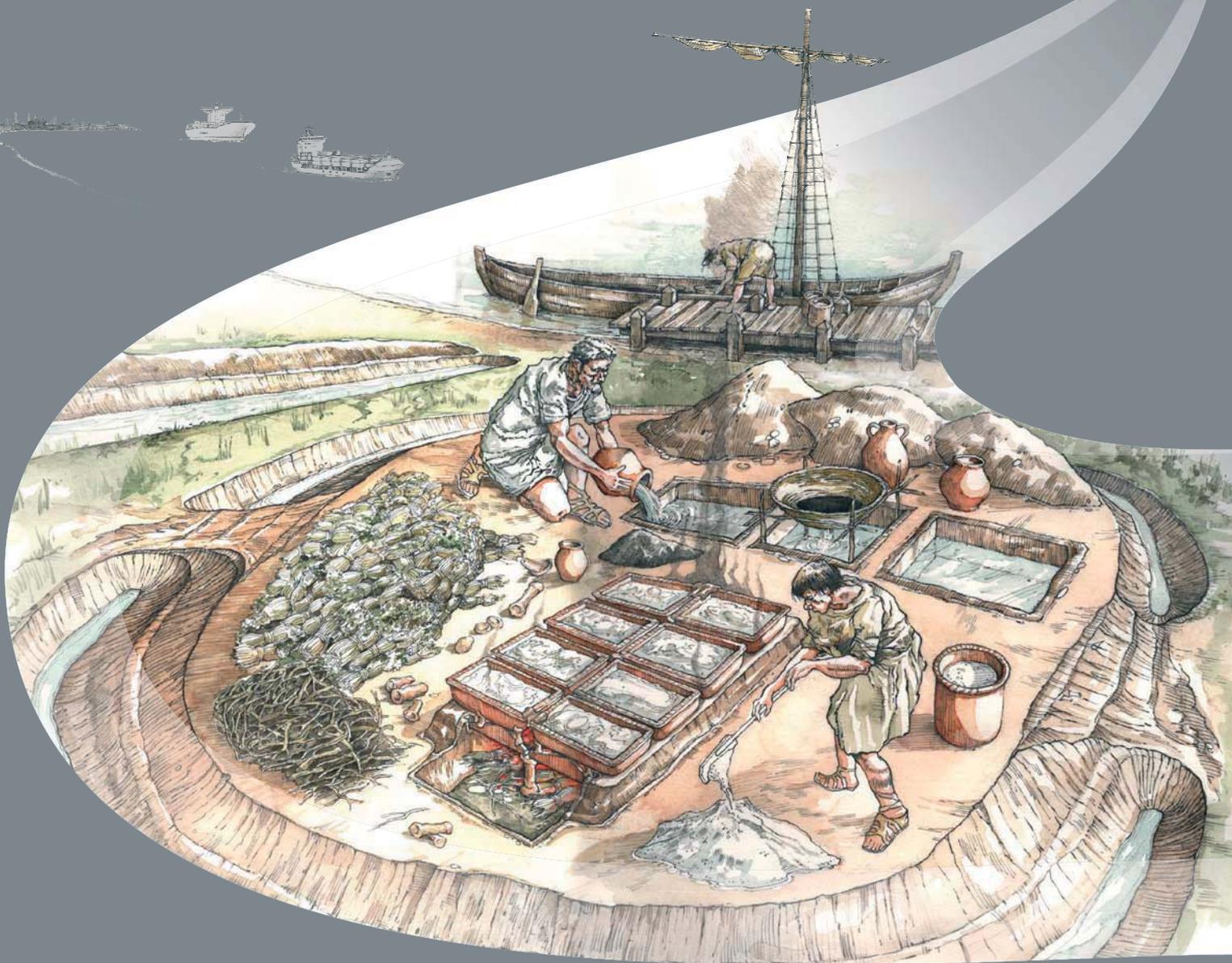


LONDON GATEWAY

IRON AGE AND ROMAN SALT MAKING IN THE THAMES ESTUARY

EXCAVATION AT STANFORD WHARF
NATURE RESERVE, ESSEX



SPECIALIST REPORT 11

WORKED FLINT

BY HUGO ANDERSON-WHYMARK

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Introduction

The excavations recovered 548 struck flints, four flint hammerstones, and 135 pieces (3.362 kg) of burnt unworked flint (Table 11.1). The flint was predominately from Area A and the greater part of the assemblage (331 artefacts) was retrieved from an *in situ* scatter on the surface, and within the upper layers, of Unit G3. This unit has been dated to the Mesolithic by an OSL date (9550-6150 BC: GL09089), and charcoal from activity on the surface of this deposit has been radiocarbon dated to the middle Neolithic (3520-3340 cal. BC (95.4% confidence, 4619±32 BP: OxA-22432). Technological attributes of the flint from Unit G3 indicate that the flint is broadly contemporary with the middle Neolithic date, with the exception of two blades dating from the Mesolithic. Unit G3 was overlain by Bronze Age soil horizon, unit G4, which yielded a limited Neolithic and Bronze Age lithic assemblage, and a small late Bronze Age flint assemblage was recovered from pit 4111 in Area B. The remaining artefacts were either unstratified or recovered as residual finds from archaeological features of Iron Age, Roman or later date. Many of the latter features truncated units G3 and G4 and probably incorporated flints from these deposits.

Methodology

The flints were catalogued according to broad artefact/debitage type, and retouched pieces were classified following standard morphological descriptions (Bamford 1985, 72-77; Healy 1988, 48-49; Bradley 1999, 211-227; Butler 2005). Additional information was recorded on the condition of the artefacts including, burning, breakage, surface condition (eg cortication and iron-staining) and the degree of edge-damage. Unworked burnt stone was quantified by weight and number. The assemblage was catalogued directly onto a Microsoft Access database and data manipulated in Microsoft Excel. A copy of the catalogue has been deposited with the archive.

Raw material

