AXES AND PITS: EARLY NEOLITHIC FLINT WORKING AT POUNDBURY FARM, DORCHESTER, DORSET

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ABSTRACT

Stratified flint assemblages, securely dated by Early Neolithic (3700–3600 BC) pottery, have been found in pits at Poundbury Farm, Dorchester, Dorset. The material includes 11 axes, primarily, but not exclusively, rough-outs in a "cache". The discovery of this group provides evidence linking comparable acts of deposition with water, a phenomenon that has been noted with metal hoards. The findings have also shed new light on the chaîne opératoire *of industrial axe production and distribution on the Clay-with-Flints linked together in the environs of Maiden Castle.*

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Keywords: Early Neolithic, caching, axes, axe production, votive deposition.

INTRODUCTION

Poundbury Farm (NGR 3674 9093) (Figure 1) lies on the northern edge of the "Central Lowland", an area of gently undulating ridges and coombes within the Upper Chalk, north of the South Dorset Ridgeway. The area overlooks the valley of the River Frome and its tributary valley, Fordington Bottom, but falls more gently to the south towards Maiden Castle and the South Winterbourne valley.

Neolithic monuments, principally Maiden Castle causewayed enclosure (Wheeler 1943; Sharples 1991), Maumbury Rings (Bradley 1975), Mount Pleasant (Wainwright 1979), the Dorchester timber monument (Woodward *et al* 1993) and the enclosure at Flagstones (Smith *et al.* 1997), have stimulated extensive archaeological research across the area. This work has also accumulated a scatter of shallow bowl-shaped pits, containing valuable Neolithic artefact assemblages, which have helped to extend the distribution and density of Neolithic settlement across the landscape beyond these major monuments.

Archaeological excavations at Poundbury Farm (Wessex Archaeology 2007 & 2008; Egging Dinwiddy & Bradley forthcoming) resulted from housing development on the western margins of Dorchester. Two phases of work were undertaken; evaluation trenching followed by area excavations targeted on the results of the evaluation. No subsequent watching brief was undertaken during ground work across the remainder of the site. The evaluation and excavation combined produced 12 Early Neolithic pits (Figure 2, Table 1) with stratified worked flint assemblages and occasional pieces of Portland chert. All contained Early Neolithic pottery. Pits, prefixed EV, were found during the evaluation, the remainder in the area excavations. The greatest density of pits comprised a nucleated, intercutting cluster of four pits (EV 3721, EV 3705, 11004 and 11002) in Area 5 of the excavation. A more dispersed group of pits containing worked flint was found in Area 3 (Figure 3), around a later Bronze Age ring ditch, comprising features 3009 and 3010, and features 3047 and 3049 near the western edge of the excavation. The first two were associated with a cluster of four other pits (3003, 3004, 3006 and 3012) that contained no flint, but did include pottery. Some of this was of Early Neolithic date, suggesting that they were contemporary, but in other cases the pottery was of less certain Neolithic/Late Bronze Age date. Individual pits (EV 2302, 2072, 13004 and 11000) were located elsewhere across the site. A number of unstratified or poorly stratified artefacts, including an unstratified reworked butt of a polished stone axe from Area 1, and a bifacial knife/laurel leaf of probable Early Neolithic date from a tree-throw, were present elsewhere across the site. These pieces have helped to broaden the distribution of Early Neolithic activity beyond the pits.

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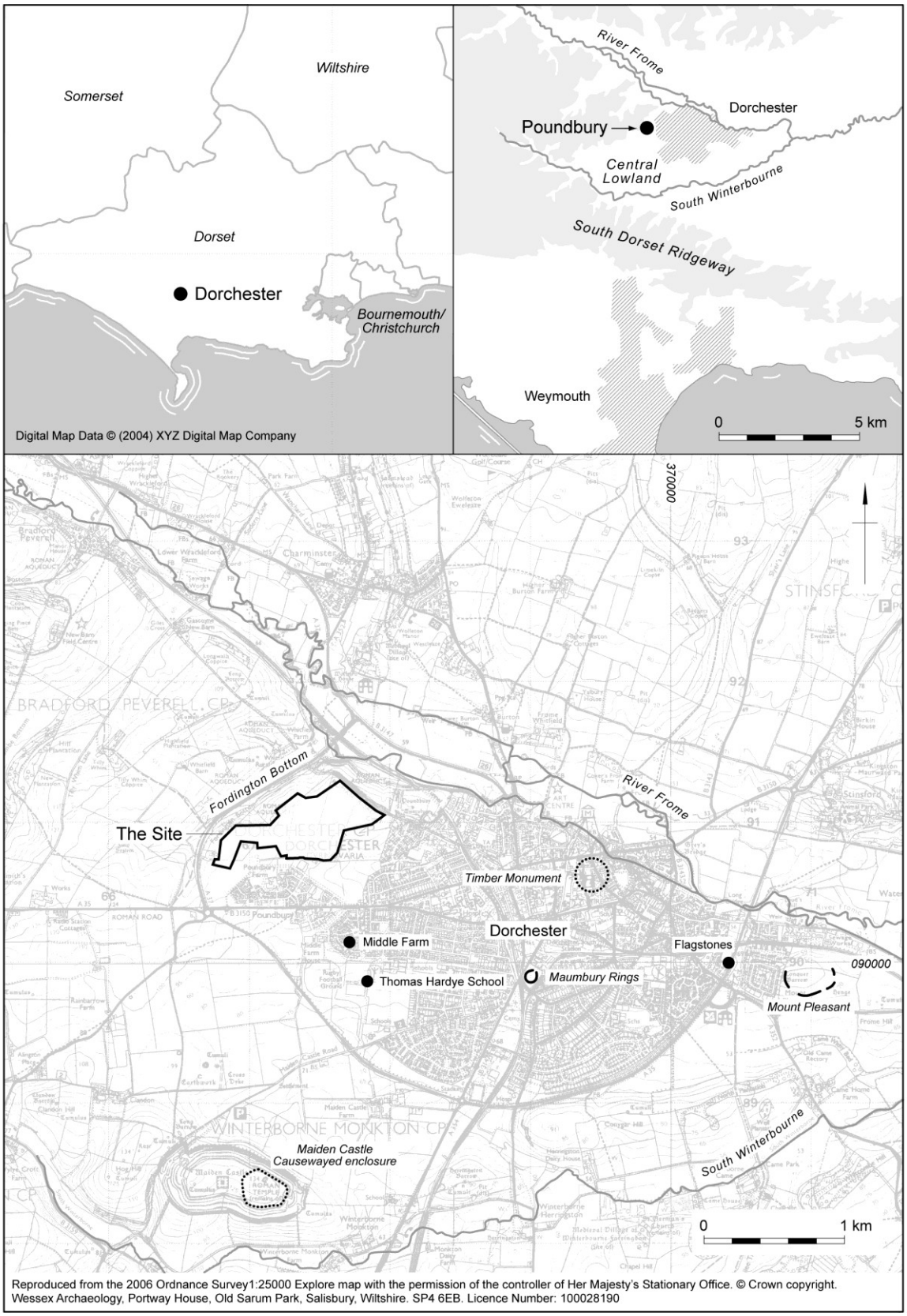

Figure 1. Poundbury Farm: Site location and Neolithic monuments in the area.

