EXCAVATIONS OF AN IRON AGE SETTLEMENT AT GAMSTON, NOTTINGHAMSHIRE

by

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SUMMARY

Excavations between 1988 and 1989 of a cropmark site at Gamston, Nottinghamshire, revealed evidence of an extensive settlement with earlier Iron Age or possibly Late Bronze Age origins, but dating mainly from the late 1st millennium BC and 1st century AD. Four main structural phases were identified on stratigraphical and spatial grounds (Fig. 4), commencing with a period of possibly open settlement (Phase 1). The features of this early phase were cut by the boundary ditch of Enclosure 1 (Phase 2) which in turn was succeeded by a rectilinear boundary system (Phase 3) and by Enclosure 2 (Phase 4). It is unclear how long occupation had continued, but Phase 4 is unlikely to predate the mid-1st century AD. Substantial quantities of domestic pottery and other refuse were obtained from features of these phases, including saddle and rotary querns and rubbing stones, triangular loomweights, daub, briquetage, vitrified material, a La Tène glass bead, occasional items of ironwork and a copper alloy ring. The pottery demonstrates unexpected exchange links with Charnwood Forest and possibly Lincolnshire or south Nottinghamshire, while further evidence for a well developed exchange network may be provided by the querns (including examples which could derive from the Peak District and Charnwood), briquetage from Cheshire, and the glass bead, possibly derived ultimately from the Continent. Few bones were preserved in the acidic subsoil, but charred plant remains deriving in part from domestic crops were obtained from a number of features.

INTRODUCTION

LOCATION AND PREVIOUS ARCHAEOLOGICAL WORK

The site is located on the outskirts of West Bridgford, Nottingham, immediately west of Gamston village, in an area of former arable land which from 1988 has been extensively developed for housing (SK 602369; Fig. 1). It occupies the western extremity of an elongated island of second (Beeston) terrace river gravel, approximately 1.5km south of the Trent and bounded to the north, west and south by a broad channel of peaty alluvium (Fig. 2). The gravel terrace is convex in profile, with moderately steep slopes to the north and west, and slopes gently from north west to south east across the excavated site from *c.*28.5 to 28m OD (Fig. 1). The terrace itself is well drained, with light soils overlying the variable sand and gravel subsoil.

The site was unknown before 1977, when air photographs taken by Mr. J. Pickering revealed in an arable field, cropmark traces of two sub-rectangular ditched enclosures, *c.*50m by 30m and *c.*30m by 20m internally (Fig. 1). The field was adjoined to the north, west and south by pasture fields preserving extensive medieval ridge and furrow and other earthworks (Plate 1), but no traces of ridge and furrow could be observed in this field at any stage of the excavation. The air photographs of the smaller western enclosure preserved evidence of a single entrance with directly opposed terminals on its eastern side, but no clear traces of internal features. The other enclosure was partially obscured on its south-eastern side by the earthworks of an embanked slurry pit, but

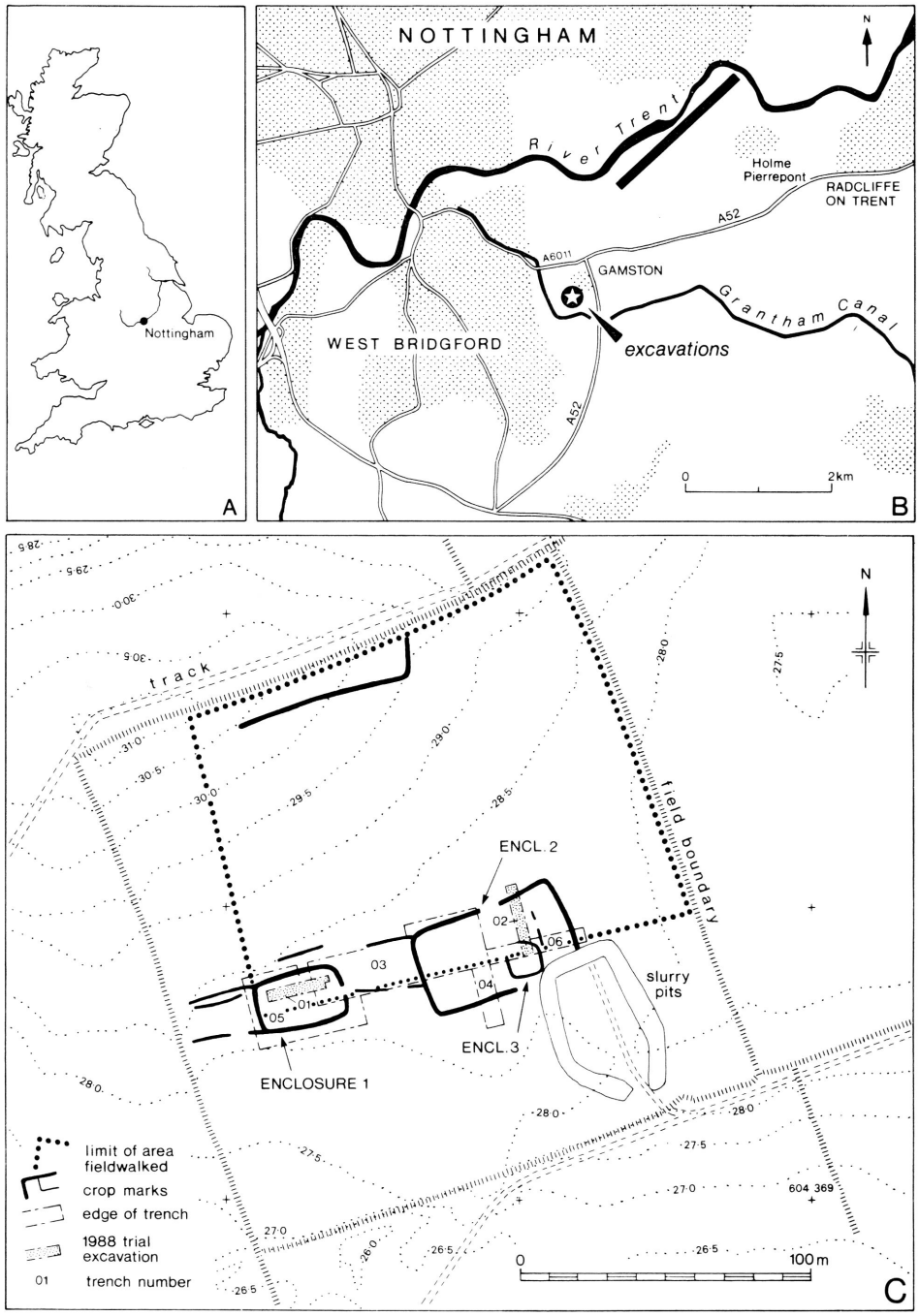


FIGURE 1:Gamston: location map

preserved a possible entrance, again with directly opposed terminals approximately midway along its northern boundary. In its south-eastern corner were traces of a small sub-square ditched enclosure *c.*20m in diameter (Enclosure 3) and two lengths of north-south ditch. Evidence also survived of several approximately east-west ditches to the north and west of Enclosure 1 and within the inter-enclosure zone. These may be vestiges of the rectilinear boundary system which is attributed here to Phase 3 of the Iron Age settlement, but it is possible that a pair of roughly parallel ditches which continue westwards from the north west and south west corners of Enclosure 1 represents a fourth enclosure, to the west of the excavated area.

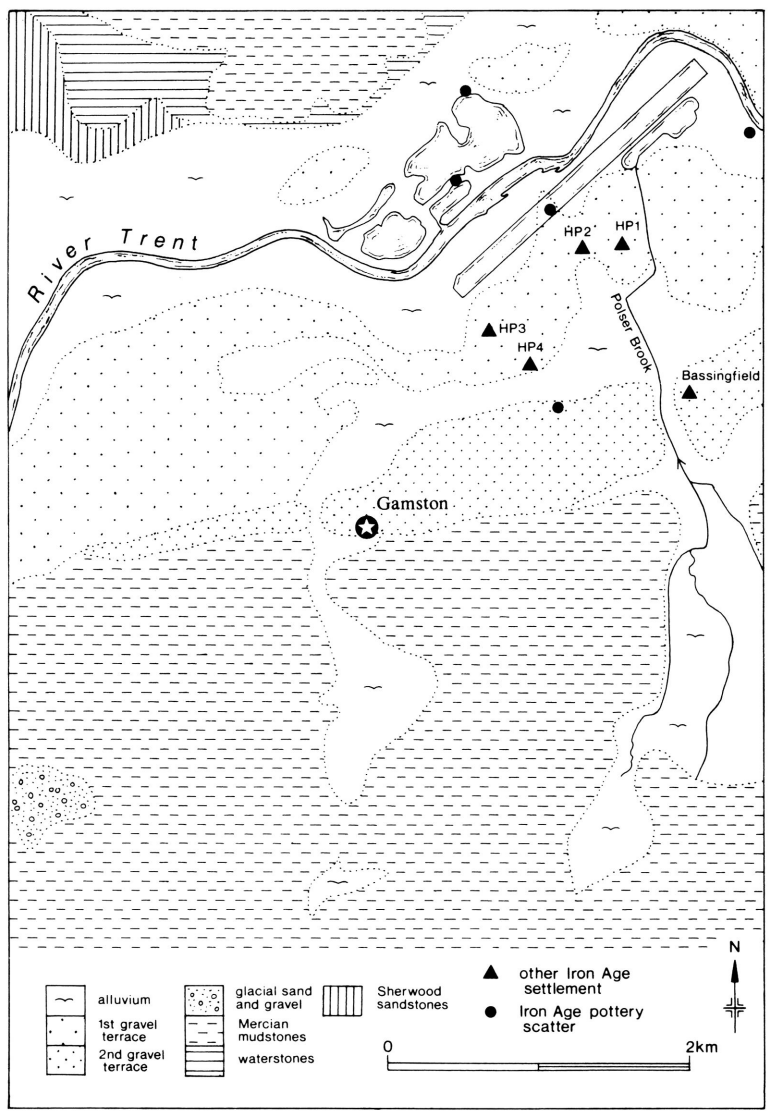


FIGURE 2 Gamston: surface geology and the distribution of Iron Age sites in the vicinity of Gamston (HP HolmePierrepont)

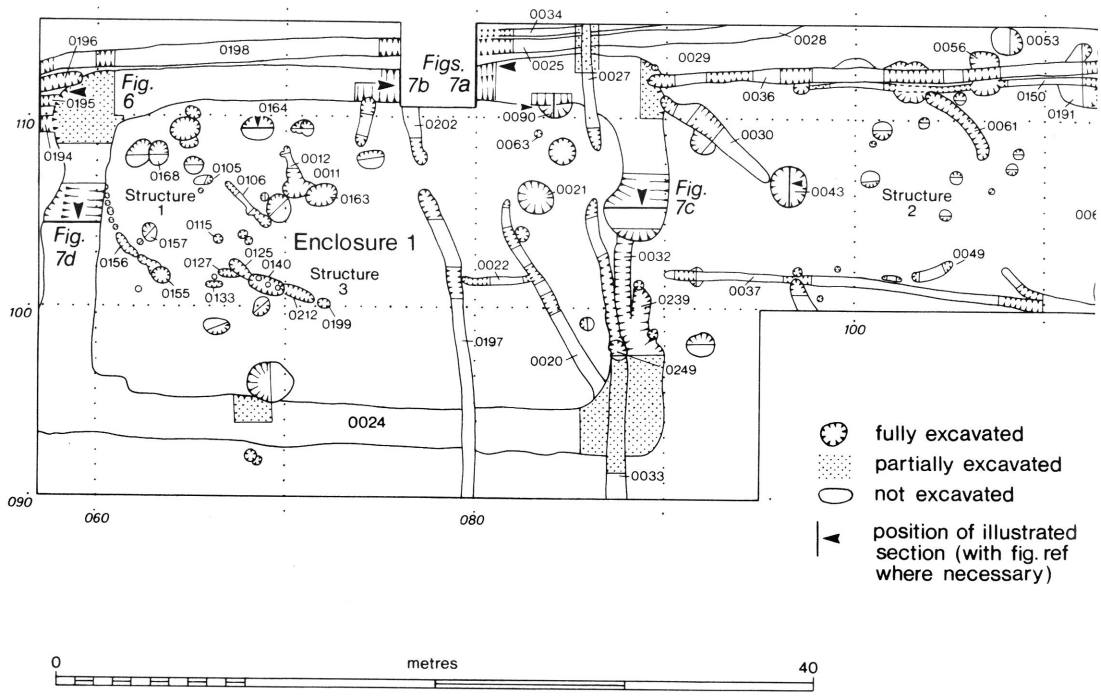
PLATE 1 Gamston: crop marks and adjacent ridge and furrow photographed July 1977 by J. Pickering.

Archaeological investigations were instigated in response to proposals to develop this area for housing by Bovis Homes Ltd. who, jointly with English Heritage and the Nottinghamshire County Council, commissioned and funded Trent & Peak Archaeological Trust to undertake a programme of survey and excavation. The work proceeded in four stages.

Two trial trenches, 4m wide by 20m and 25m long, sited to establish the date and state of preservation of the cropmarks, were supervised by Daryl Garton in April 1988 (Fig. 1: Trenches 01 & 02). The trenches were at right angles to each other to minimise the effects of any surviving ridge and furrow. The larger trench (2) cut the boundary ditches of Enclosures 2 and 3 and a series of internal pits and gullies, while the other trench intersected a group of pits, gullies and post-holes within Enclosure 1. The excavations suggested truncation of the upper parts of features as a result of ploughing, but the level of preservation was deemed sufficient to justify further work. Significant quantities of later Iron Age pottery and other domestic debris were retrieved from most of these features, together with a handful of Romano-British sherds which may have derived from

manuring.

In May, 1988 Daryl Garton supervised field-walking of most of the cropmark complex, in a series of transects spaced 5m apart (Fig. 1). All surface finds were plotted (excluding blue and white pottery, brick, tile and bone). The weathered field surface was clearly visible through a low crop growth and, although walked in sunlight, conditions were satisfactory for the recognition of surface finds. 91 worked flints (Table 5) and a thin scatter of medieval and post-medieval sherds were obtained, but no Iron Age and only four Romano-British sherds were recovered.



Sarah Lucy conducted a geophysical survey in November, 1988, of the area of known cropmarks. Resistivity readings were taken at 1m intervals within a 20m grid. The results are available as a dot density computer print out (in archive). This revealed no convincing

correlations with cropmark features and no systematic variations which might imply other archaeological features, probably because of the highly variable texture and dampness of the sand and gravel subsoil.

Larger scale excavations were directed by the writer between August and November 1989 (Fig.1: Trenches 3-6). The principal objective was to record a complete plan of the enclosures and all archaeological features within and between them, and by excavating these selectively to investigate the functions of the enclosures and their relations to one another and to their immediate environment. This, it was hoped, would provide for the first time in Nottinghamshire under

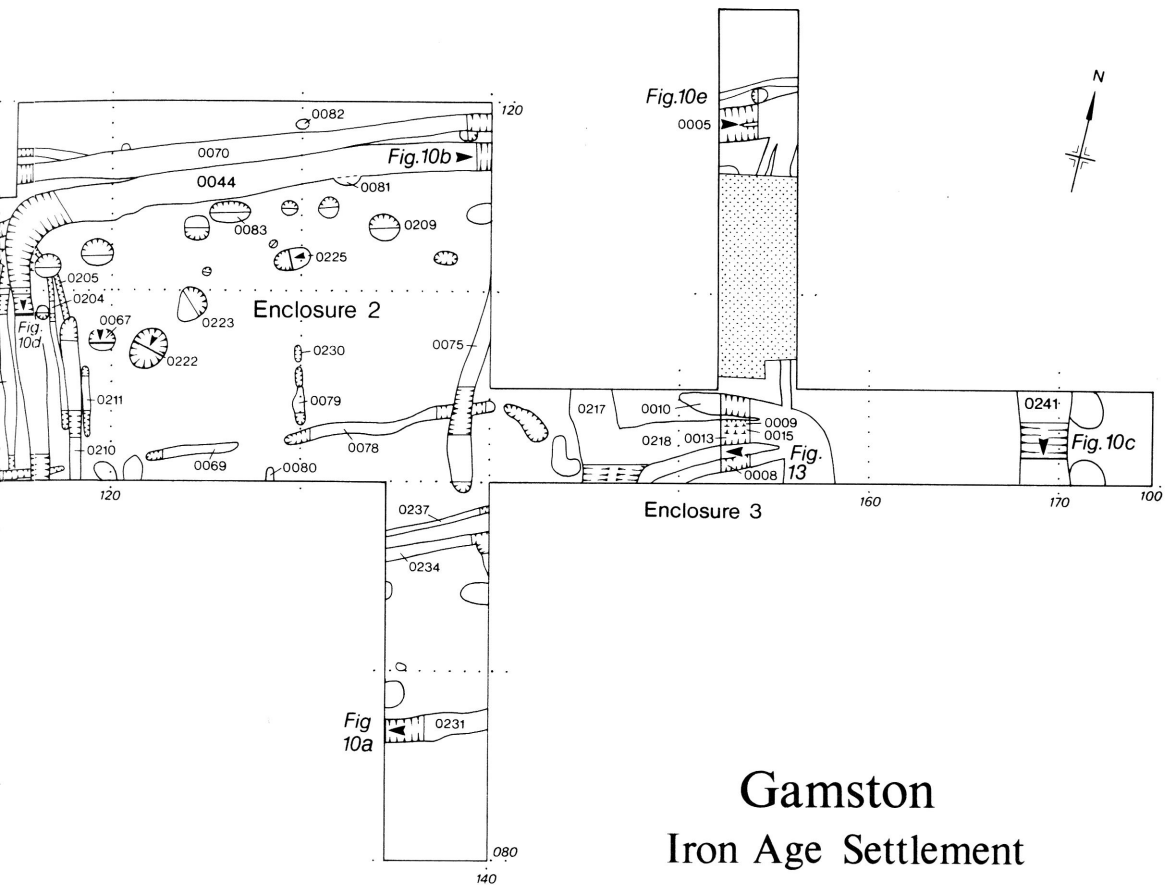


FIGURE 3 Gamston: general site plan

controlled excavation conditions a comprehensive Iron Age settlement plan. However time allowed for only part of the proposed area to be investigated adequately and the following specific aims were then pursued: complete plans of Enclosure 1 and at least one quadrant of Enclosure 2;

the excavation of two trenches (4 and 6) to sample further the interior of Enclosure 2 and to establish its spatial limits; excavation of the northern boundary of Enclosure 3 to investigate its chronological relation to Enclosure 2; excavation of most of the area between Enclosures 1 and 2 to establish their chronological relationship and the extent of extra-enclosure activity. High priority was also given to the retrieval of Iron Age pottery and environmental data, both sparsely represented in the archaeological record of the Trent Valley. Unfortunately,the generally poor state of preservation of charred plant remains, pollen and animal bone prevented significant progress in this area. The alluvium adjacent to the site failed to produce waterlogged deposits suitable for environmental analysis.

The archive, comprising the primary and processed site records and all artefacts, has been deposited in Nottingham Castle Museum. The primary site records include field-walking and resistivity data, context record sheets, artefact lists, site plans and sections, lists of photographs and drawings, black and white negatives, colour slides and lists of wet-sieved and flotation samples. The processed records include word-processed versions of the context record sheets, artefact catalogues and the photographic and drawings records, plus processed plans and sections, artefact drawings and all specialist reports in full. An introduction to the site archive and copies of the processed records and drawings are available in microfiche or as computer print-outs from the National Monuments Record, Fortress House, 23 Savile Row, London.

METHODS OF EXCAVATION

Trenches 1 and 2

A 1m wide strip of ploughsoil was removed by shovel along one edge of each of the 4m wide trenches, and all finds from this layer were collected within 5m lengths. Up to 0.1m of the underlying deposits were removed in this way. No features were observed during this work, and the remaining width of each trench was therefore stripped by machine (employing a 6′ ditching bucket on the back actor of a JCB). No features could be discerned after trowelling this arbitrary surface, and further excavation was restricted to those parts of the trenches where ditches were anticipated. Excavation continued in a series of 50mm spits down to the natural sand and gravel subsoil, and the contexts revealed during this work were then selectively excavated. Ditch and gully complexes were initially sectioned by removing the fill in arbitrary spits by trowel, but further lengths were trowelled stratigraphically. All finds below the topsoil were planned three-dimensionally.

Trenches 3 - 6

The trial excavation had demonstrated that features could be observed clearly only after the site had been stripped to the level of the subsoil, although the fills of some features could, in ideal conditions, be observed to be cut from a higher level. Given the priorities stated above, and since the dry conditions of summer would hinder the recognition of features cut into the sand and gravel subsoil, the site was excavated by machine down to the subsoil (removing the topsoil and *c*.0.5m of the underlying deposits). This permitted the excavation of 0.22ha (Fig. 3) but would have destroyed any surviving occupation floors or hearths and very shallow features. The machined surface was cleaned by shovel, trowelled and then planned. Contexts were excavated selectively, concentrating on intersections between linear features to clarify the structural development of the site. Features were generally excavated in a series of arbitrary spits (mainly 50mm) and where fill divisions could be observed, stratigraphically within each spit. This enabled stratigraphical relationships to be detected, and a sequence of four main phases to be constructed (Fig. 4). All feature depths in this text (and as drawn in sections) are measured from the surface of the subsoil.

SITE STRATIGRAPHY

All features were sealed by a dark brown ploughsoil up to 0.3m deep (1), comprising a homogeneous sandy loam with an abundance of fine fibrous roots and a small proportion of randomly distributed small pebbles. This overlay a possibly colluvial deposit (2), with which it formed a sharp boundary, and which was penetrated by Iron Age archaeological features (*e.g.* Fig. 6). This underlying deposit was not uniform, but generally comprised a firm lighter brown sandy loam with few mainly rounded and sub-rounded small stones and frequent fine fibrous roots. It varied in thickness from *c.*0.15m to 0.4m, and in some areas incorporated thin and intermittent bands of small pebbles. Matthew Canti of the Ancient Monuments Laboratory suggested that this layer might represent colluvium formed as a result of prolonged ploughing of the gravel terrace. If so, the observed relationship of this layer with features containing Late Bronze Age or earlier Iron Age pottery discussed below, suggests agricultural activity on this gravel island from as early perhaps as the 2nd millennium BC.

This deposit overlay an orange-brown sandy layer incorporating few mainly rounded small stones (3). Mechanical stripping prevented the recording of its precise lateral extent, but it was observed in most baulk sections and appears to have covered most of the trench. The interface with the subsoil was not clearly demarcated, and tongues of gravel frequently protruded into this layer. A pronounced but intermittent cobbled layer was visible towards its base, with an abundance of mainly rounded stones up to 100mm in diameter. This layer is of uncertain origin, but M. Canti suggested that it may indicate a period of soil deflation. It could have formed in a Holocene phase during which scant vegetation cover allowed aeolian removal of the fine soil.

MESOLITHIC, NEOLITHIC AND EARLIER BRONZE AGE ACTIVITY

None of the excavated features can be shown to pre-date the 1st millennium BC, and on ceramic grounds the majority should probably be accommodated within the latter half of the 1st millennium BC and the 1st century AD. There are, however, clear indications of activity prior to this period in the form of scattered flintwork of Mesolithic, Neolithic and possibly Bronze Age date, recovered either from the surface or as redeposited material in Iron Age features (Table 4), in addition to surface finds of sherds from three earlier Bronze Age food vessels (Fig. 27, nos. 1-3). Evidence of pre-Iron Age ploughing may be provided by the colluvial deposit discussed in the previous section, through which all the Iron Age features were cut.

A similar colluvial deposit may have survived on a nearby Iron Age settlement, on the first gravel terrace of the Trent at Holme Pierrepont[1] Evidence there for later Iron Age occupation included a small sub-rectangular ditched enclosure dated by associated scored pottery. The ditches of this enclosure cut a supposedly earlier ploughsoil, which in turn sealed a *c* 0.15m thick occupation deposit yielding both flintwork and earlier Bronze Age pottery. Excavation, field-walking and casual discovery have provided extensive evidence for later Neolithic and earlier Bronze Age settlement elsewhere on this gravel terrace[2] and the apparent density of activity implied by these finds may have extended to the upper gravel terrace at Gamston.

LATE BRONZE AGE AND IRON AGE ACTIVITY

PHASE 1: PRE-ENCLOSURE ACTIVITY

Several features were cut by the boundary ditch of Enclosure 1 and have been grouped here into a pre-enclosure phase, possibly of some considerable duration. These features and a range of structures which on the evidence of their ceramic contents might also pre-date Enclosure 1 are considered below, and the associated pottery discussed.

Structure 1 (Fig. 5)

The surviving remains are difficult to interpret, but could represent the foundations of an

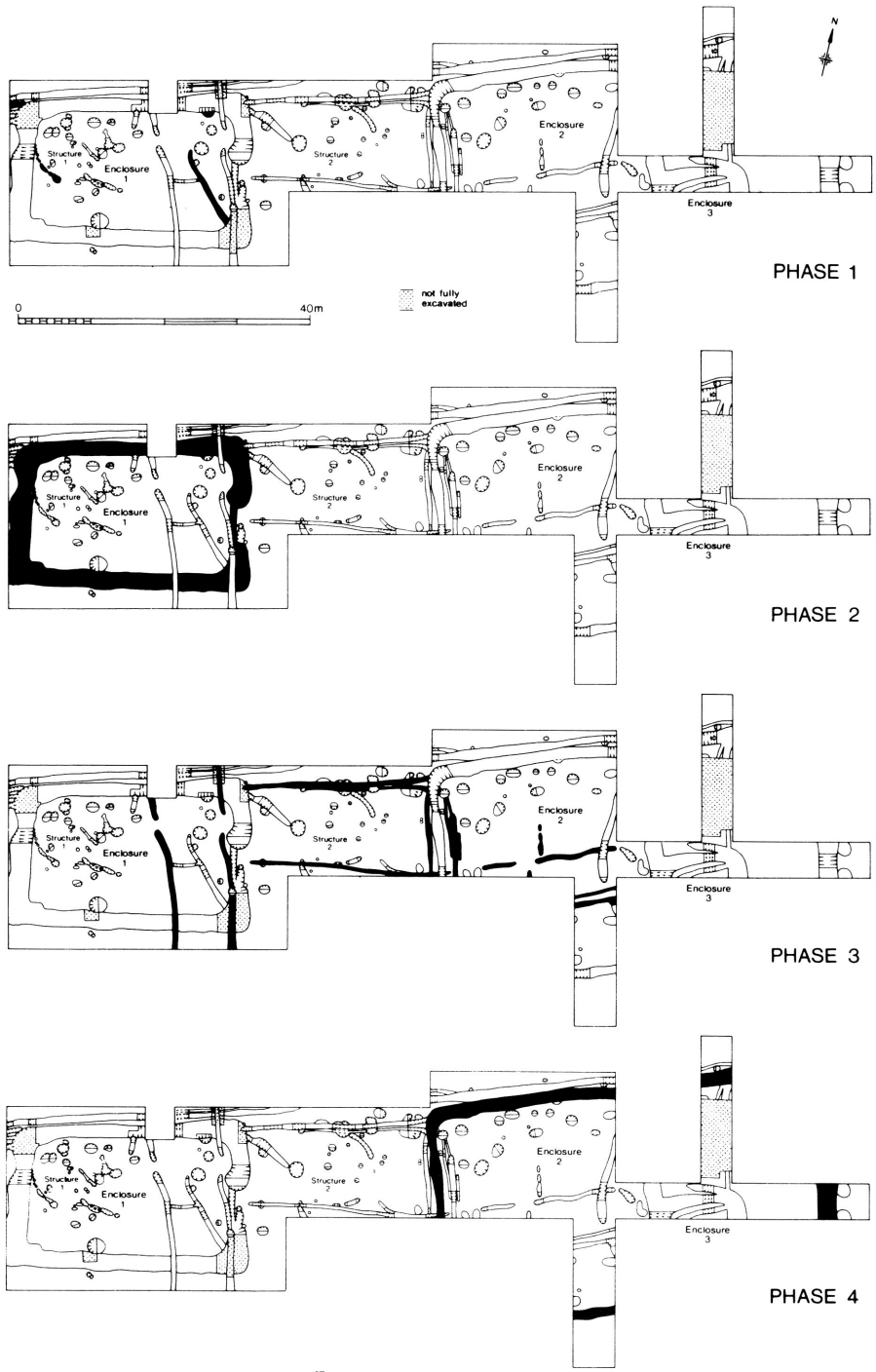


FIGURE 4 Gamston: phase plan.

originally semicircular structure of a kind known on a number of Iron Age sites in southern England.[3] The most substantial component of this structure was an approximately oval pit (155), *c.*1.2m by 0.8m in diameter at the mouth by up to 0.3m deep, with almost vertical sides and an approximately flat base. Deeply stratified at the bottom of this pit was a single very abraded plain Iron Age body sherd of Fabric Q3. There was no trace of a post void, but the dimensions and profile of the feature and its relationship to gully 156, which joined it from the north west, strongly suggest a post-hole. The post may have been substantial, and by analogy with better preserved structures elsewhere in southern England could represent either the entrance post of a circular roofed or unroofed structure or the terminal of a semicircular wall or fence. A companion post-pit of comparable dimensions could scarcely have eluded discovery, even allowing for its truncation by the series of shallow gullies which survived to the east (125, 127, 133). The fill of feature 155 merged indistinguishably with that of gully 156, which could represent the base of a narrow bedding trench or possibly a series of post-holes which had coalesced as a result of the activities of burrowing animals.[4] The feature appeared after initial trowelling as a dark stain, and continued in an unbroken arc to a point where it was clearly truncated by the fill of the ditch demarcating Enclosure 1. Several lengths of gully 156 were excavated in a series of 50mm spits, disclosing an arc of six post-holes (156a-f) and a continuous gully joining with 155 (Fig. 5) *(cf.* F560 Farmoor, Oxfordshire).[5] The post-holes varied from *c.*0.25 to 0.4m in diameter and survived to a maximum depth of 0.16m, but preserved no traces of post voids. The bases were generally flat, but the profiles were irregular. The gully was of similar dimensions, with irregular sides and a mainly flat base, possibly disturbed by burrowing activity.

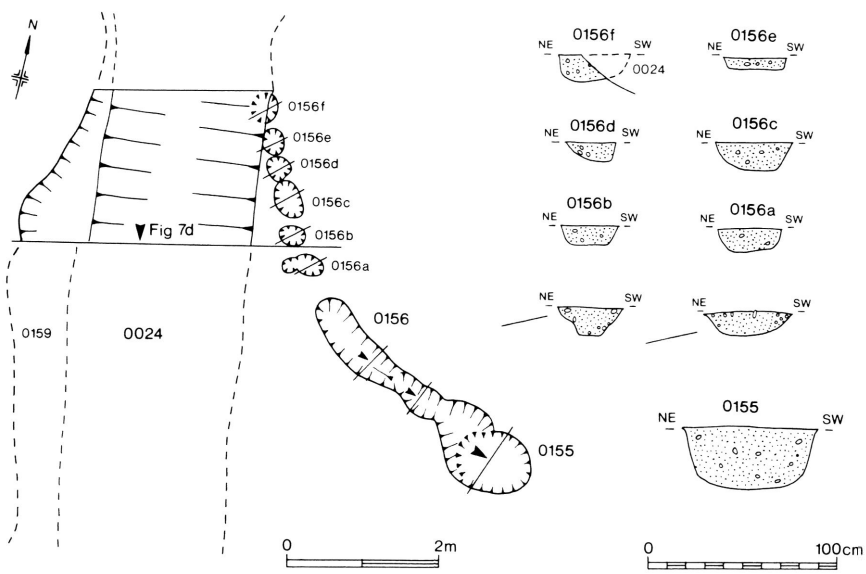


FIGURE 5 Gamston: plan and sections of Structure 1.

