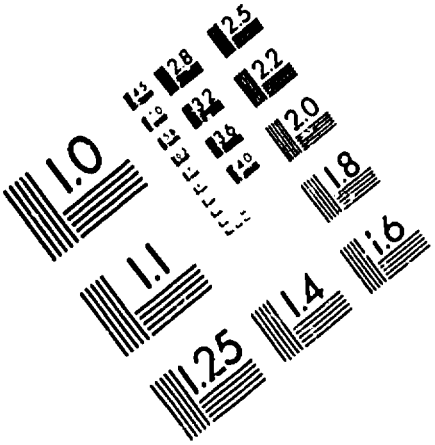


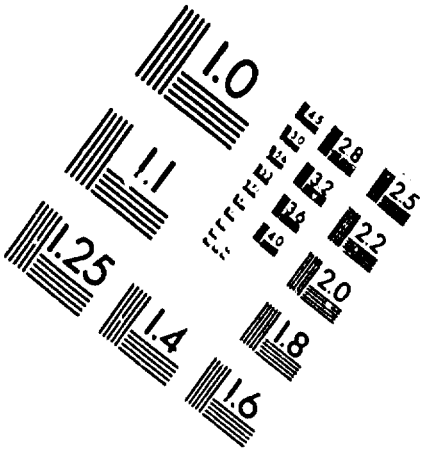
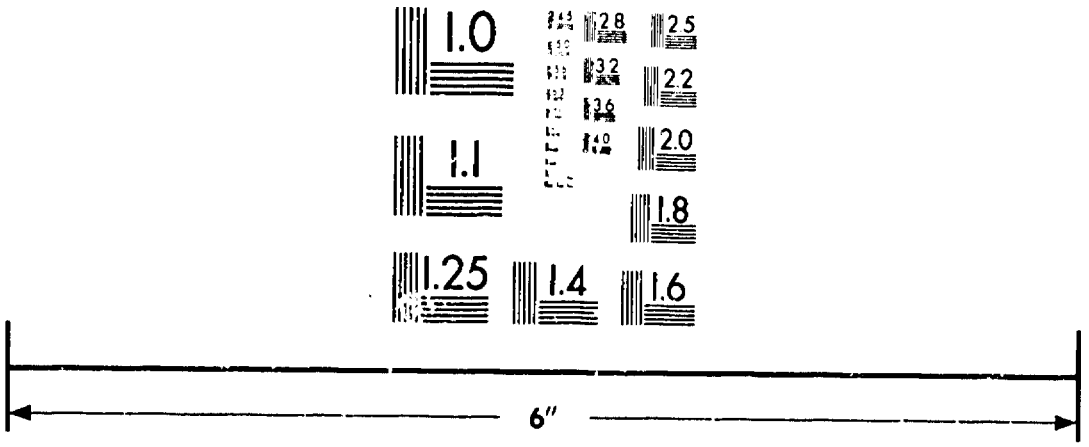
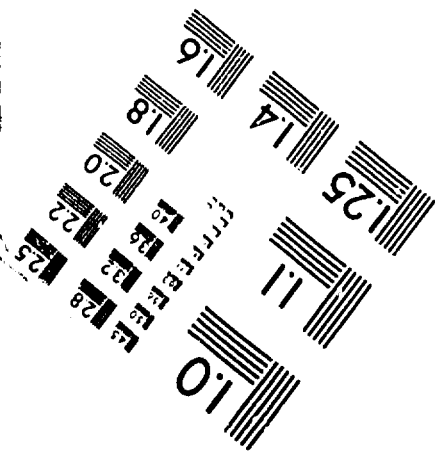
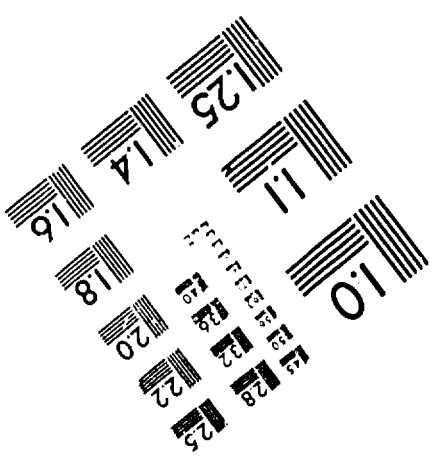


IMAGE EVALUATION TEST TARGET (MT-3)



MICROCOPY RESOLUTION TEST CHART





PHOTOGRAPHIC SCIENCES CORPORATION
770 BASKET ROAD
P.O. BOX 338
WEBSTER, NEW YORK 14580
(716) 265-1600

CONTENTS OF FICHE REPORT

13.	Bone and Shells	Bob Wilson *et al*	F02
14.	Environmental Reports	Mark Robinson	G02

THE THAMES CROSSING AT OXFORD

by Brian Durham.

Part 2: Supporting Detail

Introduction.

The second part of this report, published in microfiche, conforms with current recommendations for archaeological publication by including all the 'detail', i.e. all the corroborative evidence. It does not attempt to be a comprehensive record of all aspects of the site, on the premise that nothing should appear to replace the primary records preserved in archive. The dividing line has been drawn to include al aspects which the author considers relevent to the major questions dealt with in the printed report, i.e.:

1. the nature of the ford and its place in the overall Thames Crossing;
2. the date of the stone bridge and its extent;
3. the growth of medieval properties along the bridge frontages;
4. the medieval and later encroachment of buildings over a redundant medieval river channel.

EXCAVATIONS

THE EXCAVATED STRATIGRAPHY

65 St. Aldates: controlled excavations, Trenches I, II & III

The main area of the site was excavated in two operations, separated by a span of nearly three years. The 1979 Trench I was exploratory, and turned out to be perched on the edge of a river-bank which made it very difficult to interpret. Trench II (1979) was designed to establish the width of the river-channel, in which it was successful, and based on this knowledge the 1981 Trench III was more judiciously placed to pick up the back walls of medieval buildings south of the channel.

The following account combines the stratigraphical evidence of Trenches I and III as though they had been excavated together, introducing Trench II data at the appropriate points. It follows the format of the 79-80 St. Aldates report in giving a brief account of features in the perspective of the excavation, without a historical gloss, and hence it proceeds from the latest to the earliest [1].

Excavation Stage A (modern, Phase 8, not illustrated).

The tarmac and modern rubbish L1/1 was stripped by hand, along with modern features F1/3-/4. The structure of the Victorian public house was removed as various brick floors etc. 2/1-/6 and walls F3-F5. F3/3 was a drain trench enclosing a hand-made lead-glazed pipe (see Building materials). The corresponding upper levels of Trench III were removed by machine, while Trench II came down on the concrete-lined cellar F101 of the Victorian pawnbroker's shop, which explains the minimal area of useful excavation [2].

[1]. B. Durham, 'Archaeological Investigations at St. Aldates, Oxford' Oxoniensia, xlii (1977), 91-103.

[2]. See Oxon. County Libraries photograph OCL26977. (July 1912).

Excavation Stage B (18th-19th centuries, Phase 7, Fig. 3B)

A plethora of stone walls testified to a hostelry which was in a continuous state of structural modification (see Discussion, Phase 7). The axis was an east-west stone wall F8-F8/3, apparently forming the south wall of a back extension with a doorway F12. It was abutted on the south by fragments of well-laid cobbling of rounded quarzite pebbles F6-F6/6 with a wall F7, presumably a yard. To the north were traces of three partitions F8/1, F9, F23, not necessarily contemporary, relating to floor levels L10, L11, L24, L25. Towards the street, all contemporary floors had been destroyed (fill L1/2), but it seems likely that walls F42, F42/1 and the enclosed semibasement F81 correspond to the deeper levels of this excavation stage.

Excavation Stage C (mid 17th - mid 18th century, Phase 6, Fig. 3C).

Removal of the stone wall F8 with its associated levels showed that it was founded on medieval rubble walls F34, F34/1 and F51, which originally functioned as a river wall of the 14th century and earlier. They were presently abutted by clay-silt layers L36/1, L36/2, which may have been thickened edges of a floor to the north. To the south was a horizon of compacted iron-stained loam L15/2, L15/3, L19 which is interpreted as an earlier yard surface, used possibly since the 15th century. The precise relationships of walls at the front of this building are unclear, but it is possible that a room was formed by walls F42 (Fig 3B), F51, F16, and by F311 with two projecting stones F311/1 forming the shape of a fireplace. If this is so it would be necessary to assume that this room was approached by a passage between F311 and F42/1 (Fig 3B). A discussion of the arguments leading to this structural scheme is preserved in archive (65 St Aldates Daybook, p.p. 61-5).

At this stage the division between Nos. 64 and 65 showed as a straight-joint between two parallel walls F311 and F310. The remaining structure of the southern tenement had again been sacrificed in the mechanical excavation, but from the sections it seems likely that its structure included late rebuilds F302/1 and F305/3 of medieval walls F302/2 and F305, and these have consequently been indicated on plan.

Excavation Stage D (mid 14th to mid 17th centuries, Phases 5a, 5b, Fig. 3D).

This stage has been retrospectively divided on the results of pottery dating, because there was relatively little diagnostic structure. The most conspicuous new exposure was a paved floor of large flat slabs F308, limited by rubble walls F305 and F311. Beneath part of the paving was an area of rammed stone F308/1 which formed the top of a mass foundation or pier-base of progressively larger stones F308/2. The feature had been dug down to a stony stratum, in fact the surface of the late Saxon ford at a depth of 2m. The largest stones were at the bottom, one measuring 1.05m x 0.35m x 0.30m , and were carefully laid rather than pitched in. The pier narrowed towards the base and had no facing stones. It is therefore interpreted as a foundation, presumably for a chimney-stack which was never built or which had a relatively brief existence before being paved over (see Discussion, Phase 5b).

This stage of excavation saw the successive removal of 0.4m thickness of dirty gravel yard surfaces behind the northern property, L33/1 above L41/1, in turn above L45/1. The lack of diagnostic structure in the sequence meant that these layers have been phased somewhat arbitrarily on their pottery dating. In terms of levels they are comparable to yard surfaces L30/1, L31/1, dated to before c. 1450 and therefore included with the following group of features.

The earlier level of this excavation stage gave a more complete structural picture, described as Phase 5a in the interpretive section. All the above-mentioned surfaces seemed to be progressive re-mettallings of an original yard of pitched stone cobbles L40/2, F44/1, L44/2-/3 together with some laid stone paving F315. The latter paving abutted a well-made rubble wall F18, F314 with orange-yellow clay bonding. Although recorded separately in two trenches, the wall was clearly of one build, and its bonding material appeared to be continuous firstly with the fill of its construction trench, secondly with the bonding of two lightweight return footings F313, F310/1, thirdly with the floor enclosed by these footings, and finally with a clay floor of the previous building L316/1 extending over a large area of the southern building. This evidence of

The construction trench L51/3 of the L-shaped forward river-wall F51 was exposed beneath the floors of the enclosed room. It was composed of large rubble blocks with a coarse gravelly mortar, but a fragment of stonework F54/1 above it was bonded with yellow sandy mortar and seemed to be a fragment of the original standing wall which, owing to its position, was to survive successive rebuilds up to the 18th century (Stage C).

Excavation Stages F and G (late 11th-mid 13th century, Phases 2,3, Fig. 4F,G)

The foundation F51/4 of the forward river-wall was of a much cruder construction than the stonework described above, and from its relationship to an area of stone slabs F61 and a series of fill layers L74/1, L76/1, L77/1-/2 it is assumed to be an earlier construction. If so, it would have been overhung by two trees F75/1-/2, unidentified but possibly willows.

The critical stratigraphic relationships were lacking at this level, but from the results of the pottery dating it seems that the tenement wall F313/1 predated the earliest stone river-wall described above. The associated floor L316/5 is limited on the south side by the line of F305, and hence the pretative F305/4 is again invoked as the south wall of this building (see Stage E above). A further area of flooring L306/5 gave a measure of the westward extent of the building, but regrettably no wall was seen.

Beneath the building structures was an extensive layer of dumped material L304/6-/7, L309 - L309/2, of which the south end was sampled as Excavation Stage G. Mainly mixed gravely loams and 0.9 m thick, it showed tip-lines decending from the east, and was discernible everywhere in the south arm of the trench. It is interpreted as an artificial building platform, and overlay a bank of water-laid clay silt L78/1, L79/1, L318 - L318/8 extending over the entire site except for the channel to the north. The latter is interpreted as river silting against the upstream face of a stone bridge.

Excavation Stage H (10th-11th century. Phase 1, Figs. 4E, 5, 14)

The sondage at the southern-most end of the site which exposed

comprehensive re-working of the buildings is important to understanding the development of the tenements (see Discussion, Phase 5a).

A fragment of stone walling F317 seemed to belong to a partition between the front and back rooms of the middle building, the back room having a series of laminated ashy floors L306 - L306/2 above a gravel floor L306/3. Further south again the third building showed a similar situation with laminated ashy floors L304 and L304/1 surviving only in the back room. Here the partition was formed from an older wall F302/2, which had been strengthened by a heavy refacing F305/1 built continuously with the east-west wall F305.

