

LINDSEY ARCHAEOLOGICAL SERVICES

# Land at Tumby, Lincolnshire

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# Archaeological Evaluation II

(Extraction Areas 1-1 and 1-2)

**Report Prepared For** 

# Woodhall Spa Sand and Gravel Ltd

by m. medaid & n. field

# LAS Report No: 603 July 2002

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Contents	
Summary	1
Introduction	1
Planning Background	1
Site Location	2
Archaeological Background	2
Summary Of Previous Archaeological Investigations At Tumby	3
Archaeological Excavation II Aims and Objectives Method Recording System Results Finds	3 4 4 5 7
Fieldwalking Survey Method Results	7 7 8
Discussion	9
Conclusion	10
Acknowledgements	11
References	11
Archive List	11
Appendicies Appendix 1: Evaluation Context List Appendix 2: Pottery Report Appendix 3: Botanical Report	

Appendix 4: Evaluation Flint Report

Appendix 5: Fieldwalking Flint Report

# List of Figures

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Fig. 1 Site location also showing excavated sites at Kirkby on Bain and Tattershall Thorpe (reproduced from the OS 1:25,000 map with the permission of the Controller of HMSO © Crown copyright. LAS licence AL1002165).

Fig. 2 Plan and section of Trench 1.

Fig. 3 Plan of Trench 2 and section through palaeo-channel.

Fig. 4 Plotted fieldwalking finds.

### List of Plates

Pl. 1 General view of Trench 1. Looking south west from Trench 2.

Pl. 2 Trench 1 post excavation. Looking north west. Scales 2m

Pl. 3 Animal Disturbance 130 at the west end of Trench 1. Scales 0.50m and 1m.

Pl. 4 Scoop 118, sectioned, looking north west. Scale 1m.

Pl. 5 Postholes 145 and 147. South east facing section. Vertical scales 0.10mm, horizontal scale 0.50m.

Pl. 6 Postholes 153, 162, 164 and 166. North east facing sections. Scales 0.50m and 1m.

Pl. 7 Posthole 151, north east facing section. Vertical scales 0.10m, horizontal scale 0.50m.

Pl. 8 Pit 103, north facing section. Vertical scales 0.10m, horizontal scale 0.50m.

Pl. 9 Pit 105, sectioned. Looking south. Scales 0.50m and 1m.

Pl.10 Pit 113, sectioned. Looking south west. Vertical scales 0.30m, horizontal scales 0.50m and 1m.

Pl.11 Pit 149, sectioned. Looking north west. Vertical scales 0.10m, horizontal scale 1m.

Pl.12 Scoop 112, north east facing section. Scales 0.50m and 0.30m.

Pl.13 Scoop 143, sectioned. Looking south west. Vertical scales 0.10m, horizontal scale 2m.

Pl.14 Excavation of the slot through 115 in progress.

PI.15 North east facing trench section. Vertical scales 2m, horizontal scale 2m.

Pl.16 Location of Trench 2. Looking south.

Pl.17 Trench 2, post excavation. Looking north west. Scales 2m.

Pl.18 Ditch/ furrow 203, sectioned. Looking south east. Vertical scales 0.10m, horizontal scale 0.50m.

Pl.19 Ditch 220, sectioned. Looking south east. Vertical scales 0.10m, horizontal scale 0.30m.

PI.20 Pit 207, north east facing section. Vertical scales 0.50m, horizontal scale 1m.

PI.21 Tree bole 222, south west facing section. Vertical scales 0.30 horizontal scale 1m.

PI.22 Palaeo-channel at the west end of Trench 2. Looking north west.

PI.23 Channels 240 (far right) and 237, posthole 244 (left of vertical scale), north east facing section. Vertical scales 1m, horizontal scale 2m.

Pl.24 Channel 235, north facing section.

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PI.25 Channel 232 (right of vertical scale) and flood deposits 212, 231 and 234, north east facing section. Vertical scale 1m, horizontal scale 2m.

Pl.26 Channels 230 (right) and deposits 231, 212, 226, 227, 218/228, north east facing section. Vertical scale 0.50m, horizontal scale 2m.

and Planning authority dated October 13th 2000.

# Planning Background

Woodhall Spa Sand and Gravel Ltd has applied for planning permission to extract sand and gravel on land at Tumby application nos. (E)S189 & 176/1353/99. A further application has been made for the temporary storage of topsoil and subsoil on land between the River Bain and east of the proposed mineral extraction site, application no. (E) S189/1248/00. A request was made by the Highways & Planning Directorate (dated October 13<sup>th</sup> 2000), following submission of an Environmental Statement, for further archaeological evaluation of the area prior to determination of the application.

The scheme of works addresses the additional requirements set out by the Highways and Planning Directorate, and supplements the Environmental Statement already submitted.

## Site Location

The proposed application site lies to the west of Tumby village 10km SW of Horncastle (Fig. 1), at a height of around 10m O.D. It is bounded to the west by the course of the Old River Bain, and to the east by the former Horncastle canal. An earlier course of the River Bain flows through the site partly followed by the parish boundary between Tumby and Tattershall Thorpe.

## Archaeological Background

A survey of mineral extraction and its impact upon archaeological sites in North Lincolnshire in 1976 (Field 1977) identified the lower Bain Valley area as one of considerable archaeological potential. This led to excavations at West Ashby in 1977 (Field 1985) and Tattershall Thorpe, Iron Age enclosure in 1980 (Chowne et al. 1986) and 1986 (Chowne 1986); Tattershall Thorpe, Neolithic settlement in 1981 (Chowne et al. 1992) and West Ashby in 1984. More recently excavations at Grange Farm Quarry, Kirkby on Bain have revealed extensive evidence for Neolithic occupation (Field 1995 and Taylor 1996, Field and McDaid forthcoming).

Other archaeological remains in the area include a concentration of Bronze Age metalwork from Tattershall Thorpe village which, although too far away from the present site to have a direct impact, does indicate that the area continued to be settled in this period. Iron Age enclosures near Tattershall Airfield are some of the most important in Lincolnshire.

Roman occupation in the area is less clear with few dated finds, Roman pottery has been found in the top fills of Iron Age ditches and a coin hoard was found in quarry workings at Tattershall Thorpe. It is likely that at least some of the cropmarks recorded in the area are Roman in date.

Only two finds of Anglo-Saxon date have been found in the area but one of these is of international importance; a 6<sup>th</sup> century smith's grave found during excavation of the Neolithic site at Tattershall Thorpe (Chowne 1986).

## Summary of Previous Archaeological Investigations at Tumby

In order to assess the archaeological potential of the site a fieldwalking survey was carried out in 1998 (Williams 1999). 716 pieces of flint were found and their distribution was confined to the sandy outcrops in the north-east, centre and south-east parts of the site. The only flints recovered from the peat soils were found adjacent to the sand islands, probably due to soil movement, either the result of ploughing or gravity. The flint assemblage showed activity beginning in the early Neolithic and continuing into the Bronze Age. Material representing all phases of the production process was present in the assemblage indicating that artefact manufacture was being carried out at Tumby. There was no pre-Neolithic (i.e. Mesolithic) component in the assemblage.

Following the fieldwalking survey a second stage of evaluation was carried out in 1999 comprising the excavation of three trenches. Trench 1 (132m in length) was positioned across a former course of the River Bain revealing that a series of flood deposits masked three main palaeochannels. Samples of the peat deposits from the river courses were taken for environmental analysis. The northernmost channel was the earliest and a calibrated radiocarbon date of 2835 - 2340 B.C was obtained from the peat filled channel.

Trenches 2 and 3, each 40m x 10m, were positioned on either side of the watercourse to examine the junction between the sand islands and the peat deposits and to investigate the potential presence of preserved prehistoric land surfaces. No such deposits survived and no features of Neolithic date were recorded.

184 flints were retrieved from the evaluation trenches, of which 70 were found on the plough surface prior to excavation. Quantities of material were present only at the northern end of Trench 2 where both Neolithic flints and pottery were found. Trench 3, to the south, on another sand outcrop also produced Neolithic pottery and flint, in deposits at the lowest point of the trench, but, like Trench 2, they were washed down from higher ground. The evaluation trenches both showed high levels of erosion and truncation and very little survival of prehistoric land surfaces.

# Archaeological Evaluation Trenches

### Aims and Objectives

The character and extent of the Neolithic/Bronze Age activity which is represented as a dense spread of worked flint on the sand islands was not defined during the first evaluation excavation and further investigation of the north island was requested by the Archaeology Section, Lincolnshire County Council.

The purpose of the trial trenching was to

- establish the presence or absence, quality and extent of prehistoric features, associated with the flint scatters within the development area
- enable an informed decision to be made regarding the future treatment of any archaeological remains and consider any appropriate mitigatory measures in advance of extraction

#### Method

The evaluation comprised two trenches (Fig. 4), each 40m x 10m, machined using a  $360^{\circ}$  excavator. Trench 1 was placed over an area of the island where the flint scatter was dense. Trench 2 was positioned over a part of the site where few flints were found, close to peat deposits near the northern boundary of the site. Originally intended to be aligned north – south the trench had to be repositioned on an east – west axis due to the presence of overhead electricity cables and the close proximity of a water pipe.

# **Recording Systems**

Archaeological recording was carried out by a team of 8 experienced archaeologists, including a Site Director. Each trench was machine excavated to the top of the first recognisable archaeological horizon, using a toothless ditching bucket. The trenches were then hand-cleaned to reveal features in plan. Carefully selected cross-sections through the features were excavated to enable sufficient information about form, development date and stratigraphic relationships to be recorded without prejudice to more extensive investigations should these prove to be necessary. Selected samples were taken for environmental assessment.

LAS operates a standard context recording system, developed by its staff over the past 20 years based on MOLAS and CAS models. A full written (single context) and photographic record (in colour print and slide) was made of the site, including site plans at a scale of 1:50 and feature section drawings at 1:10 and 1:20. A main trench section was drawn at a scale of 1:50.

A temporary bench mark (9.99m O.D.) was set up on the site, its OD height calculated from the temporary bench mark used for the evaluation in 1999.

# Results

# Trench 1 (Fig. 2, Pls. 1 and 2)

Trench 1 was positioned in an area with a high density of flint, found during the fieldwalking. Beneath the topsoil, **100**, was a brown subsoil, **101**, generally 0.15m deep, remains of an earlier plough horizon. This deposit sealed the prehistoric features which cut into the base of a former Neolithic horizon, **115**, a mottled dark orange coarse sand. The trench contained a great deal of animal activity, particularly at the east end of the trench, recorded as **130** (Pl. 3).

Scoops **118** (Pl. 4), **124/141** and **139** were only a few centimetres deep and had orange brown silt sand fills (**119**, **125/142** and **140**). It is difficult to determine if these features are archaeological in origin. There close proximity to machine damage **132** may mean they are of similar origin.

Thirteen possible postholes were recorded, but some were little more than a centimetre deep. All contained a mottled dark orange brown silt sand fill. Postholes **137**, **145** (Pl. 5), **166** (Pl. 6), **153** (Pl. 6) and **151** (Pl. 7), formed a line, with **147** (Pl. 5) and **164** possibly acting as replacement or support posts. Alternatively, another line could be made from postholes **128**, **107** and **151**. Posthole **109** could then be seen as a replacement post for **107**. Given the shallowness of the features and the extent of animal damage to the site it is difficult to say with certainty that the above features do form structures. Only posthole **134** produced any pottery, but unfortunately it was of a fabric that could not be positively identified. Postholes **122** and **134** were not associated with other postholes.

Five pits were present, four of which, **103**(Pl. 8), **105** (Pl. 9), **113** (Pl. 10) and **149** (Pl. 11), were aligned approximately north-south. The pits varied in shape- **105** was rectangular (and the shallowest at 0.03m deep), **103**, **113** and **116** were ovoid features whilst **149** was somewhere between the two types. The pits had slightly better survival than the postholes, a few, **113** and **116**, were deeper than 0.20m.

Four scoops, **112** (Pl. 12), **120**, **143** (Pl. 13) and **155**, were noted along the centre of the trench. These appeared to lie over, not cut into, the remains of the Neolithic surface, **115** (Pl. 15), and as such mark a separate phase of deposition, filling undulations in the top of **115**. Flints and pottery, which appears to be intrusive, were recovered from the mottled dark brown silt sand fills (**121**, **144** and **156**).

A 2m wide slot was excavated by hand (Pl. 14), through the remains of the possible Neolithic surface **115** to retrieve further dating and to expose the deposits beneath. This layer was noted to undulate, reflecting the undulations in the yellow clay, **136** (Pl. 15), and yellow sand, (**158**, **160**, **161**, **157** and **159** (Pl. 15)), below. No flints were recovered from the **136** or **102**.

Sand **102** may be a post-glacial wind blown sand whilst clay **136** would appear to mark a phase of flooding.