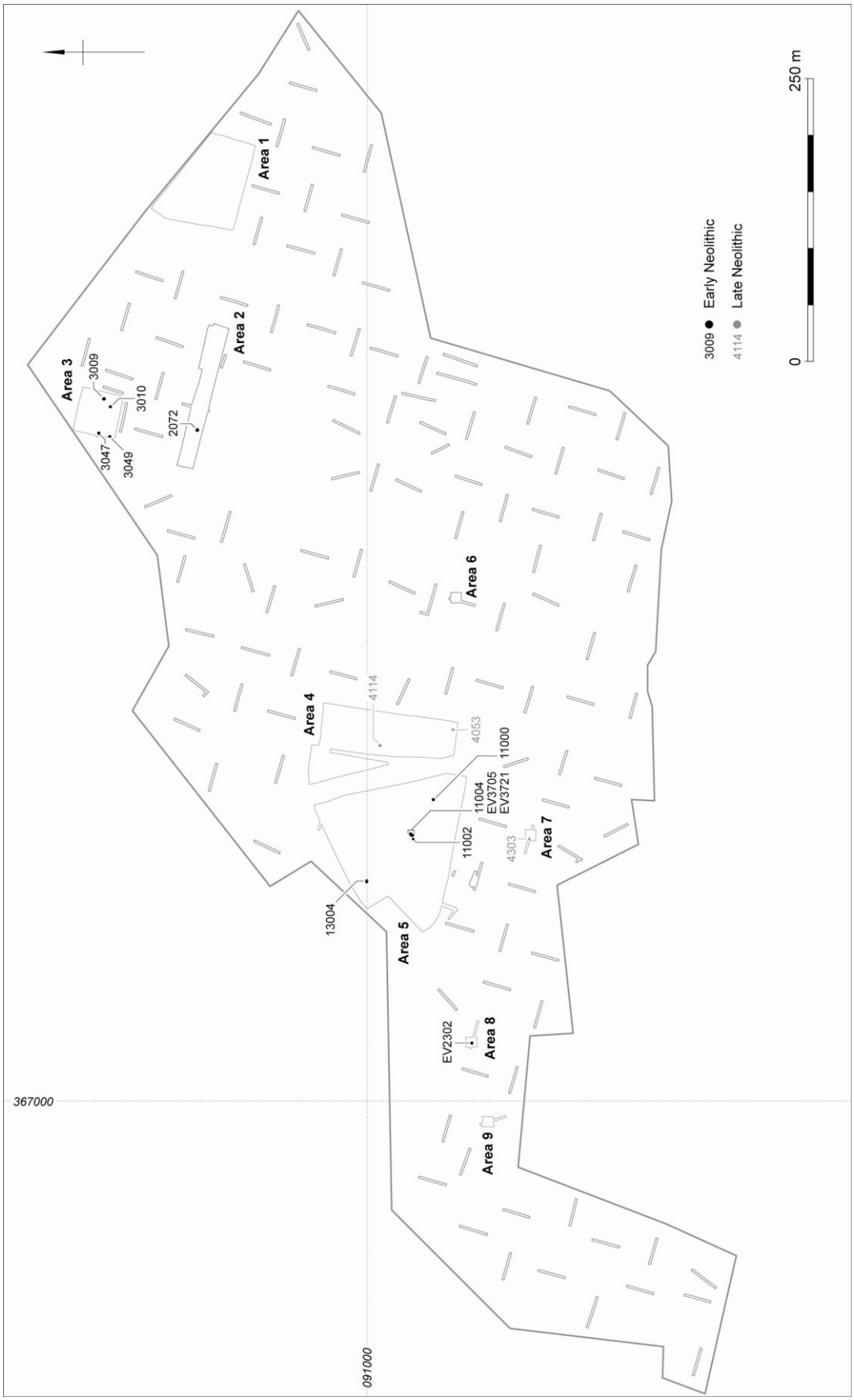

Figure 2. Poundbury Farm: Site, showing excavated areas and location of excavated Early and Late Neolithic pits.