Excavation Stage E (mid 13th to mid 14th century, Phases 4a, 4b, Fig. 4E)

Removal of the levels associated with the mid 14th-century rebuilding left very little structural evidence. At the extreme south of the trench, the partition F302/2 seen in the previous stage was abutted by an earlier floor L304/3, showing that there was a back room. The partition is assumed to have been jointed to a predecessor of F305, marked on plan as the 'putative' F305/4. The existence of this wall is required as the counterpart to a broad rubble footing F313/1 to the north, and the north-south section demonstrates that it could be nowhere else but on the line of F305 (Fig 5). A yellow clay-gravel floor L316/1 extended the length of the east section between these two walls. This upper level also exposed the construction-trench of the rear river-wall F34, F60 which was consequently removed.

Most of the structural detail was encountered at the lower level of this excavation stage, which exposed laminated ashy layers L52/1-/2 with stone slabs and a presumed hearth F52/4, all within a small cell at the north-east corner of the trench. An opening F82 in the north wall of this cell communicated with the river-channel, and is assumed to have been a culvert providing a source of water for the occupants. The opening was blocked by the staves of a large tub F83 assumed to be intact in the channel fill, although only partly accessible for excavation.

Although the back yard lacked a demonstrable river wall at this stage, the area still seems to have been utilised with a light footing F58 and a drain F65 of stone roof slates.

alluvial deposits (L318 etc., see above Stage G) was excavated to look for an original flood-plain profile, through which the river had cut its channel. On the evidence of eleven sitings to the north and west, the gravel terrace was expected to lie at c. O.D. 53.85m. Instead there was a layer of slabs of Corallian limestone L319, water-washed and heavily eroded on all surfaces. They were laid in grey sandy silt with further flat stones, and beneath was a thick layer of larger stones L319/1 in a black silt giving a total depth of 0.5m. The lower stones lay on a relatively impervious silty gravel F320, which was accepted as the top of the gravel terrace.

A slight westward slope on the above stonework suggested that it might be a linear feature parallel to the main road, and its deep level in comparison to known Late Saxon water-levels indicated a 'ford'. A second sondage was therefore dug to the north, which exposed more of the profile, and confirmed these suspicions. The northward extent of the ford was not established, but since it extended well to the south of the medieval river channel, it may well have extended north of it also. Trench II at the north end of the forecourt was too far west to see the ford, and it simply exposed alternating layers of peaty material, silt and gravel L102, L105, L107, L108 with stakes and wattle fences in the upper levels (not illustrated). All layers dipped slightly to the south, as though this were the north bank of the river channel, rather than the level bed.

65 St. Aldates, salvage records, Trenches IV, V, IV.

The new Crown Courts are being grafted onto the skeleton of the old Morris Garages, with the result that new foundations have been kept to a minimum. There were therefore relatively few opportunities for useful observations at a deep level which might improve the understanding of the complete development of rivers and tenements. Three observations seem particularly relevent, as follows.

Trench IV was dug for a lift-shaft. Examination of the north section during the contractors' lunch break showed an alluvial bank at a deep level (c 64.4m OD), faced on the west by a wattle fence extending down a further 0.6m. Against this face were constrasting silts for 2m, followed

by a north-south row of posts with horizontal planks. One plank pulled out from this region had two holes, perhaps enlarged nail holes, and a clench-bolt was recovered at the same time (Fig. 9, No 10). This suggested the reuse of boat timbers in a developed waterfront replacing the wattle wall, and led to the assumption that this was a western riverfront of one of the Eynsham Abbey tenements fronting the bridge causeway in the 13th century. Regrettably no dating evidence was recovered, but this interesting observation seemed to justify a confirmation by radio-carbon. The result, correcting to AD880-1020 years' is much earlier than predicted, and means that an alternative explanation must be considered in terms of pre-Conquest, even Mercian, activity in this area. This unfortunately is the limit of the present evidence, and it will not be supplemented until the Crown Courts are demolished (!). A compromise is therefore proposed, which accepts that part of this area may have been dry land rather than river-channel in the 9th century, but that by the 12th century it was rendered uninhabitable by the risk of flooding above the bridge, and was separated from the occupied suburb to the north by a channel on the line of Salter's SW 13 (Salvage Trench V below). The area would then have been developed by Eynsham in the same way as the next block to the south was developed by Abingdon (see Print Discussion, Phase 2b).

Salvage Trench V was dug for a foul sewer connection north of the garage showroom. Section-cleaning and augering of the base suggested that the silts here were deeper than in the 1971-2 observations to the north, and it was concluded that this was possibly yet another east-west channel.

Trench VI covers a series of observations of relatively shallow (to 55.20 m OD) ground-beam trenches within the building. The record at the time concluded that there was no fine stratigraphy here, and hence that this frontage had not developed in the same way as those excavated in 1970-71 to the north.

33 St. Aldates, Excavated Stratigraphy (Figs. 2, 6, 14)

Prior excavation was not proposed on this site because of the relatively modest results from the 1979 trenches I and II at 65 St.

Aldates. It was anticipated that there would be late-medieval to post-medieval buildings on a ramp approaching Folly Bridge, and that the most valuable results might come from the service connections in the road.

The three blocks of flats were each to be founded on a 2m thick raft of pulverised fly ash, a well-tried method of spreading the weight of domestic buildings on poor ground. A trial trench IA at the south end of the site confirmed that there was no detailed stratigraphy, so recording was limited to inspection of the site after the excavation.

33 Trench IB (Fig. 6)

The most conspicuous aspect was a succession of stone footings/basements in the west side of the trench facing the street. The southern end of this section was too shallow to show a building succession from medieval beginnings, but the northern end was deeper and a useful record was made (Fig 6). The story conveyed by this section is interpreted as follows.

An auger probe showed brown peat at OD 52.30m in what must have been an old river-channel. Gravel had not been encountered at OD 52.17m. This deposit was therefore at least 1.2 m deeper than any of the Late Saxon channels excavated in Oxford, and immediately suggests something more ancient. Further augering suggested that it extended the full length of Trench 1B. The earliest evidence for human activity was a wattle fence F12 in a silt layer L11/1 at a level of OD 53.85m. No dating evidence was recovered and no sample has yet been submitted for radio-carbon analysis, so conclusions cannot be drawn. However, Mark Robinson's report on the fauna and seed remains from this deposit leaves little doubt that it was on the fringe of an inhabited area, and the absence from the site of residual pottery of any period earlier than Late Saxon suggests that layer L11 was no more than a century or two earlier than the remaining deposits, i.e. Mid to Late Saxon. Trench 1B can therefore be seen as the beginnings of occupation on a dry area in a slowly silting river-channel which was still partly open. The silting continued (L10) and was followed by a layer of dumped clay silt (L9/1, possibly L8/1) which may have been an extension of the inhabited platform suggested above. The profile of this

layer already shows a dip to the south, which was subsequently to be repeated in layers progressively further south, suggesting the slow constriction of the channel. This slope made the stratigraphy very difficult to follow, particularly with a large ' kink' in the section line. Confidence returned when it was found that the many small assemblages of pottery made a coherent story, corresponding with the developing levels of the site. The following reconstruction can therefore be given with greater assurance.

Layer 14 appeared to be a shallow gully of the late 10th or early 11th century, running parallel with the section before turning east. It was subsequently filled with or replaced by a mass of rough stones covered by a layer of charcoal suggesting a beam (F2). This structure seemed to be abutted by floors on the east (L3, L3/1), and by the loam of a yard surface to the west (L1), all producing pottery of the late 11th to 12th centuries. This combination would therefore make sense as the back wall of a building fronting the Norman bridge (see Print, Discussion Phase 2) and also flanking the remains of a river-channel on the south side. The channel would by this time have been further occluded by a layer of loam yielding 11th-century pottery (L14/1-/2). Presumably this was the contemporary foreshore, with a thin layer of burnt gravel on the surface (L14). The associated internal floors are likely to be of a basement (L3, L3/1), on the assumption that the 'ground floor' would be approached from the deck of the bridge at least 1.7m higher.

The section shows a number of later walls (Fig 6). F17 was suggested on site as a 'cob' wall of an outhouse behind the first building, and although this seems somewhat improbable in a riverfront situation, it corresponds closely to the line of F18 and F18/1 as though this were a persistant property boundary. At a distance of 5m to the north, F19 and F19/1 show some correspondence of line, and perhaps indicate the north boundary of the tenement. The next boundary to the north would be F404, a robber-trench along the line of the sewer diversion trench (see below, 33 Trench IV) at a distance of a further 5.5m, and there would be space for another unit of similar width before the Shire Lake Stream (F302, see below, 33 Trench III). It is thus possible to reconstruct the development of a group of two or three properties built against the bridge causeway between two streams, in existence by the late 11th to 12th centuries, and

therefore presumably built soon after the construct n of the stone bridge. All would fall within Salter's tenement SE172 (see also Print, footnote 70).[3]

33 Trench II

The Trench was watched for evidence of waterfronts on the Mill Mill Stream at the east end. There was a discontinuous row of large blocks of soft white stone about 3.5m west of the modern stream. Otherwise the trench showed nothing but alluvial silts.

33 Trench III (not illustrated)

The contractors had to divert the line of a surface water drain, apparently the former Shire Lake Ditch. A north-south trench beneath the modern pavement showed a brick-floored cellar, limited on the north by a stone wall 1.2m thick. There was no evidence that this was a river wall like 65 F51, but just beyond it were four vousoirs of a small stone vault, presumably the Shire Lake Ditch culverted beneath buildings in existance here by 1850 (Hoggar's Map). So the wall, at a distance of 5.5 m from 33 F404 in Trench IV, may be the third equidistant property boundary on this frontage (see discussion above, 33 Trench 1B).

33 Trench IV (Fig. 14)

This was an excavation by the contractors to connect the new flats onto t s main foul sewer beneath St. Aldates. It was watched closely because of the possibility of early bridge structures to complement a previous observation to the south (see below, Salvage Records 3). Work began with the insertion of a manhole in the middle of the road, and it was

[3]. H.E.Salter, Survey of Oxford I, O.H.S., n.s. xiv(1960), 242.

immediatly clear that the core of the road consisted of mortared rubble to a depth of at least 2.4m, except where it had been disturbed by the modern service trench. The most important observation was that the west side of the trench showed a vertical file of mortared stone F401/1, faced on the west side, which in retrospect seems to have been the original west face of the stone causeway.

The second stage of the contractors' work showed an entirely consistent story. They dug their narrow trench by hand to a depth of 3m through solid mortared ragstone rubble F401, and the causeway section shown in Fig 14 was recorded. There was a pronounced offset at the lowest level, the sloping surface of which was made up of the exceptionally tough mortar used throughout the structure. Beneath the line of the offset, though not necessarily sealed by it, was a large pointed stake F411. Since there was no timber platform, this could not be a pile for the causeway, and is more likely to be a support for a previous bridge or a temporary access; a sample has been retained for future dating (33 . 3409).

Previous observation of a road section 15m to the south had also shown solid masonry (see below, Salvage Records 3), and the immediate conclusion was that in both cases these were abutments of flood arches through the causeway, because it seemed impossible that the causeway should be stone throughout. However, a further four sitings to the south of Folly Bridge, and another to the north on the line of the Trill Mill Stream (see below, 'Salvage' Records), show that this is not pure coincidence, and it must be assumed that the section shown in Fig. 14 is typical of the structure, embodying at least thirteen thousand tons of stone and mortar to span c. 800m of flood plain.

The remainder of Trench IV was recorded as a drawn section (Fig. 14), and some dating evidence was recovered. A cut-line F401/2 close to the causeway seemed to be a construction trench filled with stones and organic clay-gravel. It was cut into L410, clay alluvium of the 'alluvial island' yielding 5 sherds of mid-11th-century pottery. The first layer above this was a spread of charcoal which seems to have been agricultural waste (see Print: 'The Environment of the Thames Crossing'). This was sealed by make-up layers and ashy floors L407 of a building against the causeway, the back wall possibly being represented by Robber Trench F404. The floor-level of this building was evidently raised at some point (fill

layers L405, L406), and it was perhaps replaced in the 14th century by a stone building of which a north-south wall F402 and an east-west wall F403 were recorded.

33 Trench V

The excavation of the northernmost of the PFA foundations was not watched, owing to the probably mistaken assumption that it would be only the fill of the Shire Lake Stream.

Gazetteer of 'Salvage' Records relating to the Thames Crossing (Fig. 16).

Interest in the fabric of 'Grandpont' had been aroused by the above sites, and by fortunate coincidence in the ensuing four years there have been no less than nine useful contractors' trenches to give further corroborative sitings. The following gazetteer is set out from north to south, which was not necessarily the order of observation.

1. St. Aldates, Water Main 1981 (PRN 6624).
   Middle of St. Aldates, south of S.W. tower of Tom Quad, opposite No.92. Solid rubble in buff mortar, top course said by contractors to havebeen pitched, across full 2m width of trench, from 1m. to at least 1.6m below street surface.

2. 89 St. Aldates, Sewer Connection 1983.
   Trench extending 4.8m into road from west kerb, between Nos. 89 and 90. Contractors report solid stone for 'last four feet' eastward.

3. 56 St. Aldates, Foul Sewer Connection 1979.
   No details survive, but colour slide 31 St. Aldates No. 16 illustrates large amounts of stone dug out by machine. For trench outline see Fig 2.

4. Folly Bridge, Causeway Repairs 1980-81. (PRN 6358)
   A bulge affected about 25m of the western facing wall between arches

BNC 2 and 3 (see text, Pl 2). An abraded 17th century clay pipe from the soft fill behind this wall showed it to be recent, and the original causeway face was not seen. The river bed at this point was gravel, at a depth of 4.2m below modern pavement.