# Trench 2 (Fig. 3, Pls. 16 and 17)

Trench 2 was *c*.130m northeast of Trench 1, in an area with few flints. Removal of the 0.30m deep topsoil, **200**, revealed that the ground sloped towards the west. Subsoil **201**, found only on the west slope, was a dark blue clay silt, suggesting it was a mixture of hillwash and flood material and not an earlier plough horizon as seen in Trench 1. It had a maximum depth of only 0.22m and the features in Trench 2 were extremely truncated due to modern ploughing.

A possible ditch or furrow, **203** (Pl. 18), aligned east- west, truncated at both ends, was recorded in the centre of the trench. No finds were recovered for dating but given the colour of its fill, a mottled olive brown, **204**, it is likely that this feature is not prehistoric. A north-east /south-west linear feature, **220** (Pl. 19), possibly the base of a ditch, was noted to the east of **203**. One flint was retrieved from its mottled dark orange brown sand silt fill **221**. To the south was a 0.65m deep pit, **207** (Pl. 20), only half exposed in plan that produced more than 10 pieces of flint from its fills. Its upper fill, **211**, consisting of burnt silty sands, had a high charcoal content. Below **211**, was a mottled orange brown sand silt, **210**, which sealed an orange brown sand silt, **209**, which in turn overlay a dark brown sand, **208**, the primary deposit. Despite the presence of flints in its fill it is unlikely that the pit was prehistoric in date because it was much deeper than any of the features on the site. An undated scoop **205**, filled by a dark grey brown silt clay, **206**, and the remains of a tree bole **222** (Pl. 21), which contained a dark brown clay sand for its upper fills (**223** and **224**) and a light brown sand for its primary fill, **225**, were also present.

Covering almost all the eastern half of the trench (16.35m) was a palaeochannel (PI. 22). A 1m wide slot was dug through the palaeochannel revealed a sequence of smaller channels and flooding incidents that began at the east end of the channel and headed west.

The earliest channel, **240** (Pl. 23), was only partially exposed in the west end of the slot, not enough to enable any dimensions to be recorded. It contained a grey sand clay upper fill, **238**, which became sandier towards the base, and a deposit of laminated sands and clays which contained wood and shells, **239**. The next channel, **237** (Pl. 23), was *c*.6m wide. Its upper fill, **246**, was gravel which covered a deposit of laminated silts, pea grit and sand, **214**, 0.03 – 0.05m thick. Below **214** were more laminated silts and sands, **215**, overlying bands of orange and white sand and gravel which became mixed in places, **241**. Part of a cattle bone was retrieved from this fill. Towards the western edge of the channel was a yellow and white sand and grey clay mix, **242**. This deposit seems to be the result of two different environmental actions: flooding (clays) and wind blown sand/hillwash (sand). The primary fill, **243**, a grey clay silt, was sampled for pollen survival. The base of **237** was not exposed due to the

collapse of the trench sides. East of **237** was a *c*.2m wide channel, **235** (PI. 24). It contained one fill, **236**, laminated sands and gravels 0.04m - 0.10m thick which became sandier to the west and contained more gravel to the east.

A layer of sand and clay laminates, **213** (PI. 23 and 24), 0.30m thick, sealed the above channels. Layer **213** was cut by channel **232** (PI. 25) which contained more sand and clay bands, **233**. A 0.10m thick flood deposit of blue grey clay, **234** (PI. 25), sealed **233**. Another deposit identical to **213**, **231** (PI. 25) was beneath. A *c*.1.50m wide, gravel filled channel, **230** (PI. 26), truncated the east end of **231**. To the east of **230** was a layer of blue clay, **218/228** (PI. 26). Another sequence of hillwash and flooding, **226** (PI. 26), occurred next. More recent clays, **217**, **227** and **212** (All PI. 26) sealed **226**. These clays were partially absorbed into the subsoil (**201**) at the east of the palaeochannel.

# The Finds

A number of pottery sherds of a previously unrecognised fabric were retrieved. The small size of the pieces made positive identification impossible, and the pottery could equally be earlier prehistoric, Iron Age or Saxon in date (Appendix 2).

Flints retrieved from the evaluation dated from the late Mesolithic to the Bronze Age, with the majority being early Neolithic in date. The assemblage suggests the site was used as an 'quarry' with the raw flint being collected as outwash from the river banks (Appendix 4).

#### Fieldwalking Survey Method

The inconclusive results of the trial excavations led to a reconsideration of the evaluation strategy. With so few features surviving an alternative to excavation was required to try and characterise the site. Provision had been made for sieving of material from test pits laid out in a grid. On reflection it was felt that given that so few flints were present below topsoil level a programme of intensive fieldwalking would produce a more extensive coverage of the survey area and might pinpoint areas of activity as well as provide a good assemblage of worked flint.

The survey area was walked in transects 2.5m apart (giving a 40-50% coverage of the land) and finds individually recorded using a geodimeter 640 total station 1' machine and geodimeter super prisms, providing a two-dimensional co-ordinate for each find.

Contact between the fieldwalkers and the surveyors was maintained using two-way radios. For the first day three people fieldwalked whilst one person plotted finds and prepared the transepts for walking. Due to the density of finds retrieved during the first day it was decided that each fieldwalker would carry their own prism and directly report to the surveyor when the recording of a find was required. Artifacts found in the backfill of the two evaluation trenches were retrieved but not plotted. Pre-numbered bags were used to ensure there was no duplication in the field.

In accordance with the specification, post-medieval material was noted but not collected. In addition, animal bone was not retrieved as bone found on the surface cannot be assigned to a specific archaeological period.

A small area on the southern sand island, to the west of the walked area, was overgrown with grass and could not be walked.

### Results (Fig. 4)

Conditions for finds retrieval during fieldwalking were not ideal as much of the area walked had a growing crop which reduced visibility of the ground surface, particularly the southern edge of the northern sand island and the northern edge of the southern sand island. Visibility was also reduced, from time to time, by bright sunshine and a very strong wind. The ploughsoil consisted of a mid to dark brown silt sand. A high percentage of brown flint was noted over the survey area as a whole, which made identification of worked flint more difficult. The edges of the sand islands flanking the former river channel produced very few finds. These areas lie below the higher ground where more dense concentrations of archaeological material were recorded and are sealed by deeper deposits of topsoil, which has moved downhill over centuries of agricultura! use of the land.

Despite the poor conditions the number of artifacts recovered was substantial and the survey produced more than 5000 artifacts, the majority of which were flint, with only 26 pottery sherds, accounting for less than 0.5% of the total finds.

Obvious post medieval pottery was not collected accounting for its absence in the pottery assemblage. The pottery retrieved spanned the Iron Age to medieval periods (see Appendix 2). The presence of Iron Age /Anglo-Saxon pottery on the ground surface contributes to the doubtful prehistoric date of the excavated pottery.

There was a marked difference in the density of finds from the north and south sand islands (see Appendix 5). 80% of the flints were retrieved from the north island and 20% from the south, the greatest concentration being in the south-east corner of the north island. This reflected the pattern already noted in the earlier fieldwalking programme carried out in 1998, although the wider transects had not identified the concentration.

The finds from the two islands differed slightly in both date and composition of flint type. The majority of flints on the north island were Early Neolithic in date with a smaller late Neolithic/Bronze Age component and a few Mesolithic flints. 66% of the flints from the north island were flakes and 76% from the south island. 13% were identified as cores from the north island with only 9% from the south island. The early Neolithic material was less well

represented on the south island whereas the late Neolithic/Bronze Age material was more evenly distributed between the two areas.

#### Discussion

The evaluation trenches dug in 1999 were positioned in the lower reaches of the valley in areas where alluvial deposits were deepest. It was thought that these areas had the highest potential for prehistoric remains undisturbed by modern ploughing. Excavation established that while deposits containing Neolithic pottery and flint did survive they were probably all derived from material washed down from higher ground and features contained no finds. 80% of the flints came from the north island and 20% from the south island. The greatest concentration of the flint was at the south east corner end of the north island, on the higher ground. This concentration was reduced on the lower slopes, but remained significant, being denser than that of the south island.

The trenches were located using information from the 1998 fieldwalking survey, before the true extent of the north sand island flint concentration had been identified. In retrosrect the south east corner of the north island would have been more appropriate. The presence of worked flints in the topsoil over Trenches 1 and 2 indicated that they had probably moved down the valley slopes through natural erosion and regular ploughing. It was concluded that the areas close to the river channel were too steep and possibly too wet for occupation, and the 2002 evaluation was undertaken to investigate those areas of higher ground where it was thought that occupation evidence might be present.

The preliminary assessment of the flint assemblage shows that the north island had 13% cores and 66% flakes whilst the southern island had 9% cores and 76% flakes. A small percentage of flakes, 4.3% from the north island, 14.5% from the southern island, were late Mesolithic/early Neolithic in date, indicating the south island was more intensively used during the Mesolithic.

The series of small palaeochannels recorded in the western half of Trench 2 showed that at least part of the area was subjected to regular flooding. Evidence of soil creep from higher ground was also present. The absence of flint on the ground surface around Trench 2 was shown to be a genuine absence and not an indication of better preservation below ground; the land was too wet for prehistoric activity.

Trench 1 of the 2002 evaluation lay within an area containing the higher density of flints. While a few features were present in this area their survival was poor due to truncation by later ploughing, and their date was not proven, the associated pottery being possibly Iron Age in date or even Anglo-Saxon.

The flint assemblage recovered during fieldwalking, carried out after the 2002 evaluation, is more characteristic of manufacturing activity rather than domestic occupation. Movement of the meandering river through the gravels would have resulted in exposing flint pebbles on the banks, providing an easily accessible source of raw materials. Preparation of the raw material was the primary activity on the site, with relatively few flakes being reworked/adapted as tools. Occupation of the site may have been seasonal and transitory. The northern area appears to have been more heavly exploited, the site of most, if not all, of the temporary camps with the focus of activity in the early Neolithic. In contrast the late Neolithic/early Bronze Age activity was more evenly distributed. The more permanent communities were probably living at sites such as Grange Farm in Kirkby on Bain, 0.8km away and at Tattershall Thorpe, 150m to the north west.

The animal activity recorded in Trench 1 also suggests that no deposits on the sandy outcrop are secure for environmental sampling and that only the larger palaeochannels should be considered for further sampling. The samples taken from the palaeochannel in Trench 2 were largely negative.

Pottery from the site has been scarce, and animal and root disturbance on the site make it unclear whether it was intrusive or provided a true date for the features containing the sherds. They have, however, proved to be of intrinsic interest because some are of a hitherto unrecognised fabric which, without a diagnostic form to the sherds, could be earlier prehistoric, but equally might be Iron Age or Saxon in date.

#### Conclusion

The excavations have shown that what little survives by way of features has been extensively damaged by ploughing and cannot be securely dated, while the intensive fieldwalking programme has identified concentrations of flints and a focus of activity on the north island. It is therefore recommended that no further evaluation/excavation work should be carried out since results to date have failed to identify well-preserved or significant remains.

The intensive fieldwalking however has not only pinpointed areas of activity within the general distribution pattern of worked flints but has also produced an important assemblage of Neolithic material of regional importance. These flints undoubtedly merit further detailed analysis, especially in relation to the other assemblages from Grange Farm and Tattershall Thorpe. It is, however, considered that this work lies outside the remit of archaeological investigations required as part of the planning process outlined in PPG16. Therefore it is recommended that any detailed research might be undertaken under the supervision of a university department.