The raw material exploited was as a locally available gravel flint, which included a small number of reworked pebbles from the Bullhead Bed. The colour of the flint was variable, but the majority of pieces were shades of light to dark brown, and the cortical surface was typically abraded and pitted. The raw material contained numerous thermal flaws resulting in the creation of many pieces of irregular waste and the abandonment of many tested nodule after the removal of a few flakes.

Condition

The flints from units G3 and G4 were typically in very fresh condition, although occasional pieces exhibited slight edge-damage. Similarly, flints from late Bronze Age pit 4111 were in fresh condition. These artefacts can be considered *in situ* and contemporary with their depositional contexts. Lithic artefacts from Iron Age and Roman contexts were in variable condition and many exhibited slight or moderate edge-damage, which results from post-depositional movement and re-deposition. The assemblage was free from surface cortication, but many of the artefacts exhibited a dark orange iron-staining.

The assemblage

The flint assemblage will be considered below in relation to the key archaeological contexts.

Area A, Unit G3

In total, 331 flints were recovered from Unit G3 (Table 11.2). The assemblage is dominated by thin, regular flakes, although blades and bladelets form 12.8% of the flake assemblage. In general, the blades and flakes appear to form part of the same industry. However, two exceptionally regular, parallel-sided blades with dorsal blade scars, derive from a blade-orientated industry of Mesolithic date (contexts 5377 and 6459). The proportion of blades in the assemblage is comparable to later Neolithic assemblages in south east England (typically 7% to 14% blades: Ford 1987).

However, the initiation of blade production through the removal of a crested blade and the rejuvenation of cores through the removal of platform tablets are characteristic of earlier Neolithic reduction techniques. The assemblage, therefore, probably dates to the middle Neolithic, and as such it is likely to be contemporary with the radiocarbon date of 3520-3340 cal. BC (OxA-22432).