5,6 Abingdon Road Trenches III & V 1980. (PRN 6627)

The 2m square trench for manhole III was centered 2.5m out from east kerb, 6.3m south of existing open arch which appears to be BNC 6. Mortared ragstone rubble showed from 0.3m below the modern surface to 1.6m depth in all sections, except where cut by the modern storm water drain. Trench V: clearing of a blockage 24m to the south showed an identical picture.

7,8 Abingdon Road Trenches IV 1980 and VI 1982. (PRN 6628)

A 2m square manhole centred 2.4m out from the east kerb showed no causeway, only a paving of stone slabs at a depth of 0.8m and then sandy silt to 1.4m. However the later Southern Gas Trench VI, where the western kerb turns into the south side of Whitehouse Road, showed solid stone near the surface. This suggests that there was an original change of direction here between two straight stretches of causeway, and the subsequent widening has all been on the east to create a smooth curve. It also implies that the dip in the causeway shown on the Brasenose Map was an illusion, perhaps caused by gated access ramps on either side.

9. Abingdon Road Trench II 1980.

A 2m square manhole trench centred 1.5m from the east kerb showed no stone, but taken with the results of Trenches I, IV and VI this would be too far east.

10. Abingdon Road Trench I 1980. (PRN 6626)

A 1m wide exploratory trench for a new manhole was dug 11m north of the modern arch. The trench extended up to 3.6m out from the east kerb, and showed the face of the stone causeway at 2.6m, between 0.33m and 1.37m below the modern surface. The upper facing had been lost, demonstrating that this was solid masonry and not just a superficial skin.

SURVEYS

Folly Bridge Causeway (Figs. 15, 16)

A survey of the causeway south of Folly Bridge was conducted to record the position of any visible portions of the Norman stone causeway and to record the profile of the Norman arches. Accordingly arches BNC.2, BNC.3 and
BNC.4, which held running water, were surveyed from a punt. The profiles of the Norman arches were recorded by a series of measurements taken from water level which acted as a temporary datum. It was also possible, by recording straight-joints and variations in the stonework, to locate the position of the Norman Causeway in relation to the present Folly Bridge. Arches BNC.5 and BNC.6 were not accessible by punt as the channels were blocked. However, it was again possible to locate the position of the early work and to record a profile of the arches. Abingdon Road Trench III (PRN 6626 see above) has shown that solid masonry existed between 0.3m and 1.6m below the modern road surface at a point 6.3m south of BNC.6. At BNC.6 the modern road level is 57.20m OD and by comparison with the causeway at 33 St. Aldates (Text, Fig 14) it has been assumed that the Norman work maintained a height of 56.90m over much of the causeway.

The Norman masonry consisted of a ragstone vault which in each case formed the second major bridge component from the east. The causeway proved to be between 3.90m and 4.00m wide at arches BNC.2, BNC.3 and BNC.4, narrowing to an estimated 3.77m at BNC.5, and 3.60m (rebuilt) at BNC.6: ie away from the river crossing. It was possible to detect repairs to the structure at two places. At BNC.2 a minor rebuild had taken place on the western (upstream) side of the arch whilst at BNC.6 a three-ribbed vault had been inserted, again on the upstream side of the bridge. The arch of BNC.6 was also slightly higher, so the ragstone component may not have been original Norman work. There had been repairs to the abutments in all cases which made it difficult to assess the original span of the arches. Where an accurate profile could be recorded, however, (BNC2-4) the arc of the vault suggests an original span of about 4m (13ft). This is very similar to the width of the causeway, and perhaps

suggests a standard module for this part of the work.

The bridge had been widened on a number of occasions. Two such widenings were detectable on the western side at arches BNC.2, BNC.3 and BNC.4 with a further addition on the eastern side. A thin skin forming a facing was also present on the east of arches BNC.2 and BNC.3. It is known that the latest widening on the western side of the bridge was added after the mid 17th century and consisted of a stone skin retaining an earthen fill. It was not possible to record fully the stages of widening as represented at arches BNC.5 and BNC.6 due to the treacherous conditions of the silted channel.

Redbridge (Fig. 2)

A survey of Redbridge was undertaken to identify any early masonry that may have been incorporated into the present structure. The arches were numbered from the westernmost, and include obviously later insertions like the railway arches. It proved possible to identify several constructional phases in a number of arches, of which the details of arches 1, 2 and 3 were recorded. At each of these, four distinct sections of masonry were identified. As at Folly Bridge, the earliest phase would appear to be the second from the south in each case. This was of rubble build and without face voussoirs, having a causeway width of about 3.1m (arch 1: 2.95m, arch 2: 3.08m and arch 3: 3.25m). It was possible to detect a cutwater on the northern edge of this construction in arch 1. Immediately to the north (upstream) of this phase, an arch of limestone rubble and dressed stone with voussoirs was added which was c.4.00m wide at arches 2 and 3. However, at arch 1 the arch was only 2.70m wide and built of ashlar rather than of rubble. Finally, the outermost sections of the arches were added at some stage onto the sides of the earlier bridge.

Further arches 4, 5, 6, 7 and 11 to the west are all later rebuilds in brick for the 19th century railway bridge, and are not parts of the original causeway/bridge. It was possible to see variations in the build of the surviving stone arches 8, 9, 10 and 12, although these were not accessible by boat and were therefore not recorded. However arch 10 was pointed rather than of the normal tunnel-vault construction.

The span of all the Redbridge arches was narrower than those of Grandpont. The measured examples were 2.0, 2.3 and 2.5m, although taking account of the rebuilt abutments they are estimated as originally 2.0m, 3.0m and 3.0m. These 'metric' spans would be regarded as coincidence were it not that the Folly Bridge arches were estimated at 4.0m. There is no easy 'imperial' equivalent: 6'7", 9'10", 13'2" respectively. An unusual unit of measurement is therefore suggested in both sections of the stone causeway which might imply that they were built at the same time, but taking account of the differences in causeway width (3.1m average compared with 4m) the evidence is not strong.

The medieval Folly Bridge (Fig. 16A)

An Act for the rebuilding of Folly Bridge received royal assent in 1815. Attempts had been made previously to repair the structure, but when the foundations and interior were found to be 'ruinous' a bold decision was made to cut a new navigation channel, move the weir upstream away from the bridge and build a new stone bridge. No plan survives to show where the old bridge lay. This is particularly unfortunate because the comprehensive reworking of the area has left virtually no reference points.

The survey of the south causeway arches BNC 2-6 (Fig. 15) had shown that the Norman bridge was on a similar line to its 19th-century replacement. It therefore seemed a pity not to attempt to locate the old bridge topographically. The writers are grateful to Julian Munby for drawing attention to a very detailed model in cork showing the bridge before demolition (Ashmolean Museum. 1878.272), and to David Sturdy for allowing us to make use of his scale drawing of this model, and for very helpful discussions.

The first problem was to establish the scale of the model. Comparisons of all recognisable dimensions with those of Taylor's map (1750) suggested values in the range 1:57 to 1:73. Possible imperial scales in this range would include 3/16ths inch to 1 foot (1:64); 3 inches to 1 perch (1:66); 1/2 inch to 1 yard (1:72). Of these the most probable seemed the first, being half-way between the conventional architectural

scales of 1/4" to 1' and 1/8" to 1'. The only independant check was the width of the 'primary causeway' shown by straight joints on the underside of the arches of the model. The 1:64 scale would give dimensions between 3.77m and 4.22m, which is a reasonable approximation to the 3.90-4.00m of the causeway to the south (see above) and the road section to the north (Fig. 14). It is accepted that the arches surviving in the 19th century are likely to be medieval rebuilds, and therefore that the straight joints are not an infallible guide to the width of the original bridge, but the agreement suggests that 1:64 is generally the most promising scale. Sturdy's drawing was consequently reduced by the appropriate factor to give a working scale of 1:500.

The next question was how to locate this medieval plan in a north-south direction. The main considerations were first that the medieval piers should match up with the modern piers, secondly that there should be a minimum of changes to established holdings on either the north or south bank, and thirdly that there should be a reasonable explanation of the line of the drawbridge arch BNC 'O' and its stream. The evidence is threefold. First, there is a plan of a proposed design for a new wharf on the north bank dated 1827, i.e. the year of completion of the new bridge [4]. It appears to show the old line of the river-bank 9.5m north of a proposed new line, which itself bears a strong resemblance to the modern waterfront of the Head of the River public house. Secondly, there is a plan of buildings on the south bank, several of which are recognisable as the Salter Brothers' offices and workshops [5]. The plan also includes 'the site of the waterworks and now taken down'. Details of the works are seen in the third class of evidence, a series of line drawings and watercolours of which photographic copies are available at Oxfordshire County Libraries (Local History section). There are several views showing the waterworks in various stages of its development or decay. They illustrate how it adjoined the east or south-east wall of the gate tower and took water from the third arch of the bridge, with a large undershot wheel.

[4]. O.C.L., Photograph 27316.

[5]. H.E.Salter, Oxford City Properties, O.H.S. lxxxiii (1925), 103.

Various possibilities have been tried in locating the bridge from this evidence. An initial proposition was that the gate-tower was on the modern south bank and that the drawbridge channel ran between the buildings of Salters' complex. This made the medieval piers align with those of the modern bridge, but was clearly fallacious in that it would never have been possible to see both the south face of the gatehouse and the north face of Salter's riverside building in the same view, and these appear in several of the illustrations seen from Christ Church meadow. The alternative was to try the gate-tower on the southern pier of the modern bridge, specifically with the south bank of the drawbridge channel aligned with the modern south river wall on the upstream side. This works quite well: the south side of the gate-tower would be visible from the meadows, and the north bank of the river aligns very closely with that shown on the wharf design of 1827. There are, however, several unexplained factors, the most notable being the 'bay' in the downstream side of the south bank, which looks suspiciously like an old bank-line. The reconstruction instead uses the upstream river-wall as its southern origin, which must have been a new construction in 1827. Other reservations are that the new bridge may have been totally independent of the old piers, that the scale of the cork model may have been wrongly estimated, and that the plan of the waterworks may have been distorted. Figure 15A must therefore be treated as only a 'best fit' and a basis for future consideration.

FINDS

THE FINDS REPORTS

Dating: Phase numbers are quoted for all 65 St. Aldates finds, as a guide to the date of their provenance. The chronology is synthesised in the printed text under 'Discussion and Conclusions', but for convenience the phases are dated broadly as follows:

Phase 1: 10th to late 11th centuries;
Phase 2a: late 11th to late 12th centuries;
Phase 2b: late 12th to early 13th centuries;
Phase 3: early to mid 13th century;
Phase 4a: second half of 13th century;
Phase 4b: first half of 14th century;
Phase 5a: mid 14th to mid 15th centuries;
Phase 5b: mid 15th to mid 17th centuries;
Phase 6: mid 17th century to c. 1770;
Phase 7: c. 1770 to c. 1860;
Phase 8: c. 1860 onwards.

THE POTTERY By Maureen Mellor.

A total of 1478 stratified sherds was recovered from the 65 St. Aldates trenches, and only 157 from 33 St. Aldates. By the excavator's own admission, the stratigraphy was patchy and complicated in its relationship to the shrinking river channel. Independant dating evidence is minimal and in some cases is likely to be controversial, i.e. the dating of the stone 'Grandpont' (Phase 2a) and the equating of the riverside structures with the Oseney Abbey tenement (Salter SW9 Phase 3-5). The sequence therefore does not contribute anything new to Oxford's pottery dating as developed at the northern St. Aldate's sites and refined at The Hamel [6]. The following account is consequently limited to providing external dating for the main developmental phases of the sites, and highlighting individual vessels of particular interest and trends which bear on the usage of the properties.

65 St. Aldates.

Both sherds from the masonry of the ford are of the distinctive Oxford Late Saxon Ware, predominant in the 9th and 10th century. They therefore give good agreement with the radiocarbon date HAR 5340 which corrects to A.D. 980 -1040. The remaining Phase 1 pottery was mid 11th-century and could be paralled with a group from beneath All Saints Church [7]. This assemblage included several sherds from a hand-made pitcher (Fabric T) attributed to the Pas de Calais region in France [8], and is

[6]. R.Haldon and M.Mellor, 'Late Saxon and Medieval pottery' in B.Durham, 'St Aldates' Oxoniensia xlii(1977), 111-139; M.Mellor, 'Pottery' in N.Palmer, 'A beaker burial and Medieval tenements in the Hamel, Oxford,' Oxoniensia, xlv(1980) 160-183, Fiche 1 E06.

[7]. M.Mellor, 'The Pottery' in B.Durham, 'Excavations in All Saints Church, Oxford' forthcoming, typescript at Oxford Archaeological Unit.

[8]. M.Mellor, 'Late Saxon pottery from Oxfordshire, evidence and speculation!' Medieval Ceramics, iv(1980), 25.

also known from excavations in the City of London [9].

Some time after the mid 11th century the ford began to silt up. Although the sherd numbers are still small, the progression from L318/2 (3sh AE, 1sh AG) through L318/1,/8 (3sh Z, 1sh AC) to L318 (1sh AC, 1sh Y) is entirely consistent with silting beginning in the last quarter of the 11th century following the construction of Grandpont. The dumped platform above the silt dates to the last decade of the 12th century or the first quarter of the 13th century [10]. This phase was dominated by Oxford Medieval Ware (Fabric Y).

