence present.
Abb. 21. Klingenkern mit gegenüberliegenden Schlagflächen (RG-3) mit nur frühen Stadien der Abbausequenz.

Refitting evidence

Break refits

There are 23 sets of refits involving broken flakes and blades. Nearly all of the breaks are flexional snaps (bending breaks) of a type often seen in knapping accidents (Barton et al. 1983). In this respect it may be significant that two crested blades are included within this group. Of the remainder only two blades with refitting breaks can be attributed unequivocally to

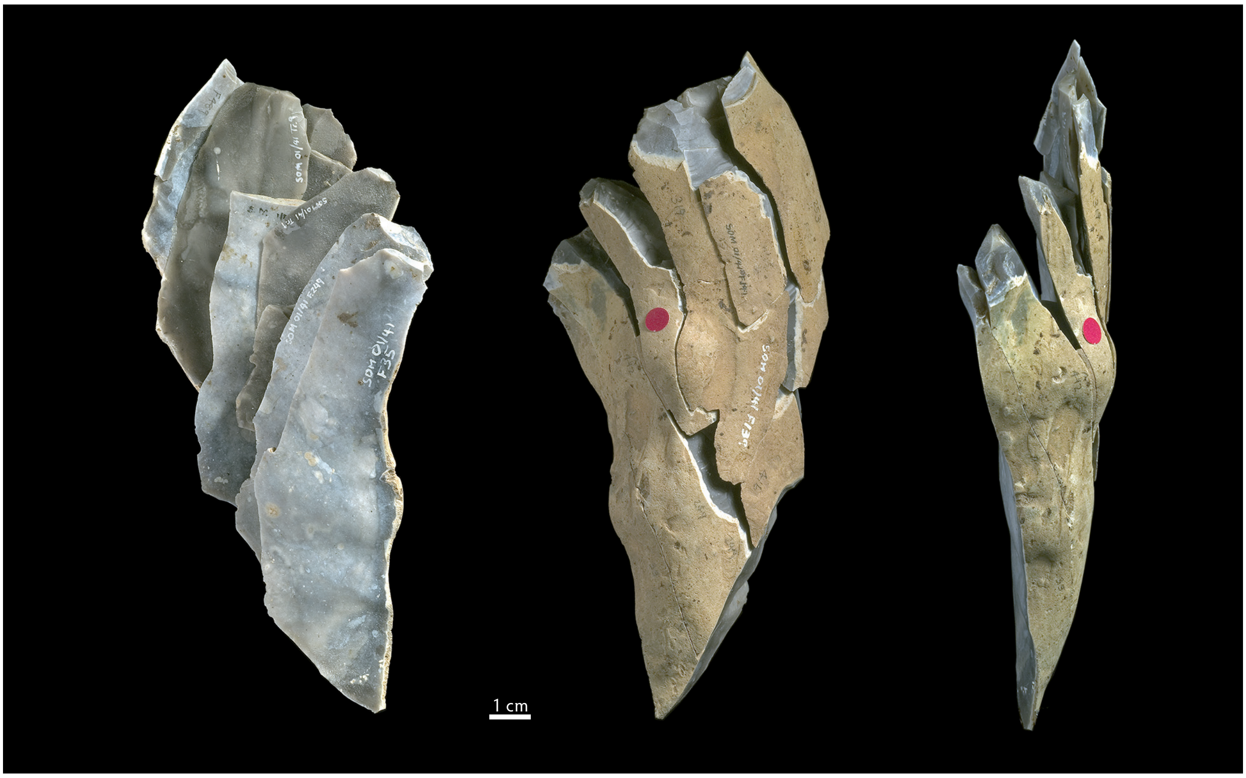

Fig. 22. A sequence of 10 refitting cortical laminar flakes from the exterior of a core (RG-4) .
Abb. 22. Sequenz von zehn zusammensetzbaren länglichen Kortexabschlägen (RG-4).

intentional breakage (as discussed above). The breaks support the observation that knapping took place on site and that the flints were not subjected to much post-depositional disturbance.

Dorso-ventral refits

These types of refits are defined as conjoins which represent successive removals of blades or flakes from a core. The study was not exhaustive but nonetheless 33 groups of such refits were identified and four more substantial knapping sequences could be reconstructed (refit groups 1-4).

Refit Group 1 (Fig. 19)

Refit Group 1 represents a cylindrical nodule made up of two refitting portions each of which served as an opposed platform blade core. Part of the main refitting surface between the cores reveals an internal frost fracture which was a major factor in the nodule breaking into two. The knapping accident appears to have happened during the preparation of a crest, the flake scars of which are still present on the back of find number 191 (Fig. 11). Despite this breakage, opportunistic use was made of both blocks, each of which became an opposed platform blade core providing an initial series of blade removals 90 - 100 mm long. Although both cores seem to have been capable of further reduction, flaking ceased when it was no longer possible to extract blades longer than about 80 mm. Further reduction may also have been discouraged by a number of hinge fractures on one core (Fig. 11: 191) and a plunging removal on the other which detached one end of the core (Fig. 19: Tr 9 01/41). In all, 11 pieces could be fitted to these cores.

Refit Group 2 (Fig. 20)

This opposed platform blade core (find number 44) has a greyish patina and is characterised by very distinctive small circular white inclusions giving it a speckled appearance. Its maximum length is 110 mm. There is a secondary crest at the back of the core, a device used by knappers to control the shape of the main flaking face and maintain the correct angle of the striking platforms. This latter characteristic is well illustrated by the presence of two refitting core tablets whose removal was clearly guided by the posterior crest. The reconstructed sequence of six refits shows the latest rejuvenation stage and a continuation of blade removals (*plein debitage*) down the main flaking face. The refitting blades and their dorsal negative scars indicate successive removal of parallel-sided blades 110 - 120 mm long with fairly straight profiles. The core was abandoned after its length and thickness had been considerably reduced by the removal of two large plunging blades. Refitting shows that it began as an opposed platform blade core and was reduced to a single platform type in its final form. The last refitting blade is less than 70 mm long. Other specimens of flakes and blades of speckled flint suspected to belong to this sequence could not be refitted.

Refit Group 3 (Fig. 21)

This is an opposed platform blade core with all of the main blade debitage sequence missing and only the initial and final stages of the reduction episode represented. A series of conjoined cortical flakes indicates that the flaking process began with an anterior crested blade and was followed by blade removals up to 120 mm long. All of the blades from the main sequence are missing and many are presumed to have been used either unmodified or as blanks for tools. The knapping process was terminated by a plunging accident (find number 48). There are seven artefacts conjoined to this core.

Refit Group 4 (Fig. 22)

This group comprises a sequence of 10 refitting cortical flakes from the exterior of a core. The flakes derive from the early phase of reduction and are all struck from the same platform suggesting the systematic 'peeling' of the exterior surface of a cylindrical nodule, perhaps as an alternative method to cresting preparation. The absence of other refits, despite careful searching, could suggest that the core was roughly prepared at the site and then taken elsewhere for further reduction and use. The outer cortex of the nodule is relatively smooth and demonstrably different from the local river gravel flints which often have a battered and rolled appearance.