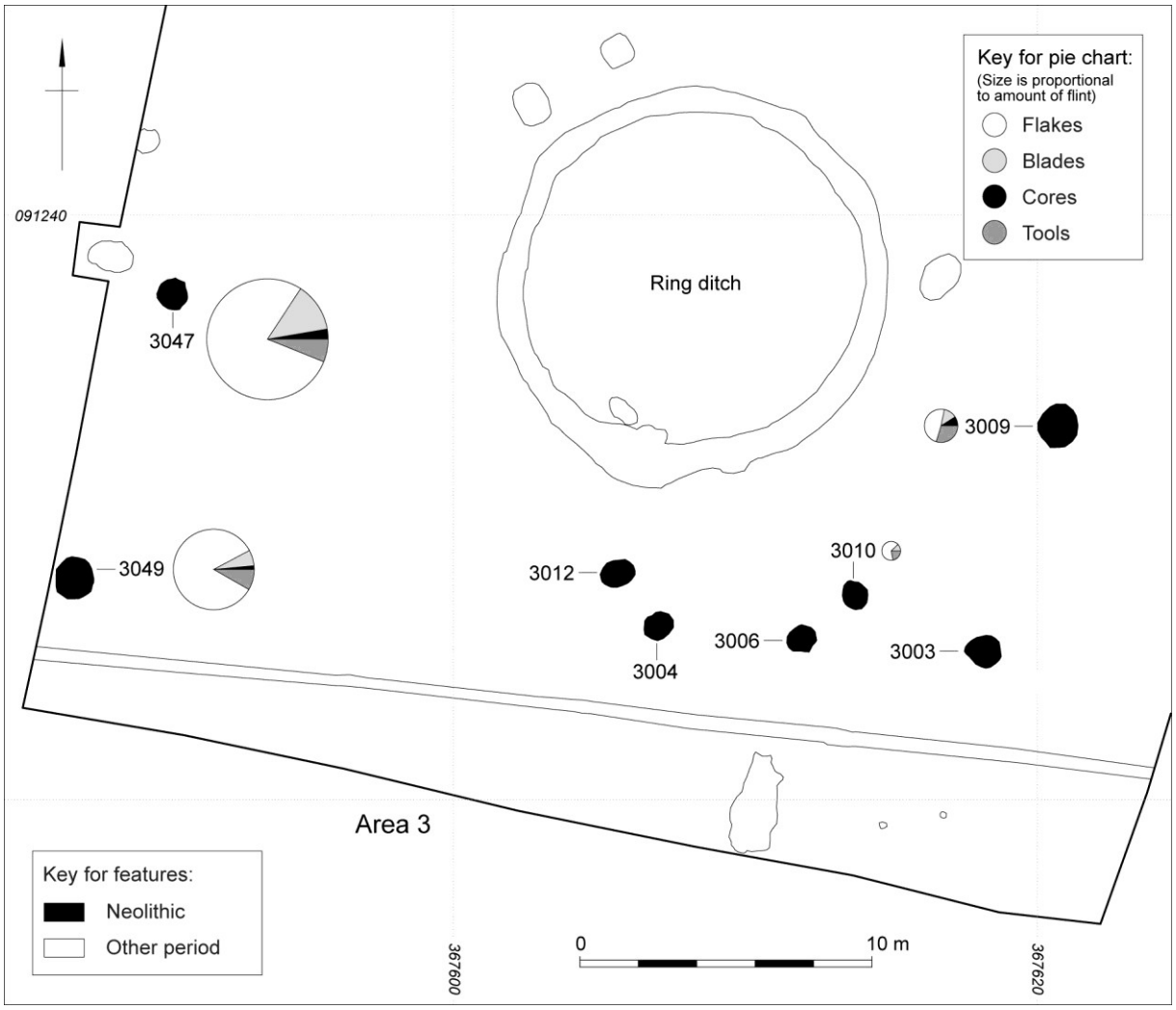

Figure 3. Poundbury Farm: Area 3 with details of excavated Early Neolithic pits and pie diagrams showing composition and relative size of each assemblage.

A total of 615 sherds (87% of all Early Neolithic pottery; Leivers forthcoming) was recovered from the pits associated with worked flint assemblages. This locally made pottery can be most closely paralleled with fabrics and forms, primarily cups and bowls, of Whittle's (1977) South-Western style. Similar material has been found in pits at Flagstones (Cleal 1997), Maiden Castle (Cleal 1991) and Rowden (Davies *et al.* 1991), which have all produced radio-carbon determinations in the first half of the fourth millennium BC.

EARLY NEOLITHIC FLINT

The worked flints from the Poundbury Farm pits were predominantly in mint condition. They accounted (Table 1) for 62.5% of the total assemblage from the site but 95% of all blades. In this respect the continued production of blades is consistent with many Early Neolithic assemblages from southern England (see Wainwright & Longworth 1971; Pitts 1978). Microdenticulates and core tool thinning flakes were also principally restricted to Early Neolithic contexts. However it is the industrial output of bifacial axe (core tool) rough-outs from pits 11000, 2072, 3010, 3049, but especially from 3009, that is most notable.

Most of the pits contained only one fill with waste material and retouched tools distributed throughout the deposit. No attempts were made to refit material; however sherds of pottery were conjoined between pits 3003 and 3009, demonstrating that at least these two closely related pits were contemporary.

Bifacial axe rough-outs

Eleven axe rough-outs, including one finished preform that might have been polished at a later stage, were found together in pit 3009. They had apparently been placed on top of the

Feature number	***2072***	***3009***	***3010***	***3047***	***3049***	***11000***	***13004***	***11002***	***11004***	***EV 3705***	***EV 3721***	***EV 2302***	***All Features***
Number of Contexts	1	1	1	7	1	1	1	1	2	1	1	1	19
Flake Cores	1	4	0	9	3	0	0	0	1	3	0	1	22
Broken Cores/Core Fragments	0	0	0	2	0	0	0	0	2	2	0	0	6
Blades	13	5	1	46	9	4	9	7	14	10	9	3	130
Broken Blades	0	1	1	12	3	0	3	4	6	8	9	0	47
Bladelets	0	0	0	2	0	1	2	0	4	1	0	0	10
Broken Bladelets	0	1	0	0	1	0	0	0	0	3	8	0	13
Flakes	16	16	7	255	104	6	37	37	75	64	80	5	702
Broken Flakes	4	9	6	138	106	4	28	41	73	78	105	5	597
Crested Pieces	0	0	0	0	0	0	0	0	0	0	0	0	0
Rejuvenation Tablets	0	0	0	6	2	0	0	1	0	5	3	0	17
Chips/micro-debitage	0	0	0	0	15	0	0	28	102	10	144	0	299
Scrapers	0	1	2	13	13	0	2	0	2	2	2	1	38
Other Tools	0	2	0	0	0	0	0	0	0	0	0	2	4
Axe Thinning	0	0	0	3	0	1	0	3	0	0	0	0	7
Projectile Points	0	0	0	0	0	1	0	0	0	0	0	0	1
Core Tools	1	11	1	0	3	1	0	0	0	0	0	0	17
Edge Damaged	0	2	1	10	0	0	0	0	1	1	0	0	15
Piercers	0	0	0	0	0	0	0	0	0	0	0	0	0
Microdenticulate	0	0	0	0	0	0	0	0	1	1	0	0	2
Debitage	0	2	0	0	4	0	0	1	0	3	4	6	20
Miscellaneous Retouched	0	0	0	2	1	0	0	0	0	0	0	1	4
TOTAL	**35**	**54**	**19**	**498**	**264**	**18**	**81**	**122**	**281**	**191**	**364**	**24**	**1951**

Table 1. Poundbury Farm: Quantification of flint assemblages from Early Neolithic Pits.

primary fill, which was depressed, possibly reflecting a slight hiatus in infilling. The exceptionally large number of objects aside, the pattern of deposition did not indicate whether they had been deliberately deposited, whether the intention had been to recover them at a later date, or whether they were simply discarded reject pieces. Three other rough-outs were found in association with refuse containing Early Neolithic pottery in an adjacent pit (3049). Individual examples were found with similar refuse in pits 3010, 1100 and 2072. The implements were all made on large, elongated or thin, oval nodules that are present in the Clay-with-Flints. The surface deposits provided a source of large workable nodules that were readily available and of sufficiently good quality for core tool production (though fresh flint was undoubtedly present in the Chalk). The axe rough-outs from pit 3009 were on average 156 mm long, 91 mm wide, 56 mm thick and weighed 765 g. The reduction strategy followed a consistent pattern that contrasted markedly to that used for flake and blade cores. One side was frequently formed using bold, radial flaking to prepare a flat or slightly convex surface (Figure 4.1) which provided flaking surfaces to shape the reverse side. In some cases it proved impossible to "turn" the edge sufficiently (Figure 4.2) to create a lenticular cross section. This is a necessary process making it possible to thin the blank further. Failure to do so most often leads to rejection. From a technological perspective these flaking techniques (i.e. using alternate flaking) represent an initial approach to working the raw material, for which there are few possible options. Discard also resulted from flawed raw material (Figures 4.1 & 4.3).