The early occupation of the platform in the 13th century (Phase 2b) included a fabric type not recovered from the tenements at The Hamel (Fabric CG, Group 1A, Fig.7 No.1). The relatively large proportion of Fabric AG (Group III), as compared with The Hamel, may be because the St. Aldate's site was near the natural point of entry of these wares which seem to come from the south. Phase 3 followed, with material similar to that from Blackfriars Wharf House Phase 1, dated by a coin to 1230-50 [11]. The previously dominant tradition of domestic and utilitarian kitchen wares was by now being gradually replaced by Oxford Late Medieval Ware (Fabric AM, Group III) made in the vicinity of Brill, some twelve miles east of Oxford. Ceramic vessels from this phase included a very large pitcher with red slip lattice decoration, partially glazed light green (Fig.7 No.5). The general style of decoration is similar to a jug recovered from Carfax [12], but the 17.5 litres volume of the vessel is more ample than anything known from Oxford to date. A presumed jug, glazed internally mottled green with an angular handle with stabbed decoration (Fig.7 No.4) is probably a copy of a metal prototype, of which

[9]. Museum of London, D.U.A. Fabric code SG1331, recovered from Dowgate; information from Alan Vince.

[10]. N.Palmer, 'The Hamel', Oxoniensia xlv (1980), phases D3b, H1.

[11]. G.H.Lambrick, 'Excavations at the Wharf House, Blackfriars, Oxford,' forthcoming.

[12]. E.M.Jope, 'Some recent finds of medieval pottery', Oxoniensia vii (1942), Fig 17 No 4, dated to the 13th century.

a similar form was recovered from the latest levels at Seacourt [13]. Such copies are rare locally, particularly in a 13th-century context. Two other vessels whose fabrics are unparalleled locally were a jug with a large rod handle, glazed orange (Fig.7 No.2), and the base of a jug with white applied strips and a light green glaze, which had finger impressions around the edge of the base to facilitate standing on a flat surface (Fig.7 No.3).

The 14th century is probably represented by Phase 4, again dominated by Oxford Late Medieval Ware with jugs, pitchers and some utilitarian products. The expected increase was noted in the use of underglaze decoration and mottled green glaze on this fabric [14]. From the early levels, i.e. Phase 4a, came an 'arm and hand' applied to a possible rim, richly glazed dark-green (Fig.7 No.9 AM). Parallels for such anthropomorphic jugs include one from the presumed Prior's Lodgings of Blackfriars and another from the Bodleian Extension dated to the late 13th - early 14th centuries [15]. In a different fabric was the small over-fired base of a bulbous bottle (Fig.7 No.6 AP), partially glazed brown [16].

The later levels, i.e. Phase 4b, included a small baluster type with applied red strips and light green glaze (Fig.7 No.14). These jugs, where decorated, usually have a red slip linear design with some glaze, and it is unusual to have such elaborate decoration. In the same fabric was a highly decorated sherd with applied white strips and dark-green glaze from the shoulder of a jug, possibly a triple-decker type (Fig.7

[13]. M.Biddle, 'The deserted medieval village of Seacourt, Berks', Oxoniensia xxvi-xxvii(1961-2), Fig. 27 No. 11, 164.

[14]. B.Durham, 'St Aldates',Oxoniensia xlii (1977), 135, Phase 10; N.Palmer, 'The Hamel', Oxoniensia xlv (1980), 180, Phase BII.

[15]. G.Lambrick and H.Woods, 'Excavations at the Dominican Priory, Oxford', Oxoniensia xli(1976), Fig. 10, 212; R. Bruce-Mitford, 'The Bodleian Extension', Oxoniensia, iv(1939), Fig. 24A; see also Phase 5a below.

[16]. M.Biddle, 'Seacourt', Oxoniensia, xxvi-xxvii (1961-2), Fig. 19, No. 16, for form only, dated mid 13th century.

No. 8. AM). Other items included a condiment dish with an internal partition, glazed mottled green internally. The illustrated sherd came from a Phase 4a provenance (Fig.7 No.7 AM), but this was probably intrusive, as several other pieces evidently from the same vessel occurred in L53/1 and L55 (Phase 4b) and also L40/1 and F43/1 (Phase 5a). The Phase 4a provenance was a wall which was levelled in major rebuilding at the end of Phase 4b, and the condiment dish should probably be attributed to the latter phase. A dripping-pan (not illustrated) was glazed orange internally with much carbon externally. A small double-shelled lamp, glazed mottled green internally, with much carbon both internally and externally (Fig.7 No.13 AM) parallels one from St. John's College [17].

Another vessel which was not immediately recognisable as part of a domestic assemblage was a closed form, unparalleled amongst recent excavations, with a loop handle and partially glazed mottled green externally (Fig.7 No.10 AM). A deliberate knife-cut was made through the upper part of the vessel. There was no evidence of use. A well-made and well-finished item which might be either an open or closed form, with deep incised decoration under rich green glaze (Fig.7 No.11 AM), also showed no signs of wear or use. Vessels in other fabrics included a grill-type bowl with undercut rim (Fig.7 No.15 AW), and a highly decorated jug (Fig.7 No.12 AG), with bands and dots of white and red slip and light green glaze. The latter may be slightly residual from phases 3 and 4a, because this combination of decorative style and fabric type was popular in Newbury and Reading in the mid-late 13th century but rare in Oxford [18].

Phase 5 spans 300 years from the mid 14th century, because the excavator was unable to show more than one coherent structural plan over this period. It nevertheless seemed worth subdividing the finds into

[17]. E.M.Jope et al, 'Medieval finds from St John's College, Oxford, 1947' Oxoniensia, xv(1950), Fig. 21 No.9.

[18]. S.Moorhouse, 'The pottery and other finds', in C.F.Slade 'Excavations at Reading Abbey: 1964-67', Berks' Archaeological J. lxvi, (1971-2), Fig. 12, No. 14.

'early' and 'late', and Phase 5a includes those groups with a higher proportion of underglaze decoration. The division, though it corresponds with the stratigraphy, is somewhat arbitary, and the excavator accepts that it could represent a change of use of the site, rather than a general ceramic development.

Phase 5a saw the continued dominance of Oxford Late Medieval Ware (Fabric AM) but also heralded the introduction of a Surrey ware of Farnborough Hill type (Fabric BG) and another fabric-type (Fabric CU) which probably originated in the area of Nettlebed. The latter was noted in a 16th-century assemblage at the Hamel, and also at Chalgrove moated manor in a mid 15th-century context [19]. The Surrey types have been regarded as indicative of 15th-century levels in Oxford, but recent evidence from London suggests that Fabric BG (known as Surrey/Hants Border Ware at the Department of Urban Archaeology) was in use there in substantial quantities in the second half of the 14th century, and one of the 4 sherds from 65 St. Aldates may be as early as c.1350 (L44/3). On the other hand, some of the Phase 5a groups (L30/1, L40/1 and L43/1) were thought to contain residual pottery from Phase 4 levels on the basis that these assemblages included highly decorated sherds from triple-decker jugs, which were not found at The Hamel after c 1290 [20]. Further well-stratified sites for this period are needed to resolve this.

This phase saw some new ceramic variations of Brill-type products. They included a wide-mouthed bowl, glazed internally and externally mottled green (Fig.8 No.1 AM), two strap handles with a new style of decoration (Fig.8 No.3 AM; Fig.8 No.2 AM) and a very well-executed jug with parrot-beak spout and applied 'hands', glazed light green (Fig.8 No.7 AM). The parrot-beak spout is associated with jugs from south-west France, and was copied by English potters particularly at Bristol and in

[19]. N.Palmer, 'The Hamel', Oxoniensia xlv (1980), Fig. 8, Phase E4; M.Mellor, 'The Pottery' in P.Page, 'Chalgrove Moated Manor' Fabric 60 (forthcoming), typescript at OAU.

[20]. N.Palmer, 'The Hamel', Oxoniensia xlv (1980), 178.

southern England, but locally-made copies are less common [21]. Th jug was almost certainly made in the vicinity of Brill, and is unique in that it combines an anthropomorphic design with a parrot beak. The context in which it was found suggests a date after 1350, rather later than The Hamel, but it may have been cherished for some time before being discarded. Other items included a baggy jug with combed decoration (Fig.8 No.4 Fabric AQ), similar to one recovered from a 15th-century well at 83 St. Aldates [22]. A wide mouthed pan in this same fabric was also recovered from this phase (Fig.8 No.6 AQ). Vessel made in this coarse porous fabric type were widely distributed throughout southern Oxfordshire and may be associated with a specialised occupation. A closed form in a hitherto unrecognised fabric was recovered from Trench III (Fig.8 No.5 ZZ).

From Phase 5b, other domestic items included a base of a bottle (Fig.8 No.9 AM), a cooking-pot (Fig.8 No.8 AM) and a strap handle, partially glazed dark yellow (Fig.8 No10 AW). Seven sherds of Tudor Green Ware (Fabric BN) came from a floor level (L306) but there was no special concentration of drinking vessels to corroborate the references to 'le berehouse' and brewhouse from the mid 15th century.

The next phase, Phase 6, dated to the second half of the 17th century with English and Rhenish stonewares and clay pipes of c. 1650-90. Phase 7a included pearlwares, suggesting a date no earlier than the 1780s, while Phase 7b may have continued slightly later. This assemblage included coloured earthenwares and a fine dish with finger-tipped decoration around the rim. This vessel had incised decoration depicting a tulip and bird's claw, after which the interior had been covered in white slip and richly glazed orange (Fig.8 No.11 DG). It was probably made locally, but the

[21]. D.A.Hinton, Medieval pottery of the Oxford Region (1973), No.11; R.Bruce-Mitford, 'Bodleian Extension', Oxoniensia iv, Fig. 24K; possibly N.Palmer, 'The Hamel', Oxoniensia, xiv (1980), Fig. 16 No. 8, dated to late 13th to early 14th century.

[22]. B.Durham, 'St Aldates', Oxoniensia xlii (1977), Fig. 24 No.1.

finger- tipped rim and the motifs were not paralleled amongst the post-medieval ceramics from St. Ebbe's[23].

The pottery from this site, while agreeing with the general ceramic trends from other tenement sites in Oxford, includes some new forms and decorational variants not recognised from recent excavations in Oxford. New forms and styles of decoration in the 15th century are to be expected, as little stratified material of this period has been excavated.

33 St. Aldates.

Only two provenances from this site produced the arbitrary number of twenty sherds which has formerly been considered a minimum for useful dating. The particular question of dating the river-crossing seemed, however, to justify a modification of the minimal requirements, and broad dates were applied to all groups. When the results were assembled according to the stratigraphy, they were found to follow the well-established progression of Oxford fabric types, and therefore have been accepted as a broad chronology for the site.

The deepest ceramic group L4, L5, L6, L9/1 produced twenty-four sherds, entirely consistent with a 10th to early 11th century date. The second group was larger, with 56 sherds predominantly from provenances stratigraphically earlier than the stone bridge causeway, or the earliest building structures in Trench 1B (L8, L14/1-/2, L410). These give a date in the mid to late 11th century, which would agree with an increase in activity at the time of building of a bridge in the late 11th century. No sherds came from layers specifically associated with the bridge, but L408 and L3 seemed to be respectively an early layer above the bridge-building horizon, and an early floor of the appended building. Ignoring a minute 16th-century sherd which must be a contaminant, they would again be quite consistent with a bridge before 1100 and a building constructed against it within the following fifty years. The next major group of 48 sherds are from features associated with the later life of the building, and give dates ranging from the late 11th through the 12th centuries, but nothing later than c. 1200.

[23]. M.Mellor, 'The Pottery', in T.G.Hassall, 'St Ebbes Survey, Post-Medieval', Oxoniensia xlix (1984), forthcoming.

The later ceramic picture continues to corroborate the stratigraphic build-up, with early to mid 13th-century infilling of the river channel (L13), and a late 13th- to 14th-century group which in the case of F404 may correspond to a replacement of the first stone building (L15, L22, F404, L405, L407). So there are two conclusions to be drawn from this exercise: first that the dating value of minute groups of sherds is greatly increased if they come from a stratified sequence; secondly that there is nothing in the pottery from this site which would preclude an 11th-century date for the bridge, and indeed some aspects of the series would seem odd if the bridge were any later than c. 1100.

CLAY TOBACCO PIPES by Maureen Mellor

Only in 65 Trench 1 were the post-medieval layers excavated by hand, so recovery of clay pipes was minimal. Including the top clearance, the total was 193 fragments.

The earliest provenance to produce a pipe fragment was the make-up of a stone floor assumed to have been laid in the second half of the 16th century (F308/1). It was, however, accompanied by a turkey bone and a piece of 18th century glass, and it seems most likely that this material had fallen down the cracks between the stones of a floor which was in use over two centuries.

Forty fragments of pipes from Phase 6 levels included a bowl of Oxford Type B, dated to 1650-90. Phase 7 produced 113 fragments, including a further two Type B bowls, one of Type C (1690-1720), two of Oxford Type D (1750-90) and a presumed Broseley Type 7b of 1740-70 [24]. These suggest a date in the second half of the 18th century, although the buildings of Phase 7 were probably in use up to the middle of the 19th century.