# Appendix 1

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Context	Area	Туре	Length	Width	Depth	Description
100	1	Layer	Trench	Trench	0.30m	Topsoil
101	1	Layer	Trench	Trench	0.30m	Subsoil
102	1	Layer	Trench	Trench	n/a	Natural
103	1	Cut	1.5m	0.5m	0.11m	Pit
104	1	Fill	1.5m	0.5m	0.11m	Fill of 103
105	1	Cut	1.55m	0.65m	0.03m	Pit
106	1	Fill	1.55m	0.65m	0.03m	Fill of 105
107	1	Cut	0.40m	0.30m	0.02m	Pit
108	1	Fill	0.40m	0.30m	0.02m	Fill of 107
109	1	Cut	0.40m	0.20m	0.03m	Pit
110	1	Fill	0.40m	0.20m	0.03m	Fill of 110
111	1	Fill	3m	1.75m	0.26m	Fill of 112
112	1	Cut	3m	1.75m	0.26m	Pit
113	1	Cut	3m+	1.75m	0.22m	Pit
114	1	Fill	3m+	1.75m	0.22m	Fill of 113
115	1	Layer	Trench	Trench	0.27m	Base of Prehistoric Surface
116	1	Cut	1.50m	0.78m	0.20m	Pit
117	1	Fill	1.50m	0.78m	0.20m	Fill of 116
118	1	Cut	1m	0.63m	0.01m	Pit
119	1	Fill	1m	0.63m	0.01m	Fill of 118
120	1	Cut	2m+	1.15m <sup>,</sup>	0.12m	Scoop
121	1	Fill	2m+	1.15m	0.12m	Fill of 120
122	1	Cut	0.52m	0.42m	0.03m	Scoop
123	1	Fill	0.52m	0.42m	0.03m	Fill of 122
124	1	Cut	1m	0.25m	0.02m	Pit
125	1	Fill	1m	0.25m	0.02m	Fill of 124
126	1	Cut	0.50m	0.30m	0.05m	Posthole
127	1	Fill	0.50m	0.30m	0.05m	Fill of 126
128	1	Cut	0.58m	0.37m	0.04m	Posthole
129	1	Fill	0.58m	0.37m	0.04m	Fill of 128
130	1	Cut	c.10m	c.2m	n/a	Animal Disturbance
131	1	Fill	c.10m	c.2m	n/a	Fill of 130
132	1	Cut	1.50m	0.85m	0.09m	Modern Disturbance
133	1	Fill	1.50m	0.85m	0.09m	Fill of 132
134	1	Cut	0.45m	0.40m	0.07m	Posthole
135	1	Fill	0.45m	0.40m	0.07m	Fill of 134
136	1	Layer	Trench	Trench	0.10m	Yellow Clay
137	1	Cut	0.33m	0.15m	0.03m	Posthole
138	1	Fill	0.33m	0.15m	0.03m	Fill of 137
139	1	Cut	1m	0.25m	0.02m	Scoop
140	1	Fill	1m	0.25m	0.02m	Fill of 139
141	1	Cut	1m	0.25m	0.02m	Scoop
142	1	Fill	1m	0.25m	0.02m	Fill of 141
143	1	Cut	3m	2m	0.10m	Scoop
144	1	Fill	3m	2m	0.10m	Fill of 143
145	1	Cut	0.40m	0.40m	0.10m	Posthole
146	1	Fill	0.40m	0.40m	0.10m	Fill of 145
147	1	Cut	0.40m	0.40m	0.10m	Posthole
148	1	Fill	0.40m	0.40m	0.10m	Fill of 147
149	1	Cut	1.60m	0.80m	0.06m	Pit
150	1	Fill	1.60m	0.80m	0.06m	Fill of 149
151	1	Cut	0.60m	0.30m	0.13m	Pit

# TUM O2 Context List

Context	Area	Туре	Length	Width	Depth	Description
152	1	Fill	0.60m	0.30m	0.13m	Fill of 151
153	1	Cut	0.35m	0.35m	0.05m	Posthole
154	1	Fill	0.35m	0.35m	0.05m	Fill of 153
155	1	Cut	2.6m	1.80m+	0.09m	Scoop
156	1	Fill	2.6m	1.80m+	0.09m	Fill of 155
157	1	Cut	10m+	3.65m	n/a	Channel
158	1	Cut	10m+	2.35m	n/a	Channel
159	1	Cut	10m+	4.15m	n/a	Channel
160	1	Cut	10m+	3.65m	n/a	Channel
161	1	Cut	10m+	3.50m	n/a	Channel
162	1	Cut	0.30m	0.30m	0.06m	Posthole
163	1	Fill	0.30m	0.30m	0.06m	Fill of 162
164	1	Cut	0.42m	0.30m	0.06m	Posthole
165	1	Fill	0.42m	0.30m	0.06m	Fill of 164
166	1	Cut	0.46m	0.35m	0.06m	Posthole
167	1	Fill	0.46m	0.35m	0.06m	Fill of 166
101			0.4011	0.0011	0.0011	1 11 01 100
200	2	Laver	Trench	Trench	0.30m	Topsoil
201	2	Laver	Trench	Trench	0.22m	Subsoil
202	2	Laver	Trench	Trench	n/a	Natural
203	2	Cut	4 50m+	0.90m	0.10m	Ditch
204	2	Fill	4.50m+	0.90m	0.10m	Fill of 203
204	2	Cut	1.00m	0.50m	0.1011	Scoop
205	2	Eill	1.90m	0.50m	0.17m	Fill of 205
200	2		2.25m	0.5011	0.65m	Fill 01 203
207	2		1.20m	0.0011+	0.0011	Fit
200	2		2.25m	0.0011+	0.22111	Fill of 207
210	2		2.25111	0.0011+	0.20m	Fill of 207
210	2		1 2.2011	0.0011+	0.2011	Fill of 207
211	2		10m	0.00111+	0.2111	
212	2	Layer	10m+	11.75m	0.2411	Ciay
213	2	Layer	10m+		0.29m	
214	2		10m+	<i>c</i> .3m	0.40m	Fill of 237
215	2		10m+	<i>c</i> .1m	0.21m	Fill of 237
210	2		10m+	C.4.50m	0.70m+	FIII 01 237
217	2		10m+	1.90m	0.17m	Base of Prenistoric Surface?
210	2	FIII	10m+	1.50m	0.20m	Blue Clay
219		0.1	Not Used	0.05	0.40	Dital
220	2		+mc	0.35m	0.13m	
221	2		+mc	0.35m	0.13m	
222	2		3.30m	1.50m	0.35m	
223	2		0.60m	0.50m	0.13m	Fill of 222
224	2		0.65m	0.60m	0.15m	
225	2		3.30m	1.50m	0.35m	Fill of 222
220	2	Layer	10m+	1m	0.09m	Laminated Sand and Clay
227	2	Layer	10m+	4.40m	0.18m	Blue Clay Sand
228	2	Layer	10m+	1.50m	0.20m	Blue Clay
229	2	Fill	10m+	1.50m	0.24m	Fill of 230
230	2	Cut	10m+	1.50m	0.24m	Channel
231	2	Layer	10m+	4.35m	0.35m	Laminated Sand and Clay
232	2	Cut	10m+	3.40m	0.40m	Channel
233	2	Fill	10m+	3.40m	0.40m	Fill of 232
234	2	Layer	10m+	6.90m	0.10m	Blue Clay

# TUM O2 Context List

Context	Area	Туре	Length	Width	Depth	Description
235	2	Cut	10m+	<i>c</i> .2m	0.46m	Channel
236	2	Fill	10m+	<i>c</i> .2m	0.46m	Fill of 235
237	2	Cut	10m+	<i>c</i> .6m	0.82m+	Channel
238	2	Fill	10m+	0.74m+	0.36m	Fill of 240
239	2	Fill	10m+	1.50m+	0.60m+	Fill of 240
240	2	Cut	10m+	1.50m+	0.96m+	Channel
241	2	Fill	10m+	2.50m	0.50m	Fill of 237
242	2	Fill	10m+	1.20m	0.44m+	Fill of 237
243	2	Fill	10m+	5m	0.10m	Fill of 237
244	2	Cut	n/a	0.80m	0.30m	Posthole
245	2	Fill	n/a	0.80m	0.30m	Fill of 244
246	2	Fill	10m+	1.40m	0.19m	Fill of 237

# Appendix 2

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# Pottery Archive TUM02

Jane Youn	Jane Young Lindsey Archaeological Services										
context	ref no	cname	full name	sub fabric	form type	sherds	weight	part	description	date	condition
100	-	MISC	Unidentified types	greensand quartz	jar ?	1	5	BS		Iron Age or Anglo- Saxon	abraded
100	-	MISC	Unidentified types	local sand	?	1	3	BS		Prehistoric/Iron Age/Anglo-Saxon	very abraded
100	-	MISC	Unidentified types	greensand quartz	?	1	2	BS		Iron Age/Anglo- Saxon	very abraded
100	- 2	CHARN	Charnwood ware		?	1	1	BS	? ID	Anglo-Saxon	very abraded
100	-	IA	Iron Age	local sand	small jar	1	4	rim	local sand including greensand & erratic	Iron Age	abraded
100	SF5040	WS	White stoneware		small hollow	1	3	rim		18th	
100	SF5158	R	Roman pottery	greyware	jar	1	58	base		Roman	very abraded
100	SF5159	RGRE	Reduced glazed red earthenware		large bowl	1	36	BS		17-18th	slightly abrade
100	SF5160	R	Roman pottery	greyware	jar	1	55	rim		Roman	very abraded
100	SF5161	MISC	Unidentified types	sparse quartz	?	1	11	BS	black fabric	Roman ?	very abraded
100	SF5162	MISC	Unidentified types	mixed sand	?	1	9	BS	very mixed sand incl greensand erratic & basalt ?	Prehistoric/Anglo- Saxon	very abraded
100	SF5163	MISC	Unidentified types	fine mixed quartz	?	1	6	BS			
100	SF5164	MISC	Unidentified types	greensand	?	1	6	base		Prehistoric/Anglo- Saxon	very abraded
100	SF5166	FREC	Frechen stoneware		jug	1	6	BS		17th	

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18 July 2002

Page 1 of 3

context	ref no	cname	full name	sub fabric	form type	sherds	weight	part	description	date	condition
100	SF5167	BL	Black-glazed wares		large bowl	1	10	BS		17-18th	
115	SF5057	MISC	Unidentified types	mixed quartz	small jar	1	3	BS		Roman/Iron Age	very abraded
115	SF5073	MISC	Unidentified types	mixed quartz	?	1	7	base	most quartz angular but some greensand occ sst	Prehistoric/Anglo- Saxon	very abraded
115	SF5143	ST	Stamford Ware	A	jar	1	26	rim	folded rim;unglaze;poor fabric	11th	
115	SF5209	MISC	Unidentified types	angular quartz	?	1	5	BS	large angular quartz some aggregate sst	Prehistoric/Anglo- Saxon	
131	SF5112	MISC	Unidentified types	fine mixed quartz	?	2	2	BS		Prehistoric to Saxo-Norman	very abraded
135	SF5072	PREH	Prehistoric wares			1	5	BS		Prehistoric	abraded
144	SF5094	MISC	Unidentified types	local sand		1	2	BS	mixed sand incl greensand	Prehistoric/Anglo- Saxon	very abraded
144	SF5101	MISC	Unidentified types	mixed quartz & flint	?	1	1	BS		Prehistoric/Anglo- Saxon	very abraded
field walking	SF10091	MISC	Unidentified types	millstone grit	?	1 .	13	BS		Iron Age/Anglo- Saxon	
field walking	SF10438	CHARN	Charnwood ware		small jar	1	4	rim		rounded rim	
field walking	SF6006	SLIP	Unidentified slipware		bowl	1	8	base	little glaze left	18th	abraded
field walking	SF6014	MISC	Unidentified types	quartz	?	1	9	BS	subround to round quartz	Iron Age to medieval	very abraded
field walking	SF6017	MISC	Unidentified types	quartz	?	1	2	BS	subround to round quartz	Iron Age to medieval	very abraded
field walking	SF6045	ΤΟΥ	Toynton Medieval Ware		small jug	1	7	rim		13-15th	very abraded
field walking	SF6124	BERTH	Brown glazed earthenware		bowl	1	20	BS		18th	abraded

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Page 2 of 3

context	ref no	cname	full name	sub fabric	form type	sherds	weight	part	description	date	condition
field walking	SF6202	MEDLOC	Medieval local fabrics	OX/R/OX;fine-med sandy	jar	1	2	BS		13-15th	abraded
field walking	SF6515	PREH	Prehistoric wares	basalt inclusions	?	1	5	BS		Bronze Age ?	abraded
field walking	SF6786	ТВ	Toynton/Bolingbroke wares		large open vess	1	74	base	interior glaze	16-17th	abraded
field walking	SF7146	R	Roman pottery	greyware	jar	1	1	BS		Roman	very abraded
field walking	SF7282	WEMS	Wheelthrown Early Medieval Shell-tempered		bowl	1	7	rim	leached surfaces;triangular rim	12th ?	abraded
field walking	SF7401	FREC	Frechen stoneware		jug	1	3	BS	tiger glaze	late 16-17th	
field walking	SF7428	MEDX	Non Local Medieval Fabrics	oxid;med quartz & chalk/limestone	?	1	38	base	subround quartz & chalk/limestone	13-17th	very abraded
field walking	SF7534	GRE	Glazed Red Earthenware		bowl/jar	1	18	base		17-18th	
field walking	SF8868	MISC	Unidentified types	local sand	?	1	106	BS	sand includes greensand & erratic	Prehistoric	very abraded
field walking	SF8975	R	Roman pottery	oxidised	small jar	1	4	rim	black surfaces	Roman	
field walking	SF9050	R	Roman pottery	greyware	jar	1	3	BS		Roman	very abraded
field walking	SF9231	PREH	Prehistoric wares	basalt incl	?	1 -	2	BS	basalt inclusions;possibly decorated	Bronze Age ?	very abraded
field walking	SF9266	R	Roman pottery	greyware	jar	1	6	BS		Roman	very abraded
field walking	SF9298	ТВ	Toynton/Bolingbroke wares	3	jar	1	137	base	interior glaze	15-17th	abraded
field walking	SF9306	MEDLOC	Medieval local fabrics	OX/R/OX;med sandy;hard	jug	1	13	handle	ribbed strap;subround quartz;	13-15th	very abraded
field walking	SF9465	R	Roman pottery	greyware	jar	1	6	BS		Roman	very abraded
field walking	SF9948	PREH	Prehistoric wares	local sand ?	?	1	7	BS	sand incl greensand polished flint & fine grained sandstone	Prehistoric	very abraded

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Page 3 of 3

# Appendix 3

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# Tumby Quarry *Tumby* Lincolnshire

# Botanical Report

# Contents

1. Introduction

2. Method

3. Results

4. Conclusions

Acknowledgements

Appendices I-II

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# 1. Introduction

1.1 As part of archaeological investigations at Tumby Quarry, Tumby, Lincolnshire by Lindsey Archaeological Services, Archaeological Services WYAS were commissioned to undertake the analysis of selected soil samples. Three pit fills (104, 106 and 111) were assessed in order to provided some indication of the activities occurring in the vicinity. Bioturbation was noted during excavation, however, and contamination of the samples is possible.