Most of the axes were abandoned at a relatively early stage of flaking, few of the axe rough-outs showing any trace of flaking beyond initial roughing out; Stage 1 of Newcomer (1971) or preliminary thinning and shaping (Newcomer's Stage 2) (Figures 4.1–4.4). It is arguable that some of the axes could have undergone further thinning, shaping (Stage 2) and finishing (Stage 3). Clear evidence was found to demonstrate that the entire manufacturing process was undertaken at the site. Two axes, including one complete preform (Figure 4.5) from pit 3009, had undergone more extensive flaking, sufficient to remove all traces of cortex. Pit 3010 also contained the blade section of a well made flake axe broken by end shock (a manufacturing snap) and pit 2074 also contained a well worked, oval fragment of a flint axe with a "pecked" blade edge (possibly reused as a hammer stone).

Axe manufacturing debris was present, although not apparently in large quantities. Pit 3009 did contain a number of flakes that may have resulted from the preliminary roughing out (Stage 1) of axes, but were not certainly so. The general absence of these flakes may be attributed to the fact that they are almost indistinguishable from debitage produced during flake or blade core preparation (Newcomer 1971; Harding 1990). Three bifacial thinning flakes (Stage 2) were quantified from pit 3047, three more from pit 11002 and one from pit 11000, none of which contained core tool rough outs. Similar flakes are known from Maiden Castle (Edmonds & Bellamy 1991) and from Middle Farm, Dorchester (Harding 2004). That more waste from the later stages of production was not identified may result from the absence of soft hammer mode. Soft percussors produce distinctive, invasive thinning flakes (Newcomer 1971) such as are found at flint mine sites on the Sussex Downs. It is also possible that, although residue of the entire manufacturing process was represented at Poundbury Farm, it functioned primarily as a quarry site where only preliminary flaking took place.

Bifacial flaking was not restricted to axe manufacture; pit EV2302, which was also industrial in character, contained two bifacial rough-outs, one a complete sickle (Plate 1) and the other an unfinished sickle/knife. Both tools were made on long flake blanks with one backed edge and an opposing bifacial "blade".

The domestic flint industry

Core tool debris was found in direct association with material typical of domestic activities (Table 1, Figure 3) and characterised by flakes and blades in varying quantities, abandoned retouched and utilised material that was mixed with charcoal, pottery and bone. Pits 3009 and 3010 contained more modest quantities of flakes/blades than 3049, which contained both flakes/blades and core tool rough outs Pits from the cluster in

Pit	*Primary %*	*Secondary %*	*Tertiary %*	*Total*
EV3721	7	31	61	211
EV3705	4	27	69	164
11004	2	32	66	174
11002	10	32	66	91
3047	7	34	59	435

Table 2. Poundbury Farm: Character of flake types from selected Early Neolithic pits.

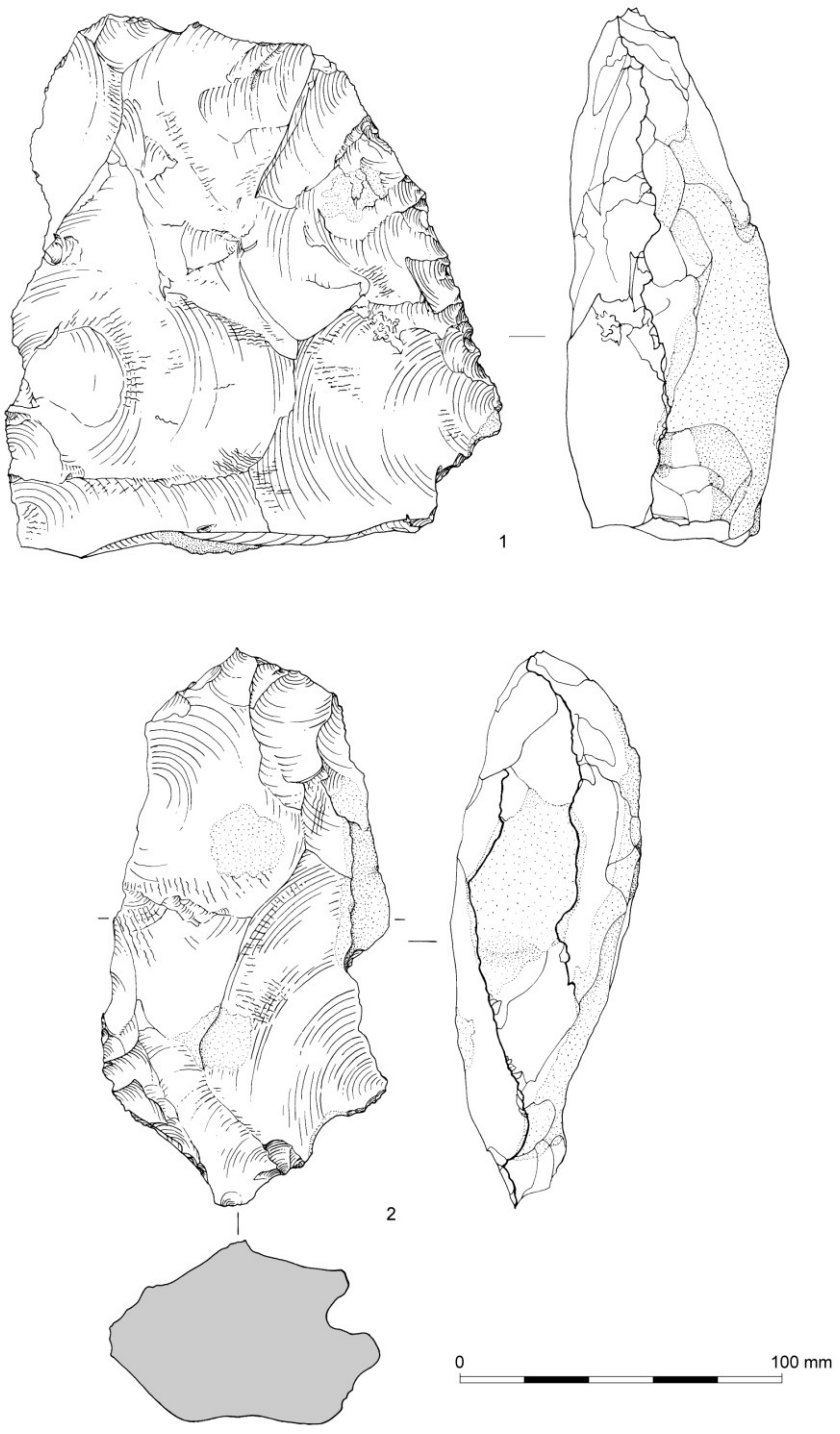

Figure 4. Poundbury Farm: Selected axe rough outs from Early Neolithic pit 3009.