The latest levels of the site, Phase 8, yielded ten stratified fragments including a stem with rope and foliage decoration typical of the 19th century. There were also 29 fragments from top clearance, notably the mechanical excavation of Trench III, and these included a range from the mid 17th to mid 18th centuries.

[24]. A.Oswald, 'The Clay pipes' in T.G.Hassall, 'St. Ebbes Survey, Post-Medival', Oxoniensia, xlix (1984), forthcoming; A.Oswald, 'Clay Pipes for the Archaeologist', BAR 14 (1975), 50, Fig. 7.

COINS, JETTONS AND TOKENS.

Nos. 1 and 3 by Marion Archibald. Nos. 2 and 4 by Nicholas Mayhew.

1. Halfpenny, Henry V (1413-22), Group C; Mint: London; wt: 0.48g. (7.4gr).

The corrosion on this coin has made it appear much more substantial than it really was. The diagnostic features which make the attribution certain are the broken annulets just visible beside the crown and the propeller-like shape of the pellets in the reverse quarters, and the n letter-form on the reverse. The coin was probably not worn at deposition and was probably lost c.1420, although a later date cannot be ruled out. 65 SF 304, L306/2, Ph. 5a.

2. Farthing, George II 1375 recte 1735 (3 and 7 Transposed) (65 SF 3, L10/1, Ph. 7).

3. Nuremberg jetton of French type, late 15th century. Rough style, thin flan.

Obv.: (+A)VE MAIA.GRACIA. (some letters inverted or retrograde). A mullet stop at end of legend.

Rev: Cross fleur-de-lisee with four annulets in centre; A, lis, uncertain ornament and mullet in angles, all within quatrefoil; annulet between two pellets in each outer spandrel within outer circle.

Wt.: 2.68g (41.3gr) Diameter: 30mm (65 SF 305, L308/1, Ph.5b).

4. 17th-century farthing token, WILL WILKER AT BIRD AND HAND IN OXON. Good condition. Boyne and Williamson II p.934, no.180, (65 SF6, L15/1, Ph.7,.

IRON OBJECTS. by Ian H. Goodall. Fig. 9.

1. Complete but distorted heckle tooth. (33SF25, L8, mid-late 11th cent.)
2. Whittle tang knife with cutting edge shaped by sharpening. (SF40, L102/1, mid 11th-century)
3. Harness buckle with swivelling pin bar (SF14, L40/1, PH5).
4,5.Hinge pivots. (33SF26 and 27, L1, late 11th to 12th century).
6. Broken U-shaped staple (SF325, F308/1, Ph5b).
7-9.Nails. 7 and 8, 25 and 77mm long with flat rectangular heads. 9,42mm long shank (SF15, L45/1, Ph5).
10. Clench bolt with flat lozenge-shaped rove 41mm long, the nail-head lost. Overall length 55mm (SF401, unphased, Late Saxon or early medieval).
11. Holdfast with flattened and expanded head in line with tang. Length 180mm (65A, SF5, L2/4, Ph8).
12. Distorted rod, 154mm long. Part twisted, part plain (SF24, L77/4, Ph2).
13. Fragments of flat cast-iron sheet (SF7, L10, Ph7b).

OBJECTS OF COPPER ALLOY. by Alison R. Goodall. Fig.9.

1. Incomplete buckle-plate with incised border and gilding; possibly scrap (SF308, L305/5, Ph3a).
2. Flat-topped button with wire loop missing. (SF23, F49/1, Ph5).
3. Button with flower motif within 8-pointed border. (SF13, L36/1, Ph6).
4. Thimble with tapering sides and shallow domed top. There are rings of small pits on the sides and rectangular pits on the top. There is a marked ridge around the base. (SF303, L301, Ph8).

5-9. Pins with coiled wire heads stamped to a spherical shape. Nos. 5-7 have white metal plating. (5-7 SF9, L36/2, Ph6; 8-9 SF10, L8/3, Ph7a).

10. Cast rumbler bell. The lower half is decorated and has a 'T' in low relief (SF301, L301, Ph8).
11. Binding strip with penannular section; no rivet holes. (SF26, F60/1, Ph4b).

12-13. Sheet offcuts (12, SF12, L33/1, Ph5; 13, SF323, F308/1, Ph5).

14. Fragment of thick rectangular-sectioned strip (SF8, L14/1, Ph7b).
15. Thin slightly convex disc with perforation at the edge; diameter 23mm (SF1, L1/2, Ph8).
16. Nail with blunt point and round head (SF2, L6/1, Ph7b).

OBJECTS OF LEAD. by Alison R. Goodall. Fig. 10.

1. Perforated fragment of H. sectioned window came. (SF17, L48, Ph5a).
2. Disc with scratches on one face. (SF19, L32/1, Ph5b).

STONE ARTIFACTS. (Fig. 10.).

Stone identifications are by H.P.Powell.

1. Fragment of whetstone; medium coarse, slightly ferruginous, pink sandstone, not local in origin. Incorporated in outer stonework of Late Saxon ford (SF 312, L319, Ph1).

2. Fragment of a mortar with chamfered lug; Purbeck marble from Dorset. The inner surface is polished, the outer surface 'fa tted' (SF25, L77/1, Ph3).

WOODEN OBJECTS. by Carole A. Morris. Fig. 11.

1. 10 fragments of a fine-quality wooden bowl [25]; rim diam. c. 240mm; height c. 96mm; th. 9-10mm. The bowl is lathe-turned and skilfully made and, although the side walls and base are quite thick, the curving out-turned rim is thinned in order to suggest quality (thin walled bowls are much more difficult to turn and therefore more expensive for the craftsman to make). It is decorated with a wide ridge-like band of relief around the girth, and has a hollow concave base with a high footring. The most unusual (and, as yet, unique) feature of the bowl is a very elaborate repair of a crack which arcs downwards from the bowl rim and across the 'ridge'. The crack is held together by a series of S-shaped pieces of bronze ribbon, each set individually into the wood perpendicularly to the grain. There are 9 pieces set into the interior surface and 7 into the exterior surface. This method of repairing a bowl is very complex and, as yet, occurs nowhere else in the archaeological record. Normal repairs of cracks usually consist of large, inelegant iron or bronze staples which bind together the wood on each side of the crack. [illegible]o-Scandinavian bowls from Hungate and Coppergate in York [illegible] staples repairing cracks which had split the bowl i[illegible] since the staples were much [illegible]nger than t[illegible] for the bowl to split agai[illegible] another place. [illegible] had several radial sp[illegible]s whi[illegible] were repaired wi[illegible] the crack cl[illegible]d [27]. Altho[illegible]gh this method w[illegible] wood, it was w[illegible]ak and less efficient. It is like[illegible] was valued by [illegible]ts ow[illegible]er, [illegible]o had it repaired by a m[illegible]thod which [illegible]ot only e[illegible]anced its appearance, b[illegible] prol[illegible]nged its l[illegible]fe. A late [illegible]th-century bowl found in th[illegible] Manor of the More, Rickma[illegible]sworth, had been repaired wit[illegible]

[25]. Jaqui Watson suggests Salix/Populus, willow or poplar.

[26]. K.M.Richardson, 'Excavations at Hungate, York', Archaeological J. cxvi(1959), 85, Fig. 20; unpublished, York Archaeological Trust 1976.7 1611 sf 375.

[27]. Unpublished, York Archaeological Trust, 1976, 15 407 sf 211.

which had probably rusted completely before the bowl was thrown away, thus indicating that the bowl had been reusable and that repair was a viable procedure (SF28, L82/1, Ph4a) [28].

2. Complete wooden bowl: rim diam. 184mm; height 64mm; th. 9mm. The bowl is lathe-turned and, although apparently simple in form, has a fairly high degree of decoration and technical detail. The decoration is in the form of lathe-cut grooves. On the exterior there are single grooves on the rim and 12mm below the rim. Further down the body is a set of 4 grooves, and, immediately below these, a slight inward step. On the interior, a pair of grooves forming rings 128 x 116mm dia. enclose, in the middle of the bowl bottom, a raised circle of wood 50mm dia., with rounded edges. The bowl stands on a flat base 4mm high with rounded edges. The rounded profile of the bowl appears to turn vertical at the rim. This effect is achieved by the turner's ploy of thinning the rim on an inward slant and, in a way similar to No.1, suggesting a finer quality (SF27, L82/1, Ph4a).

3. Fragments of a large, shallow bowl or platter: diam. (reconstructed) c. 255mm, height (reconstructed) c. 88mm; th. 6-9mm. The bowl appears to be lathe-turned, and is a roughly-made vessel with no decoration and no base. It was recovered in a very soft, spongy condition, and had been distorted by compression. Possibly Fraxinus sp., ash. B. Durham notes that after the bowl had been stabilised by freeze-drying, further reconstruction was possible. A base of 95mm diam. was visible, and an external groove of 190mm. Grain lines suggest a second groove of 230mm diameter and a thickened wall above this, although the rim was missing (SF41, L73/2, Ph4a).

4. Large stave-built tub or open-topped vessel set upright at the edge of a river-channel. At least 6 staves were observed, and the original number of staves was probably between 20-24; only 1 was recovered, SF42. Top diam. c. 900-950mm, base diam. c. 750mm; height c. 1.05m; max. stave th. 16mm. Quercus sp. Oak. The tub was much wider at the top than at the bottom, and no base was recovered, although traces of a groove on SF 42 indicates that it originally had one. The staves were chamferred on the rim edge, and bound together by at least three organic hoops. Although

[28]. M.Biddle et al., 'Excavations of the Manor of the More, Rickmansworth', Archaeological J., cxvi(1959), 182, Fig.18 No. 23.

there was no archaeological indication of a construction trench for the positioning of the tub, it is likely to have been set slightly into the river bed, and a short length of timber c. 80mm square seemed to serve the purpose of propping up the vessel on the south side. These facts indicate that the tub was positioned in the river-channel for a purpose. The resistance to withdrawl and the line of fracture of the single stave recovered suggest that the base was present and in good condition. The most likely purpose for the vessel would be as an enclosed 'tank' in which to keep live fish, in the same way as a fisherman's keepnet but more permanent. The vessel, especially if no longer watertight and therefore being re-used, would allow the flow of fresh water through and around it whilst restraining the fish. The re-use of stave-built vessels, whether in complete form or as single staves, was quite a common occurence throughout the medieval period. Staves from a similar tub were re-used as liner boards in several 14th- and 15th-century wells at Covehithe on the Suffolk coast [29]. (SF39, SF42-44, F83, Ph4a).

5 and 6. Brian Durham notes a plank with three dowels (No.5) and another with nail holes, one of which matches the shape of a clench bolt (Fig.9, No.10). The latter suggests a boat timber, which had been reused in a waterfront (SF404, F403, unphased late Saxon or early medieval).

A wooden object from Oxford Castle's east barbican ditch.

7. Two small fragments of the rim and wall of a very small lathe-turned vessel, whose rim diameter is much smaller than its maximum diameter. The profile can be reconstructed as globular (Fig.11), and the vessel's base could have been rounded or flat. There is an external lathe-cut groove 11mm below the rim edge. The object was described in 1976 as 'fragments from a simple wooden bowl of straight-rimmed type'.[30] However, the

[29]. P.M.Durbridge, 'Late medieval well at Covehithe', Lowestoft Archaeol. and local History Society, Annual Report. X, (1977-8).
[30]. M.Henig in T.G.Hassall, 'Excavations at Oxford Castle, 1965-73', Oxoniensia, xli(1976), 271, No. 6.

vessel is more probably a small jar or bottle, and may have held substances such as ointment or ink. In the archaeological record, the only even loosely comparable objects are the small burrwood bottles from Sutton Hoo [31] (Oxford, Westgate 1970, sf45, WP5, 14th to mid 15th-century).

[31]. R.L.S. Bruce-Mitford, The Sutton Hoo Ship Burial, i(1975), 442.

BONE ARTIFACTS. Fig.12.

The species identifications are by Bob Wilson and Enid Allison. Arthur MacGregor has commented on the likely functions of the objects.

1. Ice skate, horse metapodial (33 SF411 unstratified late Saxon).

2. Part of sheep pelvis, the acetebulum drilled and knife-trimmed. Purpose obscure, but a cup-and-ball game has been suggested (SF327, 309/2, Ph2a).

3. Scratched and polished cattle tibia, purpose obscure (SF22, L77/3, Ph2b).

4. 'Medieval pen', radius of Greylag/domestic goose, sharpened at proximal end. For parallels of the use of these objects see A. MacGregor, The technology of skeletal materials (1983) in press. (SF309, L316/2, Ph5a).

5. Bird bone trimmed to point. Too small to be a pin (SF307, L306/2, Ph5a).

6. Sample of 5 ends of cattle metapodials used as possibly decorative line of infilling between slabs of a stone floor. The sample includes 3 proximal metacarpals, one proximal and one distal metatarsal. All were worn on their articulation surfaces, presumably from the passage of footware (SF322, F308, Ph5b)[32].

7. Threaded disc, probably from a cotton-barrel. As excavated this was believed to be well-stratified in a c.1400 level, but in fact it cannot be earlier than the late 18th century (SF306, provenance ostensibly L306/2, Ph5a)[33].

[32]. For knuckle-bone floors see: T.W.Squires, In West Oxford, 158, Pl. 83; OAU Archive: Oxford 24 New Inn Hall St. (St. Marys College), colour slides 150-51.