The assemblage contained a number of cores, pieces of irregular waste and a small number of cortical flakes that indicate some flint knapping was being undertaken at this location. However, no refits were located to indicate *in situ* knapping and the distribution of the flints reflects a diffuse scatter (Fig. 11.1). It is, therefore, likely that the scatter accumulated through the use and abandonment of flint tools over a period of time, with only occasional brief knapping episodes. Retouched artefacts are comparatively common, representing 6.4% of flints in the deposit excluding chips, and several unretouched flakes exhibit use-wear visible to the naked eye. The range of retouched tools is comparatively limited with nine scrapers, five serrated flakes (Fig. 11.2, no. 1), four edge-retouched flakes, a backed knife (Fig. 11.2, no. 2) and a crude pick-like tool (Fig. 11.2, no. 3). The scrapers are dominated by broad, thick, flake forms, including a disc scraper on a non-flake blank and horseshoe-shaped types (Fig. 11.2, nos 4-6), but two were manufactured on broad blades (Fig. 11.3, nos 7 and 8), and another was manufactured on a blade-like flake (Fig. 11.3, no. 9). The scrapers may indicate the preparation of hides, although these tools may also have been used for other tasks, such as wood-working. In contrast, the serrated flakes represent the processing of silica plants into fibres for cordage or textiles (Juel Jensen 1994; Hurcombe 2007). The backed knife is manufactured on a large broad flake and exhibits only minimal edge retouch on the left-hand side. The right hand side and distal end exhibits extensive edge-rounding (Fig. 11.2, no. 2).

Area A, Unit G4

Unit G4, a Bronze Age soil horizon overlying Unit G3 in Area A, yielded 40 flints, most of which were in fresh condition and are likely to be broadly contemporary with the deposit. The assemblage is dominated by broad flakes and blades are notably less common than in the Unit G3 assemblage; this indicates the flake debitage may be of a later date than the material in the unit below, although technological attributes allow only a broad Neolithic or Bronze Age date to be proposed. A large flake with invasive bifacial working (Fig. 11.3, no. 10) is the only retouched tool, although a

flake struck from the blade edge of a Neolithic polished flint axe was also recovered.

Area B, Pit 4111

Twelve flints, comprising eight flakes, two blades, a chip and a tested nodule in fresh condition, were recovered from pit 4111. One of the blades is parallel-sided and probably dates from the Mesolithic, but the flakes are of broad proportions and were struck using hard hammer percussion. These flakes probably date from later Bronze Age and they are broadly contemporary with the pit.

Other contexts

In addition to the lithics already described, 100 flints were recovered from various contexts in Area 1 (Table 11.2) and small assemblages of flint were recovered from Areas B, B North, C and D (Table 11.1). The debitage and tools recovered from these contexts are comparable to the artefacts from Units G3 and G4 and, with the exception of two artefacts of intrinsic interest, none require detailed description. The first artefact of interest is a leaf-shaped knife that exhibits invasive bi-facial flaking from direct percussion. The left-hand side exhibits additional secondary slight abrupt retouch on the ventral surface that forms a sharp spur on the side of the knife (Fig. 11.3, no. 11). This knife probably dates from the early/middle Neolithic and a direct parallel was recovered from the early Neolithic middens at Dorney Lake, Area 6 (Lamdin-Whymark forthcoming). The knife is also similar to early Bronze Age plano-convex forms, but this resemblance is superficial, as unlike the majority of early Bronze Age knives the retouch is not pressure-flaked, and in cross-section the artefact is thin, rather than domed. The second artefact is a horseshoe-shaped end-and-side scraper manufactured on a broad, thick, flake that exhibits a denticulated edge with teeth regularly spaced at 15 mm intervals (unstratified, SF 1035: not illustrated).

Discussion

The lithic assemblage provides sparse evidence for Mesolithic activity in the landscape although it is possible that Mesolithic horizons are present below the impact level. The evidence for middle Neolithic activity is more compelling, but only a limited proportion of Unit G3 was excavated along the northern edge of the site, as the majority of the deposit was below the impact level and has been preserved *in situ*

(Fig. 11.1). The site therefore potentially contains a Neolithic land surface with extensive *in situ* scatters resulting from various activities; the extent of these scatters is, however, unknown. The limited portion of the Unit G3 land surface that was excavated can, therefore, only provide a very limited insight on activities undertaken at this location. The knapping of local flint pebbles certainly represents one activity, but a high proportion of retouched tools indicates that the scatter results from the performance of a variety of other tasks. The dominance of scrapers and serrated flakes, however, indicates the working of hides and plant materials were significant activities. The limited assemblage of Bronze Age flint in Unit G4 and Pit 4111 are uninformative regarding activities undertaken during this period.