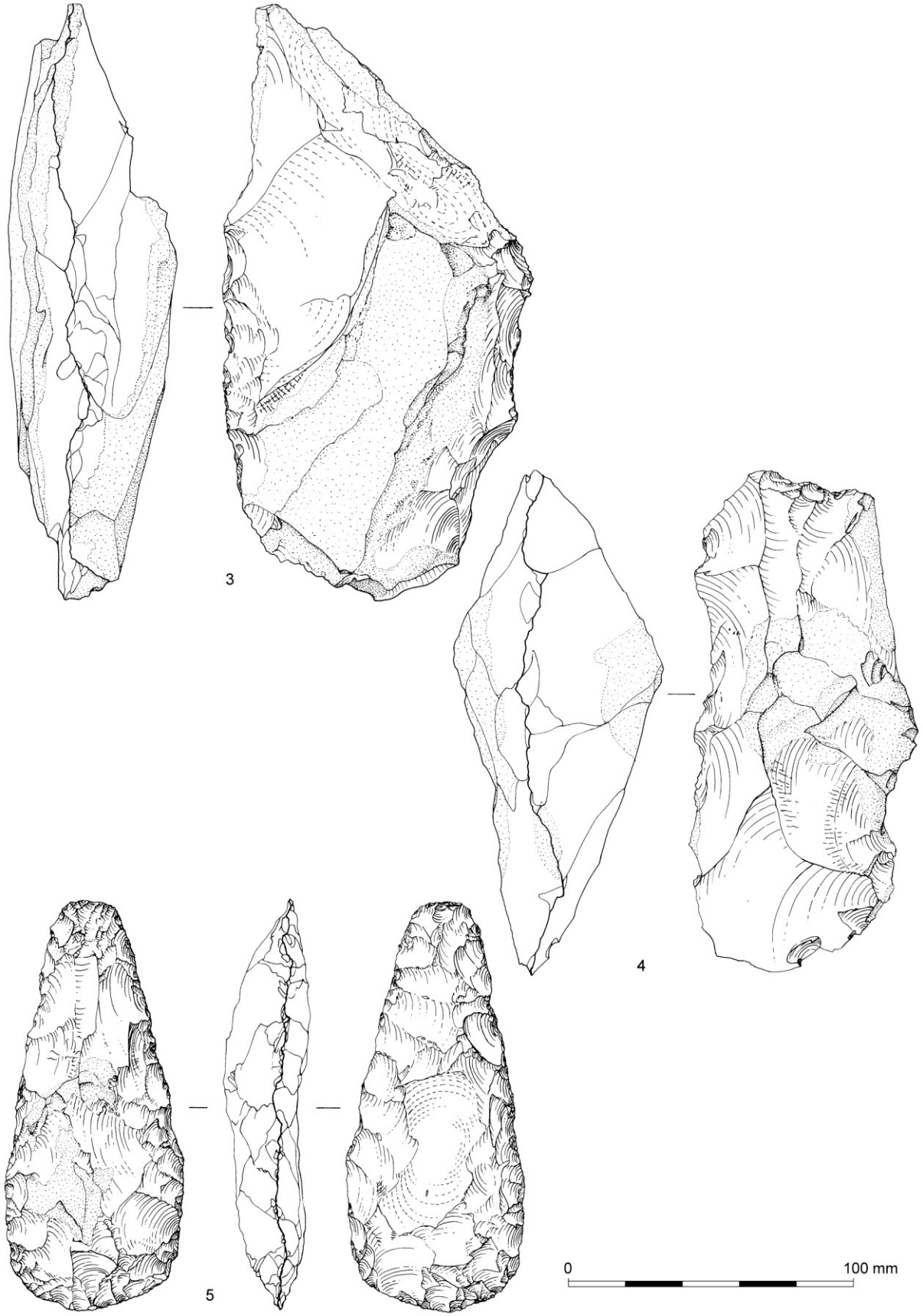

Figure 4 (continued). Poundbury Farm: Selected axe rough outs from Early Neolithic pit 3009.

Area 5 and pit 3047 from Area 3, in contrast, contained relatively large assemblages from the production of flakes and blades with virtually no core tool production. Microdebitage from sieved samples indicated that this dumped knapping waste derived from local workshops. Flaking techniques were similar to those recorded on refitting material from an Early Neolithic pit at Rowden, Dorset on the South Dorset Ridgeway (Harding 1991). Cores were flaked from single or opposed prepared striking platforms, with some use of platform abrasion to prepare blades and flakes before removal. Alternate flaking, which was more commonly used in the manufacture of core tools, was also employed to produce flakes and, to a lesser degree, blades. Hard hammer mode (Ohnuma & Bergman 1982) pre-dominated, probably using direct percussion, with only occasional hints of soft hammer mode. Flint hammers, some made on discarded cores, were recovered from pit 3009 along with flakes detached from hammer stones during use.

Debris from pits in Area 5 and pit 3047 (Table 2) indicates that secondary and tertiary removals predominated with only small numbers of primary flakes, but sufficient to demonstrate all phases of production were represented. Cores themselves were relatively rare given the quantity of blades and flakes present and in contrast to the number of axe rough-outs found.

Retouched tools

Retouched tools (Table 1) accounted for between 28%, (3009), and 1%, (EV 3721), of each stone tool assemblage, the exaggerated total in pit 3009 being related to the number of axe rough-outs. The domestic retouched tool component, as is frequently found in Early Neolithic assemblages (Saville 2008, Table 10.59), was dominated by large, thick end scrapers made on flakes. Most pits contained at least one example. The scrapers from pit 3049 typify this, ranging from 38–67 mm (mean 56 mm) long, 44–71 mm (mean 56 mm) wide and 11–25 mm (mean 17 mm) thick.

The scrapers were accompanied by other retouched material characteristic of the Neolithic period; microdenticulates, leaf-shaped arrowheads, reworked polished axe fragments of both flint and stone (unstratified) and flakes from their reworking (pits 3009 and 3010). The recovery of utilised blades and flakes provides a strong indicator that these assemblages contained refuse debris; pit 3047 included a large quantity of burnt material including artefacts, a feature repeated in an Early Neolithic pit at Thomas Hardye School, Dorchester (Gardiner *et al*. 2007).

The leaf-shaped arrowhead from pit 11000 is of a "birch leaf" (Smith 1927) or "ogival" (Green 1980) form. Arrowheads of this type, many of them broken, were found among those excavated from the causewayed enclosure on Maiden Castle (Wheeler 1943, 171, Figures 42.41 and 42.42), leading to speculation that it had undergone attack. The unbroken example from Poundbury Farm mirrors others found in the area, most notably within the group of five unbroken arrowheads, of which two were ogival, from a pit at Thomas Hardye School (Gardiner *et al*. 2007). One other leaf-shaped arrowhead was recorded from a pit at Middle Farm, Dorchester (Harding 2004).