[33]. A.MacGregor, The technology of skeletal materials (1983), in press.

LEATHER OBJECTS. Fig.13.

Fragments of leather were recovered from waterlogged late Saxon and medieval deposits on both excavation sites, but only two were recognisably worked. Both were footwear, and both from early 13th-century levels. In date, form and craftmanship they compare closely with the group from pit D6B at the Clarendon Hotel, and those from the Hamel. The incorporation of a rand in the sole-upper seam shows that this type of construction was widespread in early 13th-century London; see No. 7 at Clarendon Hotel, and No. 6 at The Hamel [34]. In both these cases the triangular fillet was described as a 'welt', but a welt, by definition, has two rows of stitching and is unknown before the 15th century. The earliest previous example of randed construction appears to be mid 14th-century [35].

1. Turnshoe with rand, almost complete, although upper is too compressed to illustrate shape. The shape of the sole and distribution of wear suggests a left foot, which would mean that the stitched seam on the quarter was exposed on the outside of the foot; this seam is normally concealed on the inside quarter. The sole and upper were joined by edge-flesh stitches of 5-6mm length, with a rand of triangular section (5 x 3 x 4mm) of which two fragments survive. The upper appears to have been of ankle-boot shape, constructed of three pieces with 3mm stitched seams at the heel and left quarter. The third piece of upper had been used to add height to this left side, to match the right. There were stitches along the top edge of the shoe, perhaps for a binding. Two triangular fragments are possibly instep ties, but there was no indication of where they were attached [36]. An irregular pattern of stitches in the sole and heel may indicate more than one repair (SF31, L77/5, Ph2b).

[34]. E.M.Jope and W.Pantin, 'Clarendon Hotel', Oxoniensia xxiii (1958), 75-7, No. 7; N.Palmer, 'The Hamel', Oxoniensia xlv (1980) Fig. 33 No.6. Fiche 2, C14, D01-04.

[35]. J.Thornton, 'The Examination of Early shoes to 1600' Trans. Museum Assistants Gp., xii (1973), 9-11.

[36]. For similar ties from a 9th-century source see B.Durham, 'St. Aldates', Oxoniensia, xlii(1977), Fig. 35 No. 7.

2. Fragment of 3·4mm thick stitched leather, length 110mm, probably from turnshoe with edge-flesh seam of 6-7mm stitch length (SF30, L77/4, Ph2b, not illustrated).

3-7. Pieces of leather with cut edges but no working (not illustrated). No. 3 was unusually large for an offcut with maximum dimensions of 340mm by 130mm by 1.5mm thick (SF29, L82/1, Ph4a). Others were smaller (SF310, L319/1, Ph1; 33SF20, 33L10, c. 10th century; 33SF24, 33L9/1, c. 10th century).

BUILDING MATERIALS. Fig. 13.

1. Incomplete small carved stone shaft, sub-square in section, slightly 'waisted' with deep socket at one end; possibly Taynton Stone (SF20, L60/1, Ph4b).

2. Ashlar moulding 0.14m long (BM1, F42, Ph7).

3. Hand-made ceramic drain-pipe, length 0.61m, bore 0.11 - 0.12m, glazed internally orange, joints mortared. From Victorian public house, No 65, dated 1850-75 (BM2, F3, Ph8, not illustrated).

Clay roof and floor tiles are discussed in a separate report below. Firm calcareous wall-plaster was recovered from two provenances, the robber-trench of the old river wall, probably Phase 6 (after 1650), and the inside construction-trench of wall F8 of the 18th century inn building (SF16, L51/2, Ph6; SF11, F8/3, Ph7).

Mortar samples were taken from the core and facing of the stone bridge causeway, and will be stored pending a comprehensive programme of mortar analysis (33SF406, 33F401, late 11th century).

TILES. by Maureen Mellor.

323 tile fragments were recovered from this site. Of these 240 were roof tile and only 2 floor tile; 81 miscellaneous fragments were not assignable to any group. The tiles were examined to establish whether the medieval tile production centre serving the site were the same as those supplying the excavated medieval tenements at The Hamel [37].

Ten different fabric types were identified, and included two types not encountered at The Hamel (Fabric VIIA and VIIB), but these types were both present at the St. Ebbe's sites amongst the post-medieval levels, where they may be residual [38]. These two fabric types were slightly more abundant in the earlier phases (Phases 2 and 3) on this site.

Type IB with calcareous inclusions, and Type IIID with grey quartz, iron and mica inclusions, were barely represented on this site as compared with The Hamel. However, Type III, with no apparent inclusions, was the dominant fabric type on both sites. Type IIIA, with pink quartz inclusions associated with the Brill production centre, and Type IIIB, made to the south of Oxford, were present in Phases 2-5. Type IIIC, with quartz and grey inclusions, is also thought to originate from the south [39], and continued slightly later (Phase 6), as did Type IV, with grey and white quartz and grog, which dominated Phases 6 and 7. This last fabric was barely present at The Hamel, nor was it noted amongst the post-medieval levels at St. Ebbe's; but it was present in the final Phase (Phase 5) at Chalgrove moated manor some 12 miles south-east of Oxford, suggesting a possible 15th-century date.

The majority of the tiles were flat roofing-tiles with pegholes for wooden pegs, some with traces of mortar on the undersides. Eleven ridge-tiles with plain lead glaze and mottled green on orange glaze were recovered. One such tile (I F1/2) included a hoof print, and Bob Wilson

[37]. S.Robinson, 'Tiles', in N.Palmer, 'The Hamel', Oxoniensia, xlv(1980), 196, 2 D09.

[38]. S.Robinson, 'The Tiles', in T.G.Hassall, C.Halpin, 'St. Ebbes Survey, Oxford', Oxoniensia, xlix(1984), forthcoming.

[39]. S.Robinson and C.Storey, 'The Tiles', in P.Page 'Chalgrove Moated Manor', forthcoming, typescript at OAU.

writes: 'The hoof print is broken 20mm from the tip so its length cannot be measured. It is at least 38mm wide but is unlikely to much exceed 40mm. The form is most similar to sheep or goat, is possibly of deer but improbably of cattle'. The fabric (Fabric IV) suggests an origin probably in the area of the Chilterns. The two floor-tiles were undecorated. Only two plain floor-tiles were identified.

ENVIRONMENT

BONES AND SHELLS. (65 St. Aldates).

by Bob Wilson with contributions by Enid Allison and Andrew Jones

Mammalian bones, marine shells and other general results.

Bones from the trenches are generally well preserved. A crude index of degradation calculated from the percentage of loose teeth, and fragments of mandibles, tibia and radius in the total number of sheep bones is 45%. This indicates material degraded worse than bones from Iron Age pits, but usually better preserved than from other types of deposition on small or rural sites.

Bones from the upper levels of the site show greater effects of chemical weathering. Those from the deepest deposits, though dark stained, are preserved excellently. Conspicuous exceptions are a small proportion of fragments, for example from L82/5, L309, L318 and L319, which are scratched or heavily abraded by mechanical damage, some of which is attributable to the passage of traffic on the 11th- to 13th-century road or ford (L318/2, L319).

Medium-sized fragments exceeding 100mm in size are common in this collection, while small pieces are few. This coarseness of debris and the paucity of burnt bones might be produced by differential recovery, but could be other clues to depositional events; in either case they may affect the results of identification.

Table 1 shows the outcome of classifying 43% of the mammalian debris, and includes frequencies of other classes of bone and shell. The successive phase groups contain decreasing amounts of bones from alluvial and dumped deposits. Although bones from floor and yard levels contribute to Phases 2b and 3, such occupational deposits only predominate from Phase 4a onwards.

Table 2 summarises the percentage trends of the frequencies of bones and shells of common species. Cattle bones are more abundant in the early Phases 1-3, and sheep in the later 6-7. The proportion of pig is noticably high in Phases 4b and 5a. Percentages of identified bones also vary, being greatest for Phases 1-3, and may be related to the difficulties of identifying the smaller fragments in later groups.

Where results are regrouped in Table 3 according to major types of deposit, cattle bones appear associated more with dumped levels,

especially the Phase 2a platform and perhaps other coarse debris, than with river silting or the housing occupation. Pig bones were relatively prolific in yard levels.

Explanatory evidence was sought in the proportions of skeletal elements in various groupings of bones. Useful findings are given in Table 4. Sheep debris from floors, yards, road, or river deposits appears uniformly similar. Cattle bones from Phases 1-3 contain a higher proportion of head debris, especially mandibles, than later deposits. Head debris of pigs is relatively common for the yard areas, the only grouping of any size.

Tables 5 and 6 present information on animal ages at death, and on animal size, but this is best used elsewhere with data from larger sites.

Pathological deformities of bone are few: a probable healed fracture of a pig fibula, L37/1 Ph7; surface and possibly growth irregularities of a pig canine, L50/1 Ph4b; and the probable lateral twisting of the P2 tooth in a sheep mandible, L52/1 see Table 5.

Two items of further interest are: a cat cranium bearing tranverse cuts across the nasal and frontal bones and showing that the cat was skinned for fur, L77/4 Ph2b; and a hole drilled through the centre of a sheep acetabulum, L309 Ph2a; the surrounding edges of the articulation surfaces were trimmed down but the purpose of this working is not clear (see small finds, Fig. 12 No.2).

Bird bones. by Enid Allison and Bob Wilson.

Nearly all of the detailed information was provided by Enid Allison. Size criteria from the ranges of modern species were used to distinguish the various goose bones. The chief identification of interest is the turkey femur from L308/2 in Phase 5b, but unfortunately for evidence of the regional introduction of this species, this context is datable only to between the mid 16th and 18th centuries.

The percentage of goose among the bones of domestic fowl and goose is 32% for the medieval period group (Phases 2-5a). This percentage may be influenced by the small sample size (n=34) and by possible poor recovery of small bones, but also it may confirm indications from other excavations that goose bones are found more commonly on low-lying and peripheral sites

of Oxford. In addition, the ratio of goose to domestic fowl may decline over time. These trends may reflect changes in the husbandry and marketing of these species.

Fish bones identified by Andrew Jones.

Two bones from P306/2 (Phase 5a) are of the carp family (Cyprinidae). One, an opercular, was further identified as roach (Rutilus rutilus).

General discussion.

The relative abundance of cattle bones in the early groups is probably related to the coarseness of debris being dumped or in other ways entering the river-channels or adjacent roadway and surviving the use and disturbance of this area. A part explanation may be the tendency for the peripheral areas of settlements to accumulate large fragments and bones of large animals [40].

A prevalence of cranial elements indicates that some of the 11th- to 13th-century bones of cattle could originate from the early stages of commercial butchery, but probably this would have occurred some distance away, and does not indicate any intensive trade activity on this site. The pig bones associated with the yards, particularly those of the head, might, however, be linked to butchery on the tenements, especially during the 14th to 15th century period.

Similar trends are not apparent among the other and later cattle bones, or among any of the sheep. Therefore increasing amounts of bones appear less connected with slaughtering and early stages of butchery, and more with domestic activity, presumably as the occupation of this area expanded and intensified.

As on sites with greater concentrations of pig bones, such as late Saxon New Inn Court, Oxford, it is possible that pigs were reared as well as butchered on the St Aldate's tenements [41]. Later bone debris,

[40]. R.Wilson, 'The Bones at Mingies Ditch, Hardwick with Yelford', report in preparation.

[41]. R.Wilson, 'Animal bones and shells' in C.Halpin, 'Excavations at New Inn Court, Oxford', Oxoniensia xlvii(1983), 69.

however, some as early as the mid 15th century, is similar to the post-medieval refuse at Church Street, Greyfriars and The Hamel [42]. Although the occasional skeleton and documentary evidence both indicate some pig-keeping on Oxford tenements, the abundance of pig bones had declined from Saxon and medieval times and suggests that pig-keeping had become less intensive.

Sheep bones become more common, but it is probable that these represent meat purchased from butchers and not home-produced mutton. This change need not suggest any greater prosperity of the inhabitants, but may be a consequence of fewer opportunities to keep pigs within the city. Alternatively, it is possible that sheep-rearing became more important than pig-keeping in the wider environs of Oxford, and that meat and wool prices and the marketing of sheep had altered substantially.

[42]. R.Wilson, 'Animal Bone and Shell', in N.Palmer, 'The Hamel', Oxoniensia, xlv (1980), Fiche E04-F11; R.Wilson, 'Post-medieval bones and marine shells', in T.G.Haassall, 'Oxford St. Ebbes Survey', Oxoniensia xlix (1984), forthcoming.

Table 1 : Bone and Shell Fragment frequency at 65 St. Aldates, Oxford

Phase	1	2a	2b	3	4a	4b	5a	5b	6	7
Century	11	L11-L12	L12-e13	m13	m-L13	e-m14	m14-m15	m15-m17	m17-m18	18-m19
Cattle	11	61	23	54	22	31	46	10	3	12
Sheep/goat	13	23	21	32	11	21	20	20	15	15
Pig	5	7	1	11	2	20	32	7	2	2
Horse	1	1	-	4	-	2	-	-	1	-
Cat	-	1	2	-	1[a]	-	-	-	-	-
Rabbit	-	-	-	-	-	-	-	1	1	-
Hare	-	-	-	-	-	-	1	-	-	1
Sub total	30	93	47	97	36	74	99	38	22	30
Unidentified	9	47	49	109	51	173	207	40	35	37
Domestic fowl	-	1	1	4	9[b]	3[c]	6	3	4	7
Domestic goose	-	-	-	-	2	6	2[c]	2	-	-
Wild Bird[d]	1	2	-	3	2	1	1	2	-	-
Oyster	5[e]	6[f]	2	-	1	7	7	3	1	3
Burnt bone	-	-	-	-	-	2	1	-	-	-

Notes :
a. Also dog/fox 1.
b. Including 6 bones of one individual.
c. Including a worked bone, see small finds.
d. Including Anas platyrhynchos as mallard/ domestic duck, See Table 7.
e. Also 3 Anondonta/Pseudo anondonta shells (freshwater mussels)
f. Also Unio sp. shell. (Identified by Mark Robinson)
+ Presence of skeletal element not normally counted.

