Berks. Archaeological Journal, Vol. 66
Printed in Great Britain

EXCAVATION AT READING ABBEY

1964–1967

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SUMMARY

Work was done on the abbey mill, the cloisters and south of the refectory, but only in the cloister area was a reasonable amount of archaeological excavation possible. All sites gave medieval and later sherds and other small objects, medieval footings and roof-tiles; many floor-tiles of different patterns came from the cloister area. The floor-tiles have been described and discussed in *Berks. Arch. J.* vol 65; the pottery has made an important contribution to the ceramic history of the area up to the eighteenth century; and new information has been obtained on buildings, building materials and building techniques in the abbey complex. The records, photographs and finds from the excavation are in Reading Museum.

INTRODUCTION

In 1964 the Berkshire County Council planned to develop two areas of the former Abbey of Reading, those of the mill and the cloisters. No work could be done in the former area until modern buildings had been removed, and even then massive foundations remained to impede archaeological work. The short time that elapsed before major building operations started meant that, apart from observation, almost all work had to be done at weekends, many of which were spoilt by rain. Work continued at weekends after building operations started, but from July 1964 until February 1965 archaeological activity was reduced to observation, inspection and very limited investigation, mainly by the director, of what fleetingly appeared in the course of building operations. By February 1965 all such operations were above foundation level and archaeological activity here came to an end.

Archaeological work in the cloister area took place from August to December 1964 and May to early July 1967. On the former occasion much of the site was in use as a car-park whose area was delimited by a number of single-storey buildings. The surface of the car-park was some 4 ft above any surviving abbey footings and the top 18 in. consisted of some 6 in. of asphalt and 12 in. of hardcore. For the first three trenches these top layers were broken up by a pneumatic drill, for the rest, and laboriously, by pick and shovel. The location of trenches was dictated by car-parking demands. At the time of this excavation building plans included an underground car-park which would have meant destruction of any abbey remains, but by 1967 plans had been changed to temporary building on the site. Part of this operation involved the destruction of the existing one-storey buildings and limited excavation took place where the northernmost of these had stood. Knowledge gained from the earlier excavation made it safe to use a bulldozer to clear the top 2 ft or so in the selected areas, an exercise especially useful in view of the quantity of demolition debris. The trenches opened on this occasion were numbers XIV, XV, XVI, the last without mechanical assistance.

The area to the south of the refectory wall was investigated in June 1966. The occasion was the collapse of part of the west end of that wall. Excavation here was peculiarly difficult as excavators had to stand on a steep and crumbling slope, and the exercise had to be limited to