Spatial analysis of the flint artefacts

There was very little vertical separation (10 - 15 cm) between any of the artefacts. In the horizontal plane, the main scatter covers an area of approximately 15 - 20 m^2. Although a machine trench cuts through the north-eastern half of the main scatter, the edges of the flint concentration can be defined by a rapid decrease in the number of artefacts in each direction, including those beyond the machine dug trench, so that it is possible to estimate the overall size of the scatter (Fig. 2).

Within the main concentration, three denser clusters of flint artefacts (A - C) could be identified. These are recognisable from refitting evidence (Fig. 23) as well as by artefact densities (Fig. 24). They are all roughly oval in shape and consist of relatively tight artefact clusters (Fig. 24). The two scatters on the edge of the machine trench (A and B) each measured about a metre in diameter whilst the one to the southwest (C) was slightly smaller and had a maximum diameter of around 50 cm. Considering each scatter in turn, scatter A had mainly blade and flake debitage and evidence for knapping is shown by the presence of core tablets (6) and crested pieces (4). The other notable feature of this scatter is that it includes only one tool, an end scraper (Fig. 25).

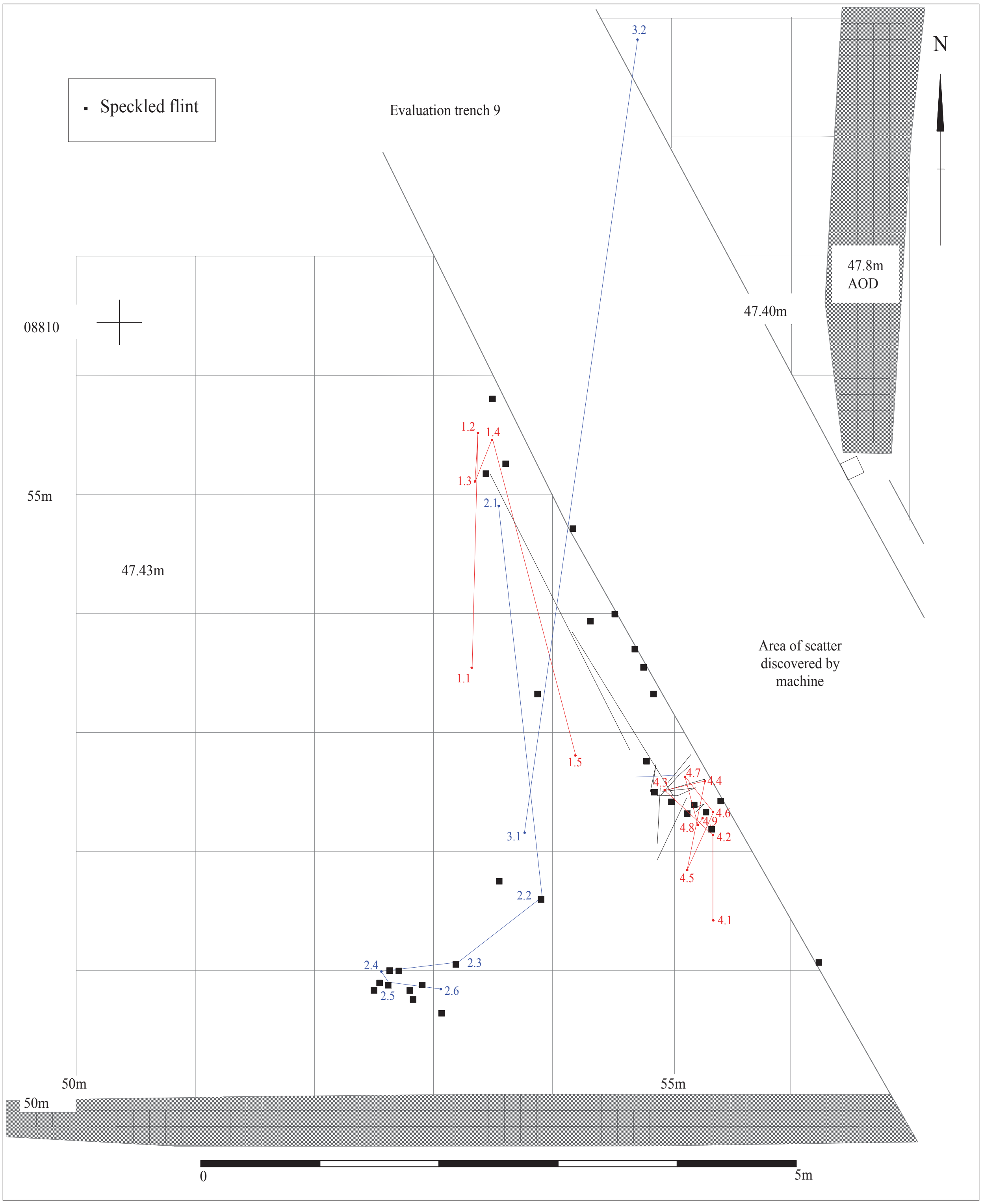

Fig. 23. Distribution of refitting artefacts and main core groups. 1: Refitting Group-1; 2: RG-2; 3: RG-3; 4: RG-4.
Abb. 23. *Verteilung der zusammensetzbaren Artefakte und Hauptkerngruppen. 1: Zusammensetzungsgruppe (RG)-1; 2: RG-2; 3: RG-3; 4: RG-4.*

In contrast, scatter B which lay about 2 m to the north consists of blade and flake debitage but an absence of crested pieces and core tablets (Fig. 24). A small collection of three end-scrapers, a burin and an assortment of retouched flakes and blades lies immediately to the south of the scatter. It is difficult to interpret the relationship between the two since no interlinking refits can yet be demonstrated. It is possible that the debitage of scatter B was selected and brought to this area or, alternatively, that it represents material deliberately dumped on the periphery of a tool using zone.

The distribution of microdebitage is useful in defining where activities were focused on a site and