The post-hole spacing suggests a framework of closely spaced timber uprights, possibly interwoven with wattles and caulked with daub. The structure need not have been roofed, and could have served, *e.g.* as a small animal pen, closed on its south east side perhaps by a light hurdle fence, or even as a windbreak for sheltering stock, cooking, weaving or other activities.[6] If roofed,

it could have served as a small dwelling or as a hut for the stalling of cattle, storage or craft activities.[7] A horizontal beam could have been supported upon two terminal posts, to which a pair of principal rafters, arranged to form a gable end, was attached. These in turn could have supported a series of common rafters joined to the top of the wall. The diameter of this structure, continuing the circumference of 156, would have approximated to 10m, and the north east terminal would have underlain the ditch of Enclosure 1. Although the argument is tenuous, it explains the absence of a contemporary post-pit to the east of 155, which in a circular structure would otherwise be difficult to account for.

Pit 90 (Figs. 3 & 14)

This pit in the north eastern corner of Enclosure 1 was truncated by the enclosure ditch on its northern side. It was approximately oval in form, with a diameter at the mouth of *c.*1.5m by 1.1m, and penetrated the gravel to a maximum depth of 0.46m. It resembled an inverted truncated cone in profile, with steeply sloping sides and an approximately flat base, and like other pits on the site could have performed a wide range of storage or other functions. It produced 13 unabraded to very abraded and mainly plain Iron Age sherds, all of Fabric Q3 but all possibly from different vessels. None is chronologically diagnostic, although one sherd from a vessel with a high everted neck and a row of finger-tip impressions along the lip (FAT), a girth fragment from a thin-walled and probably round-shouldered vessel (DXJ) and one other thin-walled sherd from a vessel with a high everted or upright neck (DQD) suggest a Late Bronze Age/Early Iron Age date.

Gully 20 (Fig.3)

This was traced for a distance of *c.*11m to a point where it was cut by the south east corner of Enclosure 1. The gully varied from 0.4-0.5m wide at the mouth with a maximum depth of only 0.3m. The profile varied longitudinally, but for most of its course the gully was approximately U-shaped in section. It could not be traced beyond the south east corner of Enclosure 1, and its relationship to other features of this early phase and to gully 22, which joined it from the east, remains in doubt. In contrast to other Phase 1 features gully 20 produced a reasonable quantity of finds, including 100 mainly unabraded or moderately abraded Iron Age sherds of Fabrics G1B, Q3, Q4 and S1, part of an iron nail (Fig. 27, no. 12), several heat-affected pebbles and a fragment of millstone grit with one flat polished surface (DDU). The pottery includes unabraded sherds from three vessels with high everted necks and finger-tip impressions along the rim and a high proportion of fragmentary plain and sometimes lightly brushed thin-walled vessels which bear comparison with typical Late Bronze Age/Early Iron Age wares. The only other vessel of note is represented by a small and moderately abraded body sherd from a wheel-made bowl of uncertain form which was recovered during surface trowelling of the feature, and which should date at the earliest from the late 1st century BC (CAQ). This is at variance with the stratigraphical evidence, and is either a later intrusion or indicates that gully 20, which seems to have silted naturally, was still partially open into Phase 3.

Pit 250 (Figs. 3, 8 & 9)

The severely truncated remains of what may originally have been a substantial pit were observed in section during the excavation of the south terminal of the entrance to Enclosure 1. The original dimensions and shape of this feature cannot be determined, and it produced no finds.

Other Evidence of Pre-Enclosure Activity

Further evidence for activity prior to the construction of Enclosure 2 is provided by a small number of unstratified sherds of Late Bronze Age/Early Iron Age type and by similar material

from several features which cannot be linked to the main stratigraphic sequence. The first of these features was uncovered north west of Enclosure 1 during excavation of a complex of roughly parallel gullies (Fig. 3, 194, 195, 196 & 198). These features could not be distinguished clearly until the cobbled layer (3) which at this point overlay the subsoil had been removed, but they unquestionably cut both layer 3 and the overlying colluvium 2 (Fig. 6). The stratigraphic relationships of these features both to one another and to Enclosure 1 were not disclosed in plan. Examination of the east-facing baulk showed the lower fills of 195 and 198 to have been overlain by a layer of firm light brown loamy sand with thin pebble bands dipping towards the long axis of 196 (Fig. 6, layer a). This might represent either a broad weathering cone, eroded across 195 and 198, or material which had accumulated naturally in a broad and comparatively shallow ditch dug along the line of 196 (perhaps a recutting of 196, and therefore later than both 195 and 198). Alternatively, it might be a much later feature. These gullies contained few artefacts, but from the bottom of 196 came an unabraded sherd of an ovoid or possibly open bowl with incised geometrical decoration (Fig. 23, no. 58). The typological affinities of this vessel lie with Late Bronze Age and earlier Iron Age pottery, and a date as early as the later 9th or 8th century BC is possible. The function of gully 196 is unclear, but either this gully, or the later ditch which possibly cut into it at this point, might correlate with a linear cropmark which projects westwards from the north west corner of Enclosure 1 (Fig.1).

Other sherds which on typological grounds may be assigned securely to the Late Bronze Age/Early Iron Age period were obtained from pit 191, which was cut by a Phase 3 gully, and gully 194, just south of the proposed early gully, 196. The pit produced 11 plain and moderately abraded body sherds and an unabraded girth fragment from a shouldered vessel with finger-tip impressions along the girth (Fig. 17, no. 18), while gully 194 produced three plain body sherds of variable condition and part of a moderately abraded carinated bowl with high everted neck (Fig. 23 no. 51). Several unstratified sherds of this ceramic phase were also recovered (*e.g.* Fig. 23, no. 59), together with a possibly residual sherd from gully 30 (Fig. 23, no. 53).

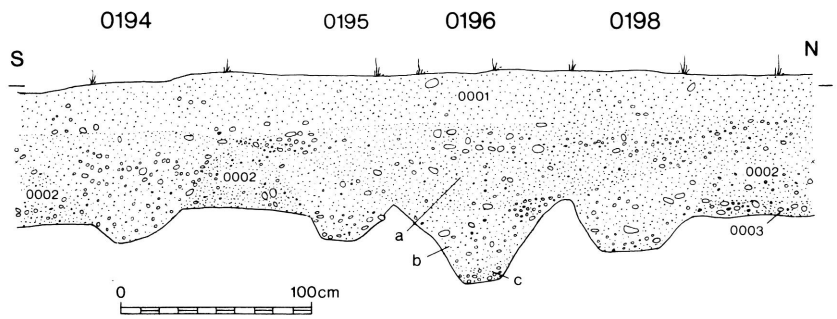


FIGURE 6 Gamston: section of Gullies 194, 195, 196 and 198.

Conclusions

The structural evidence and the ceramic and other finds which were obtained from stratified and other contexts imply occupation on or in the immediate vicinity of the site prior to the construction of Enclosure 1. There is no evidence of enclosure at this stage in the development of the site, but a considerably larger area would need to have been excavated to be certain of this. Some of the pottery has affinities with typical Late Bronze Age/Early Iron Age wares from the region, and might signify activity from the early 1st millennium BC, but the ceramic material is insufficiently diagnostic to permit close dating.

PHASE 2: ENCLOSURE 1

Enclosure 1 was demarcated by a substantial ditch enclosing a roughly rectangular area *c.*27m by 16m internally, with an internal area of *c.*0.04 hectares. The ditch truncated the Phase 1 features described above, and was itself cut by several of the linear gullies which defined the Phase 3 boundary system. Many of the scattered pits and post-holes inside this boundary ditch, and possibly some external features, might have been contemporary with its use, but the extent and the nature of activity associated with Enclosure 1 is extremely difficult to gauge.

Boundary Ditch (Fig. 7)

The main enclosure ditch shows clearly on air photographs (Plate 1), but could not easily be traced on the ground until the site had been stripped to the top of the subsoil. Sections across the ditch at the eastern entrance and along its northern and western boundaries revealed a substantial U- or V-shaped feature, up to c.2.5m wide at the mouth by a maximum of 0.75m deep, with expanded and slightly inturned entrance terminals. Two sections across the northern boundary ditch showed that it had been cut from at least the base of the modern ploughsoil, and that its original depth was probably in excess of 1m. The filling of the ditch appeared to have accumulated mainly by natural silting. Spoil from the ditch would probably have formed an internal or external bank, or both, but no evidence was obtained of preferential silting. An internal bank would have significantly reduced the already small enclosed area. No traces survived of other boundary features, but a hedge or fence would have been essential for the effective management of stock. Periodic recutting is suggested by the fill and profile of the ditch in Cuts 1 and 10 (Fig. 7a, and d respectively) and by a major fill division observed in plan at the north western corner of the enclosure. Fig. 7a shows an early phase of the enclosure ditch (c) below two layers of predominantly natural silting (a and b), while Fig.7d shows the truncation of the early enclosure ditch (159) by a more substantial boundary feature (24, layers a, b and c). The extent of these recuts was not established, and they may represent no more than localised recutting. A ditch dug into the loose sands and gravels of this terrace would have silted rapidly without constant maintenance, and the recutting episodes need not have been widely separated in time.

The Entrance (Figs. 8 and 9)

The ditch terminals were slightly inturned at the entrance and flanked a causeway which would originally have been about 5m wide. No traces of an associated gate structure were found, but the entrance area provided evidence for a possible palisaded phase to the enclosure and for the relationship of the enclosure to the Phase 3 boundary system (Fig. 8). The most intriguing feature is gully 32, which, as shown in Fig. 9b, was cut by the southern entrance terminal of Enclosure 1 (24). It possessed a cross-section of variable form, but for much of its length it had a flat base with steep and in places almost vertical sides. At the level of the subsoil, it averaged *c.* 1m wide at the mouth by up to 0.6m deep, and originally could have been about a metre deep. Along much of its western edge was a tightly compacted fill of orange-brown sand (Figs. 9a, 32b and 9b, 32c) with an almost vertical edge against the remaining filling. This compacted material was possibly packing along the edge of a palisade trench. The lack of post voids might imply only that posts were dug out instead of rotting *in situ*. This and the poor consolidation of the gravel through which parts of the trench were dug might also explain the irregularities in the cross-section, which in places lacked the steep sides and flat base of a typical palisade trench. No traces of gully 32 were recorded in any other ditch section, but it could easily have been erased by the later and more substantial ditch. Gully 32 was also cut by a shallow pit (239) and by one of the Phase 3 gullies (33). Pit 239 was of elongated oval form, and as it also cut the south terminal of the enclosure ditch may be attributed to a later phase of activity. 239 was itself cut by a probable post-hole (111),

whose position in the centre of the entrance causeway of Enclosure 1 may be fortuitous. The Phase 3 gully 33 also cut obliquely across the southern terminal of the Phase 2 enclosure, and was cut by a later pit (249 Fig. 9b). The southernmost section revealed traces of another possible pit (250), cut by the enclosure ditch and hence attributable to the Phase 1 settlement (Fig. 9b).

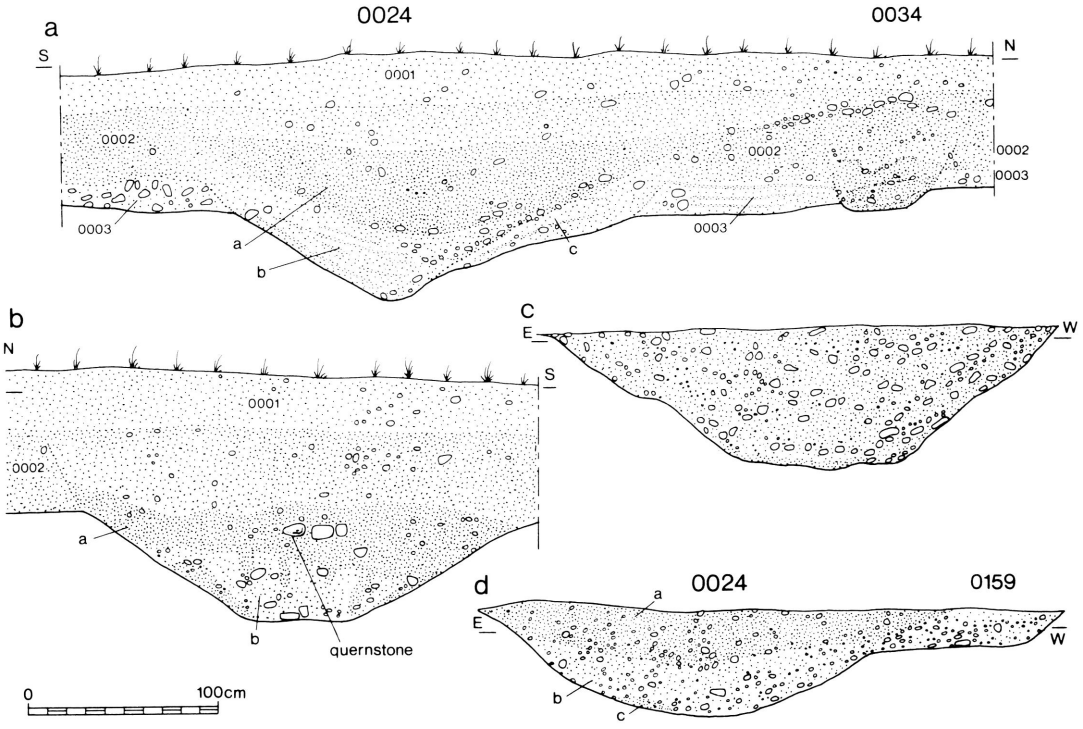


FIGURE 7 Gamston: sections of Enclosure 1 ditch.

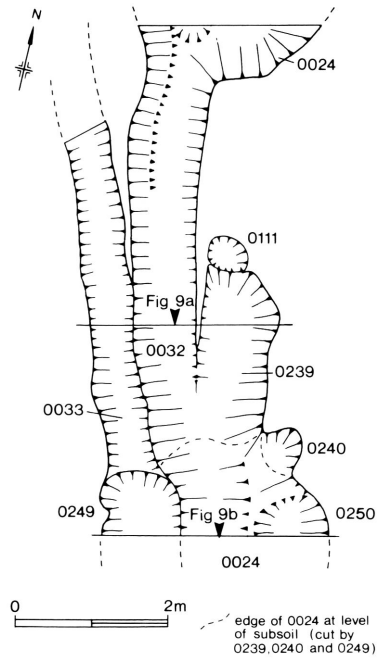


FIGURE 8 Gamston: post-excavation plan of Enclosure 1 entrance.

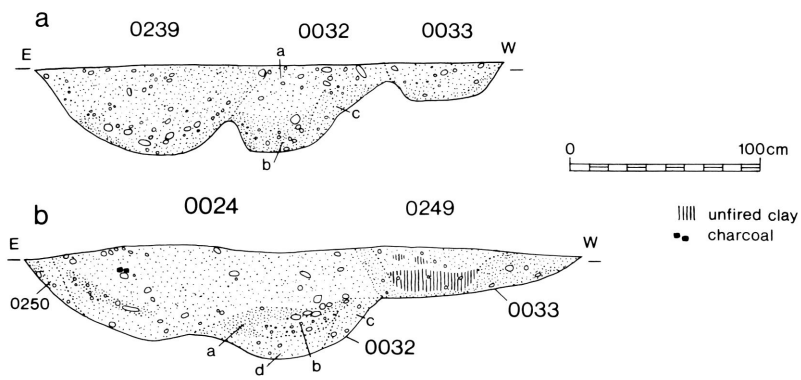


FIGURE 9 Gamston: sections of possible early palisade trench between Enclosure 1 ditch terminals.

Dating Evidence

The ditch silts yielded a substantial quantity of pottery, considered in greater detail in the pottery report, which on typological grounds may be ascribed to the later pre-Roman Iron Age. Most important for dating is a small quantity of later Iron Age scored ware from all levels of the ditch (Fig. 16, nos. 6, 7, 10) a sherd of La Tène rouletted pottery from the ditch surface (Fig. 15, no. 4) and 18 (137g) wheelmade sherds from the upper ditch silts (Spits 1 and 2), including part of a bead-rimmed ovoid vessel (Fig. 15, no.2). The date of origin of the enclosure cannot be determined, but since the wheelmade vessels probably date from the late 1st century BC or early 1st century AD the final phases of filling may be ascribed at the earliest to the late 1st century BC. The possible earlier palisade trench 32, incorporated a small quantity of unabraded scored pottery in its filling (Fig. 15, no. 1), and although close dating is not possible may be assigned with reasonable confidence to the later Iron Age.

Internal Organisation and Functions

In addition to pottery, the enclosure ditch produced a wide range of Iron Age artefacts, many of which had probably been deliberately dumped during the course of silting. These included several saddle querns, rubbing stones and possible whetstones (Figs. 28, no. 4 and 29, nos. 6, 7) and from the upper ditch silts a virtually complete triangular loomweight of fired clay (Fig. 26, no. 1) and a La Tène glass bead dating from between the 2nd century BC and earlier 1st century AD (Fig. 27, no. 5). Substantial quantities of heat-affected stones and a small quantity of animal bone were also retrieved. These finds imply nearby occupation while the ditch was open, although not necessarily inside the enclosure. Some of the internal features, most of which were concentrated in the north west corner, might represent the remains of contemporary timber buildings, pits and other structures. Many of the pits however, were located too close to the boundary ditch to have co-existed with an internal bank, while several of the remaining features were either cut by or cut the enclosure ditch. Gully 12 and post-hole 115 yielded unabraded sherds which joined with pottery from the upper silts of the enclosure ditch (Fig. 17, nos. 14-16), while Structure 3 produced pottery which compares closely with material from this ditch (Fig. 22), but evidence for possibly contemporary internal structures is extremely slim. The remains of structures with shallow foundations could have been stripped away with layers 2 and 3, but alternatively domestic activity could have been concentrated in this phase outside the enclosure. This might then have functioned, *e.g.* as a stock corral or as an area for the safe storage (and perhaps processing) of the settlement's cereal crops.

PHASE 3: RECTILINEAR BOUNDARY SYSTEM

Phase 3 witnessed a significant change in the layout of the site, and the development, probably in several stages, of a rectilinear boundary system.

The ditch demarcating Enclosure 1 had accumulated a substantial depth of deposit before the series of narrow linear gullies which defined Phase 3 was cut through it, and any adjacent banks must have been levelled and perhaps back-filled into the upper part of the ditch. Excavation showed that gullies 27, 29, 33 and 197 all cut the enclosure ditch, and the regular positioning of the gullies relative to each other suggests that they formed a rectilinear boundary system. Gullies 27, 33 and 197 might have defined the boundaries of a north-south trackway, up to 8m wide, of which gully 202 might also have formed part. The relationship of 202 to the enclosure ditch was concealed beneath a projecting baulk, but 202 continued the line of 197 and perhaps represented the north terminal of a narrow (*c.*2m) entrance, unless the boundary continued as a bank, hedge or other above-ground structure. This entrance was mirrored by a slightly wider gap (*c.*3m) between the terminals of gullies 27 and 33, suggesting a pair of gates leading into adjacent land plots. Gully 29 and its eastern continuation, gully 36, might represent the northern boundary

of a narrow field east of this putative trackway, and might be paired with gully 37 to the south. Gully 37 could not be related stratigraphically to the main enclosure ditch, but its spatial relationship to the gullies described above suggests that it was a component of this system.

Gullies 36 and 37 were cut by the ditch of Enclosure 2 (44), suggesting that the larger eastern enclosure formed a final phase of land reorganisation, superseding the rectilinear boundary system of Phase 3. Vestiges of this system were also traced within Enclosure 2. The line of 37 might have been continued eastwards by gullies 69 and 78, the latter being at right angles to two other gullies which might have formed part of this system (79 and 230) and to a dark soil stain, probably the bottom of another shallow gully (80). 78 was cut near its eastern terminal by a more substantial gully (75) which, in view of the oblique angle of the intersection, should perhaps be attributed to a later phase of activity, of unknown relationship to the Phase 4 enclosure. South of and roughly parallel with 78 were two other linear gullies (234 and 237), the southernmost of which (234) may represent a continuation of a gully (8) recorded inside Enclosure 3. None of these gullies can be related stratigraphically to features definitely attributable to Phase 3, but their spatial relationship to 78 suggests a possible southward extension of this boundary system. Several closely spaced north-south linear gullies adjacent to the western boundary of Enclosure 2 might also be attributed to Phase 3 on spatial grounds. Gully 210 was positioned at right angles to gullies 36 and 37 and roughly parallel with gullies 27 and 33, while the features which flanked its eastern and western edges might represent earlier or later versions of this boundary (64, 204, 205 and 211). Structural developments within Phase 3 might be implied by the common alignment of gullies 36 and 150. Both were cut by the ditch of Enclosure 2, and they were so close to each other that they must have intersected at a higher level. 150 appeared to continue south of its intersection with ditch 44 as 204, and these gullies followed so closely the alignment of 36 and 210 that some relationship with the Phase 3 boundary system seems highly probable.

Comments

Any reconstruction of the system of land allotment must be fragmentary, but the evidence suggests a series of narrow rectilinear land parcels, up to 10m wide by 30m long, with openings for gateways and at least one narrow trackway. Functions cannot be established with certainty, but the small size might imply garden plots or paddocks. Their wider affinities are discussed below, but they should be contrasted with the well known and far more extensive 'brickwork plan' fields which may have developed in the later Iron Age on the Sherwood Sandstones to the north of Gamston.[8]

All the gullies of this phase were insubstantial, especially by comparison with the ditch of Enclosure 1. Their profiles varied, but were essentially U-shaped with sides of variable steepness (*e.g.* Fig. 9, 33; Fig. 11, 36, 37, 150). None exceeded 0.3m in depth, and in some cases the feature was visible in parts only as a dark soil stain (*e.g.* 204). The more substantial features, such as gullies 36 or 37, ranged from 0.5 to 0.8m wide by up to 0.3m deep, and might have penetrated originally from a higher level to attain a depth of up to 0.8m. There were in addition several narrow slots up to 0.2m wide and sometimes barely discernible (notably 150, 204 and 205). The more substantial features preserved evidence of natural silting, but the circumstances of filling of those features which survived only as narrow slots are less certain. The latter might represent the foundations of light fences, constructed perhaps of timber uprights interwoven with wattles, but this is speculation. The larger gullies, by contrast, seem likely to have been open, and would have needed a fence or hedge, perhaps on a bank formed from ditch spoil, to have functioned as effective barriers against the movement of stock (*cf.* Fisherwick, Staffordshire)[9]

These gullies produced only small quantities of mainly abraded and possibly redeposited Iron Age pottery. 174 sherds (991g) were obtained from features which on stratigraphic grounds unquestionably belonged to Phase 3. These are mainly plain body sherds from vessels of uncertain

form, which cannot be closely dated, but include fragments of handmade ovoid (Fig. 18, nos. 20, 29), vertically sided (Fig. 18, no. 26) and possibly open vessels, pots with finger-nail or finger-tip ornament along the rim (Fig. 18, no. 30) and a small proportion of scored ware (Fig. 18, nos. 21, 31). One unabraded fragment of a wheelmade necked bowl (Fig. 18, no.22) may be dated on typological grounds to the early 1st century AD. A first century AD date for Phase 3 would be compatible with the discovery of Late Iron Age wheelmade vessels in the upper silts of the Phase 2 enclosure ditch, although too much weight should not be placed upon a single sherd. Surface trowelling of gully 197 also yielded a Romano-British sherd from an everted-rim jar or beaker in a 1st century fabric (ERU). This could be intrusive, but might imply that the gully had remained open into post-Conquest times. The comparatively limited artefactual debris obtained from features of Phase 3 suggests that the main focus of occupation had by then moved away from the excavated area, and that this portion of the gravel terrace at Gamston may have been reserved mainly for small garden plots or paddocks.

PHASE 4: ENCLOSURE 2

The final stratigraphic phrase is represented by Enclosure 2. Although partially obscured by the modern slurry pit, air photographic and excavation data provided evidence of a sub-rectangular ditched enclosure, apparently with a single centrally placed entrance in its northern boundary. The enclosure was significantly larger than that of Phase 2 enclosing an area of *c.* 0.15 hectares and averaging *c.*51m by *c.*28m internally.

Enclosure Ditch (Fig. 10)

This was less substantial than the ditch which bounded Enclosure 1, although its filling could be traced in the baulk sections almost to the base of the topsoil. The ditch was approximately U-shaped in section, and survived at the level of the subsoil to a depth of between 0.3 and 0.5m by 1.0 to 1.5m wide. Examination of the baulk sections suggested an original depth of at least 0.8m. The fill appeared to have accumulated naturally, and preserved no evidence of preferential filling from adjacent banks (Fig. 10). This suggests either a low internal or external bank whose collapse did not affect the ditch-filling or a wide berm, and possibly a hedge or light fence. Pottery and other finds were extremely sparse, especially by comparison with the ditch demarcating Enclosure 1, suggesting that the enclosure had never served as a focus for occupation. The pottery included a few fragments of scored ware and from the upper fill of 241 a small and moderately abraded Romano-British sandy body sherd, not closely datable. A copper alloy ring was retrieved from the north west corner of the enclosure ditch during trowelling of the top 50mm spit; this is a common Iron Age type, but is not closely datable (Fig.27, no. 6). The enclosure cannot easily be dated, but given that Phase 3 seems unlikely on stratigraphic grounds to pre-date the early 1st century AD, an origin for Phase 4 not before the mid-1st century AD may be suggested. The single Romano-British sherd might be intrusive or might indicate that the ditch had remained open into the post-Conquest period.

Internal Features (Fig. 3)

Excavations inside this enclosure revealed a scatter of pits, mainly along the inner edge of the enclosure ditch, and several linear gullies, and exposed the northern edge of Enclosure 3. One of the internal pits (81, Fig. 3) was truncated by the ditch of Enclosure 2, while several of the others were so close to the inner lip of the ditch that they cannot have been contemporary with an internal bank *(e.g.* 83, Fig. 3). Most of the remaining pits yielded small quantities of typologically Iron Age pottery, including scored ware, but cannot be proved to be contemporary with the enclosure. Similarly the chronology of many of the discrete linear gullies inside Enclosure 2 is uncertain,

although several should probably be ascribed to the Phase 3 boundary system. The chronological position of Enclosure 3 is also unclear. Insufficient was excavated for its relationship with the enclosure ditch to be determined and it might represent an internal sub-division or a separate phase of development.

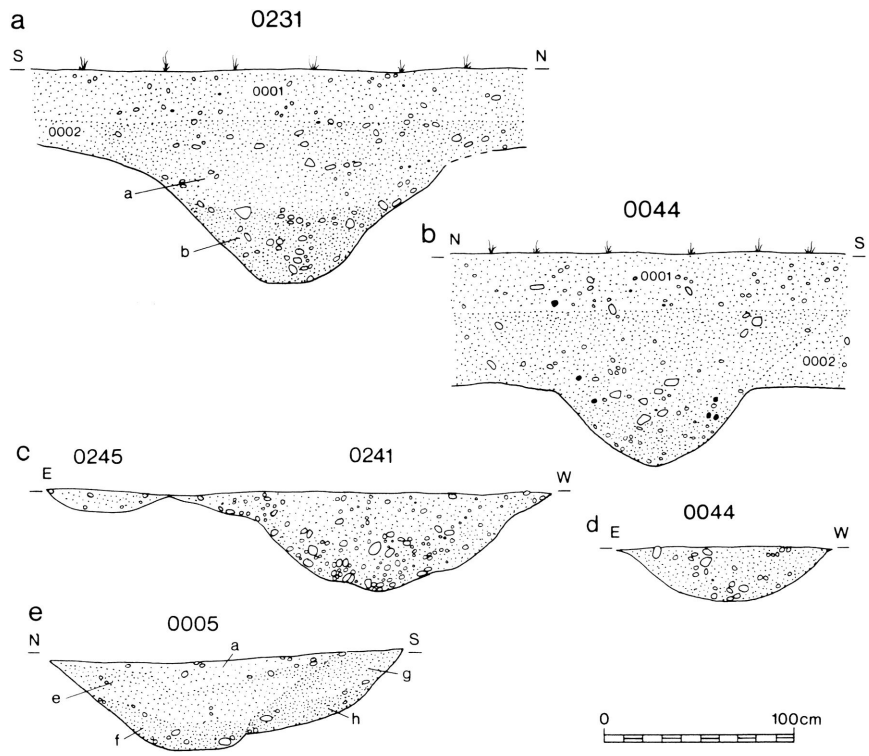


FIGURE 10 Gamston: sections of Enclosure 2 ditch.

MISCELLANEOUS STRUCTURAL REMAINS

Many of the features which were revealed during excavation could not be linked to the proposed stratigraphic sequence, and the more significant of these are discussed below.

Structure 2

Between Enclosures 1 and 2 two short lengths of curvilinear gully lay on the circumference of a circle *c.* 9m in diameter. The more northerly and larger feature (61) extended for *c.* 4.5m, averaged 0.5m wide at the mouth by 0.2m deep, and was approximately U-shaped in profile (Fig. 11). Part at least of the gully had been deliberately backfilled, for the south terminal was packed with a large quantity of mainly unabraded pottery and other domestic refuse, including heat-affected stones, blocks of skerry, animal bone, charcoal and charred plant remains. The material appears to have

been dumped in the terminal when the gully went out of use. Gully 49 could be traced for only 2.3m, but compared closely with 61 in its dimensions and profile (Fig. 11). The excavated portions of 49 in contrast, produced only three plain body sherds of probably Iron Age pottery. The positioning of the two gullies may be fortuitous, but comparison with better preserved Iron Age structures elsewhere in southern England suggests that they may have been open gullies associated with a circular building. There was no evidence that either had been a foundation for posts, and they are better interpreted as drainage gullies, possibly to drain surface water from the environs of a roofed structure.[10] The concentration of rubbish in one of the gully terminals supports this argument, since concentrations of occupation debris have been shown to occur regularly in the entrance terminals of drainage gullies associated with circular buildings (*e.g.* Claydon Pike and Mingies Ditch, Oxfordshire).[11] In addition, the opposing terminals of these gullies lay symmetrically in relation to a pair of possible post-holes (Fig. 11, 148 and 160) which, by analogy with other Iron Age sites, might represent the foundations for door or gate posts.[12] Several other possible post-holes were located within the area defined by gullies 61 and 49, but their position did not suggest an associated wall or fence, and none need imply internal fittings.

Gully 61 produced a substantial quantity of scored ware and other later Iron Age pottery (Figs. 19, 20), but neither gully could be related convincingly to the stratigraphic sequence. The northern and southern terminals of gullies 61 and 49 appeared, however, to respect the alignments of gullies 36, 37 and 150, attributed to Phase 3, and the structure might therefore belong either to Phase 3 or to some subsequent phase when the Phase 3 gullies were still visible.

Structure 3

Excavations inside Enclosure 1 uncovered a linear arrangement of five short lengths of gully (125, 126/127, 140, 199 and 212), at least one of which (140) was probably a foundation for timber uprights (Fig. 12). Gully 140 cut 125 (which in turn cut 126/127), but its relationship to gully 212 was unclear. Excavation of 140 revealed a short linear gully, *c.*2m long by *c.*0.8m wide at the mouth, with an approximately flat floor rising gently longitudinally from *c.*0.3 to 0.5m and of variable cross-section (Fig. 12c, d). It preserved in its base a row of three shallow roughly circular depressions up to 50mm deep, one with a darkly stained base and sparse charcoal, which might represent post foundations. Towards its north west terminal, gully 140 incorporated substantial quantities of pottery and other occupation debris, including burnt skerry slabs, heat-affected stones and a small quantity of animal bone, all of which appeared to have been dumped after the removal of the posts (Fig. 13c, layer b). The pottery included fragments of several wheelmade vessels which are unlikely to pre-date the earlier 1st century AD (Fig. 22), and a date of filling contemporary with the deposition of the upper silts in the ditch of Enclosure 1 seems possible.

No distinction could be observed between the east fill of gully 140 and that of 212. The latter was traced for *c.*1.6m, and possessed steep sides and an approximately flat base sloping from west to east (from *c.*0.5-0.2m, Fig. 12e). The profile suggested a bedding trench for posts, but no evidence for associated timbers was obtained. 212 appeared to have been deliberately backfilled, partly with small quantities of pottery, heat-affected stones and tabular skerry, and in common with 140 any associated timbers must have been extracted before its final filling. In contrast to 140, the pottery incorporated no typologically diagnostic material.