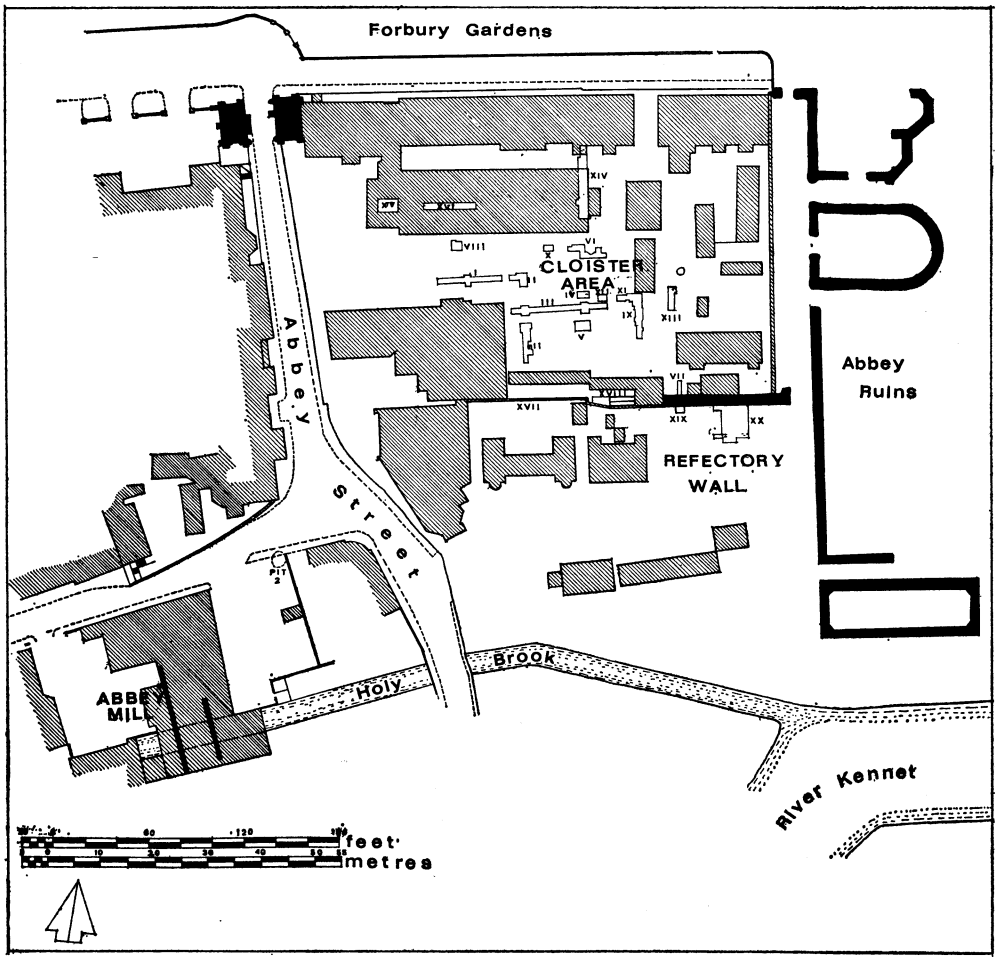

Fig. 1. General Plan of Excavations at Reading Abbey 1964–67. *Modern buildings standing at the time of excavation are hatched. Medieval features standing or restored are in solid black. Areas of excavation have their names in capital letters.*

investigating structural details of the wall and the relationship to it of the edges of any floors. The presence of a number of excavators made it possible to investigate, albeit in a preliminary way, the area further east near the wall. Although no collapse had occurred here it was an opportunity to decide between the reliability of the accepted plan for this area, which shows no medieval footings, and the survey by Buckler in 1824 which shows a considerable number. The outcome showed that Buckler was correct although not enough excavation could be done to disclose all the footings he indicated.

The excavations were organized by Reading Museum on behalf of the Ministry of Public Building and Works. The earliest phases of excavation on the Abbey Mill site were directed first by Mr J. Wymer, then by Mr A. Hunter of Reading Museum. All excavation thereafter was directed by Dr C. F. Slade of Reading University. Two paid workers were available for the first two weeks of the 1964 excavations in the cloister area, otherwise all was done by voluntary labour, mainly by members of the Berkshire Field Research Group and students of Reading University. All deserve the highest praise for work, often unrewarding, in difficult and dirty conditions. Permission to excavate in all areas except to the south of the Refectory wall was kindly given by the Berkshire County Council in the person of the Clerk to the Council, Mr Davies; and at the Abbey Mill the site engineer of Messrs Cubitts, the contractors, was most helpful. Mr Kenneth Major has generously utilized his investigations at the Mill in contributing a short section on the later Mill and its machinery. That this report was not further delayed is due to the kindness of Mr Stephen Moorhouse in offering to report on and illustrate the pottery. Finally, the publication of this report has been greatly facilitated by generous financial aid from the Department of the Environment.

THE EXCAVATIONS

(1) THE ABBEY MILL

GENERAL

The mill on this site had been in continuous use from its building until its closure in 1959. It was originally the mill for the abbey—as distinct from the town mills—and it must have been first built in the main phase of abbey building, probably between 1121 and 1164. In view of the extreme difficulty of archaeological investigation, work was concentrated on medieval buildings; and major reconstructions of later periods, especially those of the eighteenth and nineteenth centuries, had to be neglected. Most of the footings and one series of the standing arches were destroyed in the current building operations, but part of the other series of arches, including its span over the Holy Brook, has been preserved. Work in the later stages had to be done in the evenings when conditions were unsatisfactory for photography. Fig. 2 (p. 68) gives a plan of the Abbey Mill site, and the names of the features under which the excavation is described.

THE EXCAVATION

1. *The Standing Arches*

The parts of these above ground (pl. 1) show many signs of patching and repair over the centuries. The central arch over Holy Brook is pointed and has been rebuilt or reinforced (pl. 2): the small one to the south of Holy Brook and the northernmost are both rounded. This latter is stone-edged with infilling of flint in mortar (pl. 3). Excavation was possible only in a limited area by the pillars of this arch and this disclosed that below existing ground level 2 ft on either side of the arch consisted of faced stone (pls. 4, 5), which rested on flint in yellow mortar that was at least 2 ft deep in the area investigated, and extended between 9 in. and 1 ft 6 in. beyond the stone facing. Some square holes, presumably for timbers for another floor, appeared in the masonry of the arches but it was impossible to date them. No excavation took place by the piers to the south of Holy Brook and as the standing masonry ran right up to the boundary

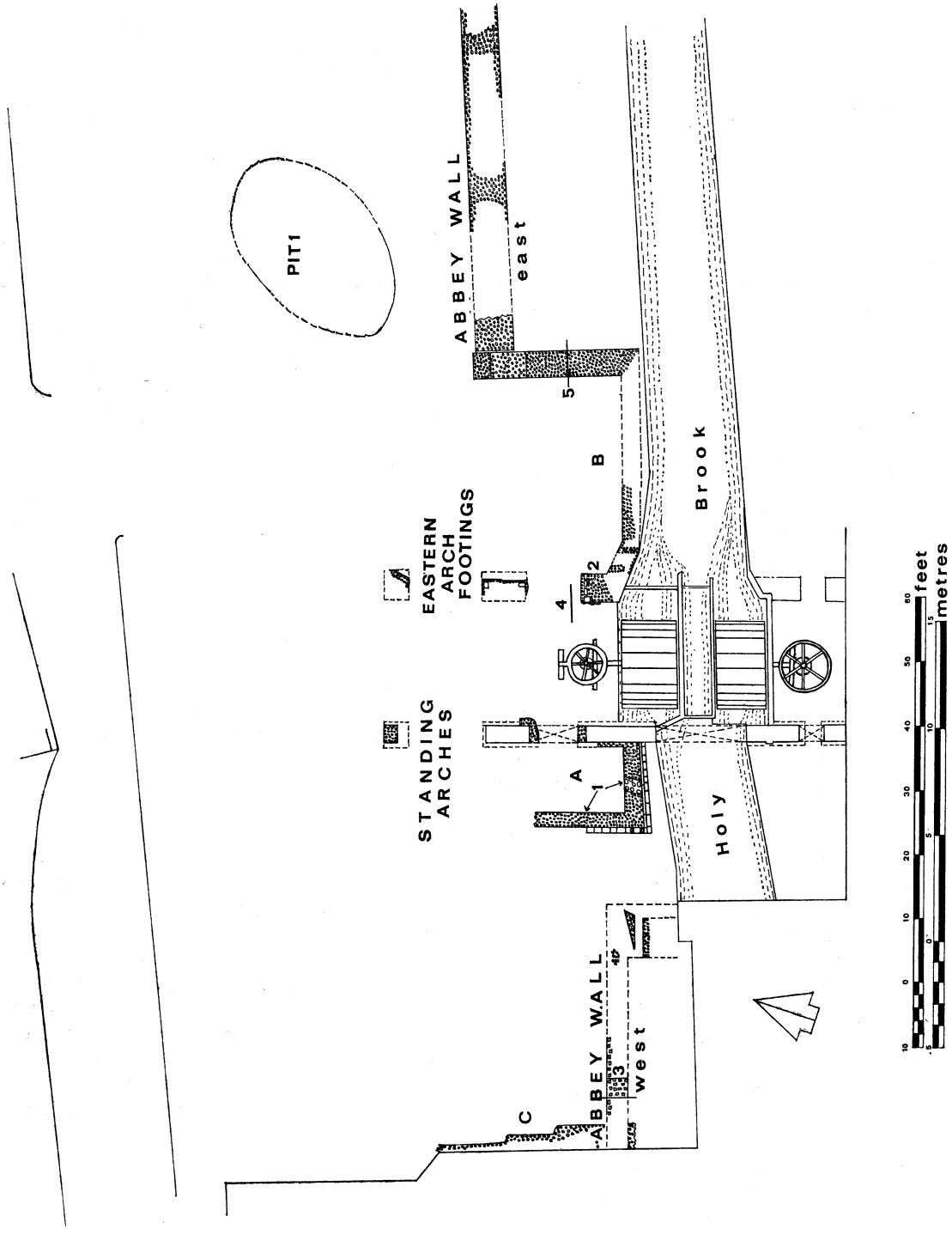

Fig. 2. Abbey Mill Site showing medieval remains and modern wheels. The numbers are the Section numbers given in Fig. 3. A : Area to west of Standing Arches. B : Footings east of Footings of Eastern Arches. C : Far West Footings.

of the development area it was impossible to attempt to establish the southern limits of the building. But to the north of the standing arches and on the same line was found a patch of flint in yellowish mortar. This had been considerably reduced by the building of massive and later brick footings; the arch that stood on it was probably demolished on this occasion. Six medieval sherds lay in the area between the arch-footings but were unstratified.

2. *Footings of Eastern Arches*

The arches themselves were demolished before archaeological investigation began but limited investigation of their footings indicated that they were parallel with and apparently of the same dimensions as those of the standing arches. The northernmost, like its counterpart on the west, had been reduced by later building which, with current building, allowed only the position of part of one edge to be established: this consisted of flint in yellowish mortar. The central set of footings suffered in current building operations which at the same time exposed their depth and construction: above the water level was 3 in. of dark clay with decayed wood; this was topped by 6 in. of flint, chalk and mortar rubble; and on this rested the surviving 2 ft 6 in. of flint in yellowish mortar. The length of the east face was the only one that could be completely established, but the north and south faces, before the destruction of their upper levels, each gave a block of faced stone *in situ* (pl. 6). Three medieval sherds and a few fragments of tile were found near the upper levels of the flint in mortar, but the area had been disturbed. The south pier gave most, if limited, opportunity for investigation, but only after the top levels with facing stones had been removed, although these were photographed (pl. 7). They rested on wider footings of flint in yellowish mortar, some 4 ft 6 in. deep, which penetrated into natural grey clay. The one area here cleared to some depth by construction work showed that the footings rested on part of a tree trunk about 2 ft in diameter, laid horizontally (pl. 8 and Fig. 3, no. 2). The one small area of systematic excavation was to the north and west of this pier (see Fig. 2, p. 68 for the location of the drawn section and Fig. 3, no. 4, p. 72 for the section). Much of the area was disturbed by footing trenches of modern brick walls, but under 1 ft of demolition debris and 1 ft of soft black deposit containing cornhusks were layers giving pottery and tile. The top of these, layer 4, yellow-grey clay with some chalk, gravel and burning, was about 1 ft thick with its base just above the chamfer at the bottom of the worked stone of the pier. The contents ranged from medieval to eighteenth century, consisting of sherds and brick and tile fragments. Below it lay a layer (5) of dark, soft clay, between 6 in. and 9 in. thick, containing many medieval sherds and building material, the bulk of the sherds being very close to the footing (see pp. 97–9 and Fig. 12). Under this came about 2 in. of charcoal (6), and a layer (7) of 4 in. of hard ochre-coloured chalk, with a scatter of sherds, resting on sterile gravel. The sherds from layer 7 were cooking-pot sherds and not accurately datable, but they have certain twelfth-century characteristics (see p. 94, no. A1). The thin charcoal layer (6) over was sterile, but layer 5 gave a large coherent pottery group whose characteristic pieces could be placed in the second half of the thirteenth century (see pp. 97–9 and Fig. 12). It also contained tile and burnt daub. Complete excavation of this small but promising area was impossible as the trench was utilized as a repository for chalk sludge from elsewhere on the site. Arch-piers of this eastern set were just visible to the south of Holy Brook, but could not be investigated.

3. *Area to the west of the Standing Arches* (A on Fig. 2)

Heavy rebuilding since medieval times and current reconstruction work made it impossible to examine the area between the two sets of arches, but it was possible to examine the area just to the west of the standing arches (pl. 9 and Fig. 3, no. 1). This gave footings running west from the standing arches for 11 ft and

then turning north for a further 14 ft before the intrusion of destructive post-medieval building. Limited excavation only was possible, and this may partly account for an ostensibly complicated situation. The inner footings consisted of flint in yellowish mortar bonded into the similar footings of the arch: they were 2 ft 9 in. wide at this point, 3 ft wide just before the turn north and a uniform 2 ft 3 in. thereafter. The east-west line was broken c. 5 ft from the footings of the standing arch by a line of flint in greyish mortar, 2 ft 3 in. wide and 1 ft deep, running at an angle slightly off 90° through the other footings. Apart from this the top of the footings was uniform, but the bottom showed three different types of construction: the first 8 ft from the arch pier to the west edge of the flint in greyish mortar consisted of flint in yellowish mortar at least 2 ft deep—the limit of the excavation; thereafter and for 4 ft north after the corner, 9 in. of flint in mortar rested on 1 ft 3 in. of chalk and flint rubble in dark clay which in turn rested on horizontal unworked timbers, 3 in. in diameter, placed lengthwise in the natural dark clay; the remainder of the footings to the north consisted of flint in mortar resting on sterile gravel. The footing trench was 2 ft wide at the arch pier, tapering to 9 in. at the point where the timber footings ceased. Except by the arch pier the higher levels of these footings had gone, but there two blocks of worked stone were bonded into those of the arch pier (pl. 10). The south edge of E W line of footings was virtually on a level with the first line of the central arch, the difference being the width of now-absent facing stone (pl. 2).

The other feature—for the amount excavated could scarcely justify its description as a wall—consisted of a line of ashlar blocks each 6 in. deep, 9 in. wide and between 9 in. and 18 in. long, with a 3 in. gap between them and the flint in mortar footings. Resting on flint and chalk debris in dark clay, they were overlaid by a brick wall of 2 in brick, 12 in. high and topped by three courses of 2½ in. brick. The other side of this feature, forming the north side of the channel for the Holy Brook, consisted of modern brickwork. The feature running along the west edge of the north-south stretch of flint in mortar footings consisted of ashlar blocks of the same dimensions as given previously, interspersed with 2½ in. bricks. It was at the same height as the other and, again, one course deep. It rested on chalk and flint rubble in dark clay. Beneath it on the south were two post-holes 3 in. in diameter with the bases of their posts *in situ*. The surviving tops of the posts were level with the base of the flint in mortar. Part of the area enclosed by these footings was taken down to a floor whereon were three sherds. This floor was level with the chamfer on the face of the arch. The layers down to floor level were disturbed.

4. *Footings East of Footings of Eastern Arches* (B on Fig. 2)

From the south pier of the eastern arches footings of flint in yellowish mortar extended south-east and then east along Holy Brook. Systematic excavation was impossible, but observation while building work was in progress showed the footings to be 2 ft 6 in. wide and continuing down below current water level. A later brick wall had been constructed on them and the modern brick wall along the north side of the Holy Brook was built against flint in mortar footings and extended about 1 ft further south. After extending 32 ft along Holy Brook the footings made a turn north almost at a right-angle. Limited excavation was possible on these new footings but bad weather and 8 ft of debris at their southern end made work slow. This work disclosed a length of 26 ft of footings. The initial 2 ft 9 in. from the northern end consisted of footings of flint in yellowish mortar, 4 ft wide and at least 2 ft 6 in. deep, although building operations destroyed them before detailed investigations took place. The next 5 ft 9 in. to the south consisted of a patch of flints in grey clay c 6 in. deep. The remainder of the footings consisted of flint in yellowish mortar; their junction with the east-west footings survived low down and there they were integral. Two short sections were opened

on either side of the southern stretch of the flint in mortar (Fig. 3, no. 5). On the east or 'outer' side a depth of 3 ft from the existing top of the footings was reached, and down to this depth the face of the footings had been roughly faced with yellowish mortar. The footing trench in this area was filled with dark grey clay containing six sherds, a decayed iron blade, part of a ceramic cresset (p. 110) and a number of tile fragments. Further investigation was prevented by building operations. On the west or 'inner' side the original footing trench also was at least 1 ft 6 in. wide, but its outer edge had been lost in later building. At a depth of 1 ft from the existing top of the footings was a floor, c 3 in. thick, of dirt, chalk, daub and mortar that ran up to the footings, and in it was debris ranging from medieval to eighteenth/nineteenth century; a small eighteenth-century pottery group and a pipe are discussed on pp. 109–10, nos. 85–8. Under this 'floor' was the footing trench of grey clay 2 ft deep that gave a scatter of sherds and pieces of tile. The face of the footings to this depth was smoothed off with mortar, but below this level the footings sloped outwards and consisted of flint roughly set in mortar: at a depth of 1 ft 3 in. the outward batter was 8 in. There was a thin horizontal layer of mortar at the top of the batter and on it were three nondescript sherds, possibly of the thirteenth century (p. 94, no. A2). The footing trench thereafter was filled with stones in chalky clay in which were 5 sherds (Fig. 13, nos. 23–5 and pp. 99–100) and a number of pieces of medieval tile. The dating of the sherds is difficult but they are probably earlier twelfth century.

As the level reached was below that of the Holy Brook it quickly flooded and further investigation was impossible.

5. *The Abbey Wall*

Evidence of this was found both to east and west of the mill. In no case was systematic excavation possible, but limited observation of mechanical clearing gave valuable information.

Eastern stretch of wall: the west end of this was against the north of the footings discussed in the previous section and had been destroyed to the same depth, showing a stretch of 6 ft of flints in grey clay integral with those already mentioned but displaced 2 ft 4 in. towards the north. Two sherds, possibly of the first half of the thirteenth century (p. 94), were found at the south side of these footings with some fragments of tile. In the 5 ft 6 in. to the east the base of these footings sloped upwards 9 in. towards the east. At this point the footings had been obliterated by a later brick wall but subsequent clearing by bulldozer showed that the footings survived on the farther side of the modern wall. The lowest part of these footings consisted of 2 ft of flint in dark clay, above which were 3 ft of flint in yellow mortar overlaid by nineteenth century debris. About 20 ft to the east from this point and on the same line the bulldozer uncovered flint and chalk in yellow mortar 4 ft wide that had been preserved by being incorporated into the lower part of a later wall (pl. 11). It continued, albeit damaged in places, as far as Abbey Street.

Western stretch of Wall. Investigations here depended on the mechanical destruction of massive post-medieval floors and footings, and destruction was quickly followed by new construction. Small portions only of the footings running north from Holy Brook was exposed. The modern containing wall and its footing trench had destroyed the run of flint in yellowish mortar footings from Holy Brook, and a trench cut in current operations had left but a one-foot strip available for investigation. The width of the footings was 6 ft 6 in. and the surviving depth of 3 ft 9 in. of flint in yellowish mortar cut into the natural dark clay and rested on hard-packed gravel artificially placed. The gravel was at least 1 ft thick but at this depth it was below the level of Holy Brook and water speedily infiltrated. The small surviving portion of footings to the north had suffered some destruction before current operations for although half consisted of flint in yellowish mortar like that mentioned above the rest consisted of a burnt layer c. 9 in. thick that, in the small area investigated, contained 2 medie-

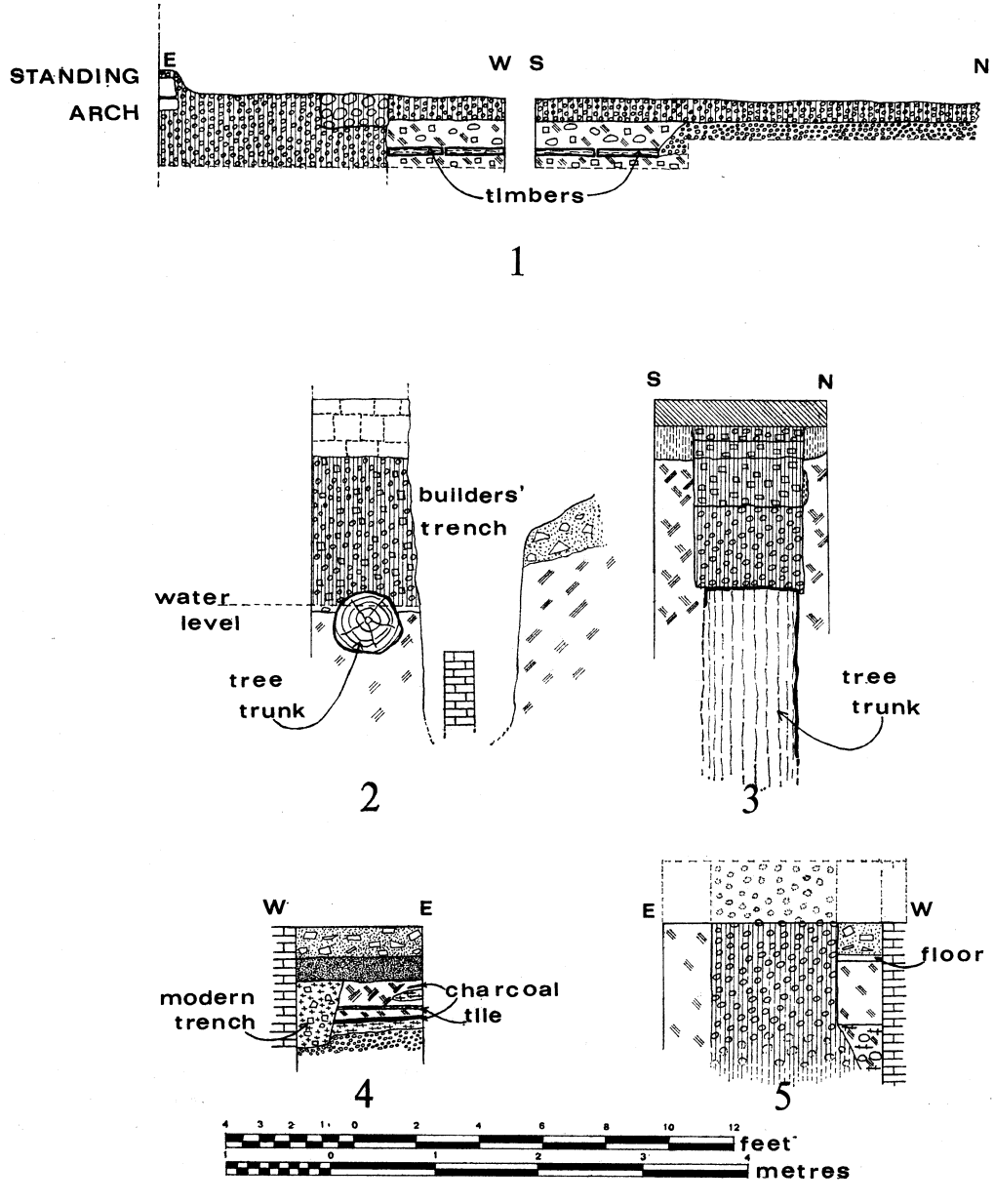

Fig. 3. Abbey Mill Site : Sections : for Key see Fig. 4. 1. Footings in area West of Standing Arches. 2. South Footing of Footings of Eastern Arches : East face. The casing stone, indicated by dotted lines, was destroyed before record. 3. Abbey Wall : Western Stretch. 4. Near footings of Eastern Arches. 5. Footings East of Footings of Eastern Arches. The top 2 ft, indicated by dotted lines, were destroyed before record.

val sherds (pp. 100–1, nos. 30, 31), a bronze buckle (p. 114), and some rooftile, and beneath it a layer of chalk lumps, crumbling mortar and fragments of rooftile. This latter layer was taken down 18 in. before excavation ceased. A brief investigation of the surviving flint in yellowish mortar here, i.e. below the burnt layer, gave, on the east, two medieval sherds (p. 100, nos. 28, 29) and pieces of roof-tile, one glazed, and on the west, where very bad later destruction had occurred, a few medieval and post-medieval sherds. Part of a small grindstone was found in this area by builders, but its exact provenance could not be identified. The line of footings running E-W lay under about 10 in. of modern concrete and was found only when this was broken through by a trench cut during current building operations. This gave a section (Fig. 3, no. 3, p. 72) showing a layer 6 in. thick of chalk pieces with a few large flints in yellow mortar beneath the concrete. Beneath this came 6 in. of chalk and decayed mortar and then a layer of chalk in yellowish mortar that was c. 1 ft 6 in. thick and whose top virtually coincided with the top of the natural dark clay. Further building operations just to the E of this showed 2 ft 6 in. of flint in yellow mortar that rested on wooden piles. The two piles exposed were 3 ft and 1 ft 9 in. in diameter and at least 5 ft deep. Within twenty-four hours this cutting had been filled with concrete and further work was impossible. The dark clay contained saturated wood including a number of large, curved pieces. Most of these were removed by the builders but one was saved. One sherd was found in this dark clay close by the footings (p. 95). It was possibly intrusive Roman.

6. *Far West Footings* (C on Fig. 2)

Further west, on the boundary of the site, there was a north-south line of footings. The top 4 ft consisted of chalk blocks in yellow mortar, resting on at least 2 ft of large flints in yellow mortar. As they underlay modern buildings the east face was the only one that could be investigated, and it was found to extend for 32 ft. Further to the north on the same line the chalk in yellow mortar, c. 20 in. deep, rested on 4 ft of well-laid 2½ in. brick. From the base of these bricks a floor of large red tiles (11 in. × 9 in. × 2 in.) extended to the east. These tiles were similar to many laid elsewhere on the site and were of the eighteenth century.

7. *Rubbish Pits*

Pit 1. A large oval pit lay to the north of the abbey wall on the east of the site. It was disclosed during the digging for deep foundations and only a brief examination was possible. Its dimensions appear to have been c. 32 ft × 20 ft and it contained black soil with a very few pieces of tile and flint. The footings of flint in grey mortar found in its vicinity represented reuse of older material.

Pit 2. (For its location see Fig. 1). This was disclosed in the digging for deep foundations on the extreme north of the site, and part of it underlay Abbey Square. Much had been removed before investigation was possible and work was quickly stopped by the need for back-filling. It had been dug into natural chalk and seemed to have been roughly circular, some 6 ft–7 ft across. The part investigated lay 4 ft below road level under a wall and footings of the public house, and it extended 5 ft downwards into natural gravel. The section (Fig. 4, p. 74) shows three layers of debris separated by layers of dirty gravel. It would seem to have been used for sanitary purposes, and each layer contained sherds, bone, charcoal. The sherds appear to belong to the later twelfth century (p. 100, nos. 26, 27).

INTERPRETATION AND DISCUSSION

Circumstances made it necessary to concentrate on medieval parts of the abbey mill i.e. when it really was the mill for the abbey, and no attempt was made to investigate subsequent building. No investigation was made in the area south of Holy Brook where the arches or arch piers reached the boundary of the development area, but the survival of these indicated

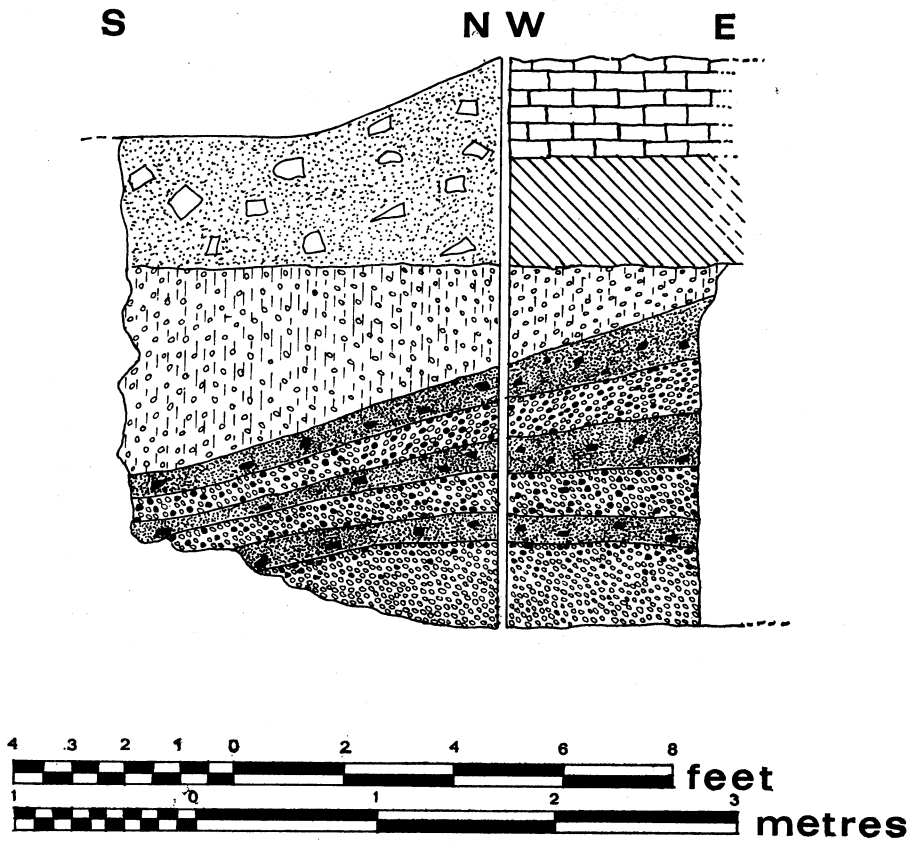

Fig. 4. Abbey Mill Site : Rubbish Pit 2 : sections.

the minimal extent south of Holy Brook of the central part of the abbey mill. It can be assumed that this area south of Holy Brook was a projection from the abbey enclave rather than the main unloading area for grain, for this could well be done in the area north of Holy Brook.

The central area of the mill was that bounded by the east and west lines of heavy arches, which were designed to carry at least one upper storey. Whether the arch-spaces were closed by doors or left open for the movement of carts, etc. remains a speculation. Footings to the north indicated two arches north of those spanning Holy Brook. To the north of these a building, presumed the bakehouse, was destroyed in building operations c. 1860. No evidence for this identification survives and it may be that this small building was part of the mill complex.

The surviving arches have suffered much rebuilding. The round-headed arch north of Holy Brook may preserve the original concept, and that spanning Holy Brook shows two different phases of building, the first represented by the outer pointed arch that aligns with the flint-in-mortar wall running west, the second by the infilling that gave an arch with a much flatter point. The arch piers have suffered no perceptible alteration, for a rise in floor level preserved the lowest courses of squared stone. These rested on flint-in-mortar footings that extended down at least another 3 ft. The stone examined was the off-white stone typical of that used in the building of the abbey, and possibly the stone was sometimes used for corners and vulnerable faces with other external surfaces consisting of flint-in-mortar (see pls. 2, 3). But even partial facing shows that economy was not a major consideration in building. The lower footings of flint in yellowish mortar are as those found elsewhere in the abbey complex. The only reasonably sure, if limited, dating evidence comes from the lowest levels near the southern of the footings of the eastern arches and this is discussed below.

The machinery existing was modern and it is but speculation, although reasonable, to consider that there would have been one central wheel in medieval times. One central wheel would imply that the sets of arches were originally symmetrical and the sloping off of parts of piers of the eastern line of arches occurred with the introduction of two wheels to allow quicker escape of water. Examination of the eastern arch over Holy Brook might have given an answer, but destruction occurred before investigation. Any wheel or wheels would have been undershot.

On either side of this central part of the mill were areas that seemed to form part of the mill complex. The open-ended rectangular area on the west gave a number of different elements. The footings extending from the arch pier to the west for c. 8 ft were, judging by the bonding of flint-in-mortar and of facing stone, built at the same time as those of the arches. Enough of their depth was excavated to show that it was considerable. That their outer edge was level with the outer edge of the arch suggests they were originally the footings of the containing wall for Holy Brook, and also, possibly of the outer wall of the abbey. At some stage the last 2 ft 6 in. to the west were replaced with large flints in clay to a surviving depth of 1 ft (Fig. 3, no. 1). These seem to have some connection with the ashlar line immediately to the south, for these ashlars also rested on grey clay, and seem to represent the poor surviving inner face of the later containing wall for Holy Brook. The outer face of such a wall would have been level with the second, interior, arch line. The remaining flint in mortar footings, both these running to the west and those running north, were much slighter, but they could have supported a two-storey building. The two post-holes with surviving timbers possibly represent a phase when the new containing wall was built, the old demolished and a door or gate, whose frame is represented by the postholes, built. No wall was found that ran from this area to the main abbey wall on the west, but genuine excavation in this area was minimal. The later containing wall may have continued: if so it had been replaced by

modern bricks. Possibly the two surviving post-holes are all that survive of a double fence where a slighter and replaceable barrier was more satisfactory than a wall. Comparison of the abbey walls to the east and west of the mill suggests from their dissimilarity that they were not built at the same time, and that all that remains of the original wall running west is the 8 ft projecting westward from the standing arches. This is on the same line as the first piece of wall running east from the eastern arch footings and is of similar construction. Further away the main abbey wall on the east abandons the line of Holy Brook and seeks higher ground, where its lowest footings of flint in grey clay would be less subject to erosion, whereas the wall on the west remains much closer to Holy Brook and relies for its stability on large timber piles. It is possible that on the west all