The unstratified greenstone axe fragment from Area 1 was identified (Hayward pers. comm.) as a Green Metavolcanic, probably from Borrowdale, Cumbria. Axes from these quarries (Group VI), which were also exploited from the early part of the 4th millennium (3800–3300 BC) (Bradley & Edmonds 1993), are known from Dorset, although the most prevalent source of stone axes is derived from the Cornish quarries (Cummins 1979). Stone and Wallis (1951) recorded 14 axes from Maiden Castle, of which six were Cornish and five un-sourced "Greenstone"; none was of Group VI.

DISCUSSION

Much has been written on the mechanisms and meaning of deposition as a method for examining Neolithic behaviour. This discussion, summarised by Whittle *et al*. (1999), has detailed a number of methods by which artefacts might become incorporated into archaeological features, including accidental or casual means, through more intentional "patterned disposal routines" and "structured deposition", the latter based on specific selection of items for burial. The axes in pit 3009 do appear to have been collected together for deposition in a single event. The notable absence of large quantities of

associated bifacial axe manufacturing waste reinforces the idea that the deposition was intentional. The pit also lay in an area of the site where the Clay-with-Flints was apparently thin or absent.

Pitts (1996) termed such collections of artefacts as caches; relatively small collections of similar objects that might be expected to be found together in use. In a major review of Neolithic flint and stone axes he listed 23 axe caches containing unpolished flint axes that had been gathered together and buried deliberately. These ranged from two to eight implements (similar quantities to those from the Poundbury Farm pits); others also included polished axes. Axe caches were notably more frequent in axe producing areas; Sussex produced four. An unpublished cache of 15 finished flaked axes was also found in a service trench at Seaford, East Sussex in 1987 (Woodcock pers. comm.). Norfolk has also produced four caches although none appears to include axes from the Late Neolithic mines at Grimes Graves. The relationship of caches and raw material can also be detected in the north where a cache of five flaked axes from Campbeltown, Kintyre (Saville 1999) were of Antrim flint.

That axes have featured as items for deposition is not surprising. They have acquired special status, not merely as functional objects, but also of prestige, symbolism and power in many parts of the world (Evans 1897). Previous studies of axe deposition have largely focused on finished and near finished artefacts, examples broken deliberately or through use. Early stage rough-outs of the type found at Poundbury Farm, which were rejected in an early stage of manufacture, have featured far less. In any such discussion it is important to establish at what point in its production an axe may take on an identity that might have meaning to the knapper or other individuals. The act of creation may begin with the selection of the raw material. Pitts (1996) did include flint mine or quarry sites where such early stage axes were major components of production. Many rejected rough-outs had been cast into backfilled shafts, but because they were considered to have contained no further value, or were not found together, none constituted a cache; none was recorded as having been found in a pit. Barber *et al.* (1999), in contrast, argued that deliberate placing of objects could be discerned at Early Neolithic flint mine sites on the South Downs and hence that early stage rough outs did have a significance.

The importance of context in the discovery of cached axes is critical. Unfortunately most (Pitts 1996) were opportunistic discoveries made by workmen. These records frequently focussed on the objects, which were otherwise often poorly documented with only scant reference to associated fillings, including whether they contained occupation refuse. Many caches were found on the surface of ploughed fields or in topsoil; however, of the remainder, a sufficiently large number were accompanied by a recorded depth (up to 1.2 m) to suggest that they might originally have been deposited in a feature. Prior to the excavations at Poundbury Farm only one cache had been made previously from a controlled excavation; two flaked axes from the "original turf line" beneath the Iron Age rampart in Site A at Maiden Castle (Wheeler 1943).

Pitts (1996) considered that many of the axes might have been cached "to preserve 'quarry moisture' " (*ibid*. 340), as "unfinished goods in transit" or were objects that "might have been drawn on for use or for exchange" (*ibid*. 341) with the express intent of recovery at some later date. However he acknowledged that axes may have been cached for reasons other than technological. Previous research (Bradley 1987) has indicated a strong relationship between stone axe deposition and wet locations, not only in Britain but also in Europe (Rech 1979), locations where recovery would have been difficult or impossible. The relationship of hoard deposition and wet locations has been renewed by recent research (Yates & Bradley 2010) into Middle and Late Bronze Age metalwork. This project has confirmed that hoards frequently coincided with prominent locations that overlooked "springs, pools, streams, rivers and confluences" (*ibid*. 66). The study (*op. cit.*) benefitted from a wealth of accurately recorded data, linked to precise locations, which are not available in comparable detail for caches of flint axes. Nevertheless, of 23 caches listed by Pitts (1996) of unfinished flint axes, eight locations were within 1 km of, and overlooked, a major river (including the Rivers Gipping, Nene, Salisbury Avon and Severn). Seven sites were located within 750 m of, and

overlooking, a tributary stream, including that from Site A at Maiden Castle (Wheeler 1943). This location, near the causewayed enclosure, also occupied the highest point of the hill overlooking the South Winterbourne. Three flint axe caches were located near springheads. This review has distinct limitations; however pits 3009 and 3047 at Poundbury Farm may have fulfilled a similar role. Both pits were located overlooking the valley of the River Frome at a point sufficiently prominent to provide a site for a subsequent Bronze Age ring ditch.

Caches sometimes contained only axes, but in other cases were accompanied by a range of other artefacts; an axe of igneous material and a polished discoidal knife were found together with five flint axes from Great Baddow, Essex (Pitts 1996; Varndell 2004). Similarly the Campbeltown hoard contained scrapers and utilised flakes (Saville 1999). Finally, at East Knoyle, Wiltshire polished flint axes were cached with a pot, a flint sickle and a block of chert (Smallcombe 1937). Coincidentally, two bifacial sickles/knives were found together in pit EV2302 at Poundbury. In contrast axes have been found accompanying caches dominated by other forms of implements; a pit at Boscombe Down, Wiltshire contained 100 scrapers, debitage, and an axe rough out (Barclay 2010).

The axes from pit 3009 may be considered to represent some form of structured deposition; however this may not be representative of axes in other pits. Three roughouts from a sealed deposit in an adjacent pit were mixed with pottery, bone, burnt material and worked flint of a domestic nature. This may or may not represent similar, intentional deposition of selected objects and it is not certain whether they were cached together. The same arguments can be applied to the isolated rough-outs found in pits elsewhere on the site. The non-industrial flint assemblages are broadly similar (Table 3) to others from Early Neolithic pits both in the Dorchester locality (Edmonds & Bellamy 1991; Woodward 1991a; Bellamy 1997; Harding 2004; Gardiner *et al*. 2007) and further afield in southern England including the Coneybury Anomaly, Wiltshire (Richards 1990) and Kilverstone, Norfolk (Garrow *et al*. 2005; Garrow 2007). Assemblages were characterised by debitage, tertiary flakes, a significantly low core:tertiary flake ratio, as well as high and diverse numbers of tools with burnt debris. In addition evidence for reprocessing of broken tools, including the reworking of polished flint axes, was noted.