# 2. Method

2.1 Soil samples of between two (104) and ten litres (106 and 111) were subjected to a system of flotation in an Ankara-style flotation tank. The floating remains (the flot) were collected in a  $300\mu$ m sieve and the heavy fraction (the retent) was collected in a 1mm mesh. The flots, once dry, were scanned using a binocular microscope and the results are presented in Appendix I. The retents were scanned by eye for both ecofacts and artefacts, after which the stony fraction exceeding 4mm was discarded (see Appendix II).

# 3. Results

# Flot samples

- 3.1 No charred cereals, chaff or weed seeds were present in any of the three samples, indicating that crop processing did not occur in the vicinity. Charred wood fragments were also absent.
- 3.2 Contamination of the deposits by modern seeds and root fibres was noted.

# Retent samples

- 3.3 Flint pieces were commonly recorded, although only one fragment represented a possible flint blade. No hammerscale was noted.
- 3.4 Wood charcoal fragments were recovered from deposits 106 and 111, but of insufficient size to be appropriate for AMS dates. Such small quantities of charcoal may also represent wind blown material, with bioturbation working the fragments into the pit fills.

# 4. Conclusions

- 4.1 In the absence of charred cereal grains, chaff or weed seeds, crop processing was not identified from the environmental record. Charred material was present in the form of wood charcoal, but only in very small quantities.
- 4.2 With the exception of a possible flint blade, no artefacts were recovered.

# Acknowledgements

*Client* Lindsey Archaeological Services

Project Management Jane Richardson PhD

*Report* Jane Richardson PhD

Laboratory work Jason Dodds BSc

# Appendix I. Results from the flot samples

Contex number	Sample number	Flot volume	Cereal grain	Charred Seeds	Cereal chaff	Cha qty.	Charcoal Unch qty. large frags. pla		Comments
10	4 7	>1ml						+-+-+-	
10	5 10	5ml						++++	Modern seeds include Chenopodium sp.
11	1 6	2ml						++++	Modern Chenopodium sp.

Key: + = rare(1-5), + + = occasional(6-10), + + + = common(11-50), + + + = abundant(>50), \* = sufficient charred material for AMS date

# Appendix II. Results from the retents

Context	Sample	Retent	Cereal	Channed	Cereal	Cha	rcoal	Animal	
number	number	volume	grain	Seeds	chaff	qty.	large frags.	bone	Comments
104	7	50ml							Flint blade – heat affected?
106	10	100ml				+			
111	6	100ml		4		+			

Key: + = rare(1-5), + + = occasional(6-10), + + + = common(11-50), + + + = abundant(>50), \* = sufficient charred material for AMS date

# Appendix 4

No.

# Land at Tumby, Lincolnshire TUM 02

Lithic Materials: Catalogue and Assessment

Report by Jim Rylatt – March, 2002

# 1.0 Introduction

This report relates to an assemblage of lithic material recovered during the excavation of a site at Tumby, Lincolnshire. A total of 202 pieces of struck flint were retrieved. The total weight of these items was approximately 1,450g.

# 2.0 Description

#### 2.1 Raw material

All of the lithic artefacts examined were produced from flint. Where cortical surfaces survived it was possible to establish that the raw materials were derived from secondary deposits. The vast majority of the cores, irregular waste (chips/chunks), primary flakes and secondary flakes have areas of thin, abraded cortex. Where relatively large areas of this surface survive, it generally exhibits a rounded profile. This indicates that the nodules utilised were water-transported pebbles and cobbles. This means of transportation limits the size of the constituent nodules, and also accounts for the considerable variation in the colour, composition and quality of the components of the assemblage.

Tumby is situated toward the eastern edge of an extensive accumulation of river and glaciofluvial sheet deposits, which are interleaving layers of sand and gravel (B.G.S., 1995). Almost certainly, it is from the latter that the flint pebbles have been derived, coming either from the site itself, or from its immediate environs. Such pebbles would have been rolled and battered by glacial and fluvial forces prior to their initial deposition, resulting in the thin, irregular and pockmarked nature of their cortex. Additionally, the extreme temperatures experienced in a glacial or periglacial environment are likely to have caused many of the nodules to fracture. This process accounts for the sub-angular, recorticated surfaces evident on a number of the artefacts examined (e.g. 5039). Additionally, the thermal degradation of nodules may have resulted in the creation of latent fractures that would only become manifest at the time that the nodules were selected for knapping. As a consequence it would have been almost impossible to impose control over the reduction of these cores, leading to their premature rejection (e.g. possibly 5133), or the creation of some of the irregular waste.

The collection of flint from secondary deposits is likely to have been a relatively expedient process. This may simply have involved the inspection of tree throws, or the banks of streams and other adjacent bodies of moving water (Edmonds, 1995). Alternatively, the creation of slight delves into the upper surface of out cropping gravel beds may have proved to be a more reliable means of acquisition, and may possibly account for some of the more irregular earthcut features encountered in the area.

# 2.2 Condition

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The majority of the pieces examined were in relatively good condition. However, a number of flakes recovered from the topsoil and other superficial deposits exhibited evidence of slight damage along their edges. This is likely to result from rolling associated with ploughing or other taphonomic processes that cause the bulk movement of sediment.

# 2.3 Characteristics of the assemblage

Context	Core	Core fragment	Chip/chunk	Primary flake	Secondary flake	Tertiary flake	Side scraper	Notched flake	Microliths	Barbed & tanged arrowhead	Knife	Backed blade	Fabricator	Point
100	5	3	4		17	17		1		1	2		1	
111					2	5	1		1					
114			1		3	4								1
115	1	9	14	2	33	34		1				1		
121					1									
131			1		2	2								
144			2		4	5		,						
150					2	1				-				
152		1	1											
156			1		1	1								-
209	1		1	1										
210			2		3	2								
211			2											
221					1									
Total	7	13	29	3	69	71	1	2	1	1	2	1	1	1

Table 1: Composition of the lithic assemblage, showing its relationship to archaeological contexts.

Cores / (core frags.)	Chips/ chunks	Flakes	Tools	Blades & blade-like flakes	Retouch & visible use-wear	Burnt	Total				
Area 1											
6 (13) 3.2 + 6.8%	24 12.7%	136 72.0%	10 5.3%	63	29	15	189 (33.3%) (15.3%) (7.9%)				
			Area 2								
1 7.6%	5 38.5%	7 53.9%		2	1	5	13 (15.4%) (7.6%) (38.5%)				
20	29	143	10	65	30	20	202				
(9.970)	(14.470)	(10.070)	4.570)	(52.270)	(14.970)	().)/0					

Table 2: Composition of the lithic assemblage, showing attributes and modifications.

#### Cores and core fragments

Together, these elements constitute 9.9% of the assemblage. The single core recovered from Area 2 was an unpatterned multiple platform (Cb) type. Only 25% of the cores and core fragments recovered from Area 1 were of a comparable form. The others were single platform cores (A1 - 5%; A2 - 10%), opposed platform cores (B1 - 20%) and forms that do not closely conform to standard typologies (Clark, 1960) and are best described as 'blade and flake'. The relative prevalence of opposed platform and 'blade and flake' cores may be largely determined by the mean size and shape of the pebbles selected for knapping.

As would be expected with blade production, many of the cores exhibit signs of careful preparation and maintenance/curation. Although generally small, not all of the cores have been worked to exhaustion. This may reflect the ease with which further flint nodules could be obtained at the site.

## Flakes

Flakes represented 70.8% of the total assemblage. Examination of the scars on the dorsal surfaces of the flakes indicates two distinct patterns of working. Many of the flakes can be classified as blades, or result from associated 'narrow flake' reduction technologies (46.3% in Area 1). These artefacts exhibit signs of having been removed from prepared cores, with single, or two opposed platforms. Additionally, some of the other less diagnostic flakes show signs of precise and controlled removal and are probably core trimming flakes. These items provide further evidence that the cores were being carefully maintained during reduction.

The majority of the blades and narrow flakes have flat platforms, many of them very small. However, there are also a number of complex platforms that could be considered to be true faceted butts. Furthermore, most of the bulbs of percussion are diffuse or relatively diffuse. This almost certainly indicates that they were produced by soft hammer (e.g. antler) or pressure techniques. Finally, there is a very high incidence of feathered terminations. These attributes indicate that the flint was worked in a highly controlled way, which is characteristic of earlier, post-glacial technologies.

Rather fewer flakes were the products of multiple-platform working, with the latter cores being characterised by a relatively random patterning of the relationships between the platforms. The flakes created by this less formalised system of working tend to be squat and can often be relatively thick. Additionally, they have a greater tendency toward more pronounced bulbs and hinged terminations. Around 12.5% of the flakes in Area 1 could be ascribed to this system of working (with a reasonable degree of confidence). However, it is likely that a large proportion of the 41.2% of undifferentiated flakes will also belong in this latter group, as the attributes of unsystematic, multiple-platform working are less clearly displayed upon flake fragments.

Along with most of the cores and the irregular waste, 72 of the flakes (50.3%) are cortical. This relatively high incidence probably results from the nature of the raw materials, as waterborne cobbles and pebbles have a relatively high surface area in comparison to flint mined from beds in the chalk. Together with the cores, the large number of cortical flakes indicate that the initial stages of core reduction was a significant activity at the site. The proportion of complete cores (7) to flakes is 1: 20.

# Retouched flakes, tools and modified flint

The assemblage contains 30 items (14.9%) that have either been transformed into tools (4.9%) or have been modified with minimal retouch (10%). This indicates that in addition to core reduction, tools were being manufactured and/or used in the immediate environs of the site at Tumby. The forms of the tools are summarised in Table 1.

Surprisingly, very little of the flint has been burnt. There were only 20 such pieces in the whole assemblage. However, this material was unevenly distributed between Areas 1 and 2. There were 15 pieces in Area 1, which represents only 7.9% of the material recovered from this trench. In contrast, five pieces (38.5%) of the worked flint from Area 2 had been heated to the extent that its crystalline structure had been altered. It is likely that these differences are significant, but the very small size of the collection obtained from Area 2 inhibits any meaningful comparison. Nevertheless, the fact that flint was being burnt indicates that there must have been a number of fires, or even hearths, in the immediate vicinity during the prehistoric period. The higher incidence of burnt flint in Area 2 may provide indications as to the approximate location of these features.

### 3.0 Dating

Some 63 blades or narrow blade-like flakes were recovered from Area 1. These would have been produced from cores comparable to the A1, A2 and B1 types found on the same part of the site. Additionally, a number of the other flakes have parallel flake scars on their dorsal faces suggesting that they are products of the same industry. These morphological attributes attest to highly controlled patterns of working, which indicate that this component of the assemblage was manufactured during the later Mesolithic and/or Early Neolithic.

A single microlith, a backed blade recovered from (111), was produced during the earlier part of this date range. Another backed blade retrieved from (115) was also probably manufactured during the later Mesolithic. A notched blade, found in (100), is most likely to have been manufactured during the later Mesolithic, but would not be atypical of earlier Neolithic industries. The fabricator, (100), the point, (114), and the side scraper, (111), are even less chronologically sensitive, but are all products of Late Mesolithic to Early Neolithic technology.

It is also clear that a smaller component of the assemblage can be attributed to later activity. These artefacts exhibit the morphological traits of a less formalised pattern of core reduction that is characteristic of the later Neolithic to Early Bronze Age. Indicators include the use of irregular multiple platform cores, combined with the production of relatively squat and irregular flakes. Few of the retouches pieces can be confidently attributed to this period of activity. However, the two knives retrieved from (100) were produced on relatively thick, broad, truncated flakes, and are likely to belong to this period of activity. Additionally, there is the finely crafted barbed and tanged arrowhead also found in (100). This is a Green Low type, which is slightly more elaborate and more unusual than the ubiquitous Sutton type. Barbed and tanged arrowheads were used in Britain between c. 2,500BC and c. 1,000BC, but the Green Low type belongs to the first half of this date range. It has been found in funerary contexts associated with Beakers (c. 2,700 – 1,700BC), but not with the subsequent Food Vessels or Urns (c. 2,000 – 1,400BC).

The small quantity of worked lithic material recovered from Area 2 is broadly comparable with the larger collection, having pieces that are characteristic of both later Mesolithic to Early Neolithic and, later Neolithic to Early Bronze Age date. Only 13 items were recovered from this area. This is a very small group, making it difficult to establish its character and also serving to amplify any biases. These factors notwithstanding, this small sub-set of the total assemblage gives a general impression that there is rather less Late Mesolithic to Early Neolithic activity in this area. While this may indeed result from a skewed assemblage, it also possible that it provides a tentative suggestion as to the extent and focus of earlier activity.