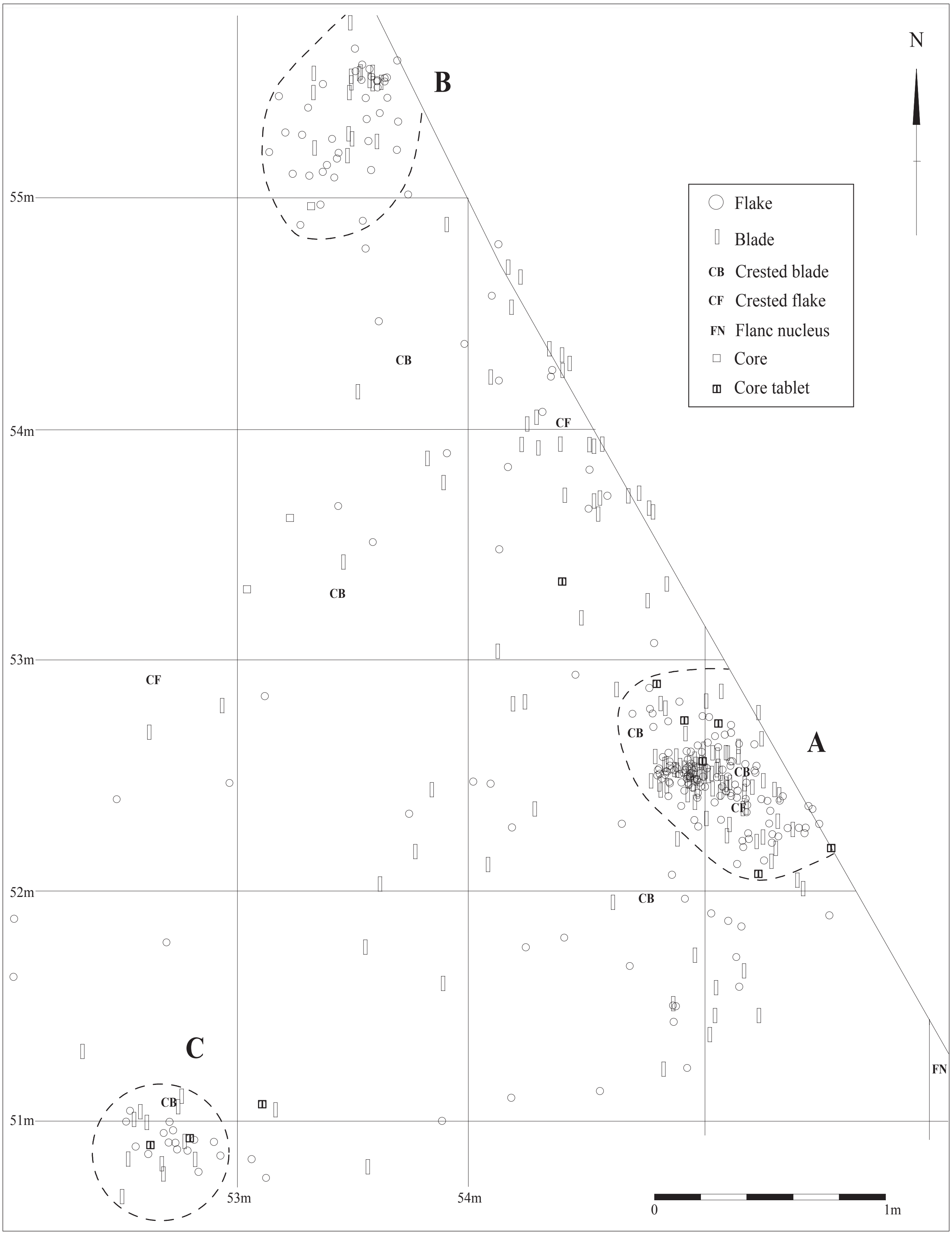

Fig. 24. Spatial distribution of debitage showing three slightly denser clusters of material within the main concentration.

Abb. 24. *Die räumliche Verteilung der Grundproduktion zeigt drei etwas dichtere Materialanhäufungen innerhalb der Hauptkonzentration.*

may help in assessing the degree of post-depositional disturbance to the scatters. Unlike larger blanks, flint chips (<10 mm) would have had few potential uses and are thus less likely to have been moved far from their original position, unless by natural processes or deliberate dumping. By analysing the types of chips and their distribution it is often possible to determine the location of primary knapping activity and some-

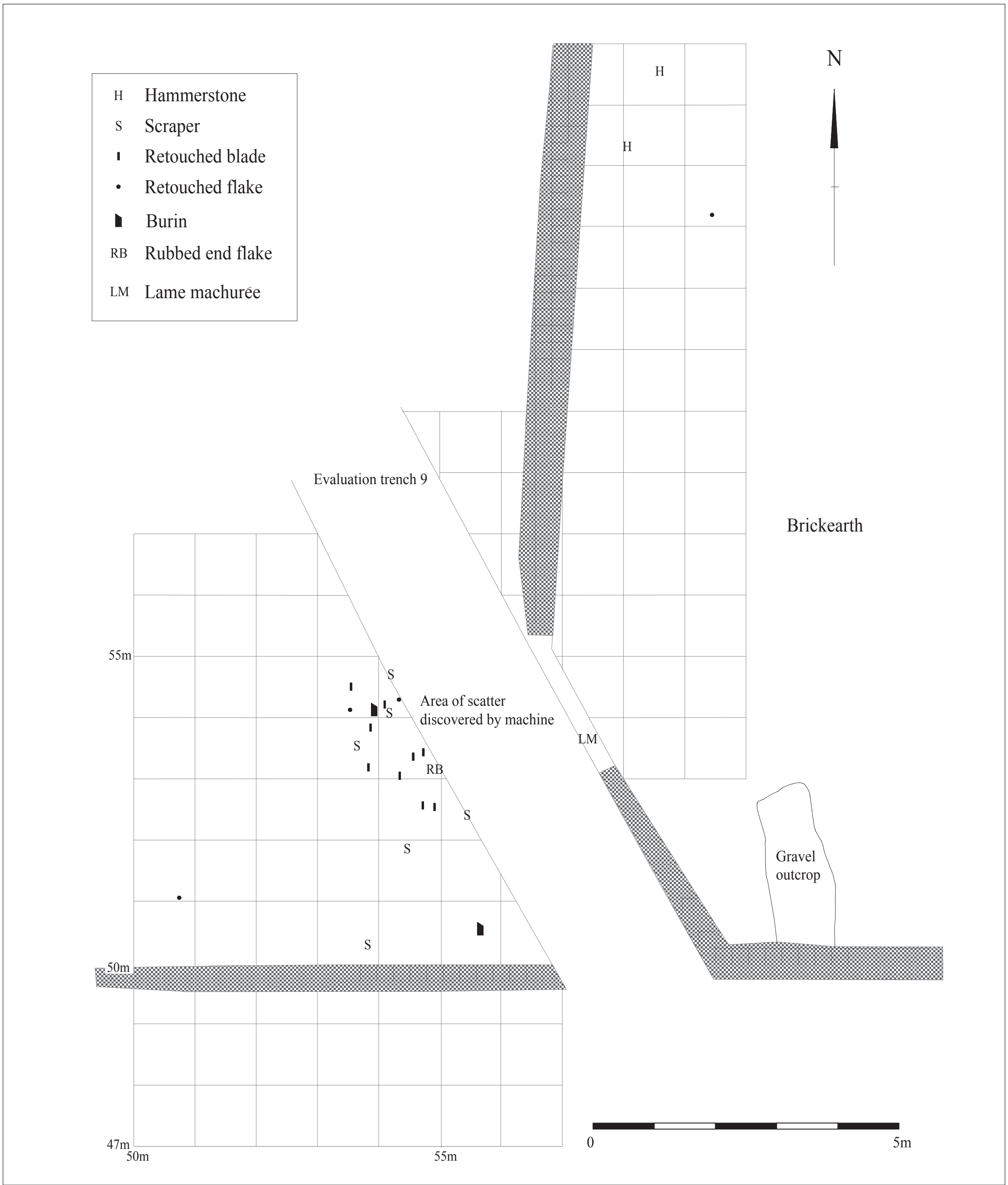

Fig. 25. Spatial distribution of retouched tools.
Abb. 25. *Räumliche Verteilung der retuschierten Werkzeuge.*

times even where retouched tools were made and resharpened (Karlin 1972; Newcomer & Karlin 1987). In the case of Nea Farm, the quantities of chips were not sufficiently large to undertake a detailed study. This may have been partly a problem of the recovery methods as it was impractical to employ total sieving. However, it is noticeable that slightly higher densities of chips were recorded (50 - 100) within scatters A and B. The very few pieces of debitage from retouching tools occurred in scatter B which may imply that some of tools found to the south of the scatter were indeed prepared there.