Illustration catalogue (Figs 11.2 and 11.3)

1. Serrated flake. Unit G3. Layer 1213, SF 1325. Middle Neolithic.
2. Backed knife. Unit G3. Layer 1213, SF 1140. Middle Neolithic.
3. Pick. Crudely worked point with some evidence of use. Unit G3. Layer 6459, SF 1599. Middle Neolithic.
4. Disc scraper on a non-flake blank. Area A. Unit G3. Layer 1213, SF 1122. Middle Neolithic.
5. End and side scraper on. Area A. Unit G3. Layer 1213, SF 1122. Middle Neolithic.
6. Horseshoe-shaped end and side scraper. Area A. Unit G3. Layer 1346, SF 1018. Middle Neolithic.
7. End scraper on a blade blank. Area A. Unit G3. Layer 1213, SF 1169. Middle Neolithic.
8. End scraper on a blade blank. Area A. Unit G3. Layer 1213, SF 1169. Middle Neolithic.
9. End scraper fractured by a blow to the blade edge. Area A. Unit G3. Test pit 5416. Middle Neolithic.
10. Flake with miscellaneous bifacial edge-retouch. Area A. Unit G4. Layer 1454. Neolithic or Bronze Age.
11. Leaf-shaped knife with bifacial retouch. Area A, unstratified. SF 1488. Probably early/middle Neolithic.

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Worked Flint Tables

TABLE 11.1: THE FLINT ASSEMBLAGE FROM LONDON GATEWAY BY AREA AND ARTEFACT TYPE

CATEGORY TYPE	Area					Grand Total
	A	B	B North	C	D	
Flake	299	55		4	1	359
Blade	24	2				26
Bladelet	17		1			18
Blade-like	15		1			16
Irregular waste	20	5		1		26
Chip	14	1				15
Sieved chips 10-4 mm	11					11
Sieved chips 4-2 mm	4				4	8
Rejuvenation flake core face/edge	1					1
Rejuvenation flake tablet	1					1
Rejuvenation flake other	1					1
Crested blade	1					1
Flake from ground implement	1					1
Single platform blade core	3					3
Other blade core	1					1
Tested nodule/bashed lump	13	5				18
Single platform flake core	3					3
Multiplatform flake core	7					7
End scraper	5	1				6
Side scraper	2					2
End and side scraper	3					3
Scraper on a non-flake blank	2					2
Serrated blade/flake	8					8
Backed knife	1					1
Other knife	1					1
Retouched flake	7					7
Misc. retouch	1					1
Pick	1					1
Hammerstone	4					4
Grand Total	471	69	2	5	5	552
Burnt unworked flint No./Wt. g	100/2626 g	20/417 g	15/319 g			135/ 3362 g
Burnt worked flints No. (%)*	16 (3.7)	5 (7.4)				21 (4.1)
Broken worked flints No.(%)*	121 (27.6)	9 (13.2)	1		1	132 (25.7)
Retouched flints No. (%)*	31 (7.1)	1 (1.5)				32 (6.2)

*Percentages excluding chips and hammerstones

TABLE 11.2: THE FLINT ASSEMBLAGE FROM AREA A BY ARTEFACT TYPE

CATEGORY TYPE	A			Grand Total
	1385/G4	1386/G3	Other contexts/residual	
Flake	27	210	62	299
Blade	1	18	5	24
Bladelet	1	15	1	17
Blade-like		14	1	15
Irregular waste		17	3	20
Chip		14		14
Sieved chips 10-4 mm	4		7	11
Sieved chips 4-2 mm			4	4
Rejuvenation flake core face/edge		1		1
Rejuvenation flake tablet		1		1
Rejuvenation flake other		1		1
Crested blade		1		1
Flake from ground implement	1			1
Single platform blade core		3		3
Other blade core		1		1
Tested nodule/bashed lump	3	7	3	13
Single platform flake core	1	1	1	3
Multiplatform flake core	1	4	2	7
End scraper		5		5
Side scraper		2		2
End and side scraper		1	2	3
Scraper on a non-flake blank		1	1	2
Serrated blade/flake		5	3	8
Backed knife		1		1
Other knife			1	1
Retouched flake		4	3	7
Misc. retouch	1			1
Pick		1		1
Hammerstone		3	1	4
Grand Total	40	331	100	471
Burnt unworked flint No./Wt. g		38/163 g	62/2463 g	100/2626 g
Burnt worked flints No. (%)*	5 (13.9)	10 (3.2)	1 (1.1)	16 (3.7)
Broken worked flints No. (%)*	12 (33.3)	89 (28.3)	20 (22.7)	121 (27.6)
Retouched flints No. (%)*	1 (2.8)	20 (6.4)	10 (11.4)	31 (7.1)