# 4.0 Discussion and conclusion

It is evident that the lithic assemblage recovered from the excavation at Tumby represents a palimpsest of activity taking place over hundreds if not thousands of years. This is unsurprising, as the gravel beds that outcrop across the area between Mareham-le-Fen, at the north, and New York, to the south, must have represented a plentiful and unending source of raw materials throughout the prehistoric period (q.v. Healy, 1992). The composition of the assemblage appears consistent with the notion that the site served as a 'quarry'. As well as the cores and core fragments, the large number of primary and secondary flakes, and the irregular waste provides compelling evidence that core reduction was a significant activity.

Many of the flakes have diffuse bulbs suggesting that they were produced by soft hammer or indirect percussion techniques. The use of antler in this technology possibly explains the absence of stone hammers in the assemblage. However, although complete hammerstones were not recovered, the cortical surfaces of one or two pieces (e.g. 5147) exhibited crushing consistent with the repeated striking of another stone; these pieces may relate to the later multiple-platform technology.

It is likely that the blades and narrow flakes were produced at various times through out the later Mesolithic and Early Neolithic, rather than being the product of a single event. The microlith and backed blade provide clear evidence for a Late Mesolithic presence, while many of the bigger blades and the end scraper produced on a worked-out core, 5026, are likely to be products of Early Neolithic activity.

There are also a number of artefacts, which suggest a Late Neolithic and/or Early Bronze Age presence. As with the early material, evidence of core reduction dominates. The most diagnostic artefact from this period, a barbed and tanged arrowhead, is a projectile. It is thus entirely possible that it was lost during a hunting expedition or other off-site event unrelated to the activity reflected by the other elements of the assemblage.

The low quantity of utilised flakes and tools suggests that there was no permanent occupation of the site throughout this period, although this does not discount the possibility that there may have been a series of small temporary camps. Insufficient diagnostic artefacts were recovered from sub-surface features to enable the latter to be dated.

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# **TUM 02**

# Catalogue of worked and modified lithic materials

# Key to abbreviations:

Туре	frag. chip/chunk backed bl.	fragment irregular waste backed blade	
Tool/utilised flake	poss.	possibly	
Weight			in grams
Bulb	mod.diff. mod.pron.	moderately diffuse moderately pronounced	
Termination			
Dorsal scars	plat.	platform	
Cortex	recort.	recorticated	
Burnt	prob.	probably	
Date	L. Meso/L.M. E. Neo/E.N. Mid. Neo L. Neo/L.N. E.B.A. B.A. L.B.A.	Late Mesolithic Early Neolithic Mid Neolithic Late Neolithic Early Bronze Age Bronze Age Late Bronze Age	
Dimensions			in millimetres
Comments	poss. prob. frag. prox. dist. lat. post-dep. prev. vent.	possibly probably fragment proximal distal lateral post-depositional previously ventral	

**NB:** Measurements are given only for complete flakes. The first figure relates to the maximum length, measured perpendicular to the striking platform; the second to maximum breadth, measured at a right angle to the length. Figures for the percentage of cortex relate to the total area of the dorsal surface and platform.

# Illustrations

- 5221 Point platform removed and abrupt retouch along proximal end.
- 5187 Notched and denticulate blade
- 5059 Microlith backed blade
- 5182 Utilised flake abrupt retouch creating crude end and side scraper
- 5050 Side scraper
- 5036 Notched flake
- 5149 Fabricator
- 5171 Small blade core A2
- 5026 End scraper produced on blade core
- 5223 Barbed and tanged arrowhead, Green Low type.

# TUM 02 FLINT LIST

Find No	. Context No.	Type	Tool/util.	Compl.	Weight	Platform	Bulb	Termin.	Dorsal scars	Cortex	Burnt	Date	Dimen	Comments
5001	115	flake	no	yes	6.5	cortical		feathered	two plat.	40%; thick, abraded	no	Duto	31 x 35	pebble core, initial stages of reduction
5002	115	flake	no	yes	4	flat	mod. pron.	hinged	single plat.	40%, thin, abraded	no		27 x 27	bending flake
5003	115	flake	no	yes	18	cortical	diffuse	feathered	5	100%; thin, abraded	no		56 x 31	primary flake from river pebble
5004	131	chip	no	-	2.5				flake	thin, abraded				
5005	131	flake	no	yes	1.5	cortical	diffuse	feathered	single plat.	very thin, recort	no		21 x 12	from sub-angular, pre-fractured pebble
5007	115	flake	no	yes	2.5	flat	diffuse	feathered	two plat.	<5%; thin, abraded	no		24 x 39	blade-like flake, struck diagonally, poss, L. Me
5008	115	flake	no	no	<1			feathered	single plat.	50%; thin, abraded	no		18 x 15	prob. L. Meso/E. Neo
5009	115	chip			<1				<b>.</b>	no	Ves			heavily burnt, granular flake frag.
5010	115	chip	no		<1					thin, abraded	no			one polished surface but probably natural
5011	115	flake	no	no	4	small: complex	diffuse		single plat.	40%:thin, abraded	no	L. Meso/F. Neo		
5012	115	chunk	no		48	,			flakes	no	no			some flake removals poss natural: post-depo
5013	115	flake	no	yes	5	abraded/crushed	mod. pron.	feathered	single plat.	80%; thin, abraded	no	L. Neo/E.B.A.	40 x 25	
5014	115	flake	no	no	3.5	abraded/crushed	mod. pron.		single plat.	<5%; thin, abraded	no			incipient bulb - i.e. miss-hit once prior to flake
5015	115	flake	no	ves	4	flat	diffuse	feathered	single plat.	<5%; thin, abraded	no	L Meso/F Neo	55 x 16	
5016	144	chunk			2.5				<u>3</u> p	<5%; thin, abraded	no		00 / 10	
5018	144	flake frag.	ves	no	2.5				two plat.	no	no			small area of semi-abrupt retouch prox end of
5019	115	core frag.	no	no	32				single plat.	thin, abraded	no			prob L Neo/ E B A : from oval river nebble
5020	115	flake	no	no	<1	small: complex	mod. diff.		single plat.	no	no			poss thinning flake from tool manufacture
5021	115	flake	no	Ves	<1	verv small, flat	diffuse	feathered	single plat	no	no		19 x 15	
5022	115	flake	no	Ves	<1	very small flat	diffuse	hinged	single plat	no	10		13 × 9	
5023	115	flake	no	ves	<1	small crushed	diffuse	feathered	two plat	no	0	I Neo/E B A	24 x 22	
5024	115	flake	no	Ves	2	flat	mod. diff.	feathered	two plat	no	no	2. 1100 2.0.7	32 x 18	wider at base, but not plunging flake
5025	115	flake frag	no	no	1	small complex	diffuse	.outror ou	single plat	no	0	I Meso/E Neo	02 X 10	which at base, but not plunging have
5026	115	core	Ves	Ves	50 -				three plat	thin abraded	0	L Meso/E Neo	57 x 31	series of large blade-like flakes removed: base
5027	115	flake	no	no	<1	small complex	diffuse		single plat	40% thin abraded	0	L Meso/E Neo	5/ 201	provimal fragment of small blade
5028	115	flake frag	no	no	<1	ernen, eenplak	amaoo	feathered	single plat	very thin	10	L. MC30/L. 1400		provinal Magnetic of Small blade
5029	115	flake	no	Ves	15	flat	diffuse	feathered	single plat	15%; thin abraded	10		32 × 14	prob. E. MESORE. NEO
5030	115	flake	no	ves	1	flat	diffuse	feathered	single plat	<5%; thin, abraded	10	I Meso/E Neo	35 × 15	
5031	121	flake frag	no	no	9.5	flat	mod diff	1000110100	two plat	30%; thin, abraded	00	E. MOSOL. 1100	00 × 10	onnosed platforms, large flake
5032	115	flake	no	Ves	1	verv small	diffuse	hinged	single plat	no	0	I Meso/E Neo	33 × 10	nost-denositional damage along one lat edge.
5033	115	core frag.	no	no	15.5	tory official		migod	three +	thin abraded	0	L Neo/E B A	00 X 10	multi-nlatform flake removals
5034	115	chunk	no		4					no	00	2. 1100 2.0.7 (		flake removals prob   Neo/F B A
5035	115	flake	no	Ves	7	flat	mod diff	feathered	two plat	25% thin abraded	no		35 × 22	some post-depositional damage
5036	115	notched flake	ves	Ves	<1	flat	diffuse	feathered	single plat	no	no		24 × 16	dist and one lat edge removed by abrunt rate
5037	115	flake	no	Ves	3	flat	diffuse	feathered	two plat	50%: thin abraded	10	I Neo/E B A	23 × 30	struck from partially recordicated people: poss
5038	115	chunk	no	,	15			100010100	multi	thin abraded	00	2. 1100 2.0.7 .	20 × 00	
5039	115	flake	no	Ves	9.5	cortical	diffuse	hinged	single plat	med abraded	00		43 x 24	from sub-angular flint nebble: some nost-dep
5041	115	core frag.	no	no	19.5				three +	no	00		10 / 24	hade and flake scars
5042	115	flake	no	ves	11	flat	diffuse	feathered	single plat	<5% thin abraded	no	I Meso/F Neo	59 x 17	series of large blade-like flakes removed: some
5043	115	core frag.	no	no	22				two +	thin abraded	00	2. 1100012. 1100	60 X 11	blade and flake scars
5044	115	core frag.	no	no	42.5				three +	no	0			blade and flake scars but prob I Meso/F Ner
5046	115	chip	no		<1					no	00			
5048	115	flake frag	no	no	<1	flat	diffuse		single plat	no	Ves	I Meso/E Neo		proximal frag, blade-like flake
5049	115	core frag.	no	no	40				four +	thin abraded	,00	2. 11000/2. 1100		blade and flake scars, but prob I Meso/E Ner
5050	111	side scraper	Ves	Ves	10.5	flat	mod pron	feathered	single plat	25%: recorticated	00	I Meso/E Neo	41 x 22	blade scars on dorsal face, semi-abrunt retouc
5051	111	flake frag	no	00	2		mou, prom	feathered	two plat	20 /0, 10001104104	10	L Neo/E B A	41 7 22	
5052	111	flake	no	Ves	12 5	flat	mod diff	feathered	three plat	no	10	L Neo/E B A	30 × 12	
5053	114	flake	no	Ves	3.5	small flat	diffuse	feathered	single plat	no	10	E. 1100/E.D./ 1.	$40 \times 17$	prob I Meso/E Neo
5054	114	flake	no	Ves	2	flat	diffuse	feathered	two onnoed	<5% thin abraded	00	Meeo/E Neo	38 - 11	P.00. E. 11000 E. 1100
5055	115	flake	Ves	ves	-	verv small	diffuee	feathered	single plat	25% thin abraded	10	L Meso/E Noo	34 4 12	two adjacent small notches at proviend one let
5056	114	chunk	,	,	4	tory ornan	unuoo	iounici cu	flake	thin abraded	0	L. WESUL. NEU	07 X 12	the adjacent sman notones at provend the lat
5058	111	flake frag	no	00	<1	flat	diffuse		single plat	nn, abrauco	Nec			burnt with granular structure and not lid fractu
5059	111	microlith backed b	ves	Vec	<1	removed		feathered	single plat	no no	yes	I Mecolithia	26 4 5	abrupt retouch at proviend one lat edge similar
5060	111	flake frag	ves	, no	1	10110400		feathered	single plat	no no	10	L. MOSUILING	20 8 3	use wear along one lateral adde
		nano nag	100	10				reathered	single plat.	10	110			use-wear along one lateral edge

eso/E. Neo

sitional damage

removal

one lateral edge; use wear other lat. edge

then flaked to make end scraper

small blade

buch; notch 5x3 in other lat. edge dist. End s. reused core

damage

e post-dep. damage

)