Examination of the refitted cores tends to support the above observations. Scatters A and C do seem to form discrete units with no interlinking conjoins. On the other hand there are single refits between each of these groups and scatter B which would suggest that the three scatters were contemporary. The wide-spread distribution of speckled flint (Fig. 23) would also seem to confirm this view. Another observation is that blanks fed in form scatter B derived from scatters A and C reflect the transfer of pieces intended for tool making, which would seem to explain the absence of core tablets and crested blades in the former scatter and may suggest some spatial separation of manufacturing and tool making activities within the site.

One other feature of note is an unusual grouping of flints which formed a rectangular concentration within scatter A. It was observed during excavation as a tightly packed cluster of flakes and blades and one of us (SNC) noted the high angle at which many of the flints lay and the straightness of the edges of the whole configuration (Fig. 3: below horizontal bar to the upper left). We speculate that the shape and size of this structure is consistent with a roughly rectangular basket or container. Time has not yet allowed for detailed investigation of these artefacts. It would be interesting to determine whether this cache of blanks is typified by any special characteristics or, for example, whether they belong to the same core reduction episode.

Functional analysis of the lithic artefacts

Microwear analysis: Sampling and methods

Twenty-one lithic artefacts with a relatively unpatinated appearance were selected for wear trace analysis and some were also left unwashed in case residues were preserved on their surfaces. Only two tools were included in the sample: a bec (Fig. 17: 405b) and a retouched blade fragment (find number 454). The remaining artefacts consisted of unretouched blade and flake debitage.

The method of studying microscopic wear traces on lithic artefacts has been described extensively elsewhere (e.g. Odell 1977; Keeley 1980; Van Gijn 1990 amongst others). In this case artefacts were first examined by stereo microscope with oblique or incident light, under magnifications ranging from 10 - 50 x. Subsequently, the implements were studied with an incident light microscope, fitted with Nomarski DIC interference and polarizing options, magnifications ranging from 100x for scanning to 1500x for detailed observation. Wear traces (edge removals, edge rounding, polish and striations), were noted on a number of artefacts, as were possible examples of preserved residues. Some of the implements were prepared in an ultrasonic cleaning tank, using only water. All implements were regularly wiped with alcohol during microscopic analysis to remove finger grease.

Results of the microwear analysis

Despite the apparently fresh appearance of the artefacts most of them in fact displayed some degree of white/bluish patination. Upon microscopic examination the surface appeared granular ('sugary'), as if it had been dissolved. This made the artefacts largely unsuitable for detailed functional observations, certainly for detecting the use of softer materials like fresh hide or meat which can only be reliably inferred from the presence of polish (Van den Dries & Van Gijn 1997). Similar problems of surface alteration have been observed by the author at another site in which newly excavated artefacts first appeared fresh. However, within a few minutes of exposure to air the tool surfaces started to dissolve, creating a more granular texture, and thereby altering the normally flat plane of the flint surface (see Van Gijn 1989, Fig. 144a versus 144b). In this case it was possible to stop the dissolving process temporarily by immersing the artefacts in water. It seems that such alteration may be caused by bound water being removed from the chemical composition of the flint. By keeping it in a moist environment the unbound water can counteract the patination process.

In total 13 artefacts displayed a 'sugary' surface and a bluish/white film (Nos. 119, 122, 146, 150, 152, 281a, 281b, 297, 301, 388, 394, 405b and 408). Three artefacts revealed a glossy surface with some rounding of the dorsal ridges and lateral edges which could be attributable to mechanical abrasion (Nos. 8, 39 and 208). One of these (No. 39) also had friction gloss in addition to the abrasion, while another (No. 301) displayed a very clear spot of wind gloss.

This left five potentially interpretable pieces (Nos. 72, 168, 190, 216 and 454). Unfortunately, neither numbers 72 nor 168 displayed any wear traces (except small patches of friction gloss). Artefact number 190 (Fig. 16), a partially retouched blade, was exceptionally well preserved. It may have been used on soft material but only with very light pressure. The greasy appearance of the small band of polish could also point to use in butchery but the traces were insufficiently well developed to be certain. Artefact 216 had a very slightly developed smooth-looking polish, light edge rounding and some edge removals, as well as an amorphous unidentifiable reddish residue that may be of pedogenic origin (a similar residue was also seen on artefact 301 but as it appeared to be 'secondary' it was not further analysed). Artefact number 216, an unretouched flake may have been used in longitudinal direction on wood, but this interpretation is a very cautious one. Finally, artefact number 454 does seem to preserve signs of microwear evidence. It is a proximal fragment of a blade (37 x 25 x 8 mm) that can be refitted to a mesial fragment (Fig. 9: right). Both the mesial and proximal fragments preserve signs of macroscopic scalar retouch on the dorsal side of their lateral edges. The polish can very tentatively be attributed to use on siliceous plant material. Experiments with siliceous plants show that polish develops on the flint surface very quickly (after a few minutes of work). As the polish was so lightly developed on artefact 454

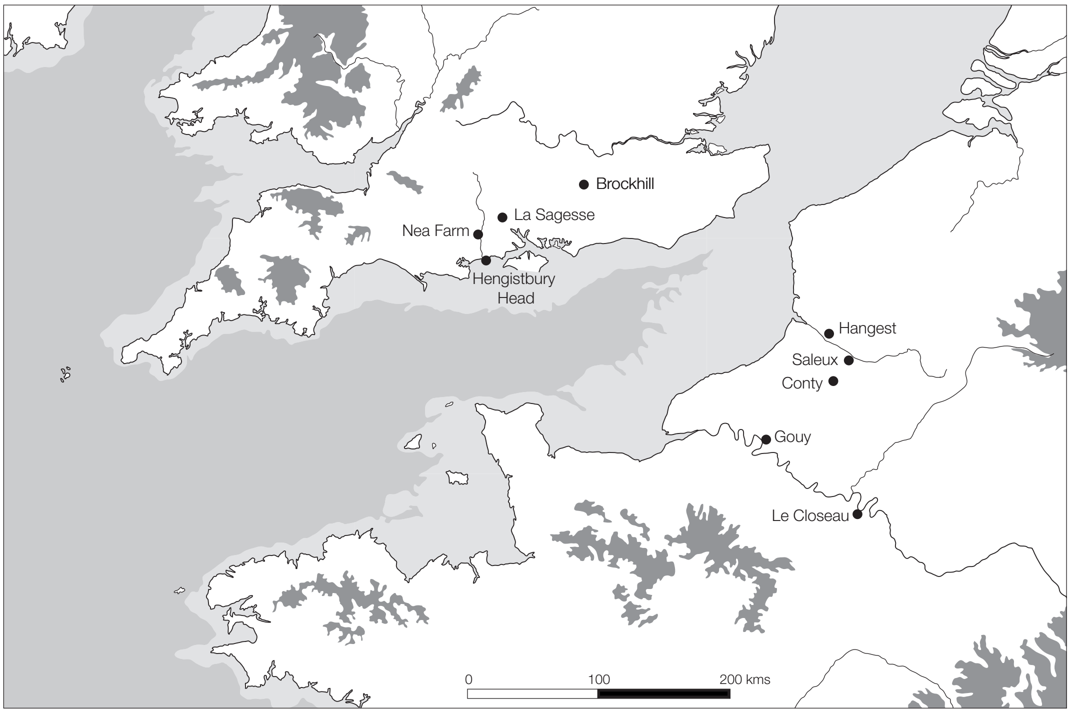

Fig. 26. Location of Final Upper Palaeolithic sites mentioned in the text.