Enclosure 3

Air photographs of the site showed a small subsquare ditched enclosure within the south east quadrant of Enclosure 2. This was little more than 10m wide internally, with a possible entrance in its north west corner (Fig. 1, Plate 1). Trench 6 revealed a series of roughly east-west linear features, perhaps successive recuts of the ditch of Enclosure 3 (Fig. 3), although gully 8 could have

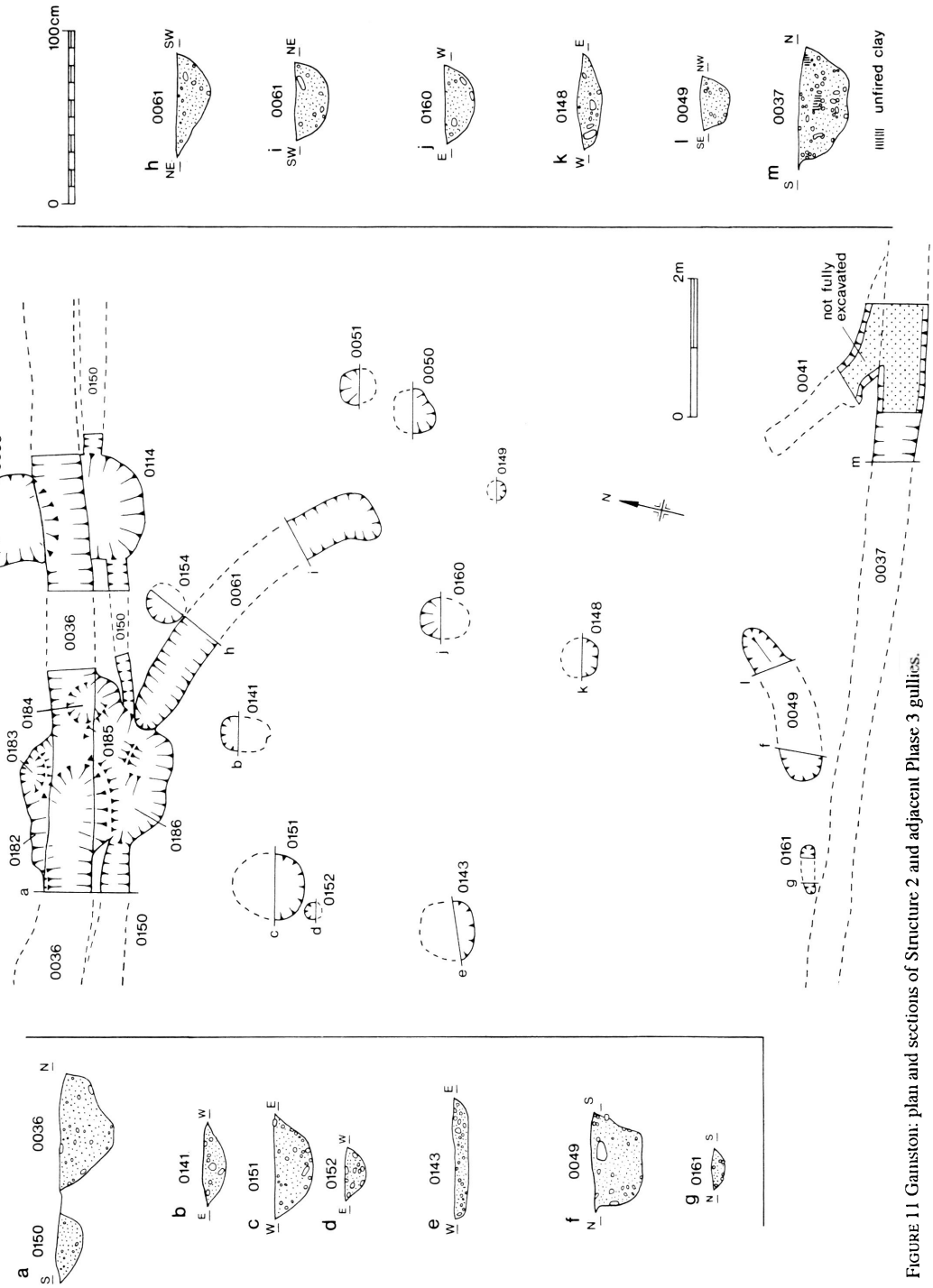


FIGURE 11 Gamston: plan and sections of Structure 2 and adjacent Phase 3 gullies.

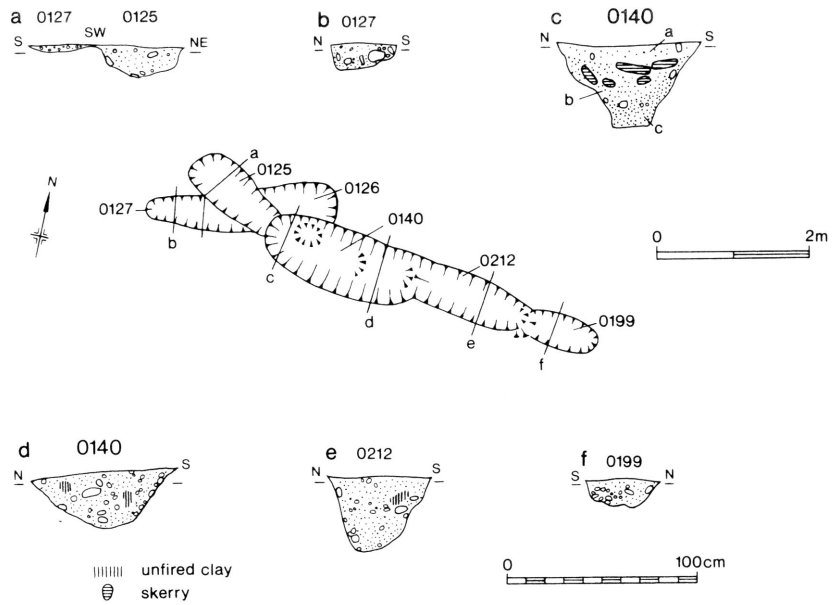


FIGURE12 Gamston: Plan and sections of Structure 3.

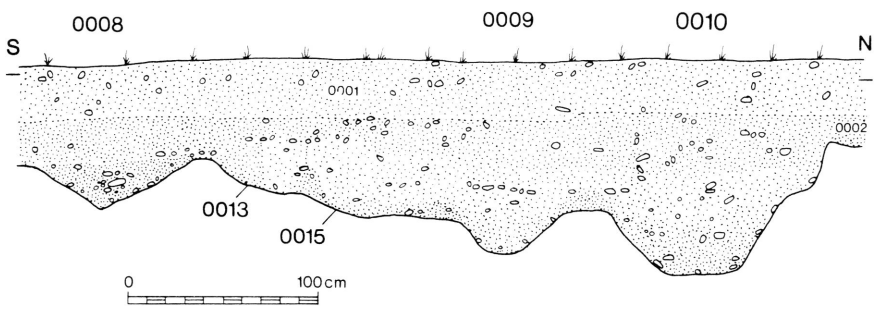


FIGURE 13 Gamston: Section of Enclosure 3 ditch.

been a component of the Phase 3 boundary system. The northernmost ditch (10) terminated *c*.3m from the north west corner of the enclosure, supporting the cropmark evidence for an entrance at this point. A section across the western boundary ditch adjacent to the southern baulk of Trench 6 revealed at least five ditches and gullies, whose inter-relationships could only be determined in plan. The northernmost ditch (10) was the most substantial, averaging 0.7m in depth originally, and was roughly U-shaped in profile. Its fill merged with that of ditch 9 to the south, and its chronological relationship to other features in this complex is obscure. Ditch 9 was seen to cut 15 in plan, which in turn cut 13, suggesting they were recuts of the northern boundary ditch. The southernmost gully, 8, may also have been associated with Enclosure 3, but its approximate alignment with gully 234 in Trench 4 might indicate an easterly continuation of 234, itself possibly part of the Phase 3 boundary system. Excavations of the enclosure ditch adjacent to the south baulk of Trench 6 revealed two parallel ditches which probably represent successive realignments of the

enclosure boundary. The earlier ditch (217) was roughly U-shaped and survived to a maximum depth of 0.6m. It was severely truncated on its eastern side by a later approximately V-shaped ditch, of comparable depth but up to 2m wide at the mouth (218). Both features appeared to have silted naturally, but neither preserved evidence for preferential silting from an adjacent bank.

The relationship of the Enclosure 3 ditch to Enclosure 2 could not be determined, and it could represent a contemporary internal compound or belong to another phase. The corner entrance might indicate arrangements for funnelling stock towards the gate.[13] Few finds were recovered from any of these ditch sections, and the only typologically diagnostic pottery (out of only 24 sherds) comprised two sherds of scored ware. This might imply filling during the later Iron Age, but the stratigraphical evidence for a mid to later 1st century AD date for the silting of the Enclosure 2 ditch (which also produced small quantities of scored pottery) urges caution in the dating of Enclosure 3.

The Pits

Pits were widely scattered over the site, within and between each of the two main enclosures, but could rarely be linked to the stratigraphic sequence (*e.g.* Pit 90, Fig. 14). 27 excavated pits were sufficiently intact for their dimensions and profiles to be established. These were all shallow, surviving to depths of only 0.09-0.6m below the level of the subsoil, with depth:width ratios mainly in the range of 1:3. The upper parts of these features had been severely truncated, but none is likely to have been deeper than 1m. Most had roughly vertical or inwardly sloping sides and flat bases, but six shallow pits (<0.25m) had irregular profiles (Fig. 14). The loss of the upper parts of these features prevents an assessment of the impact of weathering, but the presence in many pits of domestic refuse, often in sizeable quantities, suggests that they had generally been filled deliberately after use. They would have provided convenient receptacles for rubbish, but their original functions remain obscure. One possibility, which seems most likely for the deeper approximately cylindrical pits (*e.g.* Fig.14: 225) , is that they had served as subterranean stores for grain or other food products, but we might imagine a wide range of other functions, both domestic and ritual.[14]

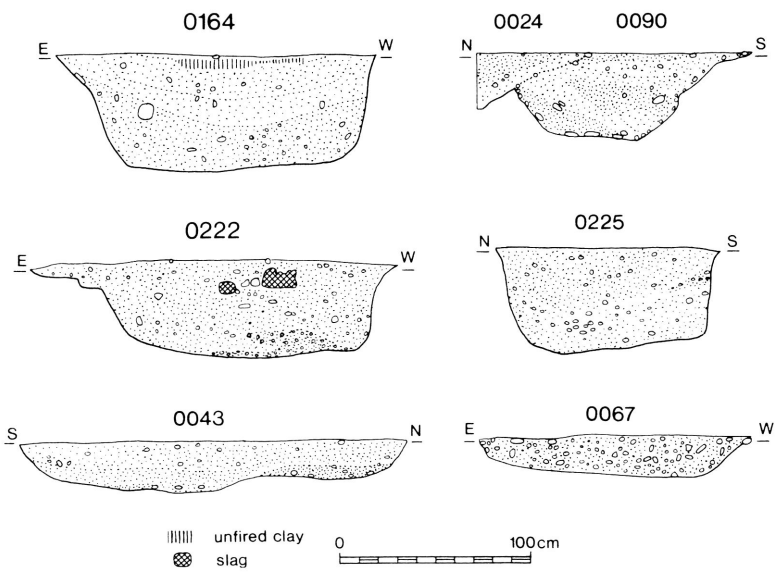


FIGURE 14 Gamston: Representative pit sections

CERAMICS

METHODS OF ANALYSIS OF PREHISTORIC POTTERY

A unique three letter code was attributed during excavation to each vessel fragment, and individual sherds or groups of sherds which definitely derived from the same vessel were later catalogued separately by context. The following attributes were recorded: vessel fabric; surviving portions of vessel; form (profile class, rim and base form); dimensions (diameter; base; surviving percentage of rim and base; height of vertical axis; wall thickness); nature and extent of surface finish and/or decoration; condition; surface deposits; method of manufacture; firing conditions; stratigraphic phase; cross-context joins. Quantification of the prehistoric pottery was by sherd number and weight, and the information was entered to a computer data base (employing dBaseIV software).

Descriptive conventions

Condition: unabraded (original surfaces unworn); moderately abraded (part of original surfaces worn); abraded (original surfaces substantially worn); very abraded (all surfaces worn).
Frequency of inclusions: rare (<3%); sparse (3-10%); moderate (11-25%); common (26-40%); abundant (>40%).
Size of inclusions: fine (<0.25mm); medium (0.25-1mm); coarse (1.0-3mm); very coarse (>3mm).

EARLIER BRONZE AGE POTTERY (Fig.27 nos. 1-3)

by C.S.M. ALLEN

Nine small and abraded earlier Bronze Age body sherds were retrieved during excavation, two from coarse pots of 'food vessel' type (CNO and CNP) and the remaining seven from a 'food vessel' or accessory vessel (CLT).

Fig.27, no. 1 (CNO) A body sherd with two horizontal impressions of curved but irregular shape, probably formed by the end of a small bone or twig. This was found in the colluvial layer (2) (SGR 0630009187), and its deposition might relate to an early (Bronze Age?) phase of ploughing. The coarse sandy fabric contains moderate coarse, angular and ill-sorted quartzite and moderate fine, rounded and well-sorted quartz. The interior and core are unoxidised, but the outer face is fired to a pale orange. The sherd compares with early 'food vessels' from the East Midlands.[15]

Fig. 27, no. 2 (CNP) A small body sherd with a pinched cordon on the other face, and with vertical fluted finger impressions above and below. The sherd was found in the colluvial layer (2) (SGR 0636309235). The fabric is similar to no. 1, (CNO) but includes sparse coarse, angular and ill-sorted quartzite and moderate fine to medium, rounded and well-sorted quartz. The exterior is oxidised to orange, but the interior and core remain unoxidised. The nearest known parallel in the region is a thin-walled and highly decorated 'food vessel' from Langham, Leicestershire.[16]

Fig. 27, no. 3) (CLT) A small decorated body sherd and six small and abraded fragments of a carinated vessel with a circular impression on the shoulder and faint traces of a fine twisted cord diamond-shaped pattern below the carination. The sherds were found in the upper surface of gully 32, and had presumably been redeposited. The fabric contains moderate fine to medium, sub-rounded to rounded and moderately well-sorted quartz. The vessel appears to be fully oxidised. A small food vessel or an accessory vessel may be represented, but no exact parallels are known in this area.

THE IRON AGE POTTERY

by D. KNIGHT

The excavations produced 2,669 Iron Age sherds (*c.* 19.3kg), mainly from secure Iron Age contexts. Many of these contexts may be linked to the stratigraphic sequence described above, but attempts to establish a chronological progression of ceramic types from these data are frustrated by the comparatively small number of sherds attributable to each phase (Tables 1-3) and by the complex depositional and post-depositional processes which have operated upon this material.[17] The pottery is nonetheless of considerable regional significance, as evidence first of the range of ceramic forms, decorative styles and fabrics which were current in the Trent Valley during the last few centuries BC and earlier 1st century AD, and secondly for the acquisition of vessels from Charnwood Forest and possibly from Lincolnshire or South Nottinghamshire. Exchange patterns of this kind may have been the norm rather than the exception for this period, but Gamston provides rare confirmation of this hypothesis in an East Midlands context.

Attention is focused first upon the evidence for the range and frequency of vessel fabrics, forms

and styles of surface treatment, and correlations between these attributes, with particular emphasis upon the subject of production and distribution. The typological affinities and chronology of this material are then reviewed, and its significance for our limited understanding of 1st millennium BC ceramics in the Trent Valley assessed. Drawn vessels are referred to below by their catalogue number.

FABRICS

by C.S.M. Allen, R.J. Firman, D. Knight and D.F. Williams

Seven main fabrics were distinguished on the basis of variations in the kinds of inclusion which could be observed within the clay matrix. Sandy wares were most common, and were separated into four main fabrics: Q1 (very coarse quartz), Q2 (coarse quartz), Q3 (medium quartz) and Q4 (fine quartz). There is some overlap between these fabrics, but their general integrity is confirmed by the thin section analysis. Three other fabrics were apparent: G1 (grog-tempered), S1 (shell-tempered) and ST1 (slag-tempered). Fabrics Q1 and G1 were later sub-divided (into Q1A/Q1B and G1A/G1B) according to the presence (A) or absence (B) of granodiorite inclusions. Pottery was sorted macroscopically using a x30 binocular microscope, with the assistance of E. M. Appleton.

Thin sections of 35 sherds were examined: four from Q1A, one from Q1B, four from Q2, five from Q3, four from Q4, one from G1A, five from G1B, nine from S1 and two from ST1. The shell- and grog-tempered wares were soft and friable, and required additional sections to be made. The sections included representative samples of each fabric and several sherds of particular typological interest. 28 sections were examined by Dr. Allen, with the assistance of Dr. Firman, and seven sections were submitted to Dr. Williams for comments. The results of these investigations are included in the report below and full details are contained in archive.

Fabric Q1A: Very Coarse Sandy Ware, with Granodiorite: 8 sherds (143g) with common medium to very coarse poorly sorted granodiorite and quartz inclusions. The granodiorite inclusions are angular or subangular in shape, while the quartz varies from angular to subrounded. Iron ore, feldspar and biotite mica inclusions are also present in some thin sections. The fabric is hard, with rough surfaces and hackly fractures. Most sherds are dark grey to black and well fired.

Fabric Q1B: Very Coarse Sandy Ware: 27 sherds (499g) with moderate to common fine to very coarse quartz (sometimes protruding conspicuously through the vessel surface). The quartz is poorly sorted and angular or subangular in shape. Perthite is also visible in some thin sections. The fabric is hard, with rough surfaces and hackly fractures. The surfaces may be oxidised, incompletely oxidised or unoxidised, indicating uneven firing, and the colour commonly varies within individual vessels from black through grey, brown and orange to buff.

Fabric Q2: Coarse Sandy Ware: 789 sherds (6.721kg) with moderate to common medium to coarse quartz. The quartz is poorly or moderately sorted and angular, subangular or subrounded in shape. Thin section analysis revealed some feldspar inclusions. The fabric is hard to moderately hard, with a rough texture and an irregular fracture. The surface colour of individual vessels often varies from black through grey, brown and orange, again indicating uneven firing.

Fabric Q3: Moderately Coarse Sandy Ware: 1310 sherds (9.045kg) with moderate fine to medium quartz. The quartz is moderately or well sorted and mostly subangular or subrounded in shape. Thin section analysis also revealed variable quantities of muscovite, feldspar (plagioclase and microcline) and sandstone. The fabric is hard to moderately hard, with a rough texture and an irregular or hackly break. Uneven firing is implied by variations in surface colour, from black through grey, brown and occasionally orange.

Fabric Q4: Fine Sandy Ware: 96 sherds (424g) with moderate fine to medium quartz. The quartz is moderately sorted and generally subangular in shape. Other inclusions are rarely visible, but include microcline feldspar. The fabric is hard or occasionally soft, with a smooth or sometimes soapy texture and a fine or occasionally irregular fracture. Rather more control seems to have been exerted over the firing operation, for there is noticeably less variation in the surface colours of individual sherds in this fabric. The colour range is mainly from black through brown to occasionally orange.

Fabrics G1A & G1B: Grog-Tempered Ware: 15 sherds (0.302kg) with sparse to moderate coarse grog inclusions (pieces of crushed pottery, deliberately added to the clay as tempering material). The fragments are generally poorly sorted, angular or subangular in shape, and deep brown to black in colour with coarse, medium and fine quartz inclusions. In one sherd (6g), which is the only example of Fabric G1A, a sparse concentration of poorly sorted coarse subangular granodiorite inclusions was seen in thin section. The fabric is both soft and hard, with a rough or occasionally smooth texture and an irregular fracture. The surface colour is variable, ranging from black through grey, brown and orange, although the core is generally black or grey.

Fabric S1: Shell-Tempered Ware: 414 sherds (2.057kg) with a distinctive vesicular fabric, characterised by sparse to moderate fine to coarse plate-like voids up to 8mm in size. These voids indicate the former presence of moderately sorted shell-like inclusions, remains of which may occasionally be observed. The presence of sparry calcite on the outer edges of the voids suggests the former presence of fossil shell. The fabric also contains rare or sparse fine to medium quartz inclusions; these are generally well sorted and are rounded or subrounded in shape. Some mica is also apparent, while one thin section contained a small amount of sandy limestone (not noted in any other sherds). The fabric is characteristically soft, and has a smooth texture and a laminated fracture. Grey to black surfaces predominate, but surface colours may vary from black through grey, brown and buff to red, indicating uneven firing.

Fabric ST1: Slag-Tempered Ware: 10 sherds (102g) with moderate quantities of vesicular glassy fragments, identified below as fuel ash slag. These inclusions display vesicles and conchoidal fractures, indicating a brittle material which was broken and crushed before being added to the clay, and are medium to very coarse, of angular shape, and poorly sorted. Quartz is also seen in moderate amounts; the large grains tend to be well rounded, while the smaller tend to be more angular. The fabric is hard, with a rough texture and an irregular fracture. The surface colour of the pottery is mainly black to grey, sometimes with light brown mottles.

The assemblage is dominated by sandy fabrics, and in particular by the coarse Q2 and moderately coarse Q3 wares (Fig. 24, Table 1). Shell-tempered wares form the next most significant class, followed by the sparsely represented Q1A/Q1B, G1A/G1B and ST1 fabrics. Fine wares of any kind are poorly represented, and coarse domestic wares predominate. 192 sherds (3.163kg) of all fabrics (except Q1A & ST1) preserve blackened surfaces or burnt matter on the inner or outer face, possibly acquired during cooking, but these residues were not analysed for evidence of usage. Quantitative analyses aimed at establishing whether fabric preferences had varied by phase produced no evidence of significant chronological patterning (Fig. 24, Table 1), but interpretation is complicated by the small sample size and the possible impact of depositional and post-depositional processes[18] An examination of the correlation between fabric and vessel form, decoration and method of manufacture revealed a significant preference for shell-tempering in the manufacture of wheelmade vessels (total 772g, of which 90% S1) and in particular for the production of plain wheelmade ovoid jars (total 824g, of which 85% S1). This invites comparison with the marked concentration of S1 sherds which was recorded in the upper ditch silts of the Phase 2 enclosure (1) and in gullies 12 and 140 (see pottery catalogue and Table 1). These contexts produced wheelmade pottery of the late first century BC or early first century AD, and the associations could therefore provide further evidence of a trend towards a greater use of shelly fabrics over time. The only other discernible trend is the restriction of scoring mainly to the coarser Q2 and Q3 sandy wares (38% in Q2 and 57% in Q3, by weight). Full details of these and all other quantitative analyses are contained in the archive.

Production and Distribution - Local. Vessels tempered with quartz, grog or slag, and containing no inclusions which were not available in the immediate vicinity of the site, formed 84% of the total number of sherds in the assemblage, or 88.5% of the assemblage by weight.

Fabric	No of Sherds	% of Total	Weight of Sherds kg	% of Total
Quartz tempered wares Q1B, Q2, Q3 & Q4	2222	83.2	16.689	86.5
Grog tempered wares G1B	14	0.5	0.296	1.5
Slag Tempered wares ST1	10	0.4	0.102	0.5
Totals	2246	84.1	17.087	88.5

Gamston lies on the second gravel terrace of the Trent, immediately north of the Mercian Mudstone formation which also underlies this terrace (Fig. 2).[19] To establish the resources available for pottery manufacture, samples of clays taken within 50m of the site were examined macroscopically with a x30 binocular microscope (details in archive). There is nothing to indicate, from either macroscopic or thin section analysis, that these fabrics were not locally produced. Quartz inclusions in all the above wares probably originated in the sands and gravels of the river terrace. The grog was probably made from crushed pottery, also manufactured on site, as none of the grog inclusions seen in thin section contained non-local materials. The vitrified material,

identified as fuel ash slag, is discussed below. It was probably included as a filler because of its ready availability, although it might have improved the insulating properties of the vessels without increasing their weight. This could imply some particular, but unknown, function for the vessels in which it occurs.

Production and Distribution - Non-Local. Vessels tempered with quartz and granodiorite, grog and granodiorite, or shell, formed 16% of the total number of sherds in the assemblage, or 11.5% by weight, as indicated on the table below.

Fabric	No of Sherds	% of Total	Weight of Sherds kg	% of Total
Coarse Quartz with Granodiorite Q1A	8	0.3	0.143	0.75
Grog with Granodiorite G1A	1	0.1	0.006	0.05
Shell tempered ware S1	414	15.5	2.057	10.70
Totals	423	15.9	2.206	11.50

Some of the tempering materials probably originated in Charnwood Forest to the south, whilst others may have come from Lincolnshire or south Nottinghamshire. This provides an important new insight into the production and distribution of Iron Age pottery in this region, which it is often assumed was essentially a local product. The evidence from Gamston challenges this assumption, and raises the possibility that medium distance exchange of ceramic goods may have been more common than is generally realised.

Coarse granodiorite inclusions were found, by macroscopic examination, in eight plain body sherds of Q1A, none certainly from the same vessel, and in one plain body sherd of G1A; all unfortunately, derive from vessels of uncertain form. These inclusions were confirmed by thin section analysis. The nearest known source of granodiorite is close to Mountsorrel, on the eastern edge of Charnwood Forest in Leicestershire.[20] The granodiorite is a medium grained rock of granitic texture with pink to grey feldspar, abundant grey quartz and flakes of biotite. The mechanical stability of feldspars and biotite is low, particularly compared to that of quartz, and this leads to the disintegration of feldspar crystals and biotite flakes during natural transportation.[21] The fresh state of the feldspar and biotite in the thin sections suggests that both were unweathered when incorporated, and that the granite material was either used close to its source or that the raw material had been transported to Gamston for use as temper. Granodiorite could have arrived on site in the form of querns, but in the absence of querns of this raw material type it is simpler to accept that the pots had been imported, possibly via the Soar and the Trent over a distance of *c.*35km. All of the sherds derive from coarse plain vessels, apparently of low intrinsic worth, and it is possible, therefore, that they had been traded for their contents.

The sherds from Gamston with granodiorite inclusions are the only known examples of this fabric type from an Iron Age context in southern Britain, although granodiorite from a Charnwood production source has for some time been recognised in Saxon pottery distributed widely over the East Midlands *e.g.* Orton Hall Farm, Cambridgeshire.[22] The presence of these inclusions in vessels of undoubted Iron Age date suggests that this trade in pottery may have more ancient roots than has previously been realised, and urges further research on the use of granodiorite by Iron Age potters on other sites in and around Charnwood and the reasons for the apparent demise of this fabric in the Romano-British period.

Additional evidence for exchange is provided by the shell-tempered wares. These contained

significant quantities of fossil shell which cannot be traced to an immediately local source. Thin section analysis did not allow identification of the sources of the shell, owing to the poor preservation of the material within the pottery. The nearest possible sources include the Lincolnshire Limestone, which lies *c.*6km to the east of the site, and the Penarth Group beds (formerly Rhaetic) which lie *c.*5km to the south *e.g.* at Cotgrave.[23]The proximity of outcrops of shell material suitable for tempering is unknown, but we can assume a source at least 5km from the site. Research has shown that a potter is unlikely to have travelled more than about 5km from a settlement for the collection of clay and inclusions, strongly suggesting that these vessels were traded.[24]

The case for exchange links to the east is strengthened by the discovery of a small rouletted sherd (Fig. 15, no. 4), part of a vessel with a pattern of incised intersecting arcs on the shoulder (Fig. 17, no. 14) and, more dubiously, by a sherd from a highly burnished vessel with two vertical grooves on the shoulder (Fig. 23, no. 51). None of these sherds can be parallelled in Nottinghamshire, but all compare closely with material from Lincolnshire. Comparable rouletted patterns occur on pottery from Old Sleaford and Dragonby, Lincolnshire, while the pattern of intersecting arcs finds close parallels at Dragonby and an exact parallel with a pot from Salmonby, Lincolnshire.[25] The rouletted sherd was manufactured from a shell-tempered fabric which bears comparison with the finer shelly fabrics characteristic of many Lincolnshire Iron Age sites *e.g.* G ware from Dragonby, Lincolnshire, and may have been imported from that region.[26] The vessel with intersecting arcs was manufactured in a fine sandy ware (Q3) with sparse voids which might represent leached out shell, while the other sherd was made from a fine sandy ware (Q4). These vessels could provide further evidence for wide-ranging exchange links (although this cannot be demonstrated on fabric grounds) or the work of an itinerant potter familiar with Lincolnshire traditions.

Vessel Forms

A limited range of restricted and unrestricted forms can be positively identified.[27] These have been grouped on the basis of variations in body profile into six main classes.

Carinated vessels: nine sherds (207g) from a maximum of five vessels from bowls or jars with an angular girth. These include examples with high everted or possibly upright necks (nos. 57, 59) but carinated forms can commonly only be diagnosed on the basis of small girth fragments. No vessel is sufficiently well preserved for the base form to be reconstructed. One fragment of a necked carinated bowl preserves a direct rounded rim (no. 57), while the only other rim to survive is embellished with cabling and preserves a single perforation near the base of its neck, possibly for suspension, securing a cover or repair (no. 59).

Round-Shouldered Vessels: 12 sherds (119g) from a maximum of 10 vessels from pots with a pronounced but not sharply angular girth (*e.g.* no. 48); two sherds (31g) from two other vessels probably also derive from vessels of this class. Unfortunately, no vessel has survived sufficiently for a complete profile to be established, or for the base or rim form to be determined.

Ovoid vessels[28]: ovoid jars and bowls, either of neckless form (no. 34) or with an upright, everted or concave neck (nos. 6, 35, 39). These are the most common forms, predominating, for example, in the rubbish deposit in the terminal of gully 61 (Figs 19-20). 162 sherds (5.576kg) could derive from pots of this kind, representing a maximum of 31 vessels. Another eight joining sherds (312g) from a possible ellipsoid vessel with a flattened direct rim were also recovered (no. 41); the angle of the wall is uncertain, however, and the vessel could originally have been of ovoid form. The discrepancy between sherd number and weight reflects the problems of identifying vessels of this kind from small pieces, unless these can be joined to form a larger fragment. The proportion of ovoid vessels may thus be significantly underestimated, in contrast to round-shouldered and carinated forms which can be easily diagnosed on the basis of small girth fragments. Most of the ovoid vessels were handmade, but six neckless forms were wheelmade and of rather finer proportions, with noticeably higher girths. The few bases that survive are generally flat, but one handmade vessel with an incised intersecting arc pattern on the shoulder preserves a finely moulded footring base (no. 14). The rims of the handmade versions of this form class are very variable in form, and include both direct (Forms 1, 4, 7) and more elaborately moulded forms (Forms 3, 5). The few wheelmade versions of this form class preserve finely moulded rims, of bead (no. 46), square-sectioned (no. 49), everted (no. 45) or triangular nos. 17, 15) form.

Open bowls: a maximum of four examples, (five sherds, 76g), of possibly open bowls, each with its maximum diameter at the rim (nos. 55, 56). They preserve direct rounded or flattened rims, but base forms are unknown.

Cylindrical vessels: one fragment (30g) of a possibly vertically sided vessel with a flattened direct rim (no. 26).

Cordoned and grooved wheelmade necked bowls: two sherds (15g) from two vessels related to Aylesford-Swarling forms (nos 22, 47; discussed below). One other small (5g) abraded body sherd (CAQ) from gully 20 may also derive from a wheelmade bowl, but insufficient survives for its form to be determined.

Assessment of the relative frequencies of vessels of the above form classes is hindered by the small size of the sample. Carinated or round-shouldered forms, which can be diagnosed on the basis of tiny girth fragments, were probably never conspicuous components of the ceramic assemblage. The emphasis seems to have been instead upon ovoid and related forms, which, being difficult to recognise from small fragments, may be significantly under-represented.

Miscellaneous Form Elements

Handles. The only example is a virtually complete strap handle (no. 24) from a vessel of uncertain form.

Base Forms. Bases are almost invariably flat, but are commonly pinched out slightly at the circumference. Two bases are elaborated by the addition of a low footring (no. 42), in one case on an ovoid vessel with a finely incised interlocking arc pattern of La Tène style on the shoulder (no. 14).