Table 2 : Percentage of Bone and Shell Fragments

Phase	1 & 2	3	4	5	6 & 7
Century	11th - e13th	m13th	m13th - m14th	m14th - m17th	m17th - m19th
No. of mammal fragments (n)	170	97	110	137	52
	%	%	%	%	%
Cattle	56	56	48	41	29
Sheep/goat	34	33	29	29	58
Pig	8	11	20	28	8
Horse	1	+	2	-	2
Cat	2	-	1	-	-
Rabbit	-	-	-	1	2
Hare	-	-	-	1	2
% of n					
Domestic fowl	1.1	4.1	10.9	6.6	21.1
Domestic goose	-	-	7.2	2.9	-
Wild bird	1.8	3.1	2.7	2.2	-
Oyster	7.6	-	7.2	7.3	7.7
% of identified bones	62	47	33	36	42

Table 3 : Percentages of Species according to type of deposit

	River silting	Dumped levels	Floors	Yards
Phases	1 - 5	2a - 5	2b - 5a	3 - 5b
No. of frags.	171	72	51	164
Cattle	51	69	47	46
Sheep/goat	37	24	39	23
Pig	9	7	14	29
Horse	1	-	-	1
Cat/hare	2	-	-	1

Table 4 : Percentage of grouped skeletal elements

	Cattle		Sheep/goat	Pig
Phase	1 - 3	4 - 5	1 - 5	3 - 5b
Fragment no.	148	109	131	48
	%	%	%	%
Head	30	15	27	46
Foot	23	24	20	19
Body	47	61	53	35
Teeth	7	1	5	8
Small bones	12	17	2	4
Index of degradation			45%	

Table 5 : Mandible Wear Stages of Sheep, Cattle and Pig

Phase	Sheep/goat	Cattle	Pig
1	32	44	23
2a		4,18e,31e	20
2b	29[a],39[b]	21e,22,23	
3	33e,38	42	
4b	34[c],36,42		10e
5a	34,46e		
5b		41e	
6	33e		
7	31e,45	12	

a. 13 at C-V, 12 erupted

b. 14 erupted

c. 14 at V-E; also P2 twisted laterally in alveolus

e. Estimated age stage

1. A. Grant 'The use of tooth wear as a guide to the age of domestic animals' in R. Wilson, C. Grigson and S. Payne (eds.), Aging and Sexing of Animal Bone from Archaeological Sites, BAR, British Ser. Cix,(1982), 91-108.

Table 6 : Selected measurements of Bones

	Sheep/goat[a]					Cattle				
	Distal width		Length (GL)			Distal width			Length (GL)	
Phase	hu	ti	mc	mt	ra	ti	mc	mt	ast	mt
1		23		140, 129						
2a	28, 28	25, 25		126		55, 57		48		222
2b	30	25							54	
3	30, 30					51		52	54	
4a							48			
4b		23, 24					50			
5a				113		58				
5b		24	119, 120	136					51	
6	32	23		130	145					
7	35									

Also Pig mc IV GL91, dw20 : Phase 3. Cat ti GL102 : Phase 4a
mt III GL84, dw16 : Phase 5b.

[a] No goat was identified

Table 7 : Frequency of Bird Bones

Phase	1	2a	2b	3	4a	4b	5a	5b	6	7	
Domestic Fowl	-	1	1	4	9	3	6	3	4	7	38
Turkey	-	-	-	-	-	-	-	1	-	-	1
Domestic/ greylag goose	-	-	-	-	2	6	2	2	-	-	12
Greylag goose	-	-	-	2	-	1	-	-	-	-	3
Greylag/Bean/ Whitefronted goose	-	-	-	1	-	-	-	-	-	-	1
Pinkfooted/ Whitefronted goose	-	-	-	-	-	-	-	1	-	-	1
Barnacle/ Whitefronted goose	-	1	-	-	-	-	-	-	-	-	1
Barnacle goose	-	-	-	-	-	-	-	1	-	-	1
Indet. goose	-	1	-	-	-	2	1	-	-	1	5
Mallard	-	1	-	-	1	-	-	-	-	-	2
Teal	-	-	-	-	1	-	-	-	-	-	1
Indet. duck	1	-	-	-	-	-	1	1	-	-	2
Indet.	-	-	1	-	-	2	4	1	-	-	8
Total	1	4	2	7	13	14	14	9	4	8	76

The Bones from 33 St. Aldates

by Bob Wilson, Enid Allison and Andrew Jones.

Results of identification for two groups of features are given in Table 8. Shoveller duck (radius, F8) is a new local record for the Late Saxon and medieval period. An articular of Cod is from a large individual.

Table 8 : Frequency of Bone and Shell Fragments at 33 St Aldates

Feature numbers	4, 5, 8 & 9	1 & 7
Century	10th - 11th	11th - 12th
Cattle	9	3
Sheep	11	3
Pig	3	-
Total	23	6
Unidentified mammal	42	6
Domestic fowl	1	1
Shoveller duck	1	-
Cod	1	-
Oyster	8	1

ENVIRONMENTAL EVIDENCE FROM LATE SAXON LEVELS.

by Mark Robinson.

Four samples were investigated from the current series of excavations in order to answer particular archaeological problems. They were washed through a series of sieves and the residues sorted. In the case of the two samples in which waterlogged organic remains survived, the finest mesh used was 0.2mm, while a 0.5mm sieve was used for the other samples. The report on the fourth sample, 33 St. Aldates L409, is included in the printed text, 'Agricultural Debris against the Norman Bridge'.

65 St. Aldates: The Ford.

In order to establish conditions at the Late Saxon ford when silting had just begun, a sample of the 11th-century sediment immediately above the stones of the ford was examined (318/7). A second sample (318/3 lower part) was investigated to establish conditions after 0.4m of silting had occurred. The results are given in Tables 00-Fiche 000, being expressed as minimum number of individuals.

Sample 318/7: 0.5kg organic sandy silt with sand and gravel up to 8mm. There was heavy iron-panning on the gravel, otherwise the deposit was grey.

Sample 318/3 lower level: 0.5kg grey silty clay without organic remains.

Sample 318/7 contained an extraordinarily diverse range of species. The molluscan assemblage is clearly indicative of clean flowing water (or a lake), being rich in operculates and bivalves. Such a range of shells can be found on the bed of several streams of the Thames around Oxford at present which have a gravel bottom in the centre and reedswamp along the margins. The presence of gravel in Sample 318/7 suggests that at times the velocity of current exceeded 0.3m per second. Several of the molluscs which were well represented in Sample 318/7 are often abundant in stream/river bed deposits in the region, but do not seem to occur frequently in overbank deposits on the Thames floodplain. These points tend to confirm that the structure excavated was a true ford on a river-bed rather than a stone-metalled trackway over the general surface of the

floodplain.

The list of plant species from Sample 318/7 is particularly long. This is because it represents a mixed assemblage of aquatic and waterside species from a well-vegetated river, combined with an urban assemblage which itself had diverse origins. The insects similarly had these mixed origins.

The riverine component included elements of the submerged community of plants such as Zanichellia palustris, water beetles including Oulimnius sp., a genus which requires clean, flowing water, emersent and reedswamp plants such as Schoenoplectus lacustris, and beetles that feed on water plants, for example Prasocuris phellandrii which feeds on aquatic Umbelliferae including Oenanthe aquatica, which was well represented by its seeds. More open conditions in places along the river bank are suggested by colonists of bare mud and sandbanks such as Myosoton aquaticum and Rumex maritimus. The single seed (unfortunately the carpel was lacking) resembling Damasomium alisma is of particular interest because this plant of seasonally shallow water is now almost restricted to SE England and has not been recorded from the Oxford region [43].

Taken together, the remaining plants seem typical of late Saxon and medieval urban assemblages: a great diversity of species from many habitats, of which some grew in the settlement as weeds, and others were imported both intentionally and accidentally. It is likely that this debris had been dumped in the river (perhaps off the newly-constructed bridge) from nearby tenements, for by this date houses seem to have lined parts of the route south out of Oxford to the Thames. Several categories of imported plants can be recognised. Frond fragments of bracken were present. It is likely that they had been brought from the areas of acid soil on the hills around Oxford. Bracken seems to be ubiquitous on urban medieval sites, and may have been imported for use as bedding [44]. Material from crop processing was also much in evidence, primarily flax-threshing debris but also a little charred wheat chaff. As well as crop

[43]. H.Godwin, History of the British Flora (1975), 354-5; F.H.Perring and S.M.Walters, Atlas of the British Flora (1962) 301.
[44]. M.Robinson, 'Environmental Evidence', in N.Palmer, 'The Hamel', Oxoniensia xlv (1980), 204.

remains there were also seeds from weeds which are very closely associated with arable agriculture and were probably imported with the crops Agrostemma githago, Centaurea cf. cyanus and Bupleurum rotundifolium. All three of these species are now verging upon extinction in Britain as wild plants as a result of modern agricultural practices. The single seed of Rhinanthus sp., a meadowland species, had perhaps arrived in hay.

In addition to aquatic and waterside species of insects, there were three beetles which can frequently be found in urban medieval contexts and tend to be associated with somewhat damp timber and thatch in buildings: Anobium punctatum, Ptinus fur and Typhaea stercorea [45]. These beetles reinforce the evidence from the plant remains for the dumping of occupation debris into the river.

The molluscs from Sample 318/3 lower level included a few shells of riverine aquatic species but there was a much higher proportion of terrestrial/marsh individuals than in the sample from the surface of the ford. The most abundant species in the deposit was Carychium cf. minimum, a snail of marshes and tall wet grass. It is clear that silting over the ford had so raised the level at this point that it no longer represented the bed of a river with a moderate current. It is uncertain from the molluscan evidence whether layer 318/3 accumulated on a marsh/mud bank which was only flooded seasonally, or whether it formed in shallow water (and the terrestrial individuals had been washed in from the river margin).

33 St. Aldate's: Early habitation alongside the Thames Crossing (33 L11)

A sample of humic silt covering an undated wattle fence in the top of a silted channel of the Thames was examined to determine the conditions under which silting was occurring. The results are given in Tables 00.
Sample L11: 1kg dark brown humic silt with a layer of very fragmentary decayed vegetation, perhaps fallen Glyceria maxima stems. The few mollusc shells had been severly leached.

Rather surprisingly, the most abundant plant remains from Sample L11 were fragments of epidermis from cereal caryopses, probably wheat,

[45]. Ibid., 201.

followed by smashed pieces of Agrostemma githago seeds. Such remains are characteristic of human sewage and were present in considerable quantity in a Roman latrine at Bearsden, which was very thoroughly investigated by Dickson and Dickson [46]. They demonstrated that the material had been derived from wholemeal flour, in which some weed seeds had been milled with the grain, and that all those remains had passed through the alimentary canal. In the case of the St. Aldate's deposit, however, the possibility that the remains resulted from discarded flour cannot be eliminated.

The other plant and animal remains from the deposit were mostly aquatic and marsh species, along with a few seeds from weeds of disturbed ground. Much of the assemblage is characteristic of shallow, slowly moving or still water with rich emersent vegetation such as Alisma sp. and Sagittaria sagittifolia (indicated both by seeds and the beetle Donacia dentata), Oenanthe cf. aquatica and various sedges. The most abundant beetle was Donacia semicuprea, the larvae of which tap the stems of Glyceria maxima for their air supply [47]. It is very likely that this deposit was accumulating in a reed-swamp of G. maxima fringing marshy ground.

Even though sewage seems to have been reaching the river, the Thames was not generally polluted in Late Saxon times as it flowed through Oxford. The fauna included the water beetle Oulimnius sp., larvae of the caddis fly Ithytrichia sp., and the bivalve mollusc Pisidium amnicum, all of which require clean, well oxygenated, water.

Some very well preserved puparia from two species of Leptocera, with their spiracular processes intact, were present. Fifteen of them could be keyed out to L luteilabris (Rond.) while the remaining three were keyed to

[46]. B.A.Knights, C.A.Dickson, J.H.Dickson and D.J.Breeze, 'Evidence concerning the Roman military diet at Bearsden, Scotland, in the 2nd century A.D.', J. Archaeol.Sci. 10 (1983), 139-52.

[47]. G.C.Varley, 'On the structure and function of the hind spiracles of the larvae of the beetle Donacia (Coleoptera. Chrysomelidae). Proc. R. Ent. Soc. Lond.(A), (1939) 14, 115-123.

L. appendiculata (Vill.)[48]. The puparia of many British species of Leptocera, however, remain undescribed, so it is not possible to be certain about the identification and to say whether the larvae of these flies were feeding on sewage or decaying reeds.