eo ch whole of one lateral edge

t edge, created by removal of abrupt flakes

ures lar retouch near centre of other edge

# TUM 02 FLINT LIST

5061	115	flake frag	no	no	<1	very small	diffuse		single plat.	no	no			
5063	115	flake frag	no	no	1					80%; thin, abraded	no			medial frag.
5064	114	flake	no	yes	<1	very small	diffuse	feathered	single plat.	no	no	E.B.A. (prob)	10 x 4	likely to be scale flake from sharpening edge
5065	114	flake	no	yes	2 <sub>BV 10</sub>	very small	diffuse	feathered	single plat.	10%; thin abraded	prob	L. Meso/E. Neo	45 x 13	blade, cortex at distal end appears to have be
5066	114	flake	no .	yes	1.5 😋 🚬	flat	diffuse	feathered	single plat.	<5%; recorticated	no	L. Meso/E. Neo	43 x 9	blade, produced on recorticated pebble; some
5068	115	flake frag	no	no	1	flat	mod. pron.		single plat.	no	no			parallel flake scars on dorsal surface
5069	115	flake	no	yes	2.5	flat	diffuse	feathered	two plat.	no	no	L. Neo/E.B.A.	34 x 28	
5070	115	flake	no	yes	3	flat	diffuse	hinged	two plat.	10%; thin abraded	no		30 x 19	
5071	115	core frag.	no	no	18				three +	med., abraded	no			blade and flake scars
5074	115	chip	no		<1					thin, abraded	no			
5075	115	flake	no	yes	<1	small, flat	mod. pron.	feathered	single plat.	no	no		19 x 12	
5076	150	flake	no	yes	<1	flat	diffuse	feathered	single plat.	40%; thin, abraded	no		13 x 10	
5077	115	flake	no	yes	1.5 🔬	flat	diffuse	hinged	single plat.	<5%, thin abraded	no		19 x 15	platform recorticated, poss. reuse of old core
5078	115	flake	no	yes	11	flat	diffuse	feathered	single plat.	25%, thin, abraded	no		27 x 45	
5079	115	flake	no	yes	2.5	flat	diffuse	feathered	single plat.	no	no	L. Meso/E. Neo	49 x 26	blade like flake struck diagonally from core
5080	115	flake frag	no	no	<1			feathered	single plat.	no	no	L. Meso/E. Neo		distal frag.
5081	115	flake frag	no	no	3			hinged	two, opposed	no	no			platform removed/broken off
5082	115	flake frag	no	no	2			feathered	single plat.	no	no	L. Meso/E. Neo		blade-like flake produced on poor quality, coa
5083	115	chunk			2.5					no	no			
5085	115	chunk			5.5					no	no			
5086	150	flake frag	no	no	1.5					35%; thin, abraded	yes			heavily burnt, granular structure
5087	150	flake	no	yes	1	flat	diffuse	hinged	two, opposed	no	no	L. Meso/E. Neo	37 x 12	blade
5088	115	flake frag.	no	no	2.5	complex, crushed	diffuse		single plat.	no	no			
5089	115	flake	no	yes	1.5	very small	diffuse	feathered	single plat.	no	no	L. Meso/E. Neo	33 x 23	
5090	115	chunk			17.5					thin, abraded	no			rounded base of pebble core, initial stages of
5091	144	flake frag	no	no	1			hinged	two plat.	no	no			
5092	144	flake	yes	yes	4	flat	mod. diff.	hinged	single plat.	40%: thin abraded	no	L Neo/E B A	33 x 28	use-wear along distal end of one lateral edge
5095	144	flake	no	yes	<1	small, crushed	diffuse	feathered	single plat.	20%: thin abraded	no		22 x 11	
5096	144	flake	no	ves	<1	small, flat	mod. pron.	feathered	single plat.	no	no		13 x 8.	
5097	144	flake	no	ves	<1	cortical	diffuse	feathered	single plat.	10%: thin abraded	no		13 x 21	
5098	144	chunk		,	25.5				flakes	thin abraded	no		10 21	flake removals prob I Neo/E B A
5099	152	chip	no		<1					no	no			hate removals, prob. E. NeorE.D.A.
5100	152	core frag.	no	no	13				two	0	Ves			blade and flake scars, probably I. Meso/E. No
5102	144	flake	no	Ves	1	flat	mod prop	feathered	single plat	no	yes		17 - 10	blade and have scars, probably L. Mesor L. Ne
5103	144	flake	no	ves	15	crushed	mod pron	feathered	single plat	20% thin abraded	20	L Neo/E B A	37 × 45	thick crudely worked flake - crushing borgin
5104	144	flake	no	ves	<1	flat	diffuse	feathered	single plat.	2070, triin, abraded	10	L. NOUL.D.A.	10 1 16	trick, crudely worked hake - crushing, heizia
5105	115	flake	no	ves	1	flat	diffuse	feathered	single plat.	no	10	Moso/E Noo	26 × 14	blada lika flaka atruak diagonalky from aara
5106	115	core frag.	no	no	11.5	inat	anraso	reationed	three	thin abraded	10	L. Mesure. Neu	30 X 14	ficks removals multipletform orudoly worker
5107	115	core frag	Ves	00	23.5				theo	thin, abraded	10	L. NEU/E.D.A.		hade and flake remained. lightly reportioned
5108	115	flake frag	00	0	1	small flat	diffuen		single plat		no			blade and hake removals, lightly reconcated,
5109	115	flake frag	0	200	1	Sindi, nat	unuse	feathered	single plat.	10	no	L. Meso/E. Neo		Diade-like trake
5110	115	flake	20	Nec	1	flot	diffuse	footborod	single plat.	10 150/ this shreded	no	L. Meso/E. Neo	00	blade tragment with thickened distal end
5111	115	chin	no	yes	1	llat	unuse	reathered	single plat.	15%, thin, abraded	no	L. Meso/E. Neo	36 X 19	parallel flakes scars on dorsal surrace
5113	131	floko			1	51-1		f	to a set of the	no	no			
5114	131	flake	10	yes	1.0	nat	amuse	feathered	two plat.	no 1501	no		22 x 12	
5115	115	flake free	10	no		removed		reathered	two, opposed	15%;; recorticated	no		33 x 24	produced on sub-angular recorticated pebble
5116	115	flake frag	no	no	<1			feathered	single plat.	40%; thin, abraded	no	L. Meso/E. Neo		distal frag. of blade
5110	115	flake frag	no	no	<1			reathered	single plat.	10%; thin abraded	no	L. Meso/E. Neo		distal frag. of blade
5110	115	nake irag	no	no	<1	nat	diffuse		single plat.	no	no			parallel flakes scars on dorsal surface
5118	110	CHUNK	no		12					thin, abraded	no			flake scars, prob L. Neo/E.B.A.
5119	115	TIAKE	no	yes	<1	very small, flat	diffuse	hinged	single plat.	no	no		21 x 11	small flake, probably from trimming/thinning d
5120	115	TIAKE	no	yes	1.5	flat	diffuse	feathered	single plat.	no	no	L. Neo/E.B.A.	19 x 17	
5127	115	Dacked blade	yes	yes	1	removed		feathered	single plat.	40%; thin, abraded	no	L. Mesolithic	35 x 11	abrupt retouch at prox end one lat. edge, and
5122	115	chunk	no		1.5					thin, abraded	no			
5123	115	tlake	no	yes	<1	flat	diffuse	feathered	single plat.	70%; thin, abraded	no		15 x 9	
5125	115	flake frag.	no	no	<1			hinged	single plat.	no	no	L. Meso/E. Neo		

-

e of tool. been burnt me post-depositional damage (looks like retouch)

parse grained flint

of core reduction

Veo

ian cone one thick hinged flake prev. removed

ed with insipient cone from mis-hit, d, then reused - one edge abruptly retouched

during latter stages of tool production

d distal end of other

5127	115	chip	no		<1					thin, abraded	yes			heavily burnt, granular structure, pot-lid fractu
5128	115	flake	no	yes	3.5	flat	diffuse	hinged	two plat.	no	no	L. Neo/E.B.A.	28 x 32	
5129	115	flake frag	no	no	<1	removed			single plat.	<5%; thin, abraded	no	L. Meso/E. Neo		medial frag.
5130	115	flake frag	no	no	<1	very small	diffuse		single plat.	no	yes	L. Meso/E. Neo		prox. frag, heavily burnt - granular with greasy
5131	115	flake	yes	yes	18	complex	mod. diff.	feathered	two plat.	25%; thin, abraded	no	E.B.A./L.B.A	54 x 31	crudely struck, thick angular flake, dorsal edg
5132	115	flake	no	yes	<1	flat	diffuse	hinged	single plat.	no	no		11 x 17	small trimming flake of poor quality coarse gra
5133	115	core	no	yes	103 🔅				two	thin, abraded	no	L. Neo/E.B.A.	50 x 52	half a river pebble; fairly crudely hit; abandone
5134	115	flake	no	yes	1.5	small, flat	diffuse	hinged	single plat.	no	no	L. Neo/E.B.A.	24 x 25	
5135	115	flake	no	yes	4	flat	diffuse	feathered		100%; thin, abraded	no		27 x 15	primary flake from river pebble
5136	115	flake frag	yes	no	1.5	flat	diffuse		single plat.	no	yes	L. Meso/E. Neo		prox. frag, heavily burnt - granular with greasy
5137	115	flake	no	yes	2	flat	mod. pron.	feathered	single plat.	30%; thin, abraded	no	L. Meso/E. Neo	30 x 18	blade like flake struck diagonally from core
5138	115	chip	no		<1					no	no			
5139	115	flake	no	no	1	removed			single plat.	25%; thin, abraded	no	L. Meso/E. Neo		medial frag of blade-like flake
5140	156	flake	no	yes	1.5	flat	diffuse	hinged	single plat.	<5%; thin, abraded	no		19 x 22	dorsal suface has parallel sided flake removal
5141	156	flake frag	no	no	<1			feathered	single plat.	no	no	L. Meso/E. Neo		distal frag. of blade
5142	156	chip	no		1					no	no			
5145	100	chunk	poss		31 🝸					>90%; thin, abraded	no			naturally fractured river pebble; poss. retouch
5146	100	core tool	yes	yes	59				single plat.	thin, abraded	no	prob L.M./E.N.	47 x 58	blade & flake core - prob A1, with platform ed
5147	100	chunk	poss		41.5				multiple	thin, abraded	no			crushing suggests brief use of pebble as harr
5148	100	core frag.	no	no	35 🛫				single plat.	thin, abraded	no	L. Meso//E. Neo		blade core, A2, on pebble frag, which subseq
5149	100	fabricator (bar-like	t yes	yes	19	flat	diffuse	feathered	single plat.	50%; thin, abraded	no	prob L.M./E.N.	62 x 19	large flake with triangular cross-sect, much of
5150	100	flake	no	yes	1	flat	diffuse	feathered	single plat.	no	no	L. Meso/E. Neo	31 x 13	blade with prob. post-dep. damage along one
5151	100	core tool	yes	yes	29.5				three +	thin, abraded	no		37 x 42	blade and flake core; one edge with cortical m
5152	100	core	no	yes	39				two	thin, abraded	no	L. Meso/E. Neo	57 x 30	opposed platform, B1, blade core; worked to e
5153	100	flake frag.	no	no	<1			feathered	single plat.	<5%; thin, abraded	no	L. Meso/E. Neo		distal frag. of blade
5154	100	core trag.	no	no	44				three	thin, abraded	no	prob L.M./E.N.		blade and flake core
5155	100	core trag.	no	no	23.5				two +	thin, abraded	yes			heavily burnt, granular structure, flake surface
5156	100	core	no	yes	42				two	thin, abraded	no	prob L.M./E.N.	43 x 41	blade and flake core; primarily blades, A2
5157	100	flake frag	no	no	/			reathered	two plat.	no	no	E. Neo		distal frag. large blade-like flake
5170	100	CNUNK	no		20.5				L	no	yes			irregular chunk of heavily burnt flint, granular
5171	100	core fleke free	no	yes	34				two	thin, abraded	no	L. Meso/E. Neo	4/ x 2/	blade and flake core; primarily blades, A2
5172	100	flake frag	no	no	<1	61-1	1.66	for all second	single plat.	no 100( Illia abaadad	no	L. Meso/E. Neo		medial frag of blade
5173	100	flake from	no	yes	3.5	nat	dimuse	reatnered	single plat.	40%; thin, abraded	no	prob L.M./E.N.	35 X 18	distal free blade like fishe
5174	100	flake frag	no	no	2.5		1:55	ningea	single plat.	20%; thin abraded	no	L. Meso//E. Neo		distal frag blade-like flake
5175	100	flake	10	yes	2	very small	diffuse	reathered	single plat.	no	no	L. Meso/E. Neo	21 × 5	densel of free has a scallel sided fields as a star
5170	100	flake frog	10	yes	2	small, crushed	diffuee	ninged	two plat.	10	no	I Mana / The	22 X 15	dorsal surace has parallel sided hake removal
5170	100	flake frag	10	no	2.0	small, flat	diffuse	factharad	single plat.	30%; thin, abraded	no	L. Meso/E. Neo		prox. trag. of blade-like tlake
5170	100	flake itag	10	no	7	51 a t	ما زار	feathered	two plat.	20%; thin abraded	no	1 Marca / 17 Marca	co	and the second second second second second
5120	100	flake	yes	yes	9	flat		hingod	single plat.	10	no	L. Meso/E. Neo	00 X 19	smail area of semi-abrupt retouch, prox. end (
5181	100	flake	10	yes	10.0	nat	diffuse	factbared	single plat.	15%, thin, abraded	yes		31 X 33	thick have
5182	100	flake	110	yes	0.0	Contical	ainuse	feethered	two plat.	40%, reconicated	no	L. Neo/E.B.A.	24 x 39	produced from sub-angular reconcated peop
5183	100	knife (ladge retaile)	yes	yes	0	lide	pron.	reathered	single plat.		no	L. Weso/E. Neo	41 X 23	large trungeted floke, couto/comi obrunt reter
5184	100	flake	n yes	yes	5	removed	diffuso	factbarad	two +	10	no	Mid Neo - B.A.	40 X ZZ	blade like fleke struck diagonally from ears
5195	100	flake	10	yes	J A F	complex	unuse mod diff	reathered		no	no	L. Meso/E. Neo	01 X 23	blade like hake struck diagonally norn core
5186	100	flake	yes	yes	4.5	Small, nat	diffuee	factbarad		10	no	L. Weso/E. Neo	30 X 23	have removing base of pyramidal baide core (
5187	100	flake	Noc	yes	5	complex	diffuso	factbarad	two plat.	10	10		JZ X ZZ	and let adap is denticulate: other has notable
5188	100	flake	yes	yes	4	small, nat	diffuse	feetbared	single plat.	<5%, thin, abraded	no	L. Meso/E. Neo	42 X 20	one lat. edge is demiculate, other has holdn a
5180	100	kaifo (lodgo rotouo)	huce	yes	2	smail, crushed	unuse	hingod	single plat.		no	L. Meso/E. Neo	37 X 15	bidue
5190	100	flake	nyes	yes	2 5	flot	diffuso	factbared	aingle plot	10	no	Mid Neo - B.A.	50 x 20	two lat. edges abilipity retouched - some bi-la
5191	100	flake	10	yes	3.5	ndl	diffuse	footbored	single plat.	10	10	L. Weso/E. Neo	JUX11	
5192	100	flake	10	yes	۲ ۲ ج	flat	mod diff	footbored	single plat.	10%: this abroded	10	L. Meso/E. Neo	44 X 13	
5193	100	flake	10	yes	2	flat	mod diff	feathered	single plat.		10	L. Meso/E. Neo	35 v 22	hlada like flake struck diagonally from our
5194	100	flake	10	yes	1 5	iidl	mod area	binged	single plat.	10%: this shreded	10	L. Weso/E. Neo	30 x 22	blade like flake struck diagonally from core
5195	100	flake	0000	yes	2	flat	mod diff	footbored	single plat.		no	L. WESO/E. NEO	23 × 20	proce use wear on one lat edge
0100	100	IIANG	puss	yes	2	lidt	moa. um.	reathered	two plat.	10	110		24 X 20	puss. use-wear on one lar. euge