Rim Form. Little effort seems to have been expended in the elaboration of the rim, the form of which commonly varies around the circumference of individual vessels. The following twelve forms were identified (all handmade unless stated otherwise):

1. Rounded (no. 50).
2. As 1, but finely tapered (no. 58).
3. As 1, but pinched out slightly internally and/or externally (no. 38).
4. Flattened (no. 1).
5. As 4, but pinched out slightly internally and/or externally (no. 28).
6. Single internal channel (no. 54), presumably intended as a seating for a lid. No examples of lids were retrieved, but these are difficult to identify and could have been manufactured from organic material.
7. Internally bevelled (no. 20).
8. Square-sectioned (no. 9; plus one wheelmade version: no. 49).
9. Bead (wheelmade; no. 46).
10. Triangular (wheelmade). One example has survived, with a flattened lip and pronounced external bevel, demarcated at its base by a finely incised line (no. 15).
11. Everted (wheelmade; no. 45).
12. Externally faceted. One example is known, on an unusual vessel with a widely flaring neck and two wide channels on the inner face of the neck (no. 53). The channels may have served as seatings for a lid, but the curious exaggeration of these features suggests also some aesthetic function.

Most classifiable rims are handmade and unmoulded with a rounded or flattened lip (31 and 12 vessels respectively), or else are rounded or flat-topped but pinched out internally and/or externally (9 and 11 vessels respectively). Other rim types are represented by 5 vessels or less.

Surface Treatment

Eight main classes of decoration have been identified. The definition of these groups is not straightforward, and the following discussion necessarily anticipates some of the typological arguments set out below.

Finger-Tip and Finger-Nail Decoration: 38 sherds (907g) from a maximum of 32 vessels with finger ornament. Most of these were decorated with a row of closely spaced finger-tip impressions or finger-nail incisions along the lip or the outer edge of the rim (nos. 1, 17, 19). These were applied to both ovoid and open vessels, but insufficient profile survives in many cases to establish the form of the vessel. Finger decoration was also applied occasionally to the girth of round-shouldered or carinated vessels, including a round-shouldered vessel with two finger-tip impressions along its girth (no. 18) and a carinated jar with a cabled rim and a row of closely spaced finger-nail incisions along the girth (no. 59).

Plain cordons: one vessel with a plain cordon at the base of the neck, apparently pinched out from the vessel wall (no. 53).

Linear Tooled Incisions: three sherds (20g) with a row of possibly tooled incisions along the lip (*e.g.* no. 52). These appear to have been executed with a knife or other sharp tool, but the effect compares closely with finger-nail ornament.

Scoring: 164 sherds (2.601kg) from a maximum of 75 vessels with a series of often deep and commonly ragged scored lines on the outer face. These were probably executed with a knife, the end of a bone or other sharp implement. This kind of surface treatment might be decorative or wholly utilitarian (*e.g.* to facilitate handling)[29] but whatever its purpose seemingly random patterns predominate, commonly executed with great vigour (nos. 6, 43, 44). Occasional examples with parallel scored lines occur, but all these sherds are small and could derive from large 'randomly' scored vessels. Where the forms of the vessels with scored decoration can be determined, they are invariably ovoid (no. 6).

La Tène Grooved and Incised Decoration: two vessels with geometrical grooved or incised patterns which invite comparison with pottery of the eastern English La Tène ornamental style, and in particular with the La Tène decorated pottery of Lincolnshire.[30] The best preserved example is represented by an ovoid bowl with low footring base which was reconstructed from three large and unabraded sherds contained in the fills of the boundary ditch of Enclosure 1 (24) and post-hole 115, inside Enclosure 1 (no. 14). The decoration is confined to a shoulder panel, demarcated by two widely spaced incised lines, within which may be discerned part of a rather poorly executed incised interlocking arc pattern. The other example is a highly burnished shoulder and neck fragment with two closely spaced vertical burnished grooves on the surviving portion of the shoulder (no. 51). The pattern cannot be determined, but the technique of shallow burnished grooves invites comparison with vessels bearing La Tène geometrical ornament.[31]

La Tène Rouletted Decoration: one small externally burnished body sherd with curvilinear rouletted decoration (no.4). The pattern comprises a pair of closely and evenly spaced rouletted lines, probably formed by a double square-toothed roulette wheel, and another gently curving line formed by a single square-toothed roulette wheel. This can be parallelled in later Iron Age ceramic assemblages from Lincolnshire, notably Dragonby and Old Sleaford, and might have been imported from that region.

Late Bronze Age/Early Iron Age Incised Geometrical Decoration: one sherd,probably from an ovoid bowl with a finely tapered rim, with three closely spaced parallel incised lines immediately below the rim (no. 59). These form the upper boundary of a decorative panel, preserving traces of three or possibly four diagonally incised lines. The overall arrangement of the decoration is unclear, but in contrast to the La Tène inspired patterns described above, parallels should be drawn with the style of geometrical incised decoration which in southern England characterises the ceramic tradition spanning the Late Bronze Age (Ewart Park phase) and earlier Iron Age periods. One other tiny burnished body sherd with parallel incised lines might also belong to this decorative tradition, but insufficient survives to be certain (no. 5).

Linear Stabbed Impressions: one neckless ovoid vessel with a row of diagonal stabbed impressions along the base of the rim (no. 29). These appear to have been executed with the tip of a knife or other sharp implement, but the effect compares closely with the patterns of finger-nail incisions which have been observed on other vessels.

The surfaces of many vessels, both decorated and plain, were finished in a variety of ways before firing. Many vessels preserve traces of smoothing or finger smearing, while many of the coarser wares (*e.g.* Q1 & Q2) were lightly brushed (*e.g.* with a bundle of twigs or fibres), or grass-wiped (Fig. 20). The brushing, especially when vigorously applied, bears comparison with some kinds of scoring, and there is a considerable overlap between these traditions. A small proportion of the finer wares, *e.g.* Q4, and in particular vessels with La Tène or earlier grooved and incised ornament, preserves traces of burnishing, mainly on the outer face. Generally, however, comparatively little effort appears to have been expended on the surface finish of vessels.

Typological Affinities and Dating

Late Bronze Age/Early Iron Age. The typological affinities of this assemblage lie mainly with pre-Roman Iron Age pottery of the later 1st millennium BC and 1st century AD, but activity in the Late Bronze Age or earlier Iron Age is suggested by the presence of several ceramic types which are characteristic of pottery assemblages post-dating the Deverel-Rimbury ceramic tradition.

The typologically earliest ceramic types include examples of plain fineware tripartite carinated bowls (no. 57), part of a coarse carinated jar with finger-nail incisions along the girth and cabling along the rim (no. 59), a fragment of a coarse round-shouldered vessel with finger-tip impressions along its girth (no. 18) and part of a fine ovoid or open bowl with a panel of incised diagonal lines below the rim (no. 58). The early history of these types is obscure, but there is unequivocal evidence for the presence of comparable vessels in some areas of southern England by at least the Ewart Park phase of the Late Bronze Age, dated currently to the later 9th and 8th centuries BC.[32]

Phase	Context	G1A	G1B	Q1A	Q1B	Q2	Q3	Q4	S1	ST1	Total
1	0020	-	1/4	-	-	-	65/390	1/5	33/24	-	100/423
1	0022/0200	-	-	-	-	-	3/5	1/4	-	-	4/9
1	0090	-	-	-	-	-	13/88	-	-	-	13/88
1	0155	-	-	-	-	-	1/7	-	-	-	1/7
2?	0012	-	-	-	-	-	1/1	-	18/116	-	19/117
2	0024*	-	2/12	1/25	-	19/717	204/2055	40/135	48/310	7/73	321/3327
2	0024/0159	-	-	-	-	-	1/30	-	-	-	1/30
2	0024/0197	-	-	-	-	-	1/15	-	-	-	1/15
2	0024/0030	-	-	-	-	-	2/7	-	-	-	2/7
2	0032	1/6	-	-	-	-	13/120	-	4/1	-	18/127
2?	0115	-	-	-	-	-	4/230	-	-	-	4/230
2	0159*	-	1/18	-	-	-	-	-	21/32	-	22/50
2	0221*	-	-	-	-	-	1/5	-	-	-	1/5
3?	0008	-	-	-	-	-	5/31	-	-	-	5/31
3	0027	-	-	-	-	-	4/10	-	-	-	5/12
3	0029	-	-	-	-		10/54	-	1/3	-	11/57
3	0033	-	-	-	-		6/43	3/50	-	-	9/93
3	0033?	-	-	-	-	-	-	1/13	-	-	1/13
3	0036	-	2/57	1/28	-	5/43	39/129	-	4/23	1/13	52/293
3?	0036?	-	-	-	-	1/9	-	-	-	-	1/9
3	0036/0150	-	-	-	-	2/3	2/3	-	1/1	-	4/4
3?	0037	-	-	-	1/5	12/93	47/217	-	12/89	-	72/404
3	0037?	-	-	-	-	-	1/4	-	-	-	1/4
3?	0064	-	-	1/8	-	-	2/2	-	2/24	-	5/34
3?	0079	-	-	-	-	-	1/4	-	-	-	1/4
3?	0150	-	-	-	-	-	7/17	-	5/18	-	12/35
3	0197	-	-	-	-	-	5/44	8/35	-	-	13/79
3?	0202	-	-	-	-		2/58	-	-	-	2/58
3?	0204	-	-	-	1/9	-	1/12	-	-	-	2/21
3?	0205?	-	-	-	-	-	-	-	3/3	-	3/3
3?	0210	-	1/5	-	-	-	3/27	-	-	-	4/32
3?	0210	-	-	-	-	-	2/7	-	-	-	2/7
3?	0211	-	-	-	-	-	1/0	-	-	-	1/0
3?	0219+	-	-	-	-	-	4/23	-	-	-	4/23
3?	0237	-	-	-	-	1/16	2/13	-	-	-	3/29
4	0005	-	-	-	-	4/49	13/96	1/22	-	-	18/167
4	0044	-	-	1/18	1/7	6/36	45/237	2/7	2/5	-	57/310
4	0231	-	-	-	-	-	2/42	-	-	-	2/42
4	0241	-	-	-	-	1/6	-	-	-	-	1/6
Phase 1 total		-	1/4	-	-	-	82/490	2/9	33/24	-	118/527
Phase 2 total		1/6	3/30	1/25	-	19/717	222/2232	40/135	73/343	7/73	366/3561
Phase 2? total		-	-	-	-	-	5/231	-	18/116	-	23/347
Phase 3 total		-	2/57	1/28	-	6/45	66/283	11/85	6/27	1/13	93/538
Phase 3? total		-	1/5	1/8	2/14	14/118	78/415	1/13	22/134	-	119/707
Phase 4 total		-	-	1/19	1/7	11/91	59/243	3/29	2/5	-	78/525
Whole assemblage		1/6	14/296	8/143	27/499	789/672	1310/9045	96/424	414/2507	10/102	2669/19293

Table 1.
Pottery fabrics by phase and context: no. of sherds/weight (g): * phases of Enclosure 1 ditch; + same as 0008

Phase	Context	AS	C	E?	O	OH	OP	O?	RS	RS?	VS	Misc.	Total
1	0020	1/5	-	-	-	-	-	3/141	-	-	-	96/277	100/423
1	0090	-	-	-	-	-	-	-	-	-	-	12/86	13/88
2?	0012	-	-	-	-	-	2/52	-	4/43	-	-	13/22	19/117
2	0024	-	1/12	-	1/51	12/80	-	7/411	1/8	-	-	299/2765	321/3327
2	0032	-	-	-	-	-	-	-	2/78	-	-	16/49	18/127
2?	0115	-	-	-	-	-	-	-	1/132	-	-	3/98	4/230
3	0033	1/10	-	-	-	-	-	2/47	-	-	-	6/36	9/93
3?	0037	-	-	-	-	-	-	-	-	-	1/30	71/374	72/404
3?	0150	-	-	-	-	-	-	-	-	-	-	11/25	12/35
3?	0202	-	-	-	-	-	-	-	1/49	-	-	1/9	2/58
3?	0237	-	1/16	-	-	-	-	-	-	-	-	2/13	3/29
Phase 1 total		1/5	-	-	-	-	-	3/141	1/2	-	-	113/379	118/527
Phase 2 total		-	1/12	-	1/51	12/80	-	9/489	1/8	-	-	342/2921	366/3561
Phase 2? total		-	-	-	-	2/52	-	5/175	-	-	-	16/120	23/347
Phase 3 total		1/10	-	-	-	-	-	2/47	-	-	-	90/481	93/538
Phase 3? total		-	1/16	-	-	-	-	1/49	1/10	-	1/30	115/602	119/707
Phase 4 total		-	-	-	-	-	-	-	-	-	-	78/525	78/525
525													
Whole assemblage		3/21	9/207	8/312	26/3149	30/824	5/76	106/1603	12/119	2/31	1/30	2466/12892	2669/19293

Table 2.

Vessel forms by phase and context; no. of sherds/weight (g). AS cordoned and grooved wheelmade vessels of Aylesford-Swarling derivation; C carinated; E ellipsoid jar; O ovoid; OH high-shouldered ovoid jar (wheelmade); OP open bowl; RS round-shouldered; VS vertically sided.

Phase	Context	AS	C	FNG	FNR/FTR	LBA	LT/R	SI	TI	S	Misc.	Total
1	0020	1/5	-	-	5/150	-	-	-	-	-	94/268	100/423
1	0090	-	-	-	1/28	-	-	-	-	-	12/60	13/88
2	0024	-	-	-	4/39	1/1	-	-	-	26/1308	287/1937	321/3327
2	0024/0159	-	-	-	-	-	-	-	-	1/30	-	1/30
2	0032	-	-	-	3/84	-	-	-	-	2/78	15/43	18/127
2	0159	-	-	-	-	-	-	-	-	21/32	1/18	22/50
3	0029	-	-	-	-	-	-	-	-	1/15	10/42	11/57
3	0033	1/10	-	-	-	-	-	-	-	1/8	7/75	9/93
3	0036	-	-	-	-	-	-	-	-	2/21	50/272	52/293
3?	0037	-	-	-	1/43	-	-	-	-	1/3	70/358	72/404
3	0197	-	-	-	-	-	-	-	-	5/45	8/34	13/79
3?	0202	-	-	-	-	-	-	1/49	-	-	1/9	2/58
4	0044	-	-	-	-	-	-	-	-	1/3	56/307	57/310
4	0231	-	-	-	-	-	-	-	-	1/24	1/18	2/42
Phase 1 total		1/5	-	-	6/178	-	-	-	-	-	111/344	118/527
Phase 2 total		-	-	-	7/123	1/1	2/39	-	-	50/1448	307/2025	366/3561
Phase 2? total		-	-	-	-	-	-	-	-	-	23/347	23/347
Phase 3 total		1/10	-	-	-	-	-	-	-	9/89	83/439	93/538
Phase 3? total		-	-	-	1/43	-	-	1/49	-	1/3	116/612	119/707
Phase 4 total		-	-	-	-	-	-	-	-	2/27	76/498	78/525
Whole assemblage		3/21	1/78	6/156	32/751	2/15	3/44	1/49	3/20	164/2601	12455/15633	2669/19293

Table 3.

Decoration types by phase and context: no. of sherds/weight (g). AS cordoned and grooved wheelmade vessels of Aylesford-Swarling derivation; C plain cordon; FNG fingernail incisions on girth; FNR/FTR fingernail incisions/fingertip impressions on rim; LBA LBA/EIA incised geometrical decoration; LT/R La Tène grooved/incised or rouletted decoration; SI stabbed impressions; TI tooled incisions; S scoring.

This is indicated by occasional associations of these and related ceramic types with items of Ewart Park metalwork (*e.g.* Runnymede Bridge, Egham, Surrey)[33] and by the observation that some vessels in these demonstrably early assemblages preserve formal, decorative or surface features which suggest derivation from Ewart Park sheet bronze buckets or cast bronze bowls (*e.g.* furrowed bowls).[34]

It remains unclear how many of the components of this tradition might have an earlier ancestry. Barrett has argued for the presence in some areas of southern England of a post-Deverel-Rimbury 'plain ware' tradition, originating perhaps in the later second millennium BC, which incorporates many of the forms and certain of the decorative styles which are documented in Ewart Park contexts but which is distinguished from these by the general rarity of decoration and by the presence of a number of specific forms (*e.g.* the 'hooked rim jar'; *cf.* Aldermaston Wharf and Knight's Farm, Burghfield, Surrey, sub-sites 2 and 3).[35] The case for a progression in some regions from mainly plain to progressively more decorated assemblages, coincident with the decline in Deverel-Rimbury traditions, may be supported by the stratigraphical evidence from sites such as Ram's Hill, Oxfordshire but the chronology of these traditions remains obscure.[36] Decoration was certainly widespread by the Ewart Park phase, to judge by the metalwork evidence from sites such as Petter's Sports Field, Egham, Surrey but the chronology of the plainer assemblages which in some regions might pre-date them is less certain.[37] Barrett's case for a late 2nd millennium BC origin for his tradition of post-Deverel-Rimbury 'plain wares' rests largely upon the fragile foundations of radiocarbon associations, and such an early date sits uneasily with the parallels between certain categories of so-called 'plain ware' and Ewart Park bronze vessels. Furrowed bowls, for example, figure in Barrett's 'plain ware' assemblages but the close typological parallels which may be drawn between these vessels and the cast bronze bowl from Welby, Leicestershire, currently datable to no earlier than the Ewart Park phase and from which they might derive, would suggest a date no earlier than the 9th century BC.[38] Similarly, omphalos-based vessels and tripartite carinated bowls invite consideration of Ewart Park metallic prototypes.[39] On present evidence, therefore, while some areas may have seen a progression to more profusely decorated wares, some at least of the 'plain ware' forms may be better accommodated within the 9th century BC than earlier. This need not preclude a late 2nd millennium BC date for some 'plain wares', *e.g.* the 'hooked rim jars' or large jars with wide rounded shoulders which are represented at Ram's Hill, Oxfordshire or, in this region, at Billingborough or Tattershall Thorpe, Lincolnshire, but this should perhaps be seen as an evolving tradition to which new forms and styles of decoration were grafted.[40]

The vessels from Gamston described above could therefore date from the 9th century BC, although a considerably later date might be appropriate. It is unclear how long the diagnostic elements of this ceramic tradition continued in use, or to what extent the ceramic repertoire was modified over time. However, despite great regional variability, there is evidence to suggest that those early formal and decorative elements which have been recognised at Gamston, namely carinated profiles, extensive finger-tipping and certain styles of incised geometrical ornament, may have continued in fashion, certainly in the Midlands, well into the 5th or 4th centuries BC.[41] This argument is supported by an unusual class of vessel which is represented at Gamston by an exaggerated everted neck with two wide internal channels and a narrow cordon at its base (no. 53). This should be compared with vessels from a small number of sites in the East Midlands, including Gretton, Northamptonshire and Fiskerton, Lincolnshire, with rounded or carinated girths, attributable on typological grounds to the Late Bronze Age/Early Iron Age ceramic tradition discussed above.[42] Fiskerton produced several directly comparable vessels from beneath a timber causeway dated by dendrochronology to between 457 and 339 BC, and apparently associated with five La Tène 1 swords. This suggests a La Tène 1 date for the deposition of these vessels and provides persuasive evidence for their continued use into the 5th or 4th centuries BC.

Vessels which incorporate one or more of the above traits are classified here as Group 1 vessels. They are present in very small quantities, and imply only limited activity on the site during the Late Bronze Age or earlier Iron Age. Their presence is nonetheless of considerable importance, for the Trent Valley has so far produced few collections of comparable material *e.g.* Willington, Derbyshire; Holme Pierrepont, Epperstone and Red Hill, Ratcliffe on Soar, all in Nottinghamshire.[43] Outside this region, however, extensive parallels can be drawn with collections from southern England, the Midlands and northern England *e.g.* Castle Hill, Scarborough, and Staple Howe, Yorkshire and Fengate, Cambridgeshire.[44]

Later Iron Age. The remainder of the chronologically diagnostic material from the site falls into two categories, which are termed here 'Group 2' and 'Group 3' vessels. Group 2 includes both scored pottery, as defined initially by Kenyon, and vessels with grooved, incised or rouletted patterns of La Tène inspiration.[45] Group 3 comprises a limited range of wheelmade pots which may date mainly from the earlier 1st century AD or late 1st century BC.

The dating of Group 2 vessels is complicated by the paucity of reliable associations between comparable vessels and more closely datable material on sites within the region. Dating of the La Tène ornamental style is a particularly intractable problem. Its origins may plausibly be traced to the 5th or 4th centuries BC on the evidence of parallels between the decoration occurring on La Tène 1 metalwork and certain pottery vessels. Notable parallels include the serpentine pattern on the back of a bronze La Tène 1 dagger sheath from Minster Ditch, Oxfordshire and the 'proto-running scroll' pattern on the bow of a La Tène 1a bronze fibula from Woodeaton, Oxfordshire, while at Hunsbury, Northamptonshire, an early progress towards curvilinear patterns is suggested by the row of hearts with foot scrolls and series of concentric semicircles which embellish the bows of two La Tène 1a bronze fibulae from the site.[46]In this region, there is no evidence which would necessitate a date for the earliest La Tène decorated pottery before the 1st or possibly late 2nd century BC (*e.g.* Dragonby, Lincolnshire), but as this sits uneasily with the evidence from areas such as Northamptonshire, a more extended chronology seems likely.[47] The presence at Gamston of vessels bearing La Tène ornament is of more than chronological interest. No other examples of this decorative style are known from Nottinghamshire, and both of the definite examples display close typological affinities with material from Lincolnshire. Rouletted decoration is a common feature of Lincolnshire assemblages such as Old Sleaford and Dragonby, while the interlocking arc pattern can be parallelled exactly on vessels from the latter site.[48] This suggests contact between Gamston and communities to the east, and may imply the transmission of ideas, the work of an itinerant potter familiar with Lincolnshire ceramic traditions or even perhaps the importation of finished vessels from an unknown production source.

The origins of scored ware have been traced by some to the 5th or 4th centuries BC but the case for so early an origin is at present tenuous.[49] A La Tène 1 bronze wire fibula, dating from as early perhaps as the 5th century BC, was found close to a vertically sided scored vessel in the filling of a ditch at Ancaster Quarry, Lincolnshire.[50] More recently, excavations by T. Lane at Market Deeping, Lincolnshire, have produced a remarkable collection of scored pottery, including material associated with a copper alloy flat-bowed La Tène fibula, datable perhaps from as early as the 3rd century BC.[51] Occasional associations of scored pottery with radiocarbon dated material, notably at Padholme Road, Fengate, where a date of 350±46BC (GaK 4198) was obtained from the collapsed wattlework lining of a pit producing scored pottery, or at Fisherwick, Staffordshire, also suggest origins in the mid-1st millennium BC, but the formidable problems which beset the use of this dating technique in the 1st millennium BC render interpretation hazardous.[52] Whatever the origins of scored pottery, occasional associations in the Trent basin with wheelmade pottery of the later 1st century BC and 1st century AD suggest that in this region at least it may have continued in use well into the latest phase of the Iron Age (*e.g.* at Holme

Pierrepont, Nottinghamshire and Willington, Derbyshire).[53] This claim may be substantiated by the discovery in the upper fillings of the ditch demarcating Enclosure 1 at Gamston of unabraded scored and wheelmade pottery (Figs. 15-16), much of which appears to have been deliberately discarded, suggesting that on this site these types may have been in contemporary use.

Comparable pottery is widely distributed in the Trent Valley (*e.g.* Willington, Derbyshire and Fisherwick, Staffordshire) and has been recorded on a wide range of sites scattered over the south and east Midlands.[54] The focus of this style appears to lie within the Nene basin[55], but in the absence of clear evidence for long distance exchange it may represent no more than contact between widely dispersed communities linked by a broad range of social and economic ties.

Group 3 vessels are not well represented at Gamston, and comprise a restricted range of mainly wheelmade types incorporating formal and decorative features which probably derive from contact with the Aylesford-Swarling ceramic tradition of south-eastern England.[56] Typologically related vessels are abundantly represented in Lincolnshire (*e.g.* at Dragonby and Old Sleaford)[57], but are comparatively rare in the Middle Trent basin, not only in Nottinghamshire but also in Leicestershire and Derbyshire. Small quantities of typologically related pottery have been recorded on a scatter of Iron Age sites in the vicinity of Gamston (*e.g.* Holme Pierrepont and Shelford, Nottinghamshire) and to the west and north of the site (*e.g.* at Willington, Derbyshire and Dunston's Clump, Nottinghamshire) but the Middle Trent seems to lie near the edge of the zone of contact with Aylesford-derived ceramic traditions.[58] It has been suggested that in this area handmade types with a considerably longer ancestry may have continued to dominate ceramic assemblages up to and immediately beyond the Roman Conquest.[59] This is an attractive hypothesis, and at Gamston would explain the rarity of such types in Phase 3 or Phase 4 contexts.

The main Group 3 types at Gamston comprise wheelmade neckless ovoid jars with high girths, sometimes with well moulded rims of bead, square-sectioned, everted or triangular form (*e.g.* nos. 2, 15, 16, 45, 46, 49) and ovoid vessels with unusually high girths and simple rounded rims which might represent handmade versions of this form (no. 50). Fragments also survived of two wheelmade fineware bowls (nos. 22, 47). Neither is sufficiently complete for an exact parallel to be located, but both can be accommodated most satisfactorily within the tradition of cordoned and grooved 'necked' bowls or cups which has been identified at sites such as Dragonby, Lincolnshire and which hearks back to Aylesford-Swarling prototypes.[60] Comparable wheelmade pottery from Lincolnshire has been dated from the later 1st century BC and earlier 1st century AD, largely on stratigraphical and typological grounds, but in view of the limited direct dating evidence an earlier origin cannot be ruled out.[61] Elsewhere in Britain, there is currently no convincing evidence that Aylesford style pottery pre-dates the 2nd half of the 1st century BC, but the chronology of this material is not yet fully resolved.[62]

In addition to the ceramic types described above, the collection from Gamston comprises a range of long-lived vessel forms, including open bowls and ovoid or possibly cylindrical and ellipsoid vessels, which in the absence of chronologically diagnostic decoration cannot be closely dated. Individual examples of these forms are therefore of little chronological importance, although the trend in the Midlands during the latter half of the 1st millennium BC was increasingly towards ovoid and related forms.[63]The preponderance of such forms at Gamston supports a date mainly from the latter half of the 1st millennium BC for the collection. This is consistent with the restriction of finger tipping mainly to the rims of vessels, since the fashion for extensive finger decoration declined in the Midlands, as in southern England generally, from the middle of the 1st millennium BC.[64]

CATALOGUE OF ILLUSTRATED VESSELS

Pottery from features of Phases 2, 3 and 4 is illustrated first (Figs. 15-18), followed by the important assemblages of deliberately deposited pottery from gullies 61, 214 and 140 (Figs. 19-22). Other vessels of particular interest are shown in Fig. 23. All vessels are handmade unless stated otherwise. Fabric group is recorded first, followed by the artefact code

attributed during excavation to individual sherds or groups of joining sherds. Details are also provided of vessel form and surface treatment, sherd condition, the possible circumstances of deposition (of the major groups of associated pottery) and context; full descriptions of each sherd are provided in archive.

Pre-Enclosure 1 gully

1. Q3 EZM 2 joining sherds from probable ovoid vessel with short upright neck and flattened direct rim; row of 3 finger-nail incisions along lip, and lightly scored exterior; unabraded; from near base of possible palisade trench (32) observed in entrance causeway of Enclosure 1, and cut by the ditch terminals of this enclosure; circumstances of deposition unclear, but possibly deposited after the removal of posts.

Enclosure 1 ditch (Phase 2)

Large collection of material incorporated in ditch filling during the course of natural silting. Sherds were recorded by 50mm spit (numbered downwards from 1 to 14), and the spit number is recorded below. Wheelmade types were recovered mainly from the upper two spits (the exception being a small probably wheelmade body sherd from Spit 6), together with fragments of several handmade ovoid forms, scored pottery and two vessels with La Tène incised or rouletted ornament. The lower levels produced a range of handmade ovoid and round-shouldered forms, scored sherds and vessels with finger-tip impressions along the rim. Apart from the tendency for wheelmade pots to concentrate in the upper ditch silts, no systematic variations in vessel form or decoration can be discerned between spits (details in archive). All but one (3g) of the 48 (310g) S1 sherds from the ditch were concentrated in the uppermost two spits, but the other fabrics represented (Table 1) display no obvious spatial patterning.

2. S1 (thin-sectioned) CWM 12 joining sherds from high-shouldered neckless ovoid jar with bead rim; wheelmade; moderately abraded; surface trowelling (SGR 0727111172).

3. Q3 CKH Sherd from vessel with high everted neck and flattened rim, slightly pinched out internally; moderately abraded; surface trowelling (SGR 0785109251).

4. S1 (thin-sectioned) CCE Small body sherd, burnished externally, with traces of curvilinear rouletted pattern formed by single and probably double square-toothed roulette wheel; moderately abraded; surface trowelling (SGR 0846011228).

5. Q4 CUE Tiny abraded body sherd, burnished externally, with two parallel closely spaced incised (horizontal?) lines on the outer face; surface trowelling (SGR 0824609397).

6. Q2 CCJ 2 joining sherds from ovoid vessel with short upright neck and flattened direct rim; extensive multidirectional scoring on outer face; moderately abraded; surface trowelling (SGR 0881611301).

7. S1 COB Abraded body sherd with deep scoring on outer face; surface trowelling (SGR 0754709322).

8. Q4 DCN Sherd from vessel with upright or everted neck and internally channelled rim, possibly for the retention of a lid; unabraded; ditch 24/Cut 2; Spit 4 (SGR 08851050).

9. Q2 DIQ Square-sectioned rim sherd; moderately abraded; ditch 24/Cut 3; Spit 3 (SGR 07551115).

10. Q3 DIT, DJK, DJX 8 joining sherds from flat-based vessel with vertical scoring on outer face; unabraded; ditch 24/Cut 3; Spit 3.

11. ST1 EHC Rim sherd from ovoid(?) vessel with short upright neck and flattened rim, pinched out internally; faint multidirectional scoring on exterior; ditch 24/Cut 10; Spit 10 (SGR 05951055).

12. Q3 DWT Girth sherd from carinated vessel of uncertain form; unabraded; intersection of 24 with Phase 1 pit 90; Spit 2

13. Q2 EZI Sherd from flat base, pinched out at circumference; moderately abraded; ditch 24/Cut 15; Spit 4 (SGR 06501115).