At Kilverstone quantities of worked flint, retouched tools and other artefact classes varied between individual pits and between individual clusters of pits. This suggested spatial variations in settlement and industrial activity within the environs of each feature. A similar bias can be observed at Poundbury Farm. Garrow *et al*. (2005) suggested that this might indicate that material may have been placed or stored in a "demarcated zone", possibly but not necessarily a "midden", similar to those at Hazleton North (Saville 1990) or the Eton Rowing Lake, Dorney (Allen 1998), before its intentional deposition in a pit. This model, Whittle's *et al*. (1999) patterned disposal routines, based around specific specialised activity areas, was proposed by Richards (1990) to explain the presence of gnawed bone in the Coneybury Anomaly. It provides a suitable mechanism to explain the processes involved with most of the pit fills at Poundbury Farm, possibly as an act of closure after episodic use of the site (Pollard 1993).

It is therefore possible to consider two methods of deposition, operating in close proximity of one another and both including axes. One involves careful selection and deliberate caching as a means of deposition; the other may also involve some form of selection and depositional intent but is mixed with other refuse.

Pitts (1996) speculated on whether axe caches were likely to have been made at the same time and possibly by the same knapper. The axes from pit 3009 were very likely to be contemporary, possibly part of a single batch, although whether they were made by one knapper, a specialist craftsman or not, cannot be proven. Production may have coincided with periods of occupation at the causewayed enclosure. The two bifacial sickles/knives in pit EV2302 may also suggest some form of systematic, repetitive industrial output taking place in tandem with the axe production over a relatively short period of time. Bulk production of leaf arrowheads may also be implied at the Eton Rowing Lake, where snapped rough outs

Pit	*Cores*	*Fl:Bl*	*Hammers*	*Retouched*	*Scrapers*	*Arrowheads*	*Others*	*Total*
Poundbury – Poundbury Farm, Dorset								
11000	0.0	88.8	0.0	0.0	0.0	6.2	6.2	18
11002	0.0	100.0	0.0	0.0	0.0	0.0	0.0	93
11004	0.5	96.0	0.0	1.1	1.1	0.0	0.0	179
13004	0.0	97.5	0.0	0.0	2.5	0.0	0.0	81
2072	2.8	94.2	0.0	0.0	0.0	0.0	2.8	35
EV2302	5.5	72.2	0.0	5.5	5.5	0.0	11.1	18
3009	7.6	61.5	3.8	3.8	1.9	0.0	21.1	52
3010	0.0	78.9	0.0	5.2	10.5	0.0	5.2	19
3047	1.8	93.1	0.0	2.4	2.6	0.0	0.0	496
3049	1.2	91.8	0.0	0.4	5.3	0.0	1.2	245
EV3705	1.7	96.0	0.0	1.1	1.1	0.0	0.0	176
EV3721	0.0	99.00	0.0	0.0	0.9	0.0	0.0	216
Total	**1.1**	**94.6**	**0.1**	**1.0**	**1.9**	**0.0**	**1.0**	**1925**
w								
Dorchester – Middle Farm, Dorset (Harding 2004)								
1518	0.5	88.5	0.5	0.0	7.6	0.0	2.1	184
1504	0.0	97.0	0.0	1.4	0.0	1.4	0.0	68
1507	5.1	90.0	0.8	0.0	3.8	0.0	0.0	234
1506	0.0	94.6	0.0	0.0	5.3	0.0	0.0	130
1096	0.8	96.4	0.0	0.0	1.3	0.0	1.3	224
Rowden, Dorset (Woodward 1991a)								
	1.4	96.8	0.0	1.3	0.2	0.1	0.1	974
Flagstones, Dorset (Bellamy 1997)								
	2.7	91.6	2.7	0.0	2.7	0.0	0.0	72
Coneybury Anomaly, Wiltshire (Richards 1990)								
	1.8	94.2	0.0	0.0	3.5	0.2	0.1	711
Kilverstone, Norfolk (Garrow 2007)								
All pits	3.2	94.2	0.2	1.7	0.6	0.0	0.2	10,450

Table 3. Poundbury Farm: Comparative data showing the percentage composition of Early Neolithic flint assemblages from Poundbury Farm with others from selected locations in Southern Britain.

could be conjoined (Lamdin-Whymark 2001). Flint axe manufacture does appear to have coexisted with domestic activity. The extent of Early Neolithic axe production and settlement around Maiden Castle has been compiled using the distributions of flaked and polished implements from a variety of sources (Wheeler 1943; Sharples 1991; Woodward 1991a; Woodward & Bellamy 1991; Smith *et al*. 1997; Butterworth & Gibson 2004; Gardiner *et al*. 2007). The most detailed of these surveys (Woodward 1991a), derived primarily from surface collections, concluded that flaked axes, as indicators of manufacture and flint procurement, were more prevalent within the basin of the River South Winterbourne incorporating the South Dorset Ridgeway and land to the north and east of Maiden Castle. Poundbury Farm lay immediately to the north of the surface collection area; however Woodward (1991b) did remark that hammer stones and cores were more prevalent in this direction and might mark a source area of raw material with associated primary flaking. This has now been confirmed, extending the area of exploitation northwards to the valley of the River Frome. Probable core tool thinning flakes were also identified among the material from Middle Farm, Dorchester (Harding 2004) although there was nothing at the time to indicate that this might be significant. Subsequent reassessment of the collection from that site, in the light of results from Poundbury Farm, has identified a broken fragment of an axe rough out from an Early Neolithic pit (1518) that was not identified in the original report. Excavations at Bridport Road, Dorchester (Context One 2009) have also provided evidence that flaked axe production extended eastwards, possibly to the confluence of the South Winterbourne with the River Frome. Woodward (1991a) proposed