# TUM 02 FLINT LIST

#### ures

y lustre

ge of prox. end has been abruptly retouched

rained flint

ned before exhaustion poss. frost damaged

sy lustre; poss. use-wear one lat. edge

#### als

h/post-dep. damage along one edge

dge retouched

mmerstone; poss. retouch along one edge

quently smashed further

of one lat. edge retouched; post-dep damage e lat. Edge

margin has been crudely retouched

exhaustion

es beginning to disintegrate

structure, some voids, some flake surfaces

#### als

one lateral edge; some post-dep. Damage

#### ble

n distal end and along one lateral edge uch on one edge; abrupt retouch along back

(A1); abrupt retouch/use-wear along distal end

at dist. end = removals from vent. face

acial removals, prox. edge semi-abrupt retouch

# TUM 02 FLINT LIST

5196	100	flake	no	yes	1.5	flat	mod. diff.	feathered	single plat.	no	no	L. Meso/E.Neo	23 x 13	
5197	100	flake frag	no	no	4 81	flat	diffuse		single plat.	20%; thin, abraded	no	L. Meso/E. Neo		prox. frag. large flake, with parallel sided scars
5198	100	notched flake	yes	no	2	small, cortical	diffuse		single plat.	<5%; thin, abraded	no	L. Meso/E. Neo		prox. frag. of large blade, with notch 7x3 remov
5199	100	flake frag	no	no	1.5			feathered	single plat.	no	no	L. Meso/E. Neo		distal frag. of blade
5200	100	flake	no	yes	2	flat	diffuse	feathered	two plat.	25%; thin, abraded	no		13 x 24	
5201	100	flake	yes	yes	2.5	small; complex	mod. diff.	feathered	single plat.	50%; thin, abraded	no		26 x 16	abrupt retouch distal end
5202	100	flake	no	yes	2	small; flat	mod. diff.	feathered	two plat.	no	no	L. Meso/E. Neo	49 x 13	
5203	100	flake	no	no	6			feathered	single plat.	15%; thin, abraded	no	L. Meso/E. Neo		distal frag. of flake from blade core
5204	100	flake	no	no	2	flat	diffuse			30%; thin, abraded	yes			proximal frag.
5205	100	flake	no	yes	1.5	flat	diffuse	feathered	single plat.	no	yes	L. Meso/E. Neo	30 x 12	parallel flake scars - from blade core
5206	111	flake	no	yes	1	flat	diffuse	feathered	single plat.	30%; thin, abraded	no		32 x 9	prob. L. Meso/E. Neo
5207	111	flake	no	no	1			feathered	two plat.	no	no			poss. Blade-like flake; opposed platforms
5208	111	flake	no	yes	1.5	cortical	diffuse	feathered	single plat.	25%; thin, abraded	no		18 x 15	core maintenance
5210	115	flake	no	yes	3	flat	mod. diff.	plunging	three +	no	no		37 x 12	
5211	115	flake	no	yes	2	small; complex	diffuse	feathered	single plat.	60%;thin, abraded	no	L. Meso/E. Neo	46 x 10	post-dep damage - one lateral edge removed
5212	115	flake	yes?	yes	5	small; flat	diffuse	feathered	two plat.	no	no	L. Meso/E. Neo	65 x 15	prob. oblique retouch along prox. Edge
5213	115	flake frag	no	no	<1					no	yes			heavily burnt, granulare flake frag.
5214	115	flake	no	yes	10.5	very small	diffuse	stepped	two plat.	30%; thin, abraded	no		56 x 20	thick irregularly worked flake; prob L. Neo or la
5215	115	flake	no	yes	<1	very small	diffuse	feathered	single plat.	40%, thin, abraded	no		24 x 8	and the second
5217	115	flake	no	no	1	very small	diffuse	2	single plat.	25%; thin, abraded	no			prob. L. Meso/E. Neo
5218	115	flake	no	no	1.5			feathered	two plat.	no	no			
5220	114	flake	no	yes	2	small; complex	mod. diff.	hinged	single plat.	no	no	L. Meso/E. Neo	31 x 15	multiple parallel sided scars on dorsal surface
5221	114	point	yes	yes	3			hinged	opposed	no	no	L. Meso/E. Neo	59 x 12	platform removed by diagonal break, abruptly r
5222	114	flake frag	no	no	<1			's .	single plat.	no	no			medial frag. Parallel sided scars on dorsal surf
5223	100	arrowhead	yes	yes	1						no	L. Neo/E.B.A.	23 x 24	Green Low type variant, barbs class 'C', tang v
5301	209	core	no	no	47				five plat.	20%; thin, abraded	no	L. Neo/E.B.A.	34 x 46	Pebble core; small area of recort. possibly reus
5302	209	chunk	no		35.5					>90%; thin, abraded	no			Virtually primary flake (two small prior removals
5303	209	flake	по	yes	4	small; flat	diffuse	feathered	single plat.	100%	no	prob B.A.	31 x 24	primary flake from worn sub-angular pebble of
5304	210	chip	no		1						yes		÷.,	heavily burnt, with pot lid fractures
5305	210	flake frag	no	no	<1			hinged		yes; thin, abraded	yes			heavily burnt, with pot lid fractures; squat flake
5306	210	flake	no	yes	<1	flat	mod. pron.	hinged	single plat.	no	no		14 x 13	squat, core trimming
5307	210	flake	no	yes	1.5	flat	mod. diff.	feathered	two plat.	80%; thin, abraded	no		32 x 14	
5308	210	flake	no	yes	1.5	flat	mod. diff.	feathered	single plat.	no	no	L. Meso/E. Neo	40 x 15	relatively poor quality flint; crushing at platform
5309	210	chunk	no		1						yes			heavily burnt, with pot lid fractures
5310	210	flake	yes	no	1	flat, polished	pron.		one - two	<5%; thin, abraded	no			struck from polished tool; prox. end of one lat.
5311	211	chip	no		<1						yes			heavily burnt, with pot lid fractures
5312	211	chunk	no		14					thin, abraded	yes			heavily burnt, with pot lid fractures
5313	221	flake	no	yes	2	flat	diffuse	feathered	single plat.	50%; thin, abraded	no	L. Meso/E. Neo	32 x 12	

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ars on dorsal surface moved from prox. end of one lat. edge

later

ace

tly retouchedto form point

surface

ng virtually absent reused?

vals)

e of poor quality flint

ake, prob. Late Neo/B.A.

orm edge

lat. edge has semi-abrupt retouch.

# Appendix 5

# Land at Tumby, Lincolnshire TUM 02

# Lithic Materials: Preliminary Assessment of Fieldwalking Assemblage

Report by Jim Rylatt – July, 2002

# 1.0 Introduction

This report relates to a large assemblage of lithic material recovered from the surface of a site at Tumby, Lincolnshire. Approximately 5200 pieces of worked or modified flint were retrieved. The analysis of this material is still in progress, but sufficient artefacts have been examined to provide an insight into the nature and form of the assemblage.

Analysis of the material has been limited to a relatively small number of well-definable categories. These include attributes of the core reduction sequence, such as the determination of the composition of the debitage - whether primary, secondary, or tertiary flakes, blades or blade-like flakes. Additionally, the number and form of surviving cores and core fragments has been determined, along with the presence of 'irregular waste' (chips and chunks). Subsequent uses of elements of the assemblage have also been investigated, such as pieces that have been transformed into tools, or otherwise retouched, and items that exhibit usewear, but are otherwise unmodified. Similarly the numbers of burnt and broken flakes have been recorded. Where possible a date has been assigned to each item, and this has taken account of a range of morphological attributes such evidence for well-controlled working practices, core curation, incidence of hinge fractures, evidence of hard hammer usage, etc., which have not been recorded as separate categories in the analysis.

### 2.0 Description

## 2.1 Raw material

All of the lithic artefacts examined were produced from flint. Where cortical surfaces survived it was possible to establish that the raw materials were derived from secondary deposits. The cores, irregular waste (chips/chunks), primary and secondary flakes have areas of thin, abraded cortex, and where relatively large areas of this surface survive, it generally exhibits a rounded profile. This indicates that the nodules utilised were water-transported pebbles and cobbles. This means of transportation limits the size of the constituent nodules, and also accounts for the considerable variation in the colour, composition and quality of the raw materials forming this assemblage.

Tumby is situated toward the eastern edge of an extensive accumulation of river and glaciofluvial sheet deposits, which are interleaving layers of sand and gravel (B.G.S., 1995). Almost certainly, it is from the latter that the flint pebbles have been derived, coming either from the site itself, or from its immediate environs. Such pebbles would have been rolled and battered by glacial and fluvial forces prior to their initial deposition, resulting in the thin, irregular and pockmarked nature of their cortex. The collection of flint from secondary deposits is likely to have been a relatively expedient process. This may simply have involved the inspection of tree throws, or the banks of streams and other adjacent bodies of moving water (Edmonds, 1995). Alternatively, the creation of slight delves into the upper surface of out cropping gravel beds may have proved to be a more reliable means of acquisition, and may possibly account for some of the more irregular earthcut features encountered on the site during the evaluation.

# Condition

A small component of the assemblage had been relatively extensively damaged by agricultural activity. This had resulted in the snapping of flakes, or the degradation and removal of edges, as indicated by unpatinated scars on otherwise patinated surfaces. The majority of the assemblage exhibited very slight damage along the edges, which is consistent with these pieces having been turned and rolled in the ploughsoil, without having actually been subject to direct impacts with the ploughshare or other coarse components. A further small sub-set of the assemblage appeared to be undamaged, its pristine condition suggesting that it had lain on a buried ground surface or within the fill of features until very recently. However, there does not appear to be any specific patterning in the distribution of the latter material, which occurs in small numbers throughout the assemblage. The relative proximity of both heavily damaged and undamaged pieces might suggest that some items were deliberately buried shortly after manufacture, while others were not, the implication then being that there are a small number of sub-surface features distributed across the site. Alternatively, it is possible that the prehistoric ground surface undulated gently, which has resulted in differential truncation.

## 2.2 Characteristics of the assemblage<sup>1</sup>

Approximately 80% of the total assemblage was collected from the northern half of the site ('north island'), with the remainder having been retrieved from the area to the south of the relict watercourse ('south island').