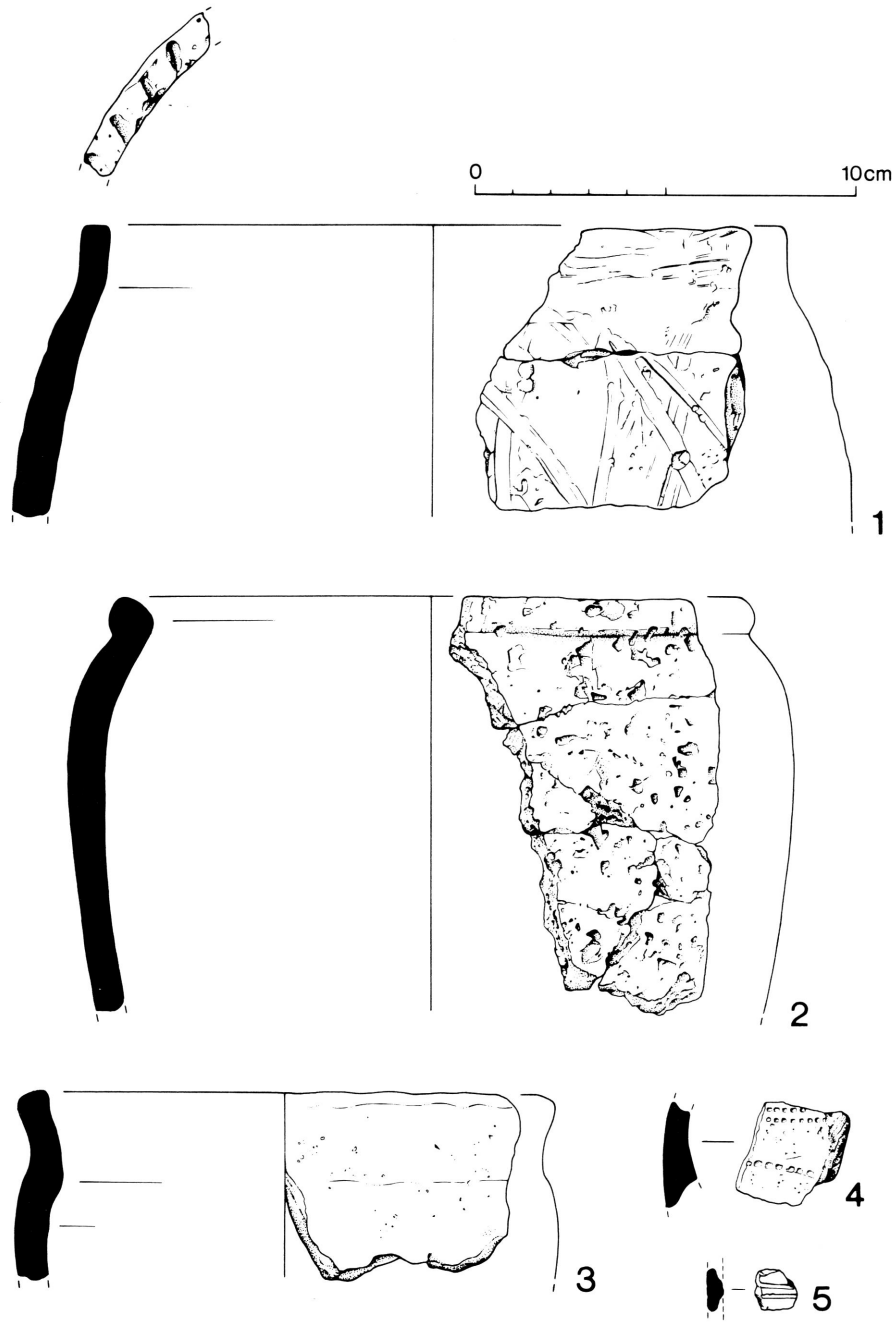


FIGURE 15 Gamston: Iron Age pottery from palisade trench (32) preceding Phase 2 enclosure ditch (1) and from upper levels of Phase 2 enclosure ditch (2-5).

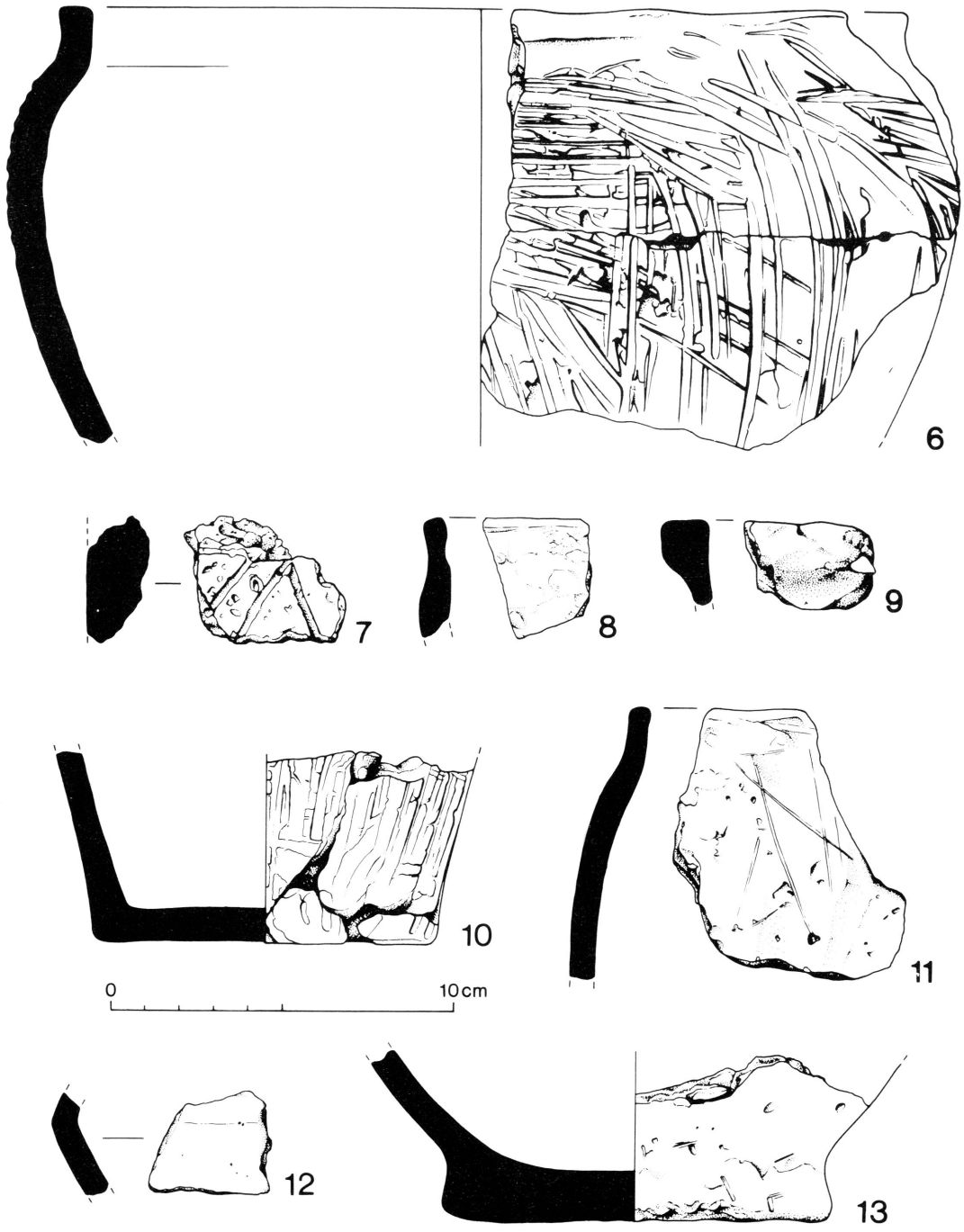


FIGURE 16 Gamston: Iron Age pottery from Phase 2 enclosure ditch.

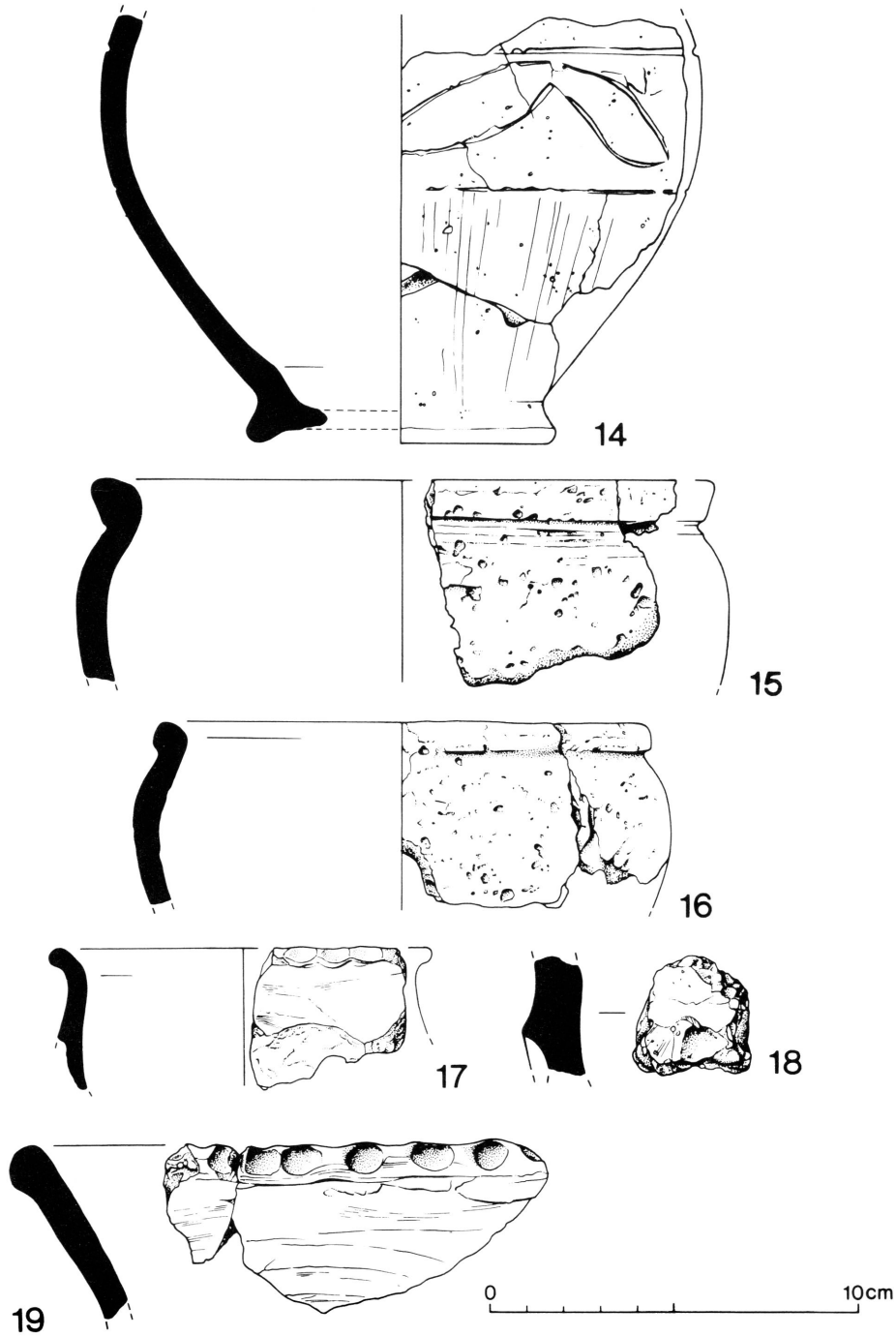


FIGURE 17 Gamston: Iron Age pottery from features producing sherds joining with pottery from Phase 2 enclosure ditch (14-16) and from features cut by Phase 3 gullies (17-19).

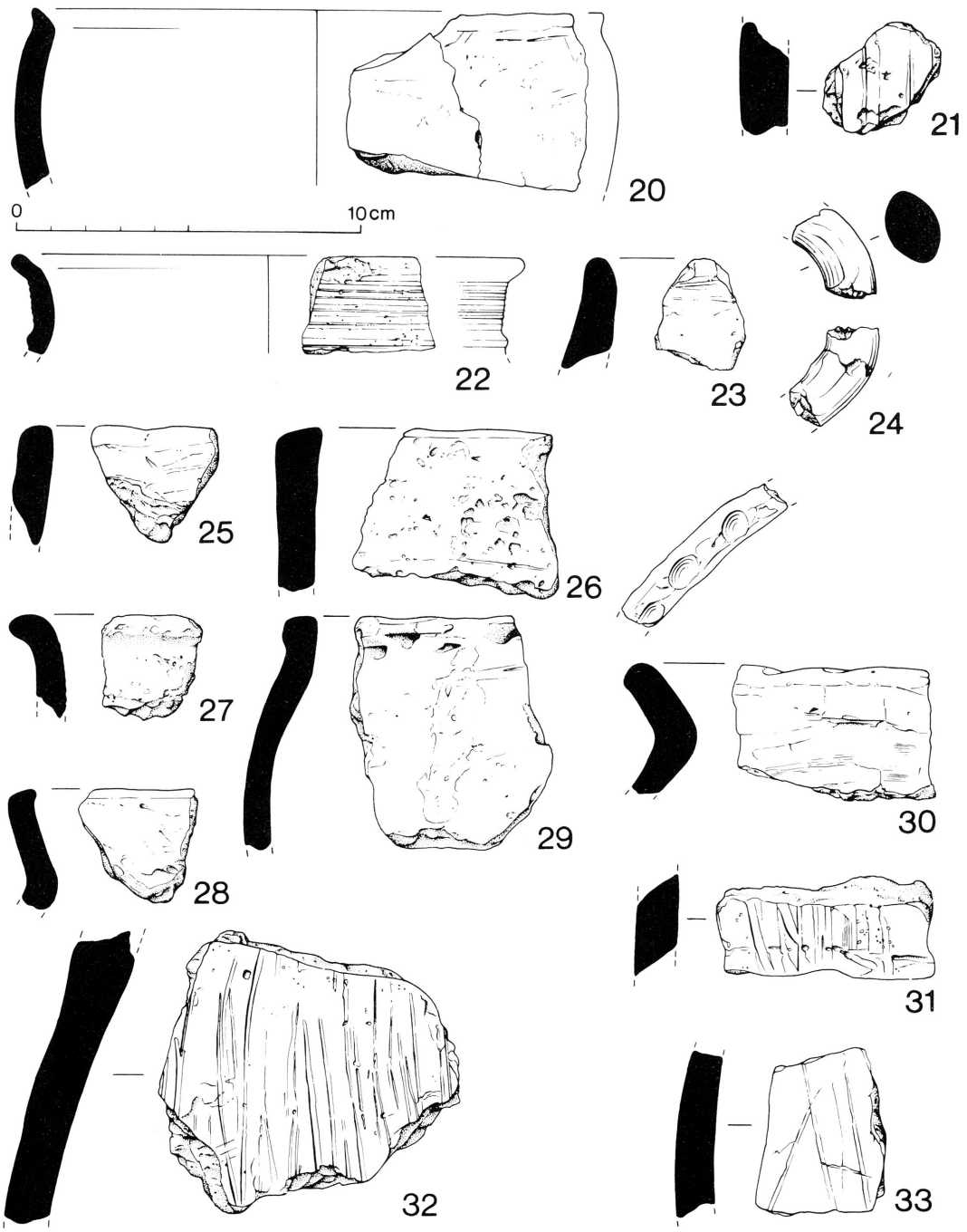


FIGURE 18 Gamston: Iron Age pottery from Phase 3 gullies (20-31) and Phase 4 enclosure ditch (32-33).

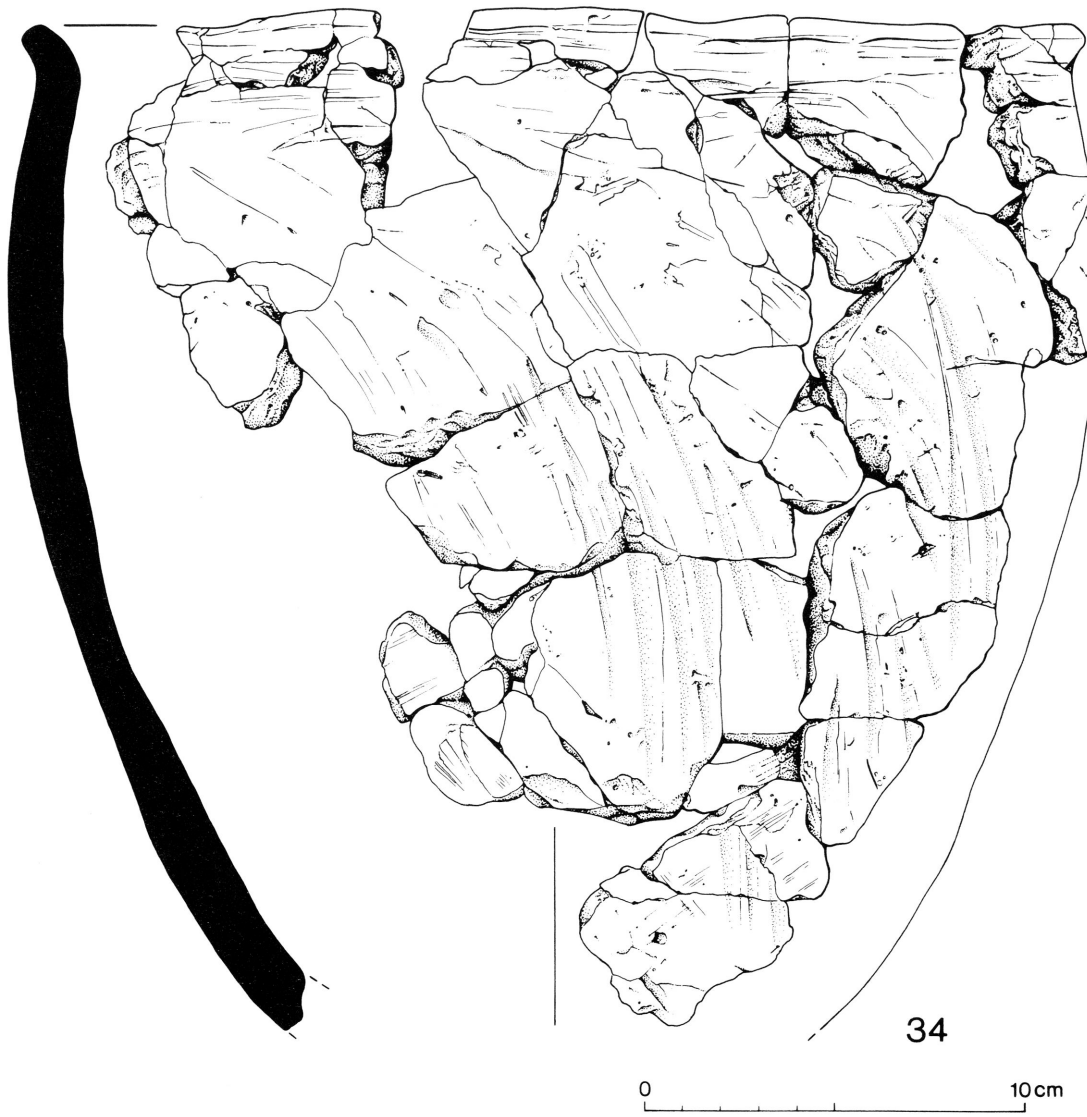


FIGURE 19 Gamston: Iron Age jar from terminal of gully 61 (Structure 2).

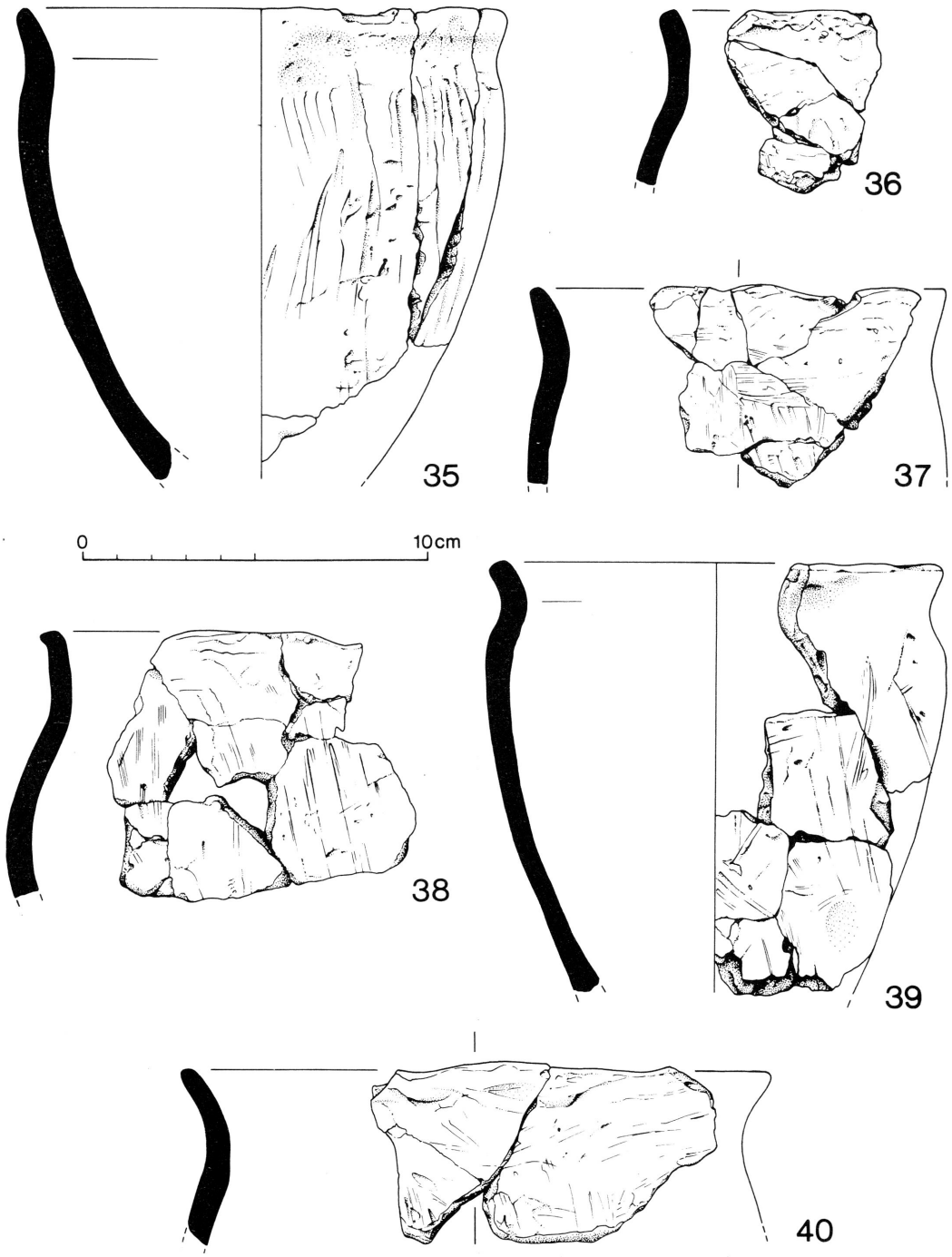


FIGURE 20 Gamston: Iron Age pottery from terminal of gully 61 (Structure 2).

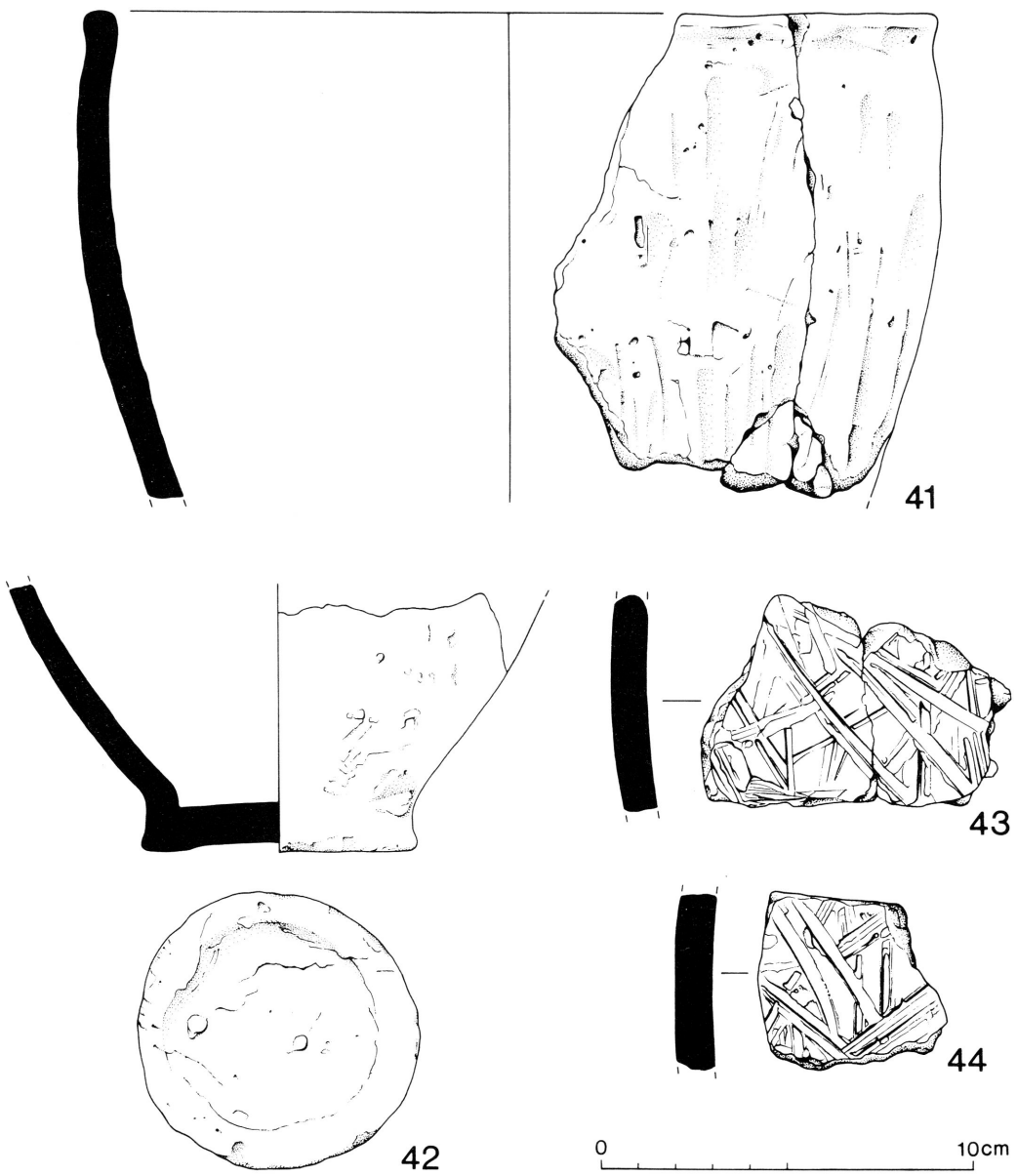


FIGURE 21 Gamston: Iron Age pottery from terminal of gully 214.

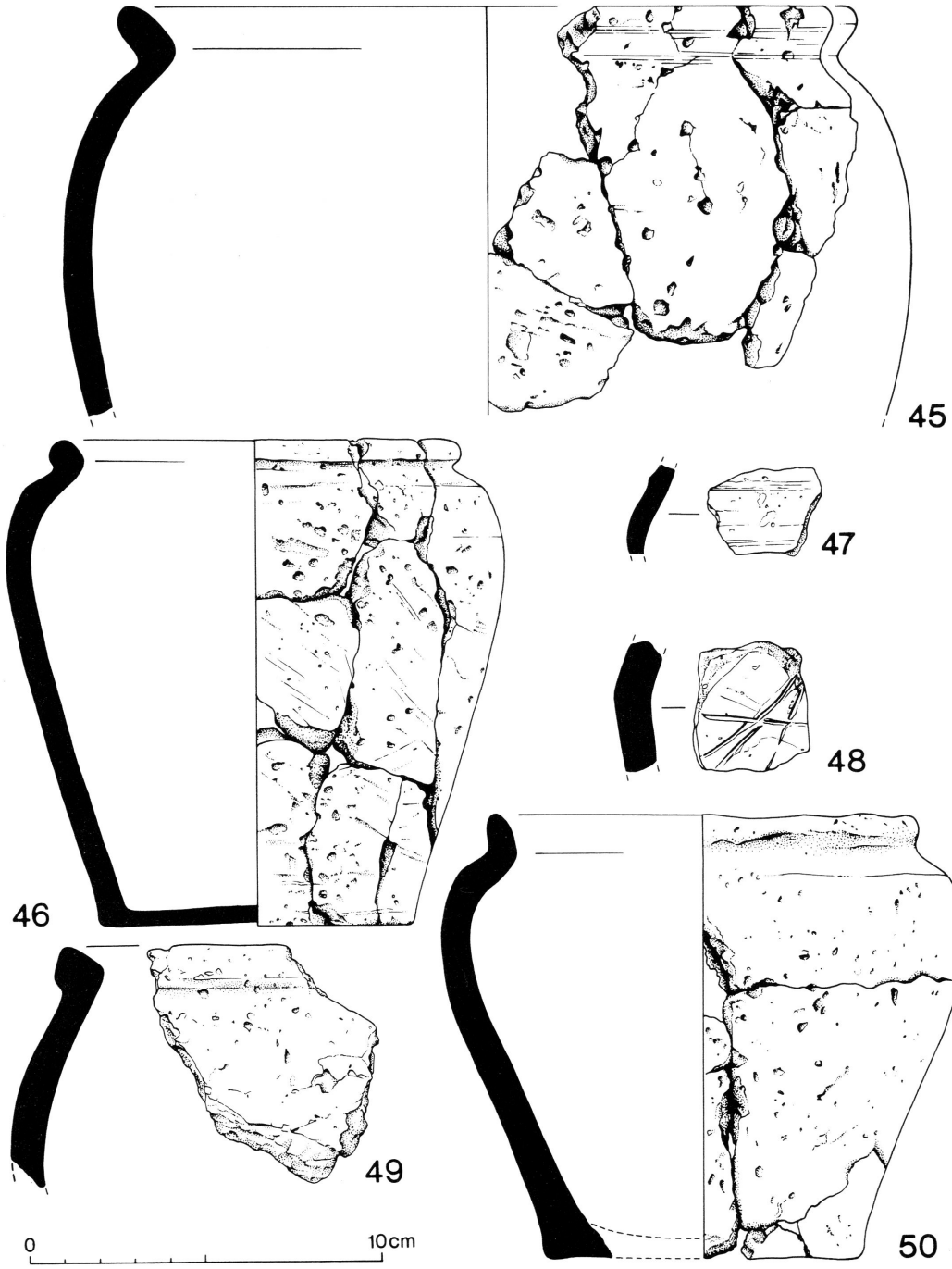


FIGURE 22 Gamston: Iron Age pottery from Structure 3 gullies 140 (45-47,50), 125(48) and 125/127(49).

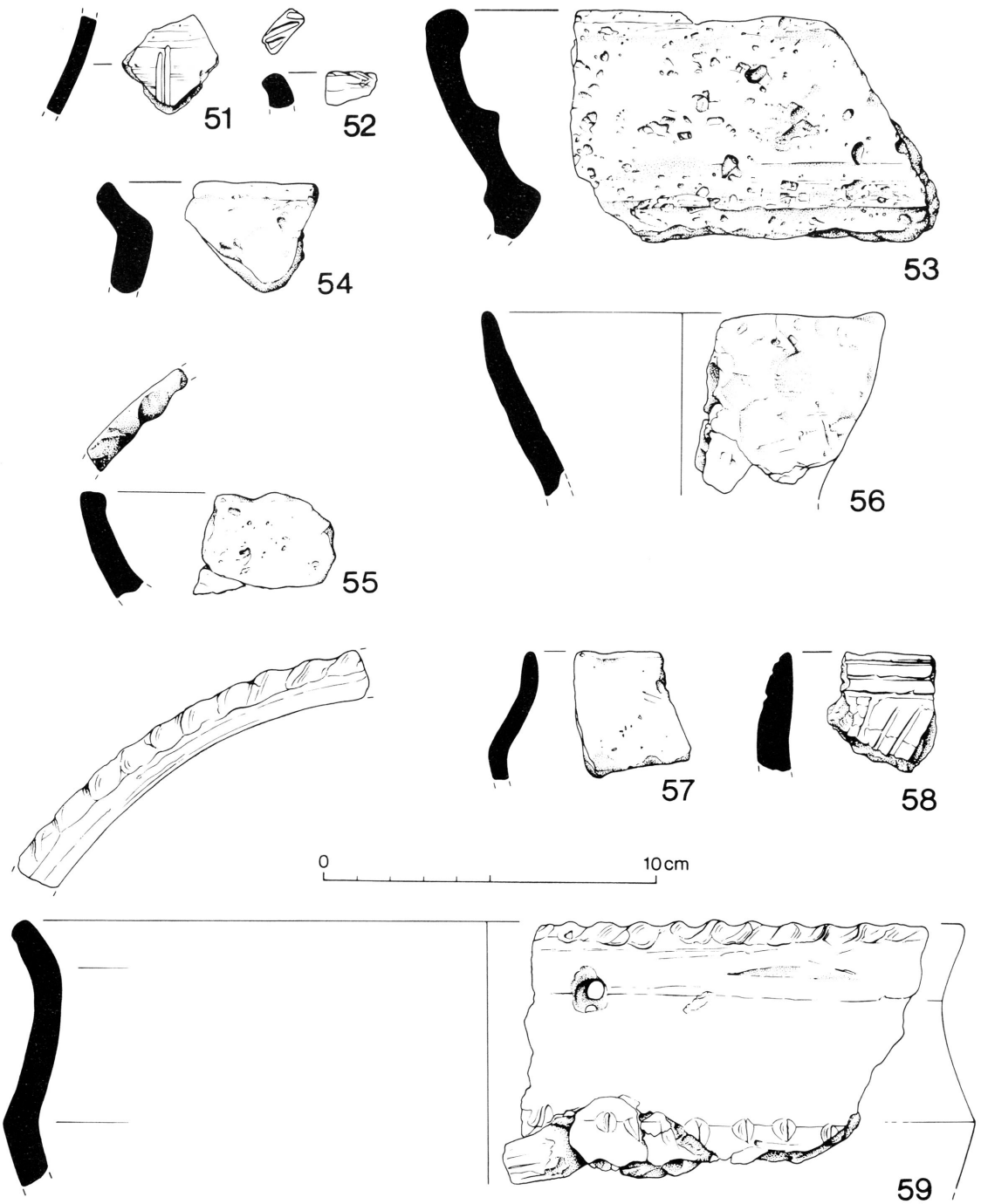


FIGURE 23 Gamston: miscellaneous Iron Age pottery.