Abb. 26. *Lage der im Text erwähnten endpaläolithischen Fundstellen.*

it would be safer to interpret it as 'probably used', without specifying contact material or direction of motion.

Macroscopic analysis

A number of artefacts display visible macro-traces. Most notably, six have heavily worn 'rubbed ends', two of which occur on retouched tools (Fig. 16: L & V). Traces of grinding or rubbing were focused at the extremities of the blades. In one case the rubbed area covers the entire butt and extends on to the bulbar surface of the blade (Fig. 16: L). Comparable wear patterns on Upper Palaeolithic blades have been interpreted as evidence for use of flint on iron pyrites to make fire (Stapert & Johansen 1999).

A second distinctive form of utilisation damage occurs on just one of the blades (Fig. 18: Tr 9 01/41). The artefact has a thick triangular cross-section and displays a number of prominent invasive negative flake scars on its ventral surface. Similar damage, though elsewhere generally accompanied by characteristic crushing or bruising of the edge itself, has been described on so-called *lames mâchurées* (Bordes 1967). The Nea Farm piece is unique to the site and may have been linked to honing of sandstone hammers, if not chopping through flexible materials such as antler or wood (cf. Barton 1986). An added point of interest is that the proximal end of the blade was intentionally broken but it is impossible to determine at what point this happened in the use-cycle of the artefact.

None of the end-scrapers exhibited evidence of obvious modification. However, the working edges of four specimens have a distinctive 'hooked' profile (Fig. 15: I), which has been interpreted as a proxy for hide-working by some authors (e.g. Nissen & Dittemore 1974). Unfortunately in this case it could not be verified by microwear analysis because the tools were too patinated.

	Plain / Punctiform	Cortical	Linear (crushed)	Dihedral faceted	Faceted
Nea Farm, Somerley	*83.6*	*	*7.8*	*6.4*	*2.1*
Hengistbury Head	*85.4*	*0.6*	*0*	*2.4*	*11.5*
Brockhill	*84.5*	*0.9*	*5.4*	*1.8*	*7.3*
La Sagesse Convent	*71*	*0*	*(13)*	*0*	*16*

Fig. 27. Blade butt indices from selected Final Upper Palaeolithic assemblages (%). Asterisk indicates classed under Plain/Punctiform.

Abb. 27. *Klingenbasis-Indizes von ausgewählten endpaläolithischen Inventaren (in %). Stern = als Plain/Punctiform klassifiziert.*

Comparisons with other open-air Late Glacial lithic assemblages in Britain

At least two major technological groupings can be distinguished amongst the lithic inventories of the Late Glacial period in Britain. For convenience they may be referred to as Creswellian (or Late Upper Palaeolithic) and Final Upper Palaeolithic (Barton & Roberts 1996; Barton 1999). Though the chronological relationship between the two is only beginning to be understood, it is generally accepted that the Creswellian occupies an earlier phase of the Interstadial. This is based on over 50 AMS radiocarbon determinations on cut-marked bone and antler associated with lithic assemblages of Creswell type (Barton et al. 2003; Jacobi 2004). The very coherent pattern of dates suggests that re-settlement of Britain probably began close to 13 000 radiocarbon years BP. The oldest dates also compare favourably with those for sites in Northern Germany and imply that reoccupation of the European Plain coincided or followed soon after a significant rise in temperature and increased precipitation which marked the beginning of the Interstadial (Grimm & Weber 2008). The existence of an extensive dry land bridge connection with north-western Europe at this time (Coles 1998), plus similarities in the bone, antler and ivory equipment, supports the idea that cultural influences came from adjacent areas of Europe, a claim made many decades ago by Garrod (1926) who saw the Creswellian as a variant of the French Late Magdalenian.

In contrast, Final Upper Palaeolithic assemblages comprise a typologically more diverse grouping than the Creswellian and may occupy a somewhat longer absolute time span (Barton et al. 2003). One of their main unifying characteristics is the presence of a variety of curve-backed points, similar to forms found in the North European Federmessergruppen assemblages (Schwabedissen 1954).

Differences in the types and combinations of point shapes may be of chronological significance and indicate sub-divisions but this is difficult to confirm in Britain at present because of the scarcity of reliable dates. Based on existing information, assemblages of Final Upper Palaeolithic type probably mainly date to the second half of the Late Glacial Interstadial (Barton & Roberts 1996; Barton 1999), though the exact timing is unclear.

Within the context of Britain, the Nea Farm assemblage can be compared with three other large collections from open-air sites all in the southern counties (Fig. 26). They comprise Hengistbury Head (Dorset), La Sagesse Convent (Hampshire) and Brockhill (Surrey). The site of most immediate relevance is undoubtedly Hengistbury Head which lies only 26 km downstream of Nea Farm, near the mouth of the River Avon. Comparative analysis of the lithic assemblages reveals a number of close similarities in the *chaînes opératoires*. For example, as at Nea Farm, the blades from Hengistbury have predominantly straight profiles and show evidence of soft forms of percussion, their butts reveal a dominance of plain forms, there is an absence of *talons en éperon* and blade core platform rejuvenation was generally achieved by core tablet removal. Some of the same observations can be extended to Brockhill and La Sagesse (Fig. 27), although, according to published details, there is a slightly higher representation of faceted blade butts (16%) at La Sagesse than at the other sites (Conneller & Ellis 2007, 206). Nonetheless, in other respects the La Sagesse assemblage compares favourably with Nea Farm, for example in the preponderance of abrasion on the proximal ends of blades, the high representation of blades with straight profiles (49%), and the presence of blanks with opposed scars on their dorsal surfaces (31%). The large number of core tablets recovered (46) suggests further similarities in the methods of core rejuvenation.

When comparing the retouched tools, all of the implements at Nea Farm can be matched by finds in the tool inventories of the other open-air sites. The similarities can sometimes be uncannily close, as in the example of two concave truncations from Nea Farm and Hengistbury (Fig. 17: U, cf. Barton 1992, Fig. 4.15) which, if laid side by side, would appear as exact duplicates. Parallels especially with Hengistbury can also be found in the morphology of the backed points, some of the short end-scrapers and burins and in the unusual technique of segmenting blades. The latter method of intentionally snapping blades is both highly idiosyncratic and relatively rare, and does not appear to have been used at either Brockhill or La Sagesse. At Hengistbury, this method seems to have been used for preparing blanks for burins. While it is unclear whether the purpose was same as at Hengistbury, it is worth observing that few of the Nea Farm segments can be refitted, suggesting that they had been imported from elsewhere.