The implications of the whole assemblage from sample 33L11 are that by the 10th century AD, the silted river channel at 33 St. Aldates supported a reedswamp. Human sewage seems to have been entering this deposit. It is most unlikely that the contents of Oxford's cess pits would have been brought so far outside the city for dumping at such an early date. It is much more probable that there were houses on slightly higher ground nearby, related to the route south from Oxford crossing the Thames here.

[48]. E.F.Oakley, 'Description of the puparia of twenty-three species of Sphaeroceridae (Diptera, Acalyptratae)', Trans. R. Ent. Soc. Lond. 126, 41-56.

Table 9 : Plant Remains from layers beside the crossing

Seeds		65 St. Aldates L318/7	33 St. Aldates L11
cf. Chara sp.		25	-
Ranunculus S.Ranunculus sp.	Buttercup	4	4
R.flammula L.or reptans L.	Lesser Spearwort	1	-
Ranunculus S.Batrachium sp.	Water Crowfoot	9	-
Papaver argemone L.	Poppy	2	-
Brassica or Sinapis sp.	Wild Mustard etc.	1	-
Coronopus squamatus (Forsk.) Asch.	Swine-cress	1	-
Capsella bursa-pastoris(L.) Medic.	Shepherd's purse	2	-
Rorippa sp.	Watercress etc.	2	-
Silene cf. vulgaris(Moen.) Gake	Bladder Campion	2	-
Agrostemma githago L.	Corn Cockle	8	v. many frags.
Myosoton aquaticum(L.)Moen.	Water Chickweed	15	-
Stellaria media gp.	Chickweed	2	-
Chenopodium cf. polyspermum L.	All-seed	3	-
C. album L.	Fat Hen	-	2
C. cf. rubrum L.or botryodes Sm.		-	1
Atriplex sp.	Orache	2	-
Chenopodiaceae gen.et sp.indet.		2	-
Linum usitatissimum	Flax	2	1
Rubus fruticosus agg.	Blackberry	5	-
Potentilla anserina L.	Silverweed	1	-
Hippuris vulgaris L.	Mare's-tail	1	-
Callitriche sp.	Starwort	1	-
Hydrocotyle vulgaris L.	Pennywort	1	1
Torilis sp.	Hedge-parsley	1	-
Bupleurum rotundifolium L.	Thorow-wax	9	-
Apium nodiflorum (L.)Lag.	Fool's Watercress	7	-
Oenanthe aquatica (L.)Poir.	Water Dropwort	17	10
Aethusa cynapium L.	Fool's Parsley	1	-
Pastinaca sativa L.	Wild Parsnip	1	-
Umbelliferae gen. et sp. indet.		-	2
Polygonum aviculare agg.	Knotgrass	5	1

Table 9 (continued)

		65 L318/7	33L11
P. persicaria L.	Red Shank	8	-
P. lapathifolium L. or nodosum Pers.		8	2
Rumex maritimus L.	Dock	1	2
Rumex sp.	Dock	10	3
Urtica urens L.	Small nettle	4	-
U. dioica L.	Stinging nettle	13	-
Anagallis sp.	Pimpernel	1	-
Menyanthes trifoliata L.	Bogbean	3	-
Myosotis sp.	Forget-me-not	1	1
Solanum cf. dulcamara L.	Woody Nightshade	1	-
Rhinanthus sp.	Yellow Rattle	1	-
Mentha sp.	Mint	20	4
Lycopus europaeus L.	Gipsy-wort	-	1
Prunella vulgaris L.	Self-heal	1	-
Stachys sp.	Woundwort	-	1
Lamium sp.	Dead-nettle	2	-
Glechoma hederacea L.	Ground Ivy	1	-
Plantago major L.	Plantain	2	-
Galium cf. palustre L.	Bedstraw	1	2
Sambucus nigra L.	Elder	1	-
Senecio sp.		3	-
Eupatorium cannabinum L.	Hemp Agrimony	1	1
Anthemis cotula L.	Stinking Mayweed	11	-
Carduus sp.	Thistle	2	-
Centaurea cf. cyanus L.	Cornflower	1	-
Lapsana communis L.	Nipplewort	4	-
Leontodon sp.	Hawkbit	2	-
Picris echioides L.	Ox-Tongue	1	-
Sonchus asper (L.) Hill	Sow Thistle	1	2
Alisma sp.	Water-Plantain	4	4
cf. Damasonium alisma Mill.	Thrumwort	1	-
Sagittaria sagittifolia L.	Arrow-head	-	2
Potamogeton sp.	Pondweed	1	-
Zannichellia palustris L.		3	-
Juncus bufonius L.	Toad Rush	10	-
J. inflexus L. effusus L. or conglomeratus L.	Rush	10	-
Juncus articulatus gp.	Rush	20	-
Juncus spp.		50	-

Table 9 (continued) 65 L318/7 33L11

Typha sp.	Reedmace		-	1
Eleocharis S.Palustres sp.			4	1
Schoenoplectus lacustris (L.) Palla.	Bulrush		13	-
Isolepis setacea (L.) R.Br.			1	-
Carex spp.	Sedge		4	10
Bromus sp.	Brome-grass		1	1
cf. Triticum sp.	Wheat		1	v. many frags.
Gramineae gen. et sp. indet.	Grass		5	2
Ignota			2	2
TOTAL :			368	64

Other Plant Remains

Bryophyta	Moss		+	+
Pteridium aquilinum (L.) Kuhn	Bracken	Frond Fragments	3	-
Linum usitatissiumum L.	Flax	Capsule fragments	9	1
Quercus sp.	Oak	Wood	-	+
Salix sp.	Willow	Bud scale	+	-
Salix sp.	Willow	Capsule	1	-
Deciduous Tree Leaf Fragments			+	-
Leaf Abscission Pad			+	-

Carbonised Plant Remains

Pteridium aquilinum (L.) Kuhn	Bracken	Frond Fragments	1	-
Quercus sp.	Oak	Charcoal	+	-
Triticum aestivocompactum Schiem.	Bread/Club Wheat	Grain	1	-
Triticum sp.	Wheat	Tough Rachis Nodes	1	-

Table 10 : Animal remains from layers beside the crossing

MOLLUSCA	65 St. Aldates L318/7	65 St. Aldates L318/3 lower level	33 St. Aldates L11
Theodoxus fluviatilis (L.)	19	-	-
Valvata cristata Mull.	11	-	-
V. macrostoma Morch.	1	7	-
V. piscinalis (Mull.)	49	2	1
Bithynia tentaculata (L)	31	1	-
B. leachii Shep.	3	-	-
Bithynia sp.	49	-	1
Carychium cf. minimum Mull.	7	21	-
Lymnaea truncatula (Mull.)	8	5	-
L. palustris (Mull.)	-	16	-
L. stagnalis (L.)	1	-	-
L. peregra (Mull.)	1	7	-
Planorbis planorbis (L.)	2	17	1
P. carinatus Mull.	3	1	-
Anisus leucostoma (Milt.)	5	6	-
A. vortex (L.)	3	2	1
Bathyomphalus contortus (L.)	6	5	1
Gyraulus albus (Mull.)	17	-	-
Armiger cristata (L.)	2	-	-
Hippeutis complanatus (L.)	2	-	-
Planorbarius corneus (L.)	1	-	-
Ancylus fluviatilis Mull.	2	-	-
Acroloxus lacustris (L.)	1	-	-
Succinea or Oxyloma sp.	3	3	-
Cochlicopa sp.	-	1	-
Vallonia pulchella (Mull.)	3	1	-
Vallonia sp.	1	8	-
Discus rotundatus (Mull.)	1	-	-
Arion sp.	-	+	-
Zonitoides nitidus (Mull.)	-	3	-
Limax or Deroceras sp.	1	1	-
Trichia hispida gp.	1	-	-
Anodonta or Pseudanodonta sp.	1	-	-
Sphaerium corneum (L.)	5	-	-
Sphaerium sp.	4	1	-

Table 10 (continued)

Mollusca (continued)	65 St. Aldates L318/7	65 St. Aldates L318/3 lower level	33 St. Aldates L11
Pisidium amnicum (Mull.)	8	-	1
P. henslowanum (Shep.)	4	-	-
P. moitessierianum Palad.	2	-	-
Pisidium spp.	29	2	1
Total	287	110	7

Coleoptera	L318/7	L11
Dyschirius globosus (Hbst.)	-	1
Bembidion biguttatum (F.)	1	-
B. guttula (F.)	1	-
Pterostichus gracilis (Dej.)	-	1
P. nigrita (Pk.)	1	-
Agonum viduum (Pz.)	-	2
Amara sp.	1	1
Agabus bipustulatus (L.)	-	1
Agabus sp. (not above)	-	1
Colymbetes fuscus (L.)	1	-
Helophorus cf. flavipes (F.)	-	1
Helophorus sp. (brevipalpis size)	1	2
Cercyon spp.	2	2
Berosus luridus (L.)	1	-
Hydrobius fuscipes (F.)	1	-
Histerinae gen. et sp. indet.	1	-
Ochthebius sp.	1	2
Platystethus arenarius (Fouc.)	1	-
Anotylus rugosus (F.)	1	-
A. sculpturatus (Grav.)	1	-
Stenus sp.	1	2
Aleocharinae gen. et sp. indet.	-	1
Aphodius sp.	1	-
Onthophagus sp.	-	1
Clambus sp.	-	1
Dryops sp.	1	3
Oulimnius sp.	2	1

Table 10 (continued)

Coleoptera	L318/7	L11
Anobium punctatum (Deg.)	2	-
Ptinus fur (L.)	1	-
Stilbus sp.	1	-
Lathridius minutus gp.	-	1
Typhaea stercorea (L.)	2	-
Donacia dentata Hoppe	1	1
D. marginata Hoppe	-	1
D. semicuprea Pz.	2	6
Donacia sp. (not above)	-	1
Plateumaris sericea (L.)	-	1
Donacia or Plateumaris sp.	1	-
Chrysolina sp.	-	1
Prasocuris phellandrii (L.)	1	-
Altica sp.	-	1
Chaetocnema concinna (Marsh.)	1	-
Bagous or Hydronomus sp.	1	-
Notaris acridulus (L.)	2	3
Limnobaris pilistriata (Step.)	-	2
Dryocoetinus villosus (F.)	1	-
Total	36	41

Other Invertebrates		
Branchiopoda	+	+
Ostracoda	+	+
Acari	+	+
Ithytrichia sp. larval case	-	2
Trichoptera (not Ithytrichia) larval case	11	5
Chironomidae larval head capsules	+	+
Leptocera spp. puparia	-	18
Diptera puparia	-	2
Diptera adult	-	1
Aphrodes bicinctus (Schr.)	1	-

Table 11 : Carbonised Agricultural Debris against the Norman Bridge

Carbonised Seeds		33 St Aldates L409
cf. *Brassica* or *Sinapis* sp.	Wild Mustard, Cabbage etc.	5
Agrostemma githago L.	Corn Cockle	2
Spergula arvensis L.	Corn Spurrey	1
Chenopodium album L.	Fat Hen	1
Atriplex sp.	Orache	3
Chenopodiaceae gen. et sp. indet.		1
Medicago lupulina L.	Black Medick	1
Vicia faba L. v. *minor*	Field Bean, Horse Bean	57
Vicia or *Lathyrus* sp.	Vetch, Tare, etc.	1
Pisum sativum L.	Pea	30
cf. *P. sativum* L.	Pea	25
cf. *V. faba* L. or *P. sativum* L.	Bean or Pea	25
Polygonum aviculare agg.	Knotgrass	1
Rumex acetosella agg.	Sheep's Sorrel	1
Rumex sp.	Dock	3
Polygonaceae gen. et sp. indet		2
Labiatae gen. et sp. indet.	Dead Nettle etc.	1
Galium aparine L.	Goosegrass	16
Galium sp.	Bedstraw etc.	1
Anthemis cotula L.	Stinking Mayweed	1
Lapsana communis L.	Nipplewort	1
Sonchus arvensis L.	Milk Thistle	1
Compositae gen. et sp. indet.		2
Cyperaceae gen. et sp. indet. (not *Carex*)		1
Bromus sp.	Brome	3
Triticum aestivocompactum Schiem.	Bread/Club Wheat	6
Triticum sp.	Wheat	4
Hordeum vulgare L.	Six-row Hulled Barley	1
H. distichon L. or *vulgare* L.	Hulled Barley	3
Avena sp.	Oats (Wild or Cultivated)	2
Cereal gen. et sp. indet.		9

Table 11 (continued)

Carbonised Seeds (continued)	L409
Gramineae gen. et sp. indet.	3
Ignota	21
Total	235

Other Carbonised Plant Remains

Pteridium aquilinum (L.) Kuhn	Bracken	Frond Fragments	2
Vicia faba L.	Field Bean	Stem Fragments	+
V. faba L.	Field Bean	Pod Fragments	+
Pisum sativum L.	Pea	Stem Fragments	+
P. sativum L.	Pea	Pod Fragments	+
cf. *P. sativum* L.	Pea	Tendril Fragments	168
Triticum sp.	Wheat	Tough Rachis Nodes	12
cf. *Triticum* sp.	Wheat	Awn Fragments	2
Hordeum sp.	Barley	Rachis Nodes	3
cf. *Hordeum* sp.	Barley	Awn Fragments	2
Avena sp.	Oats	Awn Fragments	4