Features producing pottery joining with sherds from Enclosure 1 ditch

14. Q3 CKE, DUV 2 unabraded body sherds (CKE) and base sherd (DUV) from ovoid vessel with low footring base; decorative shoulder panel, demarcated by a pair of parallel incised lines, preserving a rather poorly executed incised interlocking arc pattern; burnished exterior, with clearly visible vertical burnishing strokes on the lower body; unabraded; CKE from preliminary trowelling of the surface of ditch 24 (SGR 0593109583); DUV from upper fill of post-hole 115.

15. S1 BJO, FHD High-shouldered wheelmade ovoid vessel; roughly triangular rim with flattened lip and pronounced external bevel, demarcated at its base by a finely incised line; unabraded; 4 rim sherds from surface of 24/Cut 3 (FHD) and rim from upper fill of gully 12 (BJO), all joining.

16. S1 BJN 4 joining sherds from wheelmade neckless ovoid vessel with bead rim; unabraded; gully 12 (upper fill).

Features cut by Phase 3 gullies

17. Q4 EBF Rim of vessel with short everted neck and finger-tip cabling along lip; highly burnished exterior; unabraded; pit 56, cut by gully 36.

18. Q1B EOX Girth fragment with single finger-tip impression; moderately abraded; pit 191, cut by gully 150.

19. Q2 EDY 2 sherds from vessel with high everted neck and row of 6 finger-tip impressions on lip; unabraded; gully 41, cut by gully 37.

Phase 3 gullies

20. Q4 CJK 2 sherds from neckless ovoid vessel with internally bevelled rim; traces of burnt matter on exterior; unabraded; surface trowelling of gully 33 (SGR 0863310354).

21. ST1 (thin-sectioned) EFC Body sherd with deep scoring on exterior; moderately abraded; gully 36/Cut 6 (SGR 11301130).

22. Q3 (thin-sectioned) EWZ Sherd from wheelmade necked bowl with internally channelled rim; closely spaced parallel rills encircle the neck, which is demarcated below by a narrow cordon; burnished exterior; unabraded; gully 33/Cut 4 (SGR 10621125).

23. Q3 ENU Rim sherd from neckless vessel with direct rounded rim; moderately abraded; gully 36/Cut 6.

24. Q2 EAN 2 sherds, not quite joining, from strap handle of oval section; gully 37/Cut 3 (SGR 10051015).

25. Q3 ENS Rim sherd from neckless vessel with flattened direct rim; moderately abraded; gully 36/Cut 6.

26. S1 CCT Single sherd, possibly from vertically sided vessel with flattened direct rim; moderately abraded; surface trowelling of gully 37 (SGR 0888210175).

27. S1 EIR Sherd from wheelmade(?) vessel with everted rim; moderately abraded; pit 173.

28. Q3 CGE Sherd from vessel with high and probably everted neck and flattened rim, slightly pinched out internally; surface trowelling of gully 204 (SGR 1174010559).

29 Q3 CWK Rim of ovoid(?) neckless vessel with flattened rim, pinched out externally; row of three stabbed impressions at base of rim; moderately abraded, with traces of possible clay slip on exterior; surface trowelling of gully 202 (SGR 0760210983).

30. Q2 (thin-sectioned) EDF Rim sherd from vessel with widely everted neck and rounded rim with row of 3 finger-tip impressions along lip; unabraded; gully 37/Cut 6 (SGR 10801005).

31. Q3 ERV Body sherd with faint vertical scoring on exterior; moderately abraded; gully 197/Cut 2 (SGR 07751055).

Enclosure 2 ditch (Phase 4)

32. Q3 FBK Body sherd with vertical scoring on exterior; unabraded; ditch 44/Cut 4 (SGR 11621005).

33. Q3 EWX Body sherd with faint multidirectional scoring on exterior; moderately abraded; ditch 231.

Terminal of gully 0061 (Structure 2)

Large collection of deliberately backfilled and mainly unabraded pottery from terminal of possible hut drainage gully; probably a deposit of contemporary ceramic types (not phased).

34. Q2 DKI, DKJ, DKM, DKP, DKS, DKU, DKV, DKW, DKX, DKZ, DLB, DLC, DLD, DLE, DMW Substantial portion of neckless ovoid jar with direct rounded rim; outer surface preserves extensive curving brush marks; unabraded.

35. Q3 DLL 4 joining sherds from neckless ovoid jar with short everted neck and direct rounded rim; extensive mainly vertical brushing on outer face; traces of burnt matter in interior; unabraded.

36. Q3 DLN 6 joining sherds from vessel with high everted or upright neck and direct rounded rim; unabraded.

37. Q3 DKQ, DMT 6 joining sherds from ovoid(?) vessel with high everted neck; uneven direct rounded rim; faint vertical brush marks on outer face; unabraded.

38. Q3 DLO, DLQ, DLV 14 sherds, some joining, from vessel with high everted or upright neck and flattened rim, pinched out externally; faint vertical brushing on exterior; unabraded.

39. Q3 FFJ, FFL-FFP 8 joining sherds from ovoid jar with high everted neck and direct rounded rim; faint multidirectional brushing on exterior; unabraded.

40. Q3 FFK, FFX 3 joining sherds from vessel with concave neck and uneven direct rounded rim; traces of burnt matter on exterior; unabraded.

Terminal of gully 0214

This terminal, in common with 61, appears to have been backfilled with pottery and other domestic refuse, and consequently incorporates a probably contemporary deposit.

41. Q2 (thin-sectioned) ESW 8 sherds, joining to form part of a neckless ovoid or possibly barrel-shaped (ellipsoid) vessel with a flattened rim, slightly pinched out along parts of the outer and inner face; moderately abraded.

42. Q3 ETL Sherd from vessel with shallow footring base; unabraded.

43. Q2 CUK, FEL 2 joining sherds from vessel with deep multidirectional scoring; unabraded.

44. Q2 CKK Sherd with deep multidirectional scoring; possibly the same vessel as 43; unabraded; surface trowelling.

Structure 3 gullies

Gully 140 had been backfilled with substantial quantities of mainly unabraded pottery and other domestic debris, and yielded an important collection of possibly contemporary ceramic types. It cut gullies 125 and 127, several sherds from which are illustrated. Shell-tempered wares predominated, 105 sherds (825g) out of 114 (863g).

45. S1 FCJ. 9 joining sherds from ovoid neckless vessel with everted rim; wheelmade; unabraded; gully 140.

46. S1 FCR, FDC, FDE, FDF 16 joining sherds from high-shouldered neckless ovoid jar with flat base and bead rim, the latter emphasised by a shallow horizontal groove; wheelmade; traces of burnt matter (cooking deposit?) on interior; unabraded; gully 140.

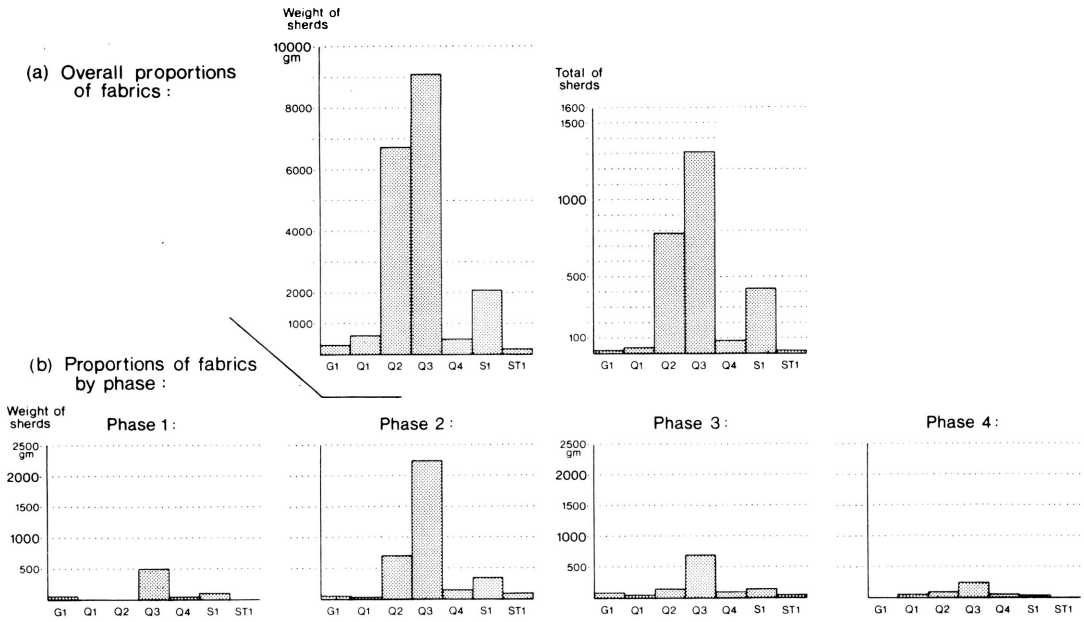


FIGURE 24 Gamston: Iron Age pottery: proportions of fabrics.

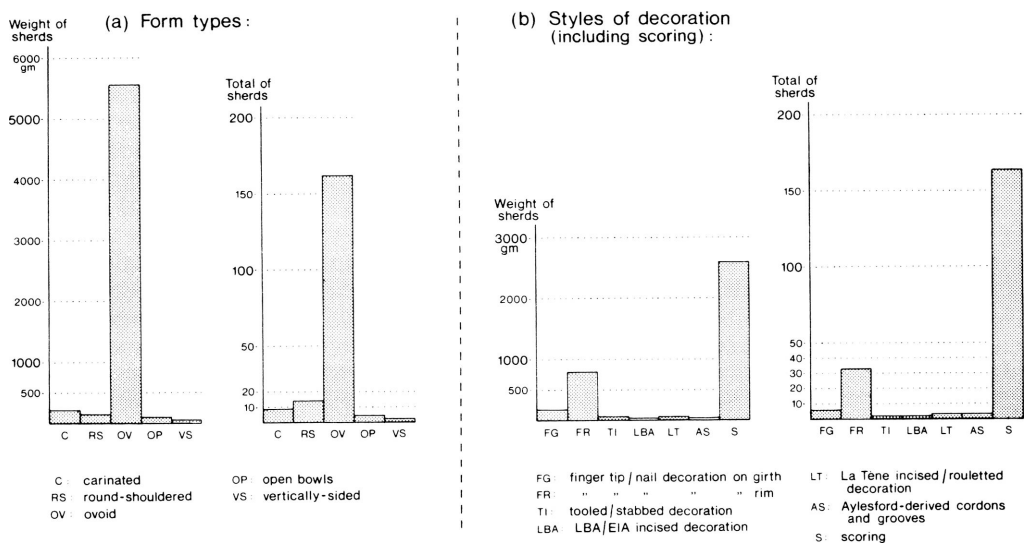


FIGURE 25 Gamston: Iron Age pottery: proportions of form types and styles of decoration.

47. Q4 (thin-sectioned) FDJ Shoulder fragment from wheelmade cordoned bowl; highly burnished exterior (smoothed internally); unabraded; gully 140.

48. Q2 (thin-sectioned) CJT Girth fragment from round-shouldered vessel, with deep multidirectional scoring; moderately abraded; surface trowelling of gully 125.

49. S1 CQT Sherd from wheelmade vessel with square-sectioned rim; moderately abraded; surface trowelling at intersection of gullies 125 and 127.

50. S1 FCK, FCS, FCT, FCU, FDB 8 joining sherds from high-shouldered ovoid jar with short slightly everted neck, flat base and rounded direct rim; possibly a handmade version of 46; uneven surfaces with finger impressions; unabraded; gully 140.

Miscellaneous Iron Age pottery

51. Q4 (thin-sectioned) DBL Shoulder fragment from vessel with two shallow vertical burnished grooves on outer face; highly burnished externally, with traces of horizontal burnishing strokes (smoothed internally); pit 21.

52. Q3 FBT Rounded direct rim with row of 3 tooled or possibly finger-nail incisions along lip; moderately abraded; pit 225.

53. S1 (thin-sectioned) DOI Single sherd from vessel with high everted neck and externally faceted rim; the inner face of the neck preserves two wide corrugations, possibly for a lid; the base of the neck is demarcated by a narrow pinched-out cordon; moderately abraded; gully 30/Cut 2 (SGR 09041108).

54. Q3 DEK Internally channelled rim; moderately abraded; pit 43.

55. Q3 EZV Fragment of probable open bowl, with 2 finger-tip impressions on lip; moderately abraded; context 47 (cut of gully 70, adjacent to east baulk of trench).

56. Q3 EOL 2 joining sherds from open bowl with tapered direct rounded rim; unabraded; pit 124.

57. Q3 EOS Sherd from carinated bowl(?) with upright neck and rounded direct rim (slightly tapered); moderately abraded; gully 194.

58. G1B (thin-sectioned) FBE Rim sherd from possibly ovoid or open bowl with tapered rounded rim; 3 incised parallel lines below rim, demarcating decorative panel preserving 3 or possibly 4 diagonally incised lines; moderately abraded; gully 196.

59. Q1B CKJ Single fragment (broken during retrieval) of carinated vessel with concave neck; rim embellished with finger-tip cabling, and girth decorated with row of finger-nail incisions; unabraded; single perforation below rim, possibly for suspension, securing a cover or repair; from baulk of Trench 05, in area of tree-root and burrow disturbance (SGR 0698309000).

ROMANO-BRITISH POTTERY
by R.S. LEARY

24 sherds were identified as Romano-British. Four sherds were obtained during field-walking: part of a fine grey ware rebated-rim jar/beaker, a flanged Hadrianic-Antonine white-ware bowl[65] and two coarse sandy bodysherds, none closely datable. Thirteen other sherds came from layers 2 or 3, and as these layers were cut by Iron Age features must have been displaced vertically subsequent to their deposition.[66] These included fragments of a grey ware carinated cup/bowl of late 1st to early 2nd century type, dating as late as the Antonine period[67], a 3rd century Nene Valley ware box lid, a sherd of an unknown colour-coated fabric, a white-ware flagon and several Derbyshire ware, grey ware and sandy sherds (including two sandy sherds comparable to first century pottery from Nottinghamshire sites such as Rampton and Holme Pierrepont). Seven other sherds were obtained from the surface or uppermost spit of features 11/12, 43, 49, 70, 197 and 241, including an everted-rim jar/beaker in a 1st century sandy fabric, Derbyshire and Nene Valley type wares, a sherd in a shelly fabric typical of 1st century pottery in the region and a range of grey ware and sandy sherds, not closely datable. Some material may be intrusive, but as discussed above other sherds could have entered partially filled features, possibly as a result of

manuring.

A full catalogue, commenced by T.S. Martin and revised by R.S. Leary, is available in archive. Sherds are listed by context, and details are recorded of fabric, form, vessel part, rim diameter/percentage, decoration type/position and condition.

MEDIEVAL AND POST-MEDIEVAL POTTERY
by A. TURNER-RUGG

48 medieval sherds were recovered during field-walking and another 10 sherds during excavation, either from unstratified contexts or as intrusive material in the upper fillings of Iron Age features. These are most plausibly explained as the results of manuring, although curiously no traces of ridge and furrow were observed within this field. All are small and largely featureless, and none allows the form of the vessel to be reconstructed. The wares comprise a range of typical Nottingham products (including splash-glazed and green-glazed wares) and wares commonly imported into the region (including Stamford, Cistercian and Midlands Purple wares). One Stamford ware sherd might pre-date the 12th century, but the remainder may be dated to between the 12th and 16th centuries. 120 post-medieval sherds were retrieved during field-walking or as surface finds during excavation. Most probably date from the 19th and 20th centuries, and again are best interpreted as manure spreads.

A full catalogue of this material is available in archive. Sherds are listed by context, and details are recorded of vessel part, fabric, form, decoration and surface finish.

BRIQUETAGE
by D. KNIGHT

One small handmade body sherd (9g) may be compared on the grounds of its colour, fabric and rough finish to the probable briquetage material known as stony VCP (or 'very coarse pottery') which is distributed widely from north Wales to Staffordshire (Fig. 27, no. 4).[68] The sherd, which was identified as VCP by Dr. C. Allen and subsequently examined by Dr. E. Morris, was manufactured from a coarse sandy fabric incorporating sparse angular sedimentary and igneous rock fragments up to 8mm in diameter. In common with other fragments of stony VCP the core is light grey but the inner and outer surfaces have been oxidised to a pale orange colour. Comparable inclusions in stony VCP have been argued probably to originate from an unknown source in south-eastern Cheshire.[69] This identification was not verified by thin-sectioning because of the small size and unique status of the fragment, but it provides persuasive evidence for long distance exchange links between this area and Gamston, possibly via the River Trent. It is currently the easternmost known occurrence of stony VCP, the nearest local parallels for which are from Breedon-on-the-Hill, Leicestershire, Normanton-le-Heath, Leicestershire and Fisherwick, Staffordshire.[70] The sherd is too small for the form of the artefact to be determined, but a container for the drying and transport of salt seems likely.[71] It is surprising that salt should have been transported from Cheshire in view of the extensive Iron Age salt industry in nearby Lincolnshire and the ceramic evidence for cultural or trading links between these areas, but it demonstrates the wide distributional networks which may have linked Iron Age settlements in this region. The sherd was recovered during surface cleaning of the south-west corner of the Phase 2 enclosure ditch, from the same level as a range of late Iron Age pottery (including scored ware, La Tène rouletted pottery and wheel-made ovoid vessels). It may have been deposited, therefore, as late as the earlier 1st century AD. This would fit the current dating evidence for stony VCP, which appears to have been in use from the 5th century BC to at least the Roman Conquest.[72]

FIRED AND UNFIRED CLAY
by C.S.M. ALLEN AND D. KNIGHT

Fired Clay

One virtually complete fired clay triangular weight (CKF) and a corner fragment of a second probably triangular weight (DUP) were retrieved during excavation, with 83 other fragments of fired clay (all but nine from Iron Age features). A full archive report on these has been prepared by Dr. C.S.M. Allen, and this report discusses the two possible loom-weight

fragments (Fig. 26).

CKF (Fig. 26, no. 1) Recovered from the surface of the southern boundary ditch of Enclosure 1 (SGR 0748109314), this was presumably discarded at an advanced stage in the silting of this feature. It was manufactured from a coarse sandy fabric, not closely comparable with any of the pottery fabrics, with moderate sub-angular or sub-rounded quartz mainly under 1mm in diameter, occasional quartz and quartzite pebbles up to *c.* 13mm and at least one piece of flint *c.* 6mm long. It had been lightly fired, and is predominantly light brown with black surface mottling and a light grey core. It is approximately triangular in shape, with two broken corners, and preserves a perforation *c.* 13mm in diameter through one of the corners. Similarly shaped objects with single perforations have been recorded on a small number of Iron Age sites in southern Britain, *e.g.* Dragonby, Lincolnshire and Danebury, Hampshire[73], but most intact examples of this class of object preserve a perforation through each corner *e.g.* Willington, Derbyshire, LW7.

DUP (Fig. 26, no. 2) This is extremely fragmentary, but appears to represent part of a similar object, pierced through one corner by a narrower perforation *c.* 9mm in diameter, *cf. e.g.* a loomweight from Danebury Hampshire.[74] It compares with CKF in terms of its fabric, although it lacks the larger pebble and flint inclusions, and was fired to a pale orange to buff colour with a dark grey core. The object was retrieved from the uppermost filling of gully 125, from the same level as one scored and four plain Iron Age body sherds. Seven other plain or scored Iron Age sherds were obtained from other levels in this feature, which yielded also a small quantity of charcoal, a single heat-affected pebble and a cattle permanent upper molar. This gully was cut by gully 140, which has been interpreted above as the foundation for a timber structure of uncertain form (Structure 3). 125 may represent an earlier phase of this structure, back-filled before the cutting of 140, but this cannot be established with certainty.

Comparable fired clay objects, generally pierced through each corner, have been recovered from a wide range of Iron Age sites concentrated mainly in south-eastern Britain and are conventionally interpreted as weights intended to maintain the tension on the warp threads of vertical looms.[75]Other possible functions are weights for holding down thatch or hayricks and net-sinkers, and so a correlation with textile production cannot be assumed.[76] Many of the remaining items of fired clay preserve clear wattle impressions, and presumably represent daub which had been accidentally fired.

Unfired Clay

Many Iron Age features contained substantial quantities of apparently unfired clay, much of which appeared to have been deliberately deposited *(e.g.* pit 163, report in archive). Samples of this material have been compared with natural clays deriving from the local Mercian Mudstones, and differ significantly from these in both composition and colour. The clays derived from Iron Age features contained a range of inclusions (particularly quartz and small pebbles) which did not occur naturally in the mudstones in any quantity, and also presented a less homogeneous texture. Some material preserved possible wattle impressions, and might be discarded daub. Some unfired clay, however, might represent material which was being prepared for use in a production process, such as the manufacture of weights, and had subsequently been discarded as surplus to requirements or stored for future use. The latter seems especially plausible in the case of the material from pit 163. 27kg of clay had been deposited in this feature above a layer of blackened pebbles, some possibly deriving from a hearth, and then sealed with gravel, possibly with the aim of retrieving this material (which would have remained moist in these conditions) for future use.

MISCELLANEOUS FINDS

COPPER ALLOY

by D. KNIGHT

A small copper alloy ring was retrieved from the north-west corner of the ditch demarcating Enclosure 2 (Fig. 27, no. 6). It was recovered from the top 50mm spit, and as this feature had been truncated prior to excavation would have been deposited after the ditch had silted to approximately half its original depth. The object displays a green surface patina, and was manufactured from a thin strip of metal which is widened towards the centre. The terminals overlap to form a spiral. The widened outer face is decorated along either edge by a line of small, oval punch impressions. These are closely but irregularly spaced, and peter out towards the terminals. The ring is a common Iron Age type, but cannot be closely dated. Rings of comparable form have been recorded on a large number of sites (*e.g.* Maiden Castle, Dorset and Garton Station, Yorkshire),[77] but examples with comparable punched decoration are comparatively rare (*e.g.* Glastonbury, Somerset and Hunsbury, Northamptonshire).[78]

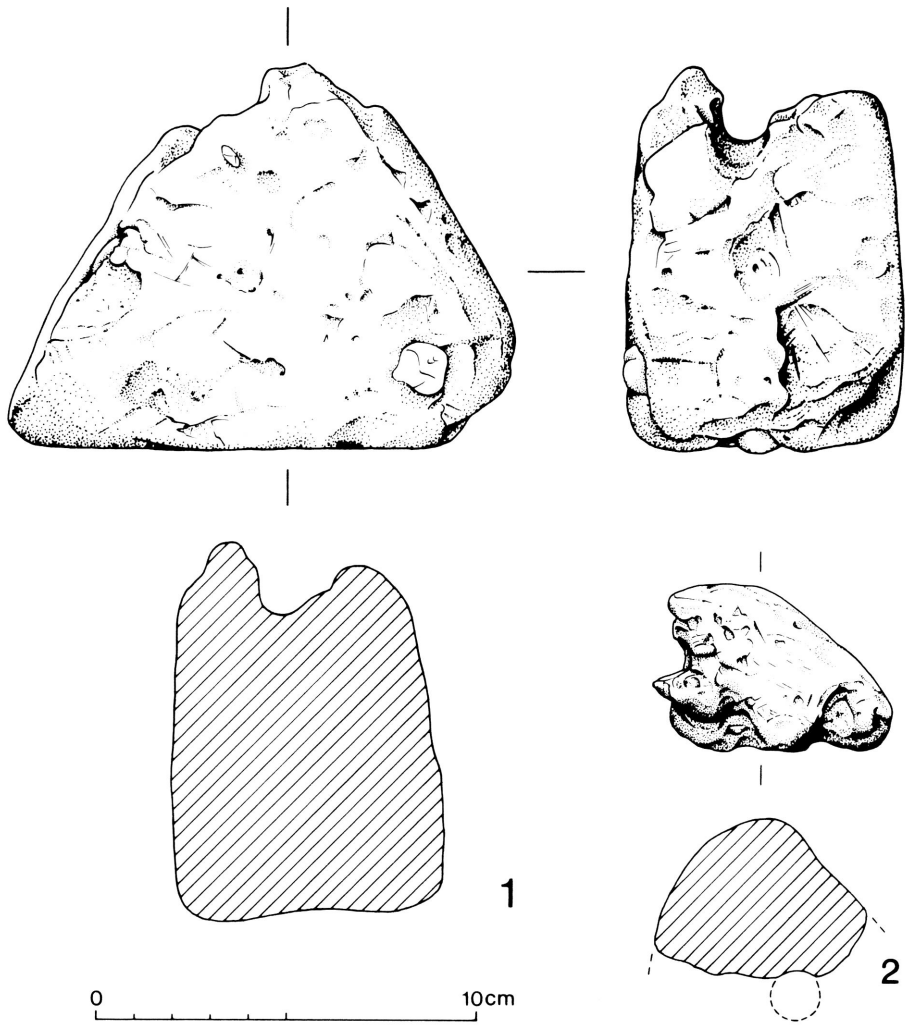


FIGURE 26 Gamston: fired clay weights.

IRONWORK

by V. FELL AND D. KNIGHT

Twelve iron objects were recovered during the excavations, of which five derived from secure Iron Age contexts. These are described below, and illustrated in Fig. 27.

DNO Fig. 27, no. 9 A virtually complete pair of tweezers was recovered from the bottom fill of pit 97, in association with 25 later Iron Age sherds, including scored ware. The tweezers are 87mm long, rectangular in cross-section, and have rounded, bevelled and angled terminals. Objects of comparable form have been recorded on Iron Age sites spread widely over southern Britain, although none has hitherto been recovered from the Trent Valley. Most are of copper alloy (*e.g.* Meare, Somerset, Hunsbury, Northamptonshire, Woodeaton, Oxfordshire), but some iron examples have also survived (*e.g.* Croft Ambrey, Herefordshire, and King Harry Lane, St. Albans, Hertfordshire).[79]

FHK Fig. 27, no. 10 The stem of a small punch (76mm long), possibly for the cold working of metal, was obtained from the middle filling of gully 125. This was cut by another gully (140) which had been back-filled with substantial quantities of Late Iron Age hand- and wheel-made pottery (Fig. 22, nos. 45-47, 50), and itself produced a small quantity of later Iron Age sherds, including scored ware (Fig. 22, no. 48). The head of the punch is fractured, but otherwise the object is complete. The upper third of the stem is square in cross-section, but the lower part of the object is round-sectioned, tapering slightly to a blunt rounded tip. Comparable Iron Age punches have been recorded in association with metalworking debris at Gussage All Saints, Dorset and in the East Midlands on a later Iron Age settlement at Weelsby Avenue, Grimsby, South Humberside.[80]

ETK Fig. 27, no. 11 Part of a tapered bar (56mm long) with a rectangular cross-section was recovered from the surface of the north-west corner of the Enclosure 2 ditch (44), and may be attributed, therefore, to Phase 4 (dated to the 1st century AD). Insufficient of the object survives for its original form to be determined.

CHF Fig. 27, no. 12 Part of a nail with a recent fracture across the stem was recovered from the surface of gully 20, attributed above to Phase 1 (SGR 0821110347). This gully also produced 100 Iron Age sherds (described above). Comparable objects have been recovered from a wide range of Iron Age sites in southern Britain (*e.g.* King Harry Lane, St. Albans, Hertfordshire).[81]

EJS Pit 100 produced an amorphous fragment of corrosion products (length 15mm, including soil). This feature was cut by a Phase 3 gully, and so may be attributed to an early phase of the site. It also produced two undistinguished Iron Age body sherds and a flint scraper.

The remaining objects derived from unstratified contexts, and could all be modern. They include a tanged implement (BLA), bolt (BLB), 3 rods (BLC, CHW, BBH), a nail (CHY) and an amorphous lump (BCB). Full details are provided in archive.

GLASS BEAD

by J. HENDERSON

Half of a ring bead (Fig. 27, no. 5) of Guido's Group 5C,[82] recovered from the upper surface of the Enclosure 1 ditch (SGR 0883110939), had presumably been lost or deliberately discarded during the final stages of silting. Pottery from an equivalent level elsewhere in the ditch, including wheel-made bead-rimmed ovoid jars and rouletted and scored pottery, suggests deposition in the earlier 1st century AD or possibly the later 1st century BC.

The bead is colourless, with a decoration of opaque yellow waves marvered into the surface. The glass is virtually free of air bubbles. Minute fragments of opaque yellow and transparent colourless glass were removed for chemical analysis using an electron-microprobe (details in archive). The colourless glass is of a soda-lime-silica composition of the typical low magnesia type used in Iron Age and Roman Europe, with low potassium and magnesium oxides (K_2O and MgO respectively). The 2.6% lead oxide (PbO) is unlikely to have produced a significant difference in the working properties of the glass. The glass contains 0.3% manganese oxide (MnO), which can act as a decoloriser, and 0.7% antimony trioxide (Sb_2O_3), which can act both as a decoloriser and a clarifier. The high detected levels of lead and antimony in the yellow glass, and the balance of oxides, strongly suggest that it had been rendered opaque by crystals of lead

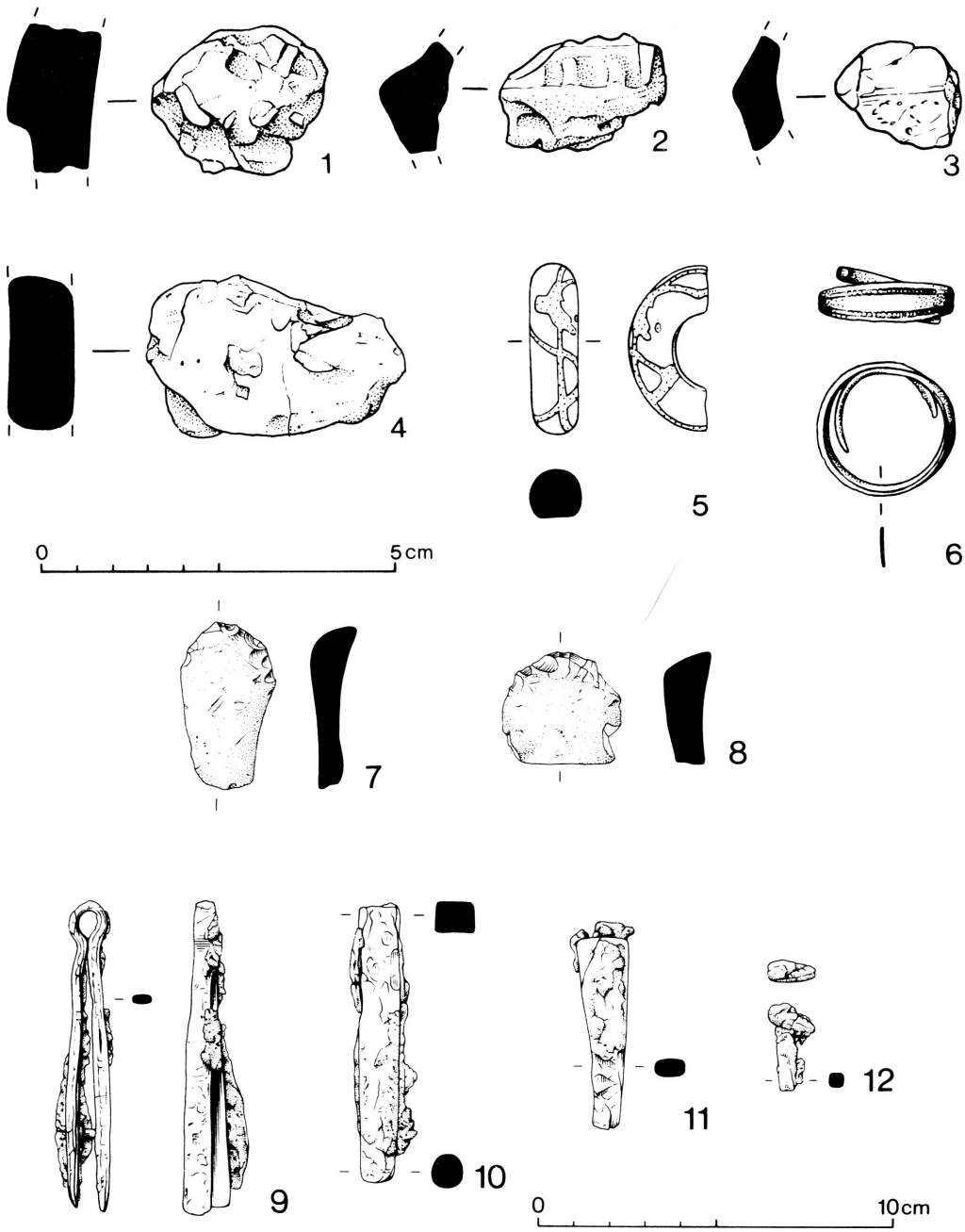


FIGURE 27 Gamston: Earlier Bronze Age pottery (1-3), fragment of salt container (4), La Tène glass bead (5), copper alloy ring (6), prehistoric flintwork (7-8) and Iron Age ironwork (9-12).

antimonate ($Pb_2Sb_2O_7$) added to a base (manganese oxide rich) soda-lime-silica glass.