Despite an absence of preserved faunal remains at any of the four main locations, some inferences on site function can be drawn from topographic evidence and from information relating to the relative size and composition of the flint scatters. To begin with, it is clear that Nea Farm and Hengistbury Head cannot be considered in isolation; both sites are located in the same river catchment and would have been mutually accessible either on foot or by canoe and easily within a day's journey. Although Hengistbury occupies a more prominent vantage point overlooking the Solent plain and river confluence, Nea Farm would have had the equally important benefits of being situated on drier terrain above the valley floor and from its position near the terrace edge would have commanded favourable views of the river for surveillance purposes. Further clues about site function derive from the scatters themselves. At Nea Farm, the relatively low quantity of artefacts (1 609 flints), the small number of retouched tools and the localised distribution of the artefact scatter all point to limited and short-term activity. The absence of hearths and scarcity of burnt artefacts also support the idea that the occupation was a relatively brief one. The same does not appear to be true of Hengistbury Head, where excavations revealed a major accumulation of over 16 000 artefacts, presumably the result of repeated visits to the site and probably over more sustained periods. Burnt artefacts and thermally altered hearth stones attest to the existence of campfires at Hengistbury.

A site of perhaps closer similarity to Nea Farm is La Sagesse Convent, which stands out as an assemblage of equivalent scale and structure. The site is situated on a low gravel terrace and like Nea Farm it has a comparatively reduced inventory of retouched tools. However, La Sagesse comprises two scatters, about 10 m apart, and these seem to define a possible separation of activities between flint knapping and tool use. One of the scatters is dominated by blade debitage while the other is characterised by a stronger presence of tools (17 as opposed to 2), although interpretation is complicated by the fact that the second scatter also contains a number of Mesolithic artefacts (Conneller & Ellis 2007, 203).

Although the flint scatter at Nea Farm is fairly diffuse, it would appear to be more than simply a blade production site. Besides flint knapping, other activities can be inferred from the presence of processing tools such as end-scrapers, burins and becs, while microwear traces on flint artefacts from working 'soft' and 'siliceous' materials implies hide working and possibly even the processing of plant fibres necessary in the preparation of hunting traps, basketry or netting. The only surprising element of the tool assemblage is the scarcity of flint points for projectile tips and armatures. However their absence does not necessarily rule out hunting activity, especially if the portable equipment included perishable items such as bone or antler barbed points or light trapping gear.

An interesting topic to consider is the possible functional relationship between Nea Farm and Hengistbury. At Nea Farm there is ample evidence for blade production and tool making but, at the same time, it is clear that some pre-prepared blade blanks and tools were imported to this location. An example of this exogenous component is a flint variety with very distinctive striped inclusions that is present in a few tools and pieces of large debitage (Fig. 9). No

Location	Material	Lab. No.	Radiocarbon age BP	
	'Allerød' phase			
Hangest-sur-Somme, III-1 (upper layer)	wild cattle	OxA-4935 (Lyon-85)	10 920 ± 90	
Le Closeau, Rueil-Malmaison (upper layer) Locus 32 Locus 41 Locus 48 Locus 46	charcoal	Ly-7190	10 470 ± 110	
	charcoal	Ly-7189	10 670 ± 110	
	charcoal	Ly-206	10 650 ± 75	
	bone	OxA-6337 (Ly-312)	10 840 ± 110	
	charcoal	Ly-565 (OxA)	11 205 ± 100	
	charcoal	Ly-567	11 170 ± 105	
	charcoal	Ly-568	11 120 ± 100	
	charcoal	Ly-569	11 105 ± 95	
	wild pig bone	AA-41881	12 423 ± 67	*
	wild pig femur	GrA-18816	12 350 ± 70	*
Le Closeau, Rueil-Malmaison ('niveau intermédiare') Locus 14 Locus 18 Locus 19 Locus 34 Locus 51				
	charcoal	AA-21677 (Ly-358)	11 240 ± 80	
	charcoal	Ly-562 (OxA)	11 265 ± 90	
	charcoal	Ly-561 (OxA)	11 165 ± 90	
	charcoal	Ly-566 (OxA)	11 240 ± 90	
	charcoal	Ly-570 (OxA)	11 275 ± 85	
Saleux, Les Baquets (114, unit 15)	wild cattle	OxA-4932 (Ly-81)	11 010 ± 80	
	wild cattle	OxA-4933 (Ly-82)	10 800 ± 140	
Saleux, Les Baquets -234	wild cattle femur	GrA-15945 (Ly-1141)	11 200 ± 70	
	wild cattle molar	GrA-15946 (Ly-1142)	11 160 ± 70	
Saleux, Les Baquets -244	wild cattle metapodial	GrA-18832	11 640 ± 70	
Conty, Le Marais (lower layer)	wild cattle tibia	OxA-6150 (Ly-259)	11 410 ± 80	
	wild cattle diaphysis	OxA-6149 (Ly-258)	11 560 ± 90	
	wild cattle diaphysis	OxA-6148 (Ly-257)	11 620 ± 90	
	wild cattle metacarpal	OxA-6151 (Ly-260)	11 890 ± 90	
	'Pre- Allerød' phase			
Hangest-sur-Somme, III-1 (lower layer)	wild cattle tibia	OxA-4936 (Ly-86)	11 630 ± 90	*
	wild cattle tooth	OxA-4432 (Ly-22)	11 660 ± 110	*
Grotte du Cheval, Gouy	bone	GifA-92346	12 050 ± 130	
Le Closeau , Rueil-Malmaison (lower layer, locus 4)	bone	OxA-6338 (Ly-313)	12 050 ± 100	
	bone	OxA-5680 (Ly-166)	12 090 ± 90	
Le Closeau, Rueil-Malmaison (lower layer, locus 33)	bovid phalange	GrA-18815	12 480 ± 70	
	wild horse long bone	GrA-18860	12 510 ± 80	
Le Closeau, Rueil-Malmaison (lower layer: locus 46)	wild horse tibia	GrA-11644 (Ly-789)	12 350 ± 60	
	red deer femur	GrA-11665 (Ly-790)	12 360 ± 100	
	lion	AA-41882	12 248 ± 66	
Le Closeau, Rueil-Malmaison (lower layer: locus 56)	red deer, radius	GrA-18819	12 340 ± 70	

Fig. 28. Radiocarbon dates for Federmessergruppen sites in NW France. The asterisks indicate ages that are considered to be anomalous. (Bodu 2004; Bodu et al. 2006; Coudret & Fagnart 2004).

Abb. 28. *Radiocarbondaten von Federmessergruppen-Fundstellen in Nordwestfrankreich. Die Sterne bezeichnen Alter, die als ungewöhnlich betrachtet werden. (Bodu 2004; Bodu et al. 2006; Coudret & Fagnart 2004).*

specific provenance can yet been identified for this flint but it is significant that very similar material has been observed by one of the authors (RNEB) in the Hengistbury collection. While it would be difficult to prove that the raw material at Nea Farm had been directly imported from Hengistbury, it seems highly plausible that the same or similar geological sources were exploited by people using both sites.