*Percentages excluding chips and hammerstones

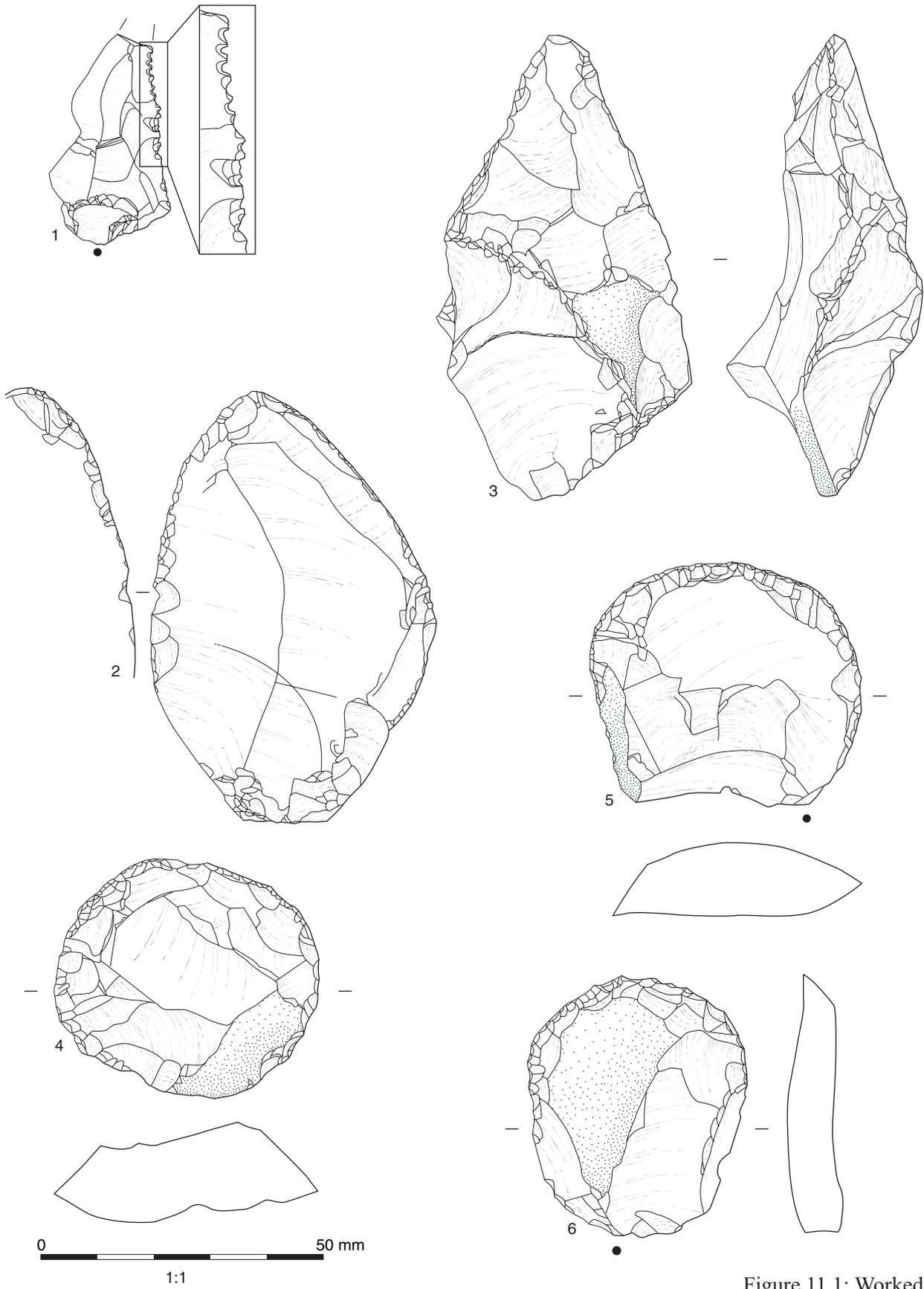


Figure 11.1: Worked flint