The colours of this bead are found in their highest concentration during the Iron Age at Meare, Somerset.[83] Glass beads were made at Meare, but these were probably barrel shaped rather than annular, while the chemical composition of Meare beads is very different. In addition, Meare is of early to middle Iron Age date, while the bead under discussion is more typical of Western European types dating from the second century BC to the first century AD (*cf.* Guido's Class 5C).[84] Comparable ring beads have been recorded on Continental *oppida*, although most are of more massive proportions and incorporate tin-opacified glass, which implies a different production process from that employed in the manufacture of the Gamston bead.[85] The largest concentration of comparable beads is on sites in western Europe, particularly in northern France and southern England, and a source somewhere within this region can be suggested.

In conclusion, the bead may be argued on compositional and typological grounds to be the product of north-west European post-2nd century BC glass technology, and could be as late as the 1st century AD. The bead type is often found in ritual contexts, including burials and at least one temple site (Hayling Island, Hampshire), although there is no suggestion of such activity at Gamston. We can be certain, in view of the large data set of chemical compostions of Meare glass, that it is *not* the product of the glass bead industry at this site, but instead some other manufacturing centre yet to be located, probably in western Europe.

THE QUERNSTONES AND RUBBING STONES

by M.E. WRIGHT AND R.J. FIRMAN

The excavations produced a number of fragments of querns, rubbing stones and miscellaneous utilised cobbles and pebbles, mainly from secure Iron Age contexts. These artefacts are described fully in the archive, where they have been divided for convenience into six categories: saddle querns and rubbers, rotary beehive querns, possible rotary querns, whetstones, pebble tools, and miscellaneous rubbers and utilised stones.

Saddle Querns and Rubbers

Fragments of four lower stones and four saddle rubbers were recovered. Two of the lower saddle stones (CPT and EAY/DVN, Fig. 28, no. 4) possess the smooth, slightly concave faces which are typical of objects of this class, while the others (CJX and FHA) have very flat, polished surfaces. The sides of CJX are also highly polished, presumably by use as a whetstone, while the upper face preserves a barely visible pair of double concentric incised circles and two other faint circles (Fig. 29, no. 6). CJJ has been identified as a large, shallow, convex saddle quern rubber, intended to be operated with two hands gripping the small hand-grips at either end (Fig. 28, no. 2). The remaining three saddle rubbers are all well polished, rounded stones of smaller size, and might have been operated with one or two hands, probably on narrow lower stones such as EAY/DVN (CJO, CJZ, EOJ).

Most of the querns (with the exception of CJX) and two of the rubbers (CJO and CJZ) were manufactured from fine-grained quartzitic or feldspathic sandstones. Comparable sandstones occur in the Westphalian (Coal Measures) of Nottinghamshire and more rarely in the Namurian (Millstone Grit) of Derbyshire, but all the rocks could have derived from relics of the Northern Drift near Gamston and none can be closely sourced.

Quern CJX in contrast, may derive from the same general area as Fabric Q1A pottery, which contains granodiorite from a probable source near Mountsorrel, Leicestershire. A thin section was examined using a polarising microscope, and revealed a remarkably pure equigranular metamorphic quartzite, in which almost all indications of the original sedimentary texture had been obliterated during recrystallisation. The only quartzose rocks of comparable purity in England,

north of the Trent, are the coalfield ganisters and Peak District silicified limestones, both of which have very different textures to CJX. Similarly, although the Nuneaton, Malvern, Stiperstones and Wrekin quartzites have suffered comparable metamorphism, all tend to be mineralogically more heterogeneous than CJX. On balance, therefore, a Charnwood origin seems most likely although a perfect match has not been found. Since CJX appears to be more intensely metamorphosed than present exposures of quartzite in Charnwood Forest, the most likely source would have been within the thermal aureole of the Groby granodiorite where, according to Moseley and Ford's map, the Staple Pit quartzite formerly outcropped in the area now occupied by Groby Pool, Leicestershire.[86] If this was the primary source, the rock is most unlikely to have been transported to Gamston by glacial action, since the flow would have been southward rather than northward.

Rubber EOJ was manufactured from a coarse, feldspathic millstone grit, comparable to rotary querns CJQ and DYK, and like these, might have been obtained from a raw material source in eastern Derbyshire or from the relics of the Northern Drift near Gamston. Rubber CJJ is more unusual, and was shown after thin sectioning to be a typical porphyritic andesite which had been so intensely altered by both thermal and burial metamorphism that the original mineralogy was almost obliterated. The character and intensity of this alteration, which resulted in seritization of the larger (*c.* 2-3mm) feldspars and a fine grained ground mass of felted sericite, epidote, chlorite and iron ores, is characteristic of Ordovician lavas in both Wales and the Lake District. The additional effects of incipient thermal metamorphism, resulting in amphiboles, indicate that these lavas were also affected by heat from a large igneous intrusion such as the Eskdale Granite in the western Lake District. Since no similar juxtaposition of porphyritic andesites and granite occurs in Wales it is virtually certain that the primary source of this rock was the western Lake District. More detailed textural and mineralogical features match those described by Firman in rocks collected from Upper Eskdale and the Devoke Water area.[87] The quern is however unlikely to have been manufactured in the Lake District, and in view of the frequency with which Lake District erratics occur in Peak District glacial deposits, was probably obtained from the Northern Drift remnants which stretch to the Trent and beyond.

The date range for saddle querns in Britain stretches from the Neolithic to Anglo-Saxon times, though by the Roman period few seem to have remained in use.[88] During the later Iron Age they were gradually superseded by rotary querns[89] and both types are occasionally found in direct association during this period (*e.g.* Gussage All Saints, Dorset).[90] Three of the lower saddle stones from Gamston were retrieved from the middle layers of the Enclosure 1 ditch (24), and hence may be dated securely to Phase 2. The two fragments of the remaining saddle lower stone (EAY/DVN) came from a Phase 3 gully (37) and from the filling of post-hole 152, within the area of Structure 2. Phase 3 has been dated to the earlier part of the 1st century AD. The date of origin of the Phase 2 enclosure remains unclear, but the final filling of the ditch may be dated convincingly to the later 1st century BC or early 1st century AD. One of the rubbers (CJZ) also derived from a Phase 3 gully (197), but the remainder came from isolated pits (CJJ from 209 and EOJ from 82) and from the base of a post-hole within Enclosure 1 (CJD from 63), where it was associated with later Iron Age pottery.

Rotary Beehive Querns

Only four stones could be identified as rotary beehive querns (BKB, CJQ, DVQ, DYX). Two other pieces were possibly from rotary stones, but were too small for certain identification (CJA, EOD). Of the four definite beehive querns, two lower stones (CJQ and DVQ) and one upper stone (BKB) could be distinguished, and are described in the accompanying catalogue. The remaining quern (DYK) had lost its exterior, and could not be classified; its grinding surface, however, matched that of CJQ, and it could be the upper stone of that quern.

The complete upper stone BKB (Fig. 28, no. 1) and the lower stone CJQ (Fig. 28, no. 2) derive

from tall conical querns of so-called Yorkshire type.[91] The central hopper or feedpipe of these querns is not pierced by the radial handle socket, in contrast to the pierced Hunsbury querns of otherwise similar form which are distributed mainly to the south and east of the Trent, and with which they were broadly contemporary.[92]Gamston lies at the southern edge of the distribution zone of Yorkshire querns, within an area in which querns of both types intermingle, often on the same site.[93] Quern BKB is remarkable in preserving evidence for secondary use as a whetstone, and possibly for a connection with smithing. Traces of iron were preserved on its heavily worn grinding surface, while the damage to the edge of the quern would be consistent with its use as an anvil. Comparable features have quite commonly been noted on beehive querns which have been subject to secondary use (*e.g.* a Roman beehive quern from Cantley, Doncaster, which was found closely associated with iron working debris, and might have been used as an anvil cum whetstone) and their use as portable work benches has been noted.[94] Conclusive evidence for the production of iron was not recovered at Gamston, but its use is indicated by a small collection of iron objects (Fig. 27) and by the evidence for iron fittings on the beehive querns *e.g.* BKB.

Lower stone DVQ (Fig. 29, no. 5) is of a much flatter form than is normally seen in beehive quern lower stones in this area *e.g.* Willington, Derbyshire.[95] Similar flat lower stones from beehive querns are known on other later Iron Age sites in the East Midlands *e.g.* at Weelsby Avenue, Grimsby, South Humberside and Ancaster Quarry, Lincolnshire[96]and its size would be more consistent with that of a beehive quern than of a flat quern of post-Conquest date. The limited dating evidence for these flat lower beehive quernstones suggests that they may be earlier than the deeper conical and rounded forms.

Two querns were manufactured from a coarse, feldspathic millstone grit, possibly derived ultimately from eastern Derbyshire (CJQ and DYK), another in a finer sandstone, possibly from the Westphalian measures near Stocksbridge, South Yorkshire, or from comparable Coal Measures sandstones in Nottinghamshire (BKB), and the fourth in a fine-grained gabbro, possibly transported from Wales by glacial action (DVQ).

Small samples were removed from two beehive querns (BKB and CJQ) for inclusion in a programme of X-ray diffraction and neutron activation analysis carried out by Dr. A. Middleton, in conjunction with M.E. Wright. These were compared with samples from outcrops in Derbyshire and South Yorkshire which may have been used in the Iron Age and Roman periods for the production of hand querns. Preliminary XRD results suggest that BKB, which was manufactured from a fine to medium sandstone with a little white mica, is similar to samples from the large beehive quern quarry in the Westphalian sandstone measures at Wharncliffe, near Stocksbridge, South Yorkshire. This is the only known source of querns of this analysis in the region, although other sources are possible *e.g.* in the 'Coal Measures' sandstones of Nottinghamshire. Quern CJQ proved similar to samples analysed by XRD of the Ashover Grit of Derbyshire, in the vicinity of Wirksworth and Cromford. This is the nearest outcrop of millstone grit which is known to be suitable for quern manufacture and which has preserved possibly Iron Age quarry sites.

DVQ was examined in thin section, and proved to be a fine-grained gabbro of unusual, possibly unique, character. The most striking feature is that, whereas the interlocking feldspar laths and interstitial ortho-pyroxenes are almost completely replaced by secondary minerals (such as sericite, chlorite and iron oxide), the clino-pyroxenes, which have crystallised in the remaining spaces, are completely fresh and unaltered. A similar altered gabbro with fresh clino-pyroxenes, from the Dee Valley in north Wales, is figured in Teall's *British Petrography* but has a somewhat different mineralogy. This Welsh example is the only analogue known to the writers and, though it is possible that boulders could have been carried eastward by Welsh ice, there are sufficient differences in texture and mineralogy to suspect that the Dee Valley may not be the primary source. A detailed geochemical study may provide more definitive evidence.

All the above rock types provide the massive, homogeneous material which is required for the production of large beehive querns, and, with the exception of DVQ, could imply exchange links as far west and north as eastern Derbyshire and South Yorkshire (including perhaps the large beehive quern quarries which have been recorded at Wharncliffe).[97] Alternatively, Briggs has suggested that millstone grit beehive querns found away from the Pennines may have been manufactured from boulders taken from areas of glacial drift.[98] Suitable fragments of gritstone and Westphalian sandstones are certainly present in the Northern Drift near Gamston and may have been used.

Rotary querns were certainly present in the Trent Valley by the later Iron Age (*e.g.* Willington, Derbyshire, and Fisherwick, Staffordshire) but precise dating is not possible.[99] The evidence from Gamston provides further convincing evidence for their currency in this region during the later Iron Age, although only one context, gully 140, produced material which can be dated closely. This feature had been used as a dump for a large collection of Late Iron Age pottery, including wheel-made ovoid jars and part of a wheel-made cordoned bowl with clear Aylesford-Swarling affinities, and a date of deposition for the associated quern (CJQ) in the early 1st century AD or possibly the late 1st century BC would be appropriate. DYX was recovered from pit 157 and BKB from gully 11: the former produced no pottery or other dating evidence, while the latter yielded a small quantity (17 sherds) of handmade later Iron Age pottery (not closely datable). DVQ was unstratified.

Whetstones, Pebble Tools and Miscellaneous Utilised Stone

The collection includes three possible whetstones, five utilised pebbles with a small crushing surface or with surface facets used with a percussive or crushing action (Fig. 29, nos. 7-8), and twelve rubbing or other utilised stones of unknown function (listed in archive). All of the last have areas of polish and sometimes an overall polish, possibly acquired from constant use in the hand. Many other Iron Age sites have produced similar collections of stones (*e.g.* Scratta Wood, Shireoaks, Nottinghamshire, where they seem to have been mainly re-utilised fragments of quern stones and Dragonby, South Humberside, where again some fragments indicated the re-use of broken quern stones).[100] The pebble tools and rubbing stones were manufactured from a wide range of raw materials, including Westphalian sandstones, coarse Namurian millstone grits and quartzite pebbles. A possible rubber (CUN), with a flat grinding face and neatly faceted keeled upper surface was manufactured from a similar porphyritic andesite to saddle quern CJJ (Fig. 28, no. 2). This also derived from a Lake District source, and was probably collected from the Northern Drift. Most of the other lithologies would have been available in nearby areas of pre-Devensian glacial till, while the well-rounded stones could have been obtained from local river terrace deposits.

CATALOGUE

1. Fig. 28, BKB Upper fill (a) of gully 11. Complete upper stone of a tall, conical beehive quern, slightly damaged around the edge of the grinding surface, and worn asymmetrically. It has a neatly pecked, wide, shallow conical to bowl-shaped hopper, a well drilled cylindrical feedpipe, and a plain rounded rim. The original handle socket is 120mm below the quern summit, and is sub-rectangular; all but the upper 15mm of this socket was worn during use. Diametrically opposite, 95mm below the quern summit, is a replacement handle hole worn to an oval, with a worn notch of 8mm diameter to either side. There are slight signs of wear from an iron spindle in the base of the feedpipe, showing spindle heights of 30mm and 47mm at different periods. The asymmetry of the quern, the symmetric and elongated wear on both the handle sockets, and the worn spindle socket suggest that this quern, like most others of its type, was probably oscillated to and fro, rather than being fully rotated.[101] The wear is different in both handle sockets which would probably have held iron handles. A smoothed facet on the side of the quern probably results from use as a whetstone. The grinding surface is polished, and is slightly undulating from use as a whetstone. A rusty iron deposit adheres in patches to this worn surface. The edges of the quern are flaked away around part of the circumference, possibly as a result of secondary use as an anvil. The raw material is a fine to

medium sandstone with a little white mica, not obviously feldspathic. The upper part of the quern shows large pits and pockets, probably resulting from the presence of small, softer concretions in the rock, which have weathered away. Probably a Westphalian sandstone.

2. Fig. 28, CJJ Pit 209 A large, irregularly shaped handstone from a saddle quern. The upper surface is undressed, but the grinding surface has been pecked carefully to produce a flat grinding area (with some polish) and to round off the shape. The stone is thickest at the centre, and thins towards the pointed ends, which could have been held comfortably in either hand when the stone was in use. The source rock is a dark grey, fine grained igneous rock with feldspar phenocrysts, and all surfaces are weathered to a pale buff colour except where recently damaged. The rock is an Ordovician porphyritic andesite, whose primary source was almost certainly the Lake District. Lake District erratics of suitable size are common in glacial deposits in Derbyshire (*e.g.* Youlgreave) and a boulder of this size may have reached the Trent.

3. Fig. 28, CJQ Gully 140 (Structure 3) Complete lower stone of a beehive quern. This has a slightly oval and convex grinding face, with a smooth-sided, drilled spindle socket in the centre, probably for an iron spindle. The rim of the grinding surface is slightly raised, suggesting that the upper stone was slightly smaller. The deep, convex quern base may result from damage before discard. Areas of the base retain traces of pecking, but other areas show large flake scars. The rock is a very coarse, feldspathic, pink millstone grit with quartz grains up to 5mm in size and with some feldspar appearing very fresh and unaltered. X-ray diffraction analysis of a small sample showed it to compare with samples taken from a number of quern manufacture sites on the Ashover Grit of Derbyshire in the vicinity of Wirksworth and Cromford.

4. Fig. 28, CPT Enclosure 1 ditch (24) A small piece of the lower stone of a saddle quern with a smoothed and slightly concave grinding face and a rounded base, manufactured from a fine, quartzose sandstone (source uncertain).

5. Fig. 29, DVQ Unstratified Flat lower stone of beehive quern, with pecked base surface and sides. At the centre of the grinding face is a tube-drilled spindle socket, while on the base of the quern there has been an attempt at pecking out a second socket, perhaps to connect with the first. The grinding surface, which shows traces of pecking, has worn smooth and has a lip at the edge from use with a slightly smaller upper stone. The raw material is a black, crystalline igneous rock with white feldspar phenocrysts, identified as a gabbro. This probably derived from Wales, reaching Gamston as a result of the advance of Welsh Ice, which reached at least Burton-on-Trent, and was perhaps transported further east by the proto-River Trent.

6. Fig. 29, CJX Enclosure 1 ditch (24) A large fragment from the centre of a deep lower saddle stone. The highly polished grinding face is flat, and preserves traces of a pair of closely spaced incised double concentric circles and faint traces of two other incised circles. The sides are highly polished, probably as a result of use as a whetstone. The rock is a quartzitic white sandstone with a little feldspar and white mica. Thin section examination showed a pure, equigranular, metamorphic quartzite, similar mineralogically to the Staple Pit quartzite of Charnwood Forest, though possibly from an outcrop nearer the Groby granite.

7. Fig. 29, CVU Enclosure 1 ditch (24) Broken pebble of quartzitic sandstone, possibly utilised as a rubber or percussive tool. The tool has four approximately orthogonal sides which are highly polished. The bevelled end has three facets, finely pitted from use with a tapping or crushing action.

8. Fig. 29, DRG Pit 53 Tool manufactured from a quartzite pebble with rounded, polished faces. Both ends are pitted from use with a percussive, crushing action.

THE FLINTWORK
by A.G. BROWN

232 pieces of struck flint were examined with the aim of identifying any significant episodes of activity prior to the Iron Age. The collection was classified according to a stage-wise model of reduction[102] and is summarised in Table 4.

With the exception of the burnt pieces and cores, the proportions of the categories shown in the table in the features resembled closely those in the surface sample, suggesting that the two samples were derived from the same population. Higher visibility of large pieces in the ploughsoil probably contributed to the over-representation of cores in the field-walked sample, although the 'size effect' may also have played a role.[103] The imbalance in burnt pieces is caused by the presence of many calcined fragments in the pits. The 91 field-walking finds were distributed across the walked area (Fig. 1) at a modal

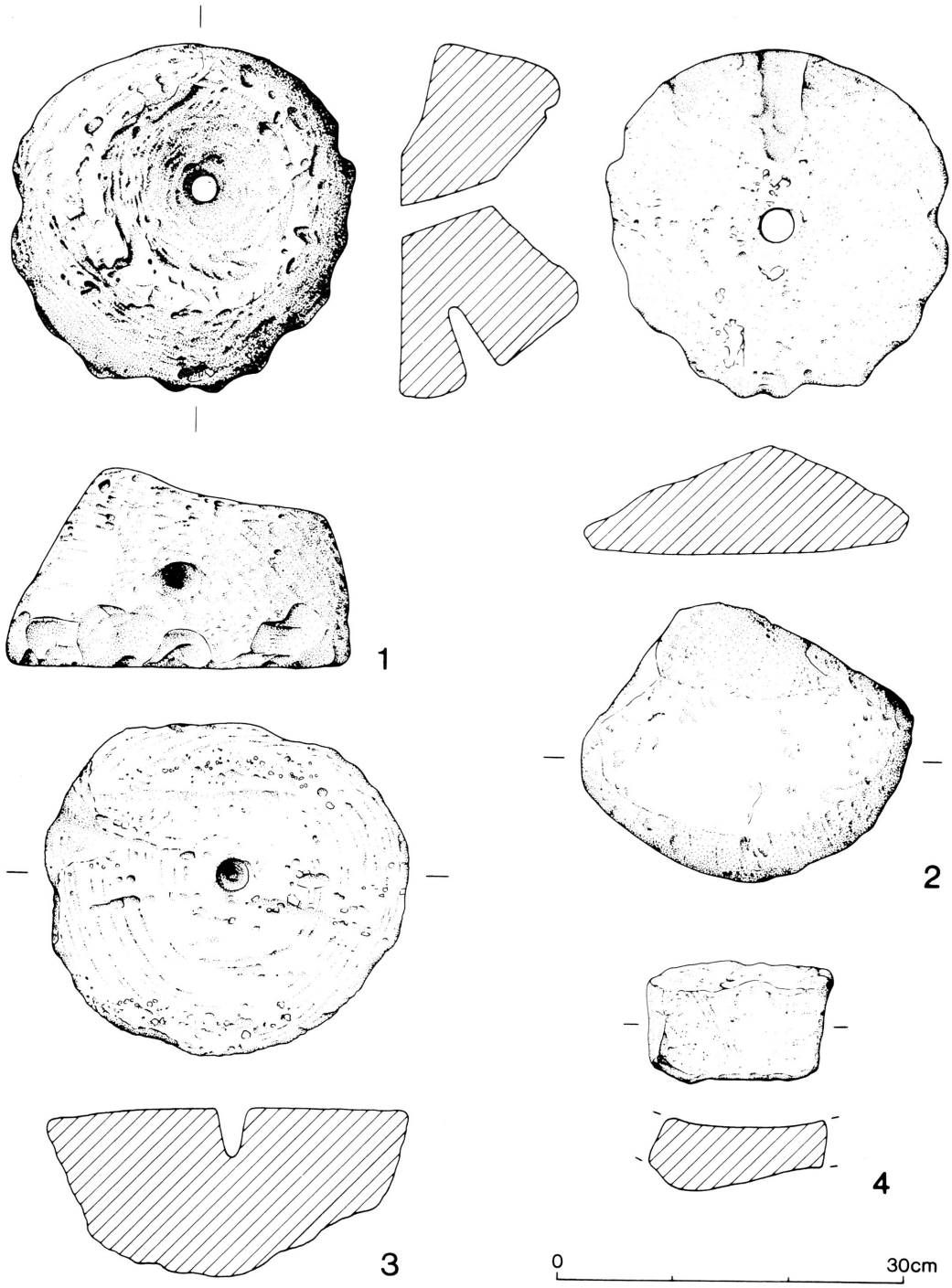


FIGURE 28 Gamston: rotary (1,3) and saddle (4) querns and saddle rubber (2).

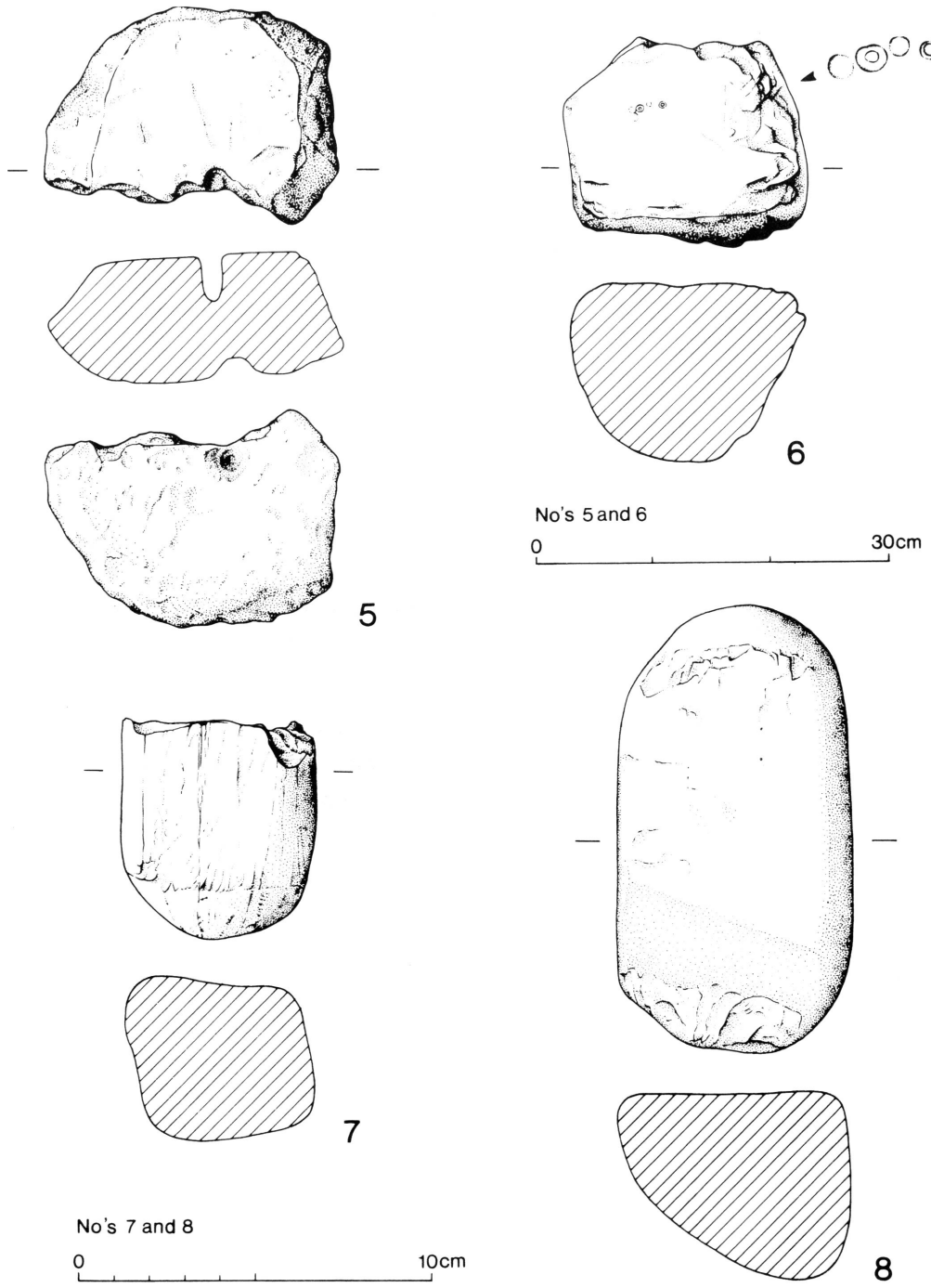


FIGURE 29 Gamston: rotary (5) and saddle (6) querns and pebble tools (7-8).

density of 2 per 20m square, peaking at 7 per 20m square. Densities decreased in all directions except to the south, suggesting that three sides of the site represented by the scatter had been defined. Density isopleths suggest a South South West - North North East linear banding amongst the pieces which probably resulted from post-depositional factors such as the direction of ploughing.

The smooth state of the cortex throughout the collection indicated that pebble flint, available from the immediately local gravels, had been used almost exclusively on the site. Two endscrapers of elongated, Earlier Mesolithic form differed from the majority, both in being heavily corticated and having unabraded chalky cortex (Fig. 27, nos. 7-8). The collection contained artefacts diagnostic of the Earlier Mesolithic (BIR, DVE, Fig. 27, nos. 7-8) and Later Mesolithic (CKG), Neolithic (BAD) and Beaker (BEE, EJI) periods (Table 5).

Retouched and/or utilized pieces (judged only with the naked eye) numbered 48, indicating the use of flint artefacts at this location. The presence of discarded cores, preparation flakes and chips, however, indicated local working of flint rather than simply the discard of expended pieces at an activity focus. Some of the collection may derive from Iron Age activity, in particular the irregular scrapers, if emerging evidence from further south is representative,[104] but this is difficult to demonstrate because of the evidence for earlier episodes of use (in the form of diagnostic Mesolithic, Neolithic and Beaker flint items and earlier Bronze Age pottery). All of the flintwork could be residual from these earlier episodes. Amongst the fieldwalked collection, the three irregularly retouched scrapers were recovered from the area over the Iron Age features, although the spatial correlation may be fortuitous.

The most economical interpretation is exploitation in the Earlier Mesolithic (minor), Neolithic and Beaker periods. The scalene triangle of Later Mesolithic date was water-worn, and therefore had probably been transported from a distant location. The two Earlier Mesolithic endscrapers are among the few pieces of this date recognised in the region.[105] An emphasis on the Neolithic episode is suggested by the narrowness of the butt ends, although this generalization does not preclude a minor Early Bronze Age component to accompany the potsherds of this date.[106]The evidence for both the production and use of flint artefacts suggests the site represents settlement rather than function-specific activity. It has not been possible to determine with confidence whether the majority of the collection represents a single episode of use within the Neolothic period or a gradual accumulation over the whole timespan. The definition of edges on three sides of the scatter lends weight to the single main episode interpretation; more diffuse edges would be expected if a series of settlement episodes was represented.

	FW	Ditches	Pits	Gullies	Post-holes	Soil*	Unstrat	Total
Cores	13	1	0	0	0	1	0	15
Prep. flakes	7	4	2	0	0	0	2	15
Trimming fl.	2	0	0	0	0	2	0	4
Shatter	8	2	0	2	0	2	0	14
Unret. fl.	36	14	9	10	3	14	7	93
Retouched fl.	11	2	2	3	0	3	1	22
Burnt pieces	4	8	29	3	1	1	0	46
Chips	10	3	5	0	0	4	1	23
	91	34	47	18	4	27	11	232

Table 4.
Number of struck flints by reduction sequence type and context type
(key according to Brown, 1991; FW field-walking; *contexts 2-4).

Microliths	1	- water-worn scalene triangle	CKG
Scrapers	12	- 1 classic 'button' type	BEE
		- 2 endscrapers of Mesolithic type	BIR, DVE
Pol. axe flakes	1	- dark grey flint, reused for scraping	BAD
Knives	2		ACW, AFU
Borers	1	- double-pointed	DDY
Arrowheads	1	- barbed-and-tanged (barb and 1 tang lost)	EJI
Unclassifiable	5	- includes rod-like object	ACM

Table 5.
Classification of retouched flintwork.

MISCELLANEOUS STONE

A full catalogue of the following categories of material is contained in archive, together with geological information kindly provided by Dr.R. Firman.