The closest known source of high quality flint to Nea Farm is five or six kilometres to the north of this site, near Fordingbridge (Fig. 1), and it is plausible that at least the nodules of the distinctive speckled variety of flint were procured from this source. Support for this suggestion comes from a partially refitted blade core at Nea Farm (Fig. 20) and sundry cortical blades and flakes of this same material. In this case and for others where the refitted sequence includes cortical flakes (Figs. 19, 21 & 22) we feel it unlikely that the nodules had travelled very far from their original provenance. No concerted efforts have yet been undertaken to locate the geological sources of the Hengistbury flints but preliminary studies (Tocher in Barton 1992, 176-7) suggest that larger nodules with a chalky cortical exterior probably came from the Cretaceous deposits which lie within a radius of about 12 km to the south and the west of the site.

None of the above would be inconsistent with describing Nea Farm as a task-specific location. It might be reasonable to speculate further that a site like this functioned as a small satellite location, linked to a much larger 'residential' unit of the kind represented at Hengistbury. A similar explanation might be envisaged for La Sagesse, which is in the upper reaches of the River Test and may have played a subsidiary role to larger aggregation camps nearer its present mouth or in now submerged areas of the Solent Estuary.

European affinities and the chronological interpretation of Nea Farm

So far, none of the Final Upper Palaeolithic open-air sites in Britain, including Nea Farm, has produced conclusive dating evidence. It would thus appear logical to turn our attention to the continental European record where the chronological sequence is better developed and more fully understood. One of the closest regions of interest is the part of northern France that incorporates the Région de Picardie and the adjacent Paris Basin. An intensive programme of survey and excavation focused on the Somme and Selle valleys over the past 20 years has revealed high numbers of Late Glacial sites attributable to the Final Palaeolithic Federmessergruppen tradition (Coudret & Fagnart 2006). Due to a combination of favourable preservation and meticulous fieldwork there now exists a very detailed chronostratigraphic and geological scheme for this area (Fagnart 1997; Antoine et al. 2000; 2003).

The Federmessergruppen assemblages in this region are distinct from those of the Late Magdalenian which are found in stratigraphically earlier contexts (Bodu 2000; Valentin et al. 2004). A consistent feature of the Federmessergruppen phenomenon is in the high degree of inter-assemblage variability which is believed to be both functionally and chronologically related. In particular, diversity can be seen in the morphology of backed point types (*pointes à dos*) and in the proportion of backed knives (*couteaux à dos retouché*) present. Otherwise these assemblages are characterised by an abundance of burins on truncation, as well as short end-scrapers, and a rarity or absence of becs and piercers, although this may vary according to site. At present, at least two successive chronological facies of the Federmessergruppen have been proposed by J.-P. Fagnart and P. Coudret (Fagnart 1997; Fagnart & Coudret 2000a, 2000b; Coudret & Fagnart 1997) and further colleagues working in the Paris Basin (Bodu & Valentin 1997; Valentin 1995, 2005, 2006; Valentin et al. 2004). This scheme can be summarised as follows.

The oldest phase (*phase ancienne*) of the Federmessergruppen, which developed in the Bølling oscillation, reflects characteristics transitional with the Final Magdalenian (Fagnart & Coudret in press). Assemblages of this kind are represented at the open-air sites of Hangest-sur-Somme quarry III.1 (lower layer) in the Somme valley (Fagnart 1997), at Le Closeau (lower layer) in the Paris Basin (Bodu 1998, 2000) and at the Grotte du Cheval at Gouy (Bordes et al. 1974; Valentin 1995) (see Fig. 26). AMS radiocarbon dates from the latter two localities (Fig. 28) place the occupations in a phase preceding the beginning of the Allerød (prior to the second half of the Late Glacial Interstadial). A similar age may be inferred for Hangest III.1 (lower layer) which is stratified beneath the Allerød soil (Fagnart & Coudret 2000a, 119), although the published radiocarbon dates seem to be anomalously young (marked by the asterisks in Fig. 28).

Distinctive in the lithic technology of this facies are large well-made blades with relatively straight profiles (at Hangest III.1 and Le Closeau) and with a preponderance of plain butt types, except at Hangest III.I where faceted butts account for nearly a third of measured examples. Blades with *talons en éperon*, known from the Magdalenian, are rare or absent. Abrasion of the platform edge seems to have been fairly variable. The bulbar surface features indicate the dominance of soft stone and antler percussion, using the tangential method. The blade cores are mainly of opposed platform type but with preferential use of one platform. Retouched tools at these sites may be variable. At Le Closeau and Grotte du Cheval there is an exclusive presence of large symmetrical curved forms pointed at both ends (*bi-pointes à dos courbe*) and no backed bladelets (*lamelles à dos*). This contrasts with Hangest III.1 where the lower level has produced a diversity of armature forms (*bi-pointes* and *mono-pointes*) and an abundance of *lamelles à dos* (Fagnart & Coudret in press). In addition, the existence of shouldered and truncated points amongst the backed tools at Hangest III.1 may be significant in the chronological development of these industries cf. Hengistbury (Fagnart & Coudret 2000a). In this group of assemblages, burins on truncation tend to outnumber dihedral forms and scrapers are generally represented by shorter forms (*grattoirs courts*), although there are some on the ends of large blades (Bodu 2000, 330).

Another feature of some of the pre-Allerød assemblages of potential relevance to the British sites is the presence of large retouched blades characterised by flat scalariform retouch (*retouche plate écailleuse*). Such elements are present in the lower level at Le Closeau and are frequently found in older Azilian contexts at sites in the south of France (Fagnart pers. comm.).

The younger Federmessergruppen phase (*phase récente*) falls within the first and second halves of the Allerød oscillation. This is well documented at a number of localities in the Somme and Selle valleys, as well as in the Paris Basin. In the Selle this phase is represented at the Gravière du Marais at Conty (Fagnart & Coudret 2000a; Fagnart & Coudret in press) where the lower layer is stratified at the base of the regionally defined Allerød soil (Fig. 28). Strong typological affinities exist between these finds and those of the uppermost occupation horizon in section 27 at Pincevent in the Paris Basin which has been dated to 11 870 ± 130 BP (Bodu & Orliac 1996). In contrast, the complex of sites found at Saleux (loci 109, 114, 234, 244, 244/5, 284a, 284b, 294) appears mostly to belong in the second half and at the end of the Allerød oscillation (J.-P. Fagnart, pers. comm. and Fig. 28).

Although there seems to be some variability, assemblages of the *phase récente* generally show an increasing preponderance of simple curved backed blades pointed at one end (*mono-pointes à dos courbe*). In the Somme valley there is an indication of a broad evolutionary change in these assemblages through time but the differences rest on slight contrasts concerning the methods of reduction and the mode of flint procurement (Fagnart & Coudret in press). In the Paris Basin the upper level at Le Closeau, dating to the end of the Allerød, is characterised by a simplification of the methods of debitage with a reduced emphasis on bladelet manufacture (Fagnart pers. comm.). A similar feature may also be seen at one of the locations at Saleux ('La Vierge Catherine' locus 114). Here the main difference with the earlier Federmessergruppen appears to be in the preferential use of the hard hammer mode throughout the whole of the reduction sequence (Fagnart & Coudret 2000a, 120). Core preparation also seems to have been less systematic, using the natural convexity of nodules to guide the early removals and generally with infrequent use of platform abrasion. The platforms of opposed platform cores seem to have been used independently (ibid., 121). According to Fagnart and Coudret (2000a), the observed changes are accompanied by the use of poorer quality flint for manufacture. At Saleux (locus 114) backed mono-points make up 38% of the tool assemblage. They are on relatively thick supports, with the backed edge much closer to the midline. Backed knives were still relatively abundant (16%). Of the other tool classes burins on truncation outnumber dihedral examples by a factor of 4:1.