	NORTH 'ISLAND'		South 'Island'						
Flakes	Primary	1.1	(%)	Flakes	Primary	3.4	(%)		
	Secondary	19.6			Secondary	30.1			
	Tertiary	14.1			Tertiary	22.3			
Blades	Primary	-		Blades	Primary	1.2			
	Secondary	1.1			Secondary	-			
	Tertiary	3.2			Tertiary	2.3			
Blade-like	Primary	1.1		Blade-like	Primary	1.2			
flakes	Secondary	5.4		flakes	Secondary	10.1			
	Tertiary	20.7			Tertiary	5.7			
Cores	Blade	2.2		Cores	Blade	1.2			
	Flake	5.4			Flake	3.4			
	Blade & flake	5.4			Blade & flake	4.5			
Chunks/chips		20.7			Rejuvenation flakes	3.4			
		100.0		Chunks/chips		11.2			
Tools & retoucl	ned flakes	4.3 (%)				100.0			
Use-wear				Tools & retouc	hed flakes	12.2	(%)		
Burnt		9.2		Use-wear	2.3				
Broken		25.0		Burnt		16.7			
				Broken	24.0				

 Table 1: Composition of the lithic assemblage, showing attributes and modifications.

<sup>&</sup>lt;sup>1</sup> All percentages and proportions relate to component of the assemblage that has been analysed and will be subject to revision.

#### Cores and core fragments

On the 'north island' these elements constitute c. 13.0% of the assemblage, while only forming 9.1% of the assemblage on the 'south island'. Superficially it appears that there are a higher proportion of flake cores than blade cores. However, it seems likely that the combined blade and flake cores are also a product of the earlier blade manufacturing technology, the removal of flakes reflecting the initial preparation of very small pebble cores.

As would be expected with blade production, many of the cores exhibit signs of careful preparation and maintenance/curation. Although generally small, not all of the cores have been worked to exhaustion. This may reflect the ease with which further flint nodules could be obtained at the site.

# Flakes

*North island* - flakes and blades represented 66.3% of the lithic material collected from the 'north island'; a further 20.7% of this group was comprised of irregular waste (chunks and chips). Examination of the scars on the dorsal surfaces of the flakes indicates two distinct patterns of working. Slightly less than half of the flakes can be classified as blades, or result from associated reduction technologies. These artefacts exhibit signs of having been removed from prepared cores, with single, or two opposed platforms. Additionally, some of the other less diagnostic flakes show signs of precise and controlled removal and are probably core trimming flakes. These items provide further evidence that the cores were being carefully maintained during reduction.

The majority of the blades and narrow flakes have flat platforms, many of them very small. Most of the bulbs of percussion are diffuse or relatively diffuse. This almost certainly indicates that they were produced by soft hammer (e.g. antler) or pressure techniques. Finally, there is a very high incidence of feathered terminations. These attributes indicate that the flint was worked in a highly controlled way, which is characteristic of Mesolithic and earlier Neolithic technologies.

The other half of this group represent broader, squatter flakes, although only some of these exhibit dorsal scarring consistent with multiple-platform working, where the cores are characterised by a relatively random patterning of the relationships between the platforms. The flakes created by this less formalised system of working have a greater tendency toward more pronounced bulbs and hinged terminations. However, given that secondary flake removals represent the largest component of this group, but form only a minor constituent of the blade and blade-like flake group it appears likely that a proportion must represent the residue of the initial stages of core preparation produced by the earlier pattern of working.

*South island* - flakes and blades represented 76.3% of the lithic material collected from the southern half of the site. A little less than 30% of this material could be confidently assigned to blade manufacturing methods of working, which represents a significant difference to the composition of the assemblage on the 'north island'. Again, it is probably that some of the broader secondary flakes relate to the initial stage of core preparation and reduction prior to the manufacture of blades, but overall this difference could suggest that the earlier activity may have been primarily concentrated upon the 'north island'.

The relatively high incidence of cortical material from both parts of the site results from the nature of the raw materials, as waterborne cobbles and pebbles have a relatively high surface area in comparison to flint mined from beds in the chalk. Together with the cores, the large

numbers of cortical flakes indicate that the initial stages of core reduction was the most significant activity at the site.

#### Retouched flakes, tools and modified flint

At present, very few of the items that have been analysed have been utilised in any way. Only 4.3% of the assemblage from the 'north island' and 14.5% of the southern group have either been transformed into tools or modified with minimal retouch. Not only are the numbers of tools limited, but the range of functions they represent are also restricted. Edge retouched blades and flakes predominate in both areas and probably represent expedient use of readily available material. A smaller number of blades have been obliquely truncated to create points or awls. A few pieces have been transformed into crude scrapers, flake knives or projectiles, but this component represents less than 2% of the total assemblage.

Relatively little of the flint has been burnt. This material was unevenly distributed across the site, with only 9.2% of the material recovered from the 'north island' having been thermally altered, while 16.7% of the modified flint from southern area had been similarly treated. Burnt flint is generally characteristic of Early Bronze age activity, and it seems likely that the different proportions of this material in the two areas provides a crude indication of the changing foci of activity between the later Mesolithic and Bronze Age.

#### 3.0 Dating

The assemblages from both the 'north island' and the 'south island' contain large numbers of blades or narrow blade-like flakes. These would have been produced from cores of the A1, A2 and B1 types, some of which have also been found on the site (q.v. Clark, 1960). A number of the other flakes also have parallel flake scars on their dorsal faces, a morphological feature which suggests that they are also products of the same industry. These attributes attest to highly controlled patterns of working, which indicate that this component of the assemblage was manufactured during the later Mesolithic and/or Early Neolithic. It is difficult, if not impossible, to differentiate debitage produced in these two periods, so increased chronological resolution is dependent upon the recovery of diagnostic tools and utilised pieces.

There is relatively little material that can be attributed to the later Mesolithic. A microlith was found during an evaluation of part of the site, and a small number of backed blades are also likely to belong to the earlier part of this date range. In comparison, there are considerably more items that are characteristic of Early Neolithic activity. These include a number of flakes with serrated retouch and several end scrapers produced on thick flakes struck from blade cores. It therefore seems likely that the majority of the 'early' assemblage, if not the overall collection, is of Early Neolithic or Early to Middle Neolithic date, with a small quantity of earlier material attesting to sporadic visits during the later Mesolithic period.

It is also clear that a component of the assemblage can be attributed to later activity. These artefacts exhibit the morphological traits of a less formalised pattern of core reduction that is characteristic of the later Neolithic to Early Bronze Age. Indicators include the use of irregular multiple platform cores, combined with the production of relatively squat and irregular flakes. Few of the retouched pieces can be confidently attributed to this period of activity, but some diagnostic pieces have come from the site; for example a Green Low type barbed and tanged arrowhead from the second half of the 3<sup>rd</sup> millennium BC.

## 4.0 Discussion

It is evident that the lithic assemblage recovered from the excavation at Tumby represents a palimpsest of activity taking place over hundreds if not thousands of years.

The site is bisected by an 'S'-shaped band of peat and alluvium. This material defines and represents a former channel of the River Bain. Its meandering course may provide an insight into the use and primary purpose of the site throughout the prehistoric period. The 'S'-shaped meander indicates that the channel would have had differing energy potentials at various points along its course where it crossed the site. The external edges of the two bends would have been high-energy environments that would have cut back into each respective 'island'. Examination of the geological survey data indicates that glacio-fluvial sands and gravels underlie the valley of the Bain (BGS, 1995). It is therefore possible that the river was constantly eroding its banks, exposing flint pebbles as it did so. This could suggest that the site primarily served as a 'quarry' or source of raw materials.

The composition of the assemblage provides compelling evidence to support this proposal. The vast majority of the worked lithic material indicates that core reduction was the primary activity conducted at the site. The large quantity of debitage, along with the cores, stand out against to the relatively few flakes that have been adapted or exhibit evidence of any form of utilisation. It therefore seems likely that the site would have been visited, possibly seasonally, to obtain flint, either as prepared cores or flake blanks. It seems probable that temporary camps would have been established at these times. Activities associated with the routines of daily life, such as gathering and hunting, and food preparation would then account for the small proportion of utilised lithic material. Otherwise, once sufficient flint had been collected the people would move to other sites.

The fieldwalking programme recovered far greater quantities of worked flint on the 'north island' than on the 'south island'. This may suggest that the northern area was more intensively exploited than its southern neighbour during the Neolithic and Bronze Age periods. Alternatively, it could indicate that later agricultural activity has more severely affected the northern part of the site, truncating prehistoric land surfaces and features, and thereby liberating greater quantities of artefactual material into the modern ploughsoil. It is difficult to provide evidence to support either one of these possibilities over the other. The material from both areas included a proportion of abraded flakes and others with very fresh edges. The latter group suggests that there is still some *in-situ* material in both parts of the site.

Despite these uncertainties, the evidence provided by the programme of fieldwalking suggests that the densest concentrations of lithic material are situated on the opposing edges of both of the 'islands', in the areas overlooking the bends in the river channel. In broad terms this material forms a band c. 150 - 200m wide on the south edge of the 'north island' and c. 150m wide along the northern edge of its southern counterpart.

The largest proportion of the assemblage appears to result from Early Neolithic activity, but there is also slight evidence of a later Mesolithic presence. The site continued to be visited on a reduced scale in the Late Neolithic and/or Early Bronze Age. Again in this later period evidence of core reduction dominates. There is some evidence that use of the two islands changed with time. It is clear that both areas were used in some form throughout the period of prehistoric activity. However, the fieldwalking data provides strong indications that the Early Neolithic activity was largely focussed upon the 'north island', and this may have been the site of most if not all of the temporary camps. In contrast, the Late Neolithic to Bronze Age material seems to be relatively evenly distributed across both halves of the site. This pattern is highlighted by the distribution of burnt flint, such material generally being associated with Early Bronze Age activity.

#### 5.0 Conclusions

The assemblage of worked and modified lithic material collected from the site at Tumby has provided evidence of Early Neolithic and Late Neolithic/Early Bronze Age activity in this area. The collection is of a sufficient size to impart information into the form and nature of that activity. Further data could be obtained from a more detailed analysis of the material, and this should be encouraged if at all possible. The results could then be compared with data obtained from the nearby site of Tattershall Thorpe (Healy, 1992), assemblages from the wider region (e.g. Chowne & Healy, 1983) and a number of much smaller assemblages recovered during evaluations and excavations in the surrounding area. This would enable the formulation of a much better understanding of prehistoric activity in and around the Bain and Lower Witham valleys during the 4<sup>th</sup> to 2<sup>nd</sup> millennia BC.

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5221



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5050



















0 50mm

# The Figures

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Fig. 1 Site location also showing excavated sites at Kirkby on Bain and Tattershall Thorpe (reproduced from the OS 1:25,000 map with the permission of the Controller of HMSO © Crown copyright. LAS licence AL1002165).





Fig. 2 Plan and section of Trench 1.

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Fig. 3 Plan of Trench 2 and section through palaeo-channel.



# The Plates

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- Pl. 1 General view of Trench 1. Looking south west from Trench 2.
- PI. 2 Trench 1 post excavation. Looking north west. Scales 2m





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- Pl. 3 Animal Disturbance 130 at the west end of Trench 1. Scales 0.50m and 1m.
- PI. 4 Scoop 118, sectioned, looking north west. Scale 1m.





Pl. 5 Postholes 145 and 147. South east facing section. Vertical scales 0.10mm, horizontal scale 0.50m.

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Pl. 6 Postholes 153, 162, 164 and 166. North east facing sections. Scales 0.50m and 1m.





PI. 7 Posthole 151, north east facing section. Vertical scales 0.10m, horizontal scale 0.50m.

PI. 8 Pit 103, north facing section. Vertical scales 0.10m, horizontal scale 0.50m.





Pl. 9 Pit 105, sectioned. Looking south. Scales 0.50m and 1m.

PI.10 Pit 113, sectioned. Looking south west. Vertical scales 0.30m, horizontal scales 0.50m and 1m.



PI.11 Pit 149, sectioned. Looking north west. Vertical scales 0.10m, horizontal scale 1m.

PI.12 Scoop 112, north east facing section. Scales 0.50m and 0.30m.





PI.13 Scoop 143, sectioned. Looking south west. Vertical scales 0.10m, horizontal scale 2m.

PI.14 Excavation of the slot through 115 in progress.

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- PI.15 North east facing trench section. Vertical scales 2m, horizontal scale 2m.
- PI.16 Location of Trench 2. Looking south.





PI.17 Trench 2, post excavation. Looking north west. Scales 2m.

PI.18 Ditch/ furrow 203, sectioned. Looking south east. Vertical scales 0.10m, horizontal scale 0.50m.





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PI.19 Ditch 220, sectioned. Looking south east. Vertical scales 0.10m, horizontal scale 0.30m.

PI.20 Pit 207, north east facing section. Vertical scales 0.50m, horizontal scale 1m.





PI.21 Tree bole 222, south west facing section. Vertical scales 0.30 horizontal scale 1m.

PI.22 Palaeo-channel at the west end of Trench 2. Looking north west.





PI.23 Channels 240 (far right) and 237, posthole 244 (left of vertical scale), north east facing section. Vertical scales 1m, horizontal scale 2m.



PI.24 Channel 235, north facing section.

Pl.25 Channel 232 (right of vertical scale) and flood deposits 212, 231 and 234, north east facing section. Vertical scale 1m, horizontal scale 2m.





PI.26 Channels 230 (right) and deposits 231, 212, 226, 227, 218/228, north east facing section. Vertical scale 0.50m, horizontal scale 2m.