Heat-affected Stones
by E.M. Appleton

Numerous contexts, including features of Phases 2, 3 and 4, incorporated fragmentary or occasionally whole water-worn stones which preserved features suggestive of exposure to heat. A total of 501 stones was collected, ranging from small pebbles to larger pieces up to 250mm in length and 5kg in weight. A wide range of rock types is represented, including quartzite, sandstone and rare examples of chert, jasper, silicified limestone, millstone grit, dolerite and basalt, all of which could derive from the local gravels. Many stones have angular fractures and crazed or cracked surfaces; a small proportion preserves clear evidence of mineralogical changes due to heating, in the form of zones of reduction (blackened cores), oxidation (reddening of surface or interior) and dehydration (bleaching). Possible interpretations for the smaller stones include their use as 'pot-boilers'[107] but the fracturing, crazing and cracking of many stones which do not preserve conclusive evidence for heating in the form of mineralogical changes could be due to natural processes such as freeze-thaw. The larger and heavier stones were predominantly sandstone lumps, and many of these, on the basis of observed mineralogical changes, had clearly been subjected to heat. Such large pieces (*e.g.* from pit 163) could represent the remains of redeposited hearths.

Tabular Skerry Blocks
by A. Turner-Rugg

63 tabular skerry blocks were obtained from 15 features, spread evenly across the site, and attributable to each of the main stratigraphic phases. Over one third of the material (23 blocks) had been deposited with other domestic refuse in gully 140 (Fig. 12c), in association with a large quantity of Late Iron Age wheel-made pottery and another nine fragments had been dumped in pit 168, within Enclosure 1. Otherwise, each feature produced five or less fragments, all from secondary contexts. Bands of this material occur within the local Mercian Mudstones, and the nearest known source would have been the Cotgrave Skerry, *c.* 0.3km to the south-west of the site.[108] The reasons for bringing this material to the site are unclear, but these tabular sandstone blocks, which have been extensively used in this region in vernacular buildings, could possibly have performed some structural role.

VITRIFIED MATERIAL

by R. J. FIRMAN AND C. MORTIMER

6.5.kg of light-weight and vesicular vitrified material, pale greenish-grey in colour and frequently incorporating small rounded quartz inclusions, was obtained during excavation. This was widely distributed from a total of 17 contexts, including features of all four phases. Over 90% by weight had been deliberately dumped in a pit within Enclosure 2 (222), in association with 21 Iron Age sherds (some scored). Otherwise only small quantities of material were obtained from individual contexts. Its glassy character and visible flow lines imply sufficiently high temperatures to form low viscosity melts, but it was not associated with other evidence of a conflagration or pyrotechnological process. Comparable material was occasionally crushed for tempering in Iron Age pottery, and is the distinguishing feature of Fabric ST1. Similar material is quite commonly found on Iron Age and Romano-British sites in southern England *e.g.* Aslockton and Dunston's Clump, Nottinghamshire.[109] Such material is conventionally described as 'fuel-ash slag' but according to Tylecote is "best known as vitrified fuel ash (VFA)".[110] Despite Evans and Tylecote's contention that the chemical composition of VFA may provide important evidence for the type of fuel ash involved, analyses are rare.[111]

X-Ray fluorescence chemical analysis of a sample of the Gamston material was kindly carried out by Dr. B.P. Atkin of the Department of Mineral Resources Engineering, University of Nottingham (Table 6). Interpretation is complicated by the limited research on VFA and by the paucity of published analyses, while the presence of many sand and gravel inclusions may imply contamination by material derived from the sandy subsoil. The closest parallels can be drawn with vitrified organic materials such as cow dung (Table 6)[112], but the processes of vitrification remain obscure. Possible mechanisms which have been quoted include accidental hayrick fires or the burning of wattle-and-daub buildings.[113] Such conflagrations might however be expected to generate a chemical substance closer to wood ash (Table 6) and the material could possibly derive from an industrial process such as glass making, smelting or pottery production.[114]

	Cow dung, Kudatini, India	Vitrified material Gamston, Notts.		Wood ash (not vitrified but analyses calculated on a volatile free basis)
	Wt. %	Wt. %		Wt. %
SiO_2	67.4	72.96		1.5 - 6.5
TiO_2	-	0.40		-
Al_2O_3 }		5.30		0 - 2
Fe_2O_3 }	9.47	8.08 { 2.36	(total Fe)	0 - 7 (expressed as FeO)
Mn_2O_3 }		0.42	(as MnO)	0 - 30
CaO	4.38	6.57		14 - 60
MgO	2.98	2.88		1 - 25
Na_2O	1.9	0.17 }		10 - 20
K_2O	6.24	5.28 }		
P_2O_5	3.40	2.89		4 - 18
CO_2	0.47	n.d		
Loss on ignition	2.82	0.85		-
Total	99.26	100.08		N/A

Table 6.
Composition of Gamston VFA compared to vitrified cow dung (Zeuner, 1959) and wood ashes (Evans & Tylecote, 1967): n.d not determined; - no published data.

THE ENVIRONMENTAL REMAINS

THE VERTEBRATE REMAINS

by B. LEVITAN

Bones were extremely poorly preserved owing to the acidity of the soil, and only 139 fragments were recovered from stratified contexts. The retrieval rate was not significantly enhanced by sieving. 30% of the filling of eight representative contexts was dry-sieved through a 3mm mesh and then wet-sieved through a 1mm mesh as a check on bone retrieval rates, but from a total of 585 litres of sediment were recovered only 28 fragments of bone. Every context which produced bone may be dated to the Iron Age, and 39 fragments derived from features of Phases 1 to 4. The collection comprises 44 bones of cattle (including 30 teeth), 15 of sheep/goat (including 14 teeth), one lumbar vertebra of pig, one horse tooth fragment and 82 pieces which are too fragmented for identification. None of the bones could be measured.

CHARRED PLANT REMAINS

by L. MOFFETT

There is little archaeobotanical information on prehistoric crops in Nottinghamshire or the East Midlands[115], and the late Iron Age site at Gamston provided an opportunity to increase this sparse body of data on the agricultural economy of the region.

All contexts which produced observable concentrations of charred material were sampled, yielding 25 samples which were processed on site with a York flotation machine. The flots and residues were collected on 0.5mm mesh sieves. Each of the flots, or a sub-sample of the larger flots, was scanned under the microscope, and the most productive samples were selected for analysis. The full results of these analyses are in archive, with brief notes on the material seen in scanning the other samples, and are presented in Table 7.

The most abundant crop remains were of spelt (*Triticum spelta*) and 6-row hulled barley (*Hordeum vulgare*). These are the crops which are most commonly found on late Iron Age sites in southern Britain. A single glume base of emmer *Triticum dicoccum* was found, suggesting that it may not have been a crop in its own right but could have been grown mixed with spelt, either deliberately or accidentally. A couple of well preserved grains were tentatively identified as *Triticum cf. spelta*, but most of the wheat grains were identified only as far as *Triticum* sp. Six-row barley is inferred from the presence of asymmetrical grains from the lateral florets, which are fertile in 6-row barley and sterile in 2-row barley. This does not rule out the presence of 2-row barley, but this would be unusual in a British Iron Age context. There was also sparse evidence

Context no.:	002lb	0056	0061	0070	0218	0222	02232	
Context type:	pit w.half	pit e.half	gully	ditch cut 1	ditch cut 1	pit	pit	
Spit:	1+4	2+3	1	1	4	1	2	
Sample size (litres):	30	30	30	30	15	30?	30	
% of sample analysed:	100	100	100	100	100	100	100	
Items per litre of soil:	3	23	7	12	9	<1	<1	
Phase:	?	pre-3	?	?	?	?	?	
Species								Common name
Triticum dicoccum Schübl. glume bases	-	-	-	1	-	-	-	emmer
Triticum dicoccum/spelta rachises	-	2	-	1	-	-	-	emmer/spelt
Triticum dicoccum/spelta spikelet forks	2	2	-	2	-	-	-	
Triticum dicoccum/spelta glume bases	12	142	2	106	1	-	1	
Triticum spelta L. rachises	-	4	-	1	-	-	-	spelt
Triticum spelta L. spikelet forks	-	2	-	-	-	-	-	
Triticum spelta L. glume bases	1	140	1	32	-	-	2	
Triticum cf. spelta grains	-	2	1	-	-	-	-	
Triticum sp.free-threshing rachises	-	-	-	1	-	-	-	free-threshing wheat
Triticum sp. cf. free - threshing grains	-	2	-	-	-	-	-	?free-threshing wheat
Triticum sp(p). grains	16	66	27	13	16	3	2	wheat
Triticum sp(p), germinated grains	-	2	-	-	-	-	-	germinated wheat
Hordeum vulgare L. 6-row rchises	-	2	-	-	-	-	-	6-row barley
Hordeum vulgare L. indet. rachises	-	-	2	3	-	-	-	barley
Hordeum vulgare L. hulled twisted grains	-	3	4	2	-	-	-	6-row barley
Hordeum vulgare L. hulled indet. grains	-	15	16	4	-	1	-	hulled barley
Hordeum vulgare L. indet. grains	-	5	18	2	8	-	-	barley
Cereal indet.	17	35	40	22	77	2	4	unidentified cereal
Cereal/large Gramineae culm nodes	-	-	1	-	-	-	-	
Vicia faba/Pisum sativa	-	-	-	-	-	1	-	bean/pea
Ranunculus flammula/reptans	-	1	-	-	-	-	-	spearwort
Brassica rapa/nigra	-	1	-	-	-	-	-	turnip/black mustard
Stellaria media type	-	1	-	-	-	-	-	chickweed
Stellaria palustris/graminea	-	1	-	-	1	-	-	stitchwort
Spergula arvensis L.	-	-	3	-	-	1	-	corn spurrey
Caryophyllaceae indet.	-	-	-	3	-	-	-	
Montia fontana ssp. chondrosperma (Fenzl) S.M. Walters	-	4	-	1	-	-	-	blinks
Chenopodium album type	-	29	11	61	-	-	-	fat hen

Context no.:	002lb	0056	0061	0070	0218	0222	02232	
Context type:	pit w.half	pit e.half	gully	ditch cut 1	ditch cut 1	pit	pit	
Spit:	1+4	2+3	1	1	4	1	2	
Sample size (litres):	30	30	30	30	15	30?	30	
% of sample analysed:	100	100	100	100	100	100	100	
Items per litre of soil:	3	23	7	12	9	<1	<1	
Phase:	?	pre-3	?	?	?	?	?	
Species								Common name
Chenopodium sp.	1	-	-	-	18	-	-	fat hen/goosefoot
Malvaceae indet.	-	-	1	-	-	-	-	
Vicia/Lathyrus	4	11	9	1	1	1	1	vetch/vetchling
Medicago/Melilotus/ large Trifolium medick/melilot/clover	-	-	-	2	-	-	-	
Trifolium type	1	6	2	6	3	-	-	clover type
Polygonum aviculare agg.	1	10	2	2	1	-	-	knotgrass
Polygonum persicaria/ lapathifolium	-	-	-	3	-	-	-	persicaria
Fallopia convolvulus (L.) A. Löve	-	2	1	-	1	-	-	black bindweed
Rumex actosella agg.	1	1	-	1	-	-	-	sheep's sorrel
Rumex sp.	-	-	-	2	-	-	-	dock
Polygonaceae indet.	-	-	-	2	-	-	-	
Corylus avellana L. fragments	-	-	-	1	-	-	-	hazel
Galium sp.	1	-	-	-	-	-	-	cleavers/bedstraw
Anthemis cotula L.	-	1	-	1	-	-	-	stinking mayweed
Anthemis sp.	-	-	-	-	1	-	-	
Tripleurospermum inodorum (L.) Schultz Bip.	-	12	-	-	-	-	-	scentless mayweed
Eleocharis palustris /uniglumis	-	-	-	1	-	-	-	spikerush
Carex sp(p).	-	6	-	2	-	-	1	sedges
Bromus hordeaceus/ secalinus	-	30	5	7	-	-	-	lop-grass/rye-brome
Avena sp.	-	-	1 cf.	-	-	2	-	(wild?) oat
Avena sp. awn fragments	-	-	-	2	-	-	-	
Phleum pratense L.	-	-	-	15	-	-	-	timothy
Gramineae indet.	13	101	26	31	3	2	2	grasses
Gramineae culm nodes	-	1	2	1	-	-	2	
Gramineae culm bases	-	-	4	-	3	-	-	
Flower pedicel?	1	-	-	-	-	-	-	
Dicotyledonous fleshy tap root fragments	10	-	-	-	-	-	1	
Tuber	-	-	1	-	-	-	-	
Root/rhizome fragments	4	7	-	-	-	1	-	
Dung/bread ? fragments	-	6	3	6	5	2	2	
Unidentified	-	6	3	6	5	2	2	
Total charred items:	88	678	201	345	139	16	17	
Total uncharred seds; (details in archive)	21	263	234	47	16	26	55	

Table 7.
List of charred plant remains.

for a free-threshing wheat (*Triticum* sp. free-threshing) and a poorly preserved legume, either bean or pea (*Vicia faba/Pisum sativum*). The only other probable food plant found was a fragment of hazel nutshell (*Corylus avellana*).

Most of the remaining plants probably represent weeds in the cereal crop. These include relatively low-growing weeds such as chickweed (*Stellaria media* type), corn spurrey (*Spergula arvensis*) and blinks(*Montia fontana* ssp. *chondrosperma*), the presence of which may indicate that one or both cereal crops was harvested by reaping low on the straw or by uprooting. Most of the other weed seeds were grasses (Gramineae).

The samples also contained several lumps of material with no recognisable structure which might be fragments of bread or dung, and a number of underground plant parts. Some of the latter were fragments of the fleshy taproot of a dicotyledonous plant, but these could not be identified without further work on modern comparative material.[116] Many common weeds have fleshy taproots, such as docks, thistles and dandelions. These could represent the remains of food plants, but could have been uprooted accidentally during harvesting or have been burned after uprooting from a location where they were regarded as a nuisance. Most samples also contained modern root material and uncharred seeds which are assumed to be recent contaminants (details in archive). Many of the uncharred seeds derive from the same species as the archaeological material, suggesting a similarity of ecological conditions between the Iron Age and the present. The charred material is assumed to be genuinely archaeological, but the presence of so many modern seeds indicates considerable movement in the soil and renders interpretation of the archaeological material very tentative.

Discussion

Seven samples were analysed in detail (Table 7), but two were too poor in charred plant remains for any useful discussion of their composition. The remaining five produced between 3 and 23 items per litre of soil, and included two with a preponderance of cereal grains (gully 61 and ditch 218), two with a preponderance of chaff fragments and weed seeds (pit 56 and ditch 70) and one which comprised a more even mix of all components (pit 21b). All features are dated to the later Iron Age on the basis of associated pottery, but apart from pit 56, which was cut by one of the Phase 3 gullies (36), none could be linked to the stratigraphic sequence. The charred material and other domestic debris from the terminal of gully 61 undoubtedly represent a single episode of deliberate back-filling. The circumstances of deposition of the remaining samples are less clear, but deliberate back-filling of the pits, partly with pottery and other domestic refuse, is likely. Ditches 70 and 218 appear to have filled mainly by natural silting, but incorporated concentrations of charred and other domestic refuse which probably represent episodes of deliberate filling.

The samples from pit 56 and ditch 70, both of which were dominated by chaff and weed seeds, could represent the 'fine sievings' fraction derived from the final stages of spelt processing.[117] It can be advantageous to store spelt in the spikelet rather than as cleaned grain since the glumes protect the grain from damp, pests and fungi. It can then be processed a little at a time as needed, and would probably also be exchanged or distributed in this state. The remains of fine sievings, therefore, do not prove that the crop was grown on site.

The samples from the rubbish deposit in the terminal of gully 61 and from the lower filling of ditch 218 are dominated by wheat and barley with some weed seeds. The crops would probably have been processed and stored separately, but could have become mixed when discarded, in the fire where they were charred, or during the cleaning of waste out of a storage area. Burning could have been accidental, perhaps during food preparation, or deliberate if old crops had begun to spoil in storage. It was not possible to gauge the deterioration of the material, but if these were storage products the wheat (presumably spelt) had probably been stored as grain. The crops had been processed and cleaned to remove the chaff and straw, and probably most of the weeds. Not all contaminants can be removed during crop processing, and the somewhat high percentages of weed seeds may represent a 'bottom of the container' effect where small items would tend to concentrate at the bottom of a storage container. The numbers are however fairly low, and this tends to exaggerate the effect of the small number of weed seeds on the percentage calculations.

The sample from the lower layer (b) of pit 21 could be either a mixed assemblage of fine sievings and grain or the remains of spikelets which had not yet been processed and cleaned. Since the same types of items are involved, and since whole spikelets tend to break into their component parts on charring, these two possibilities are archaeobotanically indistinguishable except in rare instances when the spikelets remain whole. In view of the small amount of material, however, the whole assemblage may represent residual material derived from several sources.

DISCUSSION AND CONCLUSIONS

EARLIER PREHISTORIC ACTIVITY

The small quantity of flintwork implies intermittent exploitation of the second gravel terrace at Gamston from the Earlier Mesolithic to Neolithic periods. The scale and the character of this activity remain uncertain, but the evidence for the production and use of Neolithic flint strongly suggests settlement in this period. Evidence for Earlier Bronze Age activity is provided by fragments of three vessels of 'Food Vessel' type (Fig. 27, nos. 1-3) and possibly by a proportion

of the flintwork, but the most important indicator of activity in this period is the colluvial layer (2) which could have resulted from prolonged ploughing of the gravel terrace. This layer is cut by all features, including several which could date from the Late Bronze Age, and if genuinely the product of ploughing, hints at extensive agricultural activity from as early perhaps as the second millennium BC. A similar phenomenon has been observed at the nearby site of Holme Pierrepont,[118] suggesting that both gravel terraces could have been extensively cultivated in the second millennium BC.

LATE BRONZE AGE AND IRON AGE ACTIVITY

Phase 1: Open Settlement.

The truncation of several pits and gullies and part of Structure 1 by the ditch of Enclosure 1 may imply an early unenclosed phase, possibly with origins in the Late Bronze Age. Some of the pottery from a Phase 1 pit (90) and gully (20) has affinities with Late Bronze Age/Early Iron Age wares, but the few sherds which may definitely be ascribed to this period were either unstratified (Fig. 23, no. 59) or derived from unphased pits or gullies (Figs. 17, no.18; 23, nos. 53, 57, 58). Although the precise nature of this early activity remains uncertain, it provides important evidence for settlement in a period which is otherwise poorly represented in the Trent Valley *(e.g.* at Willington, Derbyshire, Red Hill, Ratcliffe-on-Soar, Nottinghamshire).[119]

Phase 2: Enclosure 1

This phase is represented by a small subrectangular ditched enclosure, of a type common within the Trent Valley and widespread in southern Britain.[120] Ceramic associations, supplemented by the discovery of a La Tène glass bead from the upper ditch fill, suggest a later 1st century BC date for the final filling of the enclosure ditch, but an earlier origin, possibly in the 2nd or 3rd centuries BC, might be suggested. Some later Iron Age enclosures within the region appear to have demarcated habitation areas *(e.g.* Fisherwick, Staffordshire, Holme Pierrepont, Nottinghamshire, Site 4) but others could have served a wide range of specialised functions *(e.g.* as stock compounds).[121]Such may have been the case at Gamston, where convincing evidence for contemporary internal occupation was not obtained. This may reflect only the accident of survival, but it could indicate that occupation at this stage in the development of the site had concentrated *outside* the enclosure.

Phase 3: Rectilinear Boundary System.

Phase 3 is represented by a rectilinear pattern of gullies which could have defined a series of hedged or fenced garden plots or paddocks, integrated with trackways designed in part to facilitate the movement of stock. The focus of occupation might have been located away from the excavated area, accounting for the comparative rarity of finds. From the associated pottery and their stratigraphic relationship to Enclosure 1, these gullies can be dated at the earliest to the early 1st century AD.

This rectilinear pattern of narrow land parcels contrasts with the more irregular boundary systems which have been recorded on the outskirts of other excavated Iron Age settlements in the Trent Valley *(e.g.* at Willington, Derbyshire and Fisherwick, Staffordshire).[122] Closer parallels may be drawn with the extensive Romano-British and late Iron Age 'brickwork plan' field systems of north Nottinghamshire and South Yorkshire, although the system contrasts with these in its known spatial extent and the smaller size of its component plots. These 'brickwork' systems may in turn be parallelled widely in Midland and Eastern England, notably in East Anglia,[123] and are perhaps best interpreted within the context of a trend during the late Iron Age towards a more

highly organised agricultural landscape. Evidence for the extension of such systems into the Trent Valley has until recently eluded discovery, but the recognition by Whimster of extensive coaxial field systems downstream from Newark provides evidence that the Trent Valley may have seen comparable developments.[124] The parallels cited above need imply no similarity in function between 'brickwork' field systems and the possible paddocks or garden plots at Gamston, but they suggest the transmission of new ideas on landscape organisation, spurred perhaps by Gamston's surprisingly far-reaching exchange links.

The processes underlying the progress towards coaxial field systems in southern England in the later Iron Age are unclear, but the accumulation of evidence for agricultural intensification in this period and for sustained population growth provide possible mechanisms for the tighter control of land resources suggested by these often rigidly rectilinear systems.[125] Indeed, it is difficult to imagine why the poor quality sandy soils which characterise the Sherwood Sandstones of north Nottinghamshire should have been so intensively utilised in the late Iron Age and Romano-British periods had there *not* been considerable pressure upon better quality land resources.

Phase 4: Enclosure 2.

This is represented by the larger eastern enclosure, which may indicate a modification of the Phase 3 boundary system rather than its wholesale abandonment. Dating is difficult, but an origin in the mid-1st century AD would best fit the stratigraphic and artefactual evidence. No convincing evidence was obtained for internal occupation, and possible interpretations include a stock corral or (bearing in mind the cluster of possible storage pits in the north west corner of the enclosure) a protected compound for the storage of grain or other food products. Such interpretations might explain the virtual absence of occupation debris in the enclosure ditch and the paucity of contemporary internal structures, although only about half of the enclosure and seven ditch sections were excavated.

The Iron Age Economy

The gravel terrace upon which the settlement was located is characterised by a light and moderately well drained sandy loam which would probably have provided an attractive resource for early farming communities. The locational advantages of the site may have been strengthened by its proximity to valley areas, now delineated by areas of alluvium (Fig. 2), which could have provided valuable grazing and fodder resources and a plentiful water supply. Discussion of the agricultural regime is hampered by the absence of waterlogged environmental evidence, the poor preservation of bone and the small quantities of charred plant remains which were retrieved. Little may be deduced from this evidence about the animal husbandry regime, beyond the fact that cattle, sheep/goat, pig and horse were present on the site. A concern for stock management is implied by the possible droveways and paddocks of Phase 3, while the main enclosures may have performed a role as stock compounds. The most abundant crop remains were of spelt (*Triticum spelta*) and 6-row hulled barley (*Hordeum vulgare*). Other possible crops included the Celtic Bean or Field Pea (*Vicia faba/Pisum sativum*), a free-threshing wheat (*Triticum* sp. free threshing) and emmer (*Triticum dicoccum*); the last could have been cultivated as a crop in its own right, but might have been grown mixed with spelt, either deliberately or accidentally. Detailed analyses of selected charred plant assemblages provided evidence of crop processing on site, but these were not certainly locally grown products. Further evidence for cereal processing is provided by the discovery of large numbers of rotary and saddle querns, some possibly imported from the Peak District and from Charnwood Forest, and several grain rubbers (Figs. 28-9).

A wide range of domestic crafts was no doubt practised, but direct archaeological evidence was obtained only for textile production and the manufacture of pottery and objects of fired clay. Evidence for weaving may be provided by two fired clay triangular 'loomweights' (Fig. 26),

although the exact function of these objects is doubtful. About 16% of the total sherds (or 11% by weight) appears to have been produced away from the immediate area, but the remainder could have been manufactured locally. The local Mercian Mudstone deposits could have provided clays of suitable quality for potting or for the manufacture of fired clay objects and daub. Many features produced lumps of unfired clay obtained from the Mercian Mudstones, sometimes in substantial quantities (*e.g.* pit 163). The clay was mixed with quartz and other inclusions, and probably served as a raw material for the manufacture of daub, pottery or objects of fired clay. No convincing evidence was obtained for ironworking, but one quern may have enjoyed a secondary use as an anvil (Fig. 28, no. 1). The vitrified fuel ash could derive from an as yet unidentified industrial process such as glass-making or smelting.

Gamston's most important contribution to our understanding of the Iron Age in the Trent Valley is the evidence for medium and long distance exchange links with communities spread widely over Midland England (Fig. 30): pottery vessels from Charnwood Forest and perhaps from Lincolnshire or south Nottinghamshire, salt from the Cheshire Plain, and possibly querns from Charnwood and the Peak District. The most exotic object is a La Tène glass bead, which probably arrived at Gamston via an intricate series of exchange links extending to the Continent. The bead, a small copper alloy ring and some of the finer decorated pottery (*e.g.* Fig. 17, no. 14), suggest that the Gamston community had limited access to higher status goods. The site stands in sharp contrast, however, to the large late Iron Age nucleated settlements which have been identified in Lincolnshire, and which, in terms of their material wealth, imply communities of substantial social and economic status.[126]This contrast is heightened by a consideration of the few other Iron Age settlements which have been excavated in the Middle Trent Valley (*e.g.* at Willington, Derbyshire and Holme Pierrepont, Nottinghamshire).[127]These are best interpreted as small farmsteads, linked perhaps by extensive social and economic ties and, on the evidence of cropmarks, possibly densely distributed over the landscape[128], but none of these is obviously of high status. The contrast with larger nucleated settlements such as Ancaster or Old Sleaford is pronounced[129], and the suggested intra-regional contrasts in social and economic status should be regarded as major priorities for future research.

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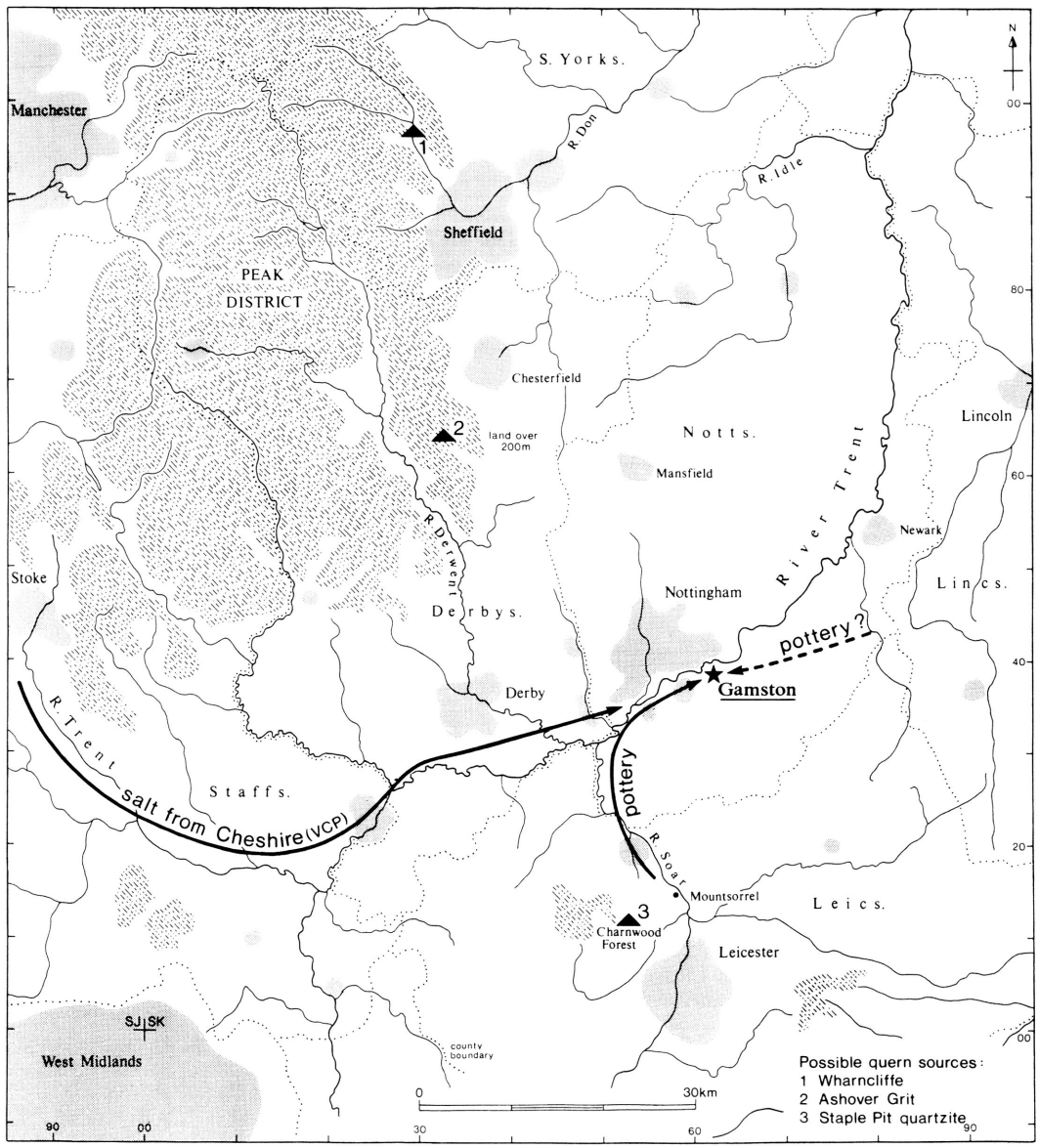

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ACKNOWLEDGEMENTS

The excavations were financed jointly by Bovis Homes Ltd., English Heritage and Nottinghamshire County Council, to whom gratitude is expressed. The writer is especially indebted to Mike Bishop, who was responsible for setting up and arranging the funding of this project, and to Graeme Guilbert and Daryl Garton, both of whom provided much helpful advice during the course of excavation and in the preparation of this report. The writer would like to thank all those who worked on the excavations, namely Jenny Brown, Felicity Cobbing, Graham Eyre-Morgan, Laura Green, Tim Hallam, John Hamshaw-Thomas, Alison Kennett, Wayne Livesey, David Lucy, Paula McCarroll, Nick McNeill, Gerard Moore, Alan and Celia Morris, Matthew Osborne, Jim Priest, Darren Pullen, Chris Taylor, Roger Thorpe, Richard Turnbull, Clive Williams and Ian Wooley, and in particular Keith Challis and Rick Walker, who assisted in the recording and supervision of the site, and Eileen Appleton and Alison Turner-Rugg, who acted as finds assistants. The fieldwalking survey was carried out with the assistance of Paul Cauldwell, Jen Eccles, Maureen Mahoney, Rhoda Mincher and Alan and Celia Morris , the resistivity survey by Sarah Lucy, and a survey of the adjacent medieval earthworks by Mike Hills. Thanks are due also to those who contributed specialist reports or advice, namely Carol Allen, Eileen Appleton, Andrew Brown, Peter Crew, Ron Firman, Vanessa Fell, Julian Henderson, Ruth Leary, Bruce Levitan, Catherine Mortimer, Lisa Moffett, Elaine Morris, Ian Stead, Alison Turner-Rugg, David Williams and Liz Wright; Matthew Canti provided specialist advice on the soils, Graham Morgan examined the charred wood samples and James Greig assessed the potential of the site for pollen preservation. Glenys Edwards and Bob White assisted in the conservation of finds. Virginia Baddeley provided relevant Sites and Monuments Record data. The processed archive was compiled jointly by the writer and Eileen Appleton, who showed great fortitude not only in this task but also in assisting with the cataloguing of the Iron Age pottery and the final editing of the report. The illustrations are the work of Richard Sheppard (Figs. 1-14 & 30) and Jane Goddard (Figs. 15-29). The writer has benefited from discussions with many of the above and also with Sheila Elsdon, Naomi Field, Gavin Kinsley, George Lambrick, Don Mackreth, Jeffrey May, Elaine Morris and John Walker. Any mistakes or errors in interpretation remain the writer's responsibility. This report is published with financial assistance from English Heritage to whom the editors express their thanks.