In assessing these variables it is clear that Nea Farm and Hengistbury Head share far greater affinities with industries of the *phase ancienne* than with those of the younger Federmessergruppen of northern France. In the absence of large numbers of backed tools it is difficult to draw any more definite conclusions. However, whereas the presence at Hengistbury of a range of backed blades (*lames et couteaux à dos retouché*) and backed bladelets (*lamelles à dos*) seems to suggest analogues with its namesake Hangest-sur-Somme III.1 (lower layer), it cannot be ruled out that the Nea Farm assemblage has parallels in the *phase récente* artefact material from the lower layer at Gravière du Marais at Conty (Fagnart & Coudret 2000a). An idiosyncrasy of the Nea Farm and Hengistbury assemblages, not so far reported in any of the Northern French Federmessergruppen assemblages, is the appearance of intentionally segmented blades. The presence of large blades with flat scalariform retouch (Figs. 9 & 10) does however suggest parallels with the equivalent of the older Azilian and Federmessergruppen assemblages in France, as mentioned above.

One reason for the difficulty in searching for comparisons lies in the small and isolated nature of the Nea Farm assemblage when compared to published examples such as at Saleux. Here, the two scatters at 'Les Baquets' (loci 234 and 244) each contain 4 000 – 6 000 artefacts (Coudret & Fagnart 2004) as opposed to Nea Farm's 1 600 artefacts. At Saleux, the remains cover an area of about 60 m^2 for locus 234 and both contain distinctive hearth combustion zones (three in the case of locus 244) (Coudret & Fagnart 2006, Fig. 4). The two concentrations are separated by a distance of about 20 m and were probably contemporary. As has been mentioned above, the Nea Farm assemblage is distributed over a much smaller area (15 - 20 m^2) and no other major scatters were found nearby despite repeated survey and test-pitting, neither were associated hearths located. A similar case in point is the site of La Sagesse characterized by only two closely spaced scatters of about 5 m^2 and 6 m^2 and an absence of hearths.

Looking only at site function and structure (rather than chronology), it is interesting to note that both of the Saleux loci at 'Les Baquets' are regarded as relatively small by Federmessergruppen standards

(Coudret & Fagnart 2006), especially in relation to locations in the Paris Basin (Bodu 2000; Bodu, Debout & Bignon 2006), Belgium (De Bie & Caspar 2000) and the Rhineland (Baales & Street 1996; Street et al. 2006; Baales 2006). Perhaps a closer analogue for the Saleux sites, at least locus 234, might be that of Hengistbury Head. The English site has evidence of combustion zones (inferred from burnt artefacts) and the concentrations of lithic material are of broadly similar shape and size. For example at locus 234 the main scatter covers an estimated area of 33 m^2 (Coudret & Fagnart 2006, Fig. 3) whereas at Hengistbury the figure is closer to 36 m^2 (Barton 1992). In addition, each contained a high proportion of broken backed armatures probably mainly the result of manufacturing accidents, though at Hengistbury there were also 'used' examples with impact breaks.

So far this discussion has left out of consideration the Late Glacial lithic assemblages from Northern Germany or the Netherlands, which might also provide sources of comparison with the British sites (Barton 1992). Part of the reason for the omission of these regions is an absence of any clear chronological framework, just as in Britain. However, recent re-assessment of radiocarbon dates associated with archaeological sites in both the German and Dutch regions suggests that this situation may soon be remedied (Grimm & Weber 2008). One interesting outcome of this work has been to highlight the chronological separation of the classic Hamburgian from the Havelte group of assemblages (the latter is recognized as an immediate precursor of the Federmesser-gruppen). In northern Germany the transition from the Hamburgian appears to coincide with a phase of climatic amelioration marked by a rise in *Salix* (willow) and other arboreal pollen values (Grimm & Weber 2008, 30). The authors also tentatively suggest that, at the open-air site of Ahrenshöft LA 73, the archaeological layers show a mixture of tanged and shouldered points that may be indicative of a transitional facies. If a similar model were to be applied to southern Britain, it could account for the presence of shouldered and tanged components in backed blade assemblages of Hengistbury-type and this may in turn point to such sites occupying a chronologically earlier phase than assemblages dominated by curved backed points.

Conclusions

The Nea Farm assemblage represents a well-defined and homogeneous artefact cluster of Final Upper Palaeolithic type. Despite the fairly diffuse nature of the cluster, denser concentrations of material of 1 - 2 m in diameter can be identified within the overall 15 - 20 m^2 area. The presence of microdebitage and the refitting evidence suggest that the artefacts were recovered largely in situ and had accumulated on a stable substrate characterised by a relatively low slope angle. Nevertheless it is clear that some loss of material had occurred due to wind winnowing and surface colluvial processes.

The age of the assemblage can be broadly determined by luminescence dates which confirm that the sediment containing the archaeological material is the product of silt deposition (probably originally by aeolian activity, followed by some surface wash) since the last glacial maximum. A more refined assessment is made difficult due to a relatively high degree of grain mobility as a result of small scale bioturbation since deposition. Instead, comparative evidence, especially with reference to continental parallels, indicates that Nea Farm is similar to assemblages known from the Allerød or just pre-Allerød phase of the Late Glacial Interstadial.

The nature of activities represented at the site can be broadly inferred from the types of tools recovered, from refitting evidence and, to a lesser extent, from microwear analysis. A pilot microwear study of the artefacts has indicated that many of the flints show signs of surface alteration that may first have occurred quite soon after the artefacts were lifted out of the ground. If such effects can be mitigated by reducing the exposure to air, it may be possible in future to obtain better samples for such studies. Based on more conventional macroscopic approaches, it can be demonstrated that tools such as the becs and burins underwent heavy forms of use at the site.

From the refitting evidence, it is clear that knapping took place on site and that the flint sources lay nearby. However, there are several intriguing signs that blades and some tools were part of a process of artefact circulation that involved the transfer of products both into and away from Nea Farm. Of interest in this respect is the absence of burin spalls and the presence of artefacts of exogenous striped flint, including deliberately snapped blades. The latter products also occur at the site of Hengistbury Head located in the same river catchment. These observations, together with the relatively small size of the scatter and the lack of hearths, indicate the ephemeral nature of the Nea Farm occupation and we would therefore suggest that the site was a satellite of a more permanent residential location such as the one at Hengistbury. Ultimately, it would be useful to re-study the Hengistbury collection more carefully with these ideas in mind. For example, it might be possible to demonstrate by refitting and raw material studies that a direct connection existed between Hengistbury and Nea Farm, or with other so far unknown sites of similar size and type located along the major river valleys of the Stour and Avon.

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