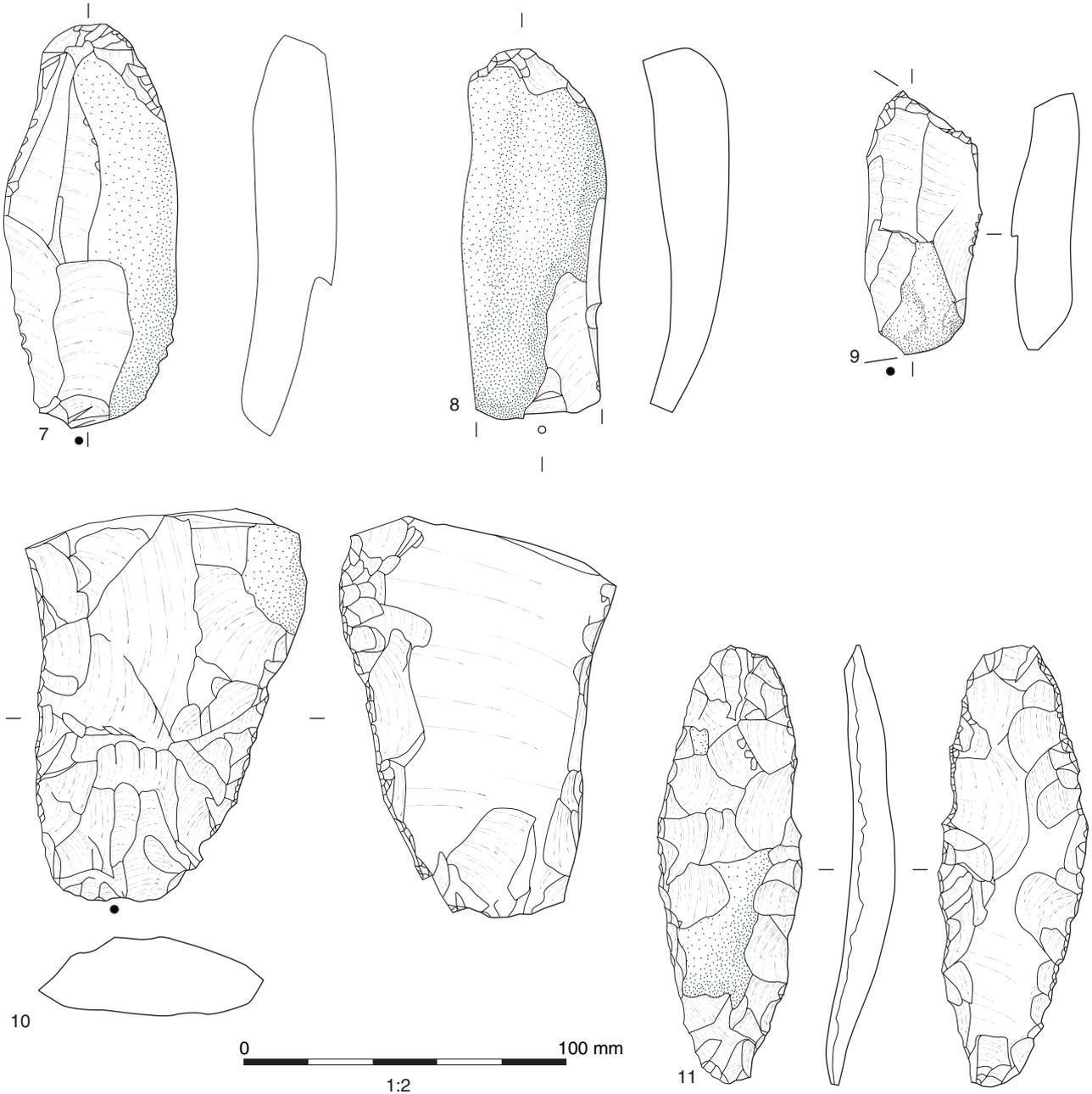


Figure 11.2: Worked flint

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