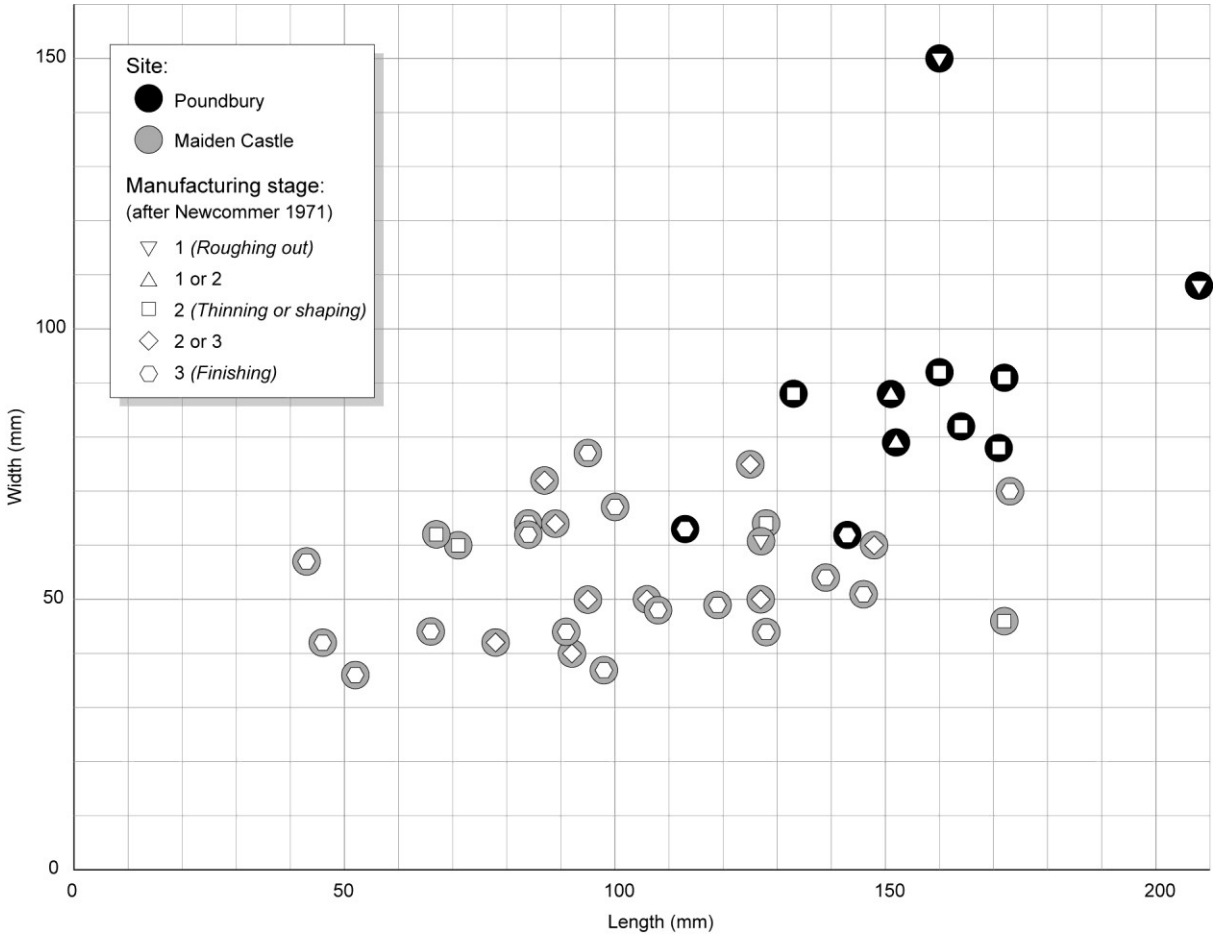

Figure 5. Poundbury Farm: Graph showing lengths, breadths and stages of manufacture, after Newcomer (1971), of axes from Early Neolithic pit 3009 compared to those from Wheeler's (1943) excavation of Maiden Castle.

that the entire area may have functioned as an "open-quarry" site for preliminary raw material testing, roughing out and shaping with subsequent refining, finishing and grinding undertaken elsewhere. He saw an inextricable link with the environs of the causewayed enclosure at Maiden Castle where axes were not only manufactured but where finished ground and polished implements were more common. The axes from Poundbury Farm have been compared with 44 bifacial tools from Maiden Castle that are now housed in Dorchester Museum. The results (Figure 5) shown by site and manufacturing stage (Newcomer 1971) confirm than the cached axes from pit 3009 at Poundbury Farm are both larger and less well finished than those from Maiden Castle. This contrast may reflect distinct activity areas linked to manufacturing and finishing. The movement of unfinished axes from place to place during their manufacture is reminiscent of a recurrent trend in axe production; at the Lower Palaeolithic site at Boxgrove, West Sussex, nodules were frequently roughed out at the chalk cliff but finished elsewhere (Roberts & Parfitt, 1999). Ethnographic studies have also shown that stone axes in New Guinea were roughed out at the river bank before the blanks were finished at the village or in a field hut (Toth *et al*. 1992).

This model is largely in accordance with Care (1979), who proposed that Maiden Castle acted both as a centre for axe manufacture, including grinding and polishing, but more importantly for use and trade. Wheeler (1943, 322, Figure 112.1) described a broken sarsen saddle quern from a Neolithic pit at Maiden Castle that may have doubled as a grinding stone to polish axes. Polissoirs have also been recorded from other causewayed enclosures including Etton, Cambridgeshire Abingdon, Oxfordshire and the Trundle, West Sussex confirming this activity at these centres of population (Edmonds 1998, 266). Polished and partially polished flint axes have been found at Maiden

Castle (Wheeler 1943, 164; Edmonds & Bellamy 1991), including examples that have been broken, almost certainly by hafting snaps. These implements constituted axes that had progressed beyond manufacture to use.

Finished axes undoubtedly moved beyond the local landscape through trade and exchange; of five flint axes found in the cache at Great Baddow, Essex (Pitts 1996; Varndell 2004) three have been sourced to mines in Sussex (Craddock *et al*. 1983). Regrettably there is as yet no reliable method by which the source of flint axes can be determined accurately, especially those from surface material. Nevertheless it appears that no axes that may have come from Grimes Graves have yet featured in any hoards, possibly a result of the fact that it is a Late Neolithic mine and that axes were not the primary output.

This industrial process may be representative of similar activity across large parts of southern England. Pitts (1996) made reference to records of doubtful or unconfirmed mines, quarries, shallow depressions in the chalk and surface exploitation, some of these possibly including areas of Clay-with-Flints. These deposits were especially important where there was no evidence for flint mining, as in the area around Poundbury Farm. Gardiner (1990) also recognised the value of Clay-with-Flints on the South Downs, notably in East Sussex, where there was very clear movement, during the Early Neolithic away from axe production based on mined flint to exploitation of surface Clay-with-Flints in the Late Neolithic. Despite the absence of flint mines in Dorset she identified a similar Late Neolithic relationship between axe manufacture and Clay-with-Flints on Cranborne Chase, substantiating her arguments with associated chronologically diagnostic artefacts, mostly from surface collections. Comparable activity, albeit on a localised level, has been documented from small scale Middle/Late Neolithic quarrying (Harding 1990) of surface outcrops on Salisbury Plain. However the indications from work at Poundbury Farm suggest that axe production on a large scale was largely restricted to the Early Neolithic period. None of the three Late Neolithic pits from Poundbury Farm contained convincing evidence for bifacial axe production, nor was there any at Maiden Castle (Wheeler 1942).

The worked flint assemblage from the Poundbury Farm excavations has therefore provided a wealth of new data on a relatively tightly dated period of Early Neolithic activity. This story relates not only on events within the causewayed enclosure at Maiden Castle but also on the environs surrounding it. The activity was undoubtedly multifaceted, though only the residues of flint working have been considered here. However the conclusions confirm a complex society where axe manufacture and movement coexisted with occupation. It also reinforces the argument that the axe may have represented more than a functional object but featured in acts of deposition possibly paying respect to the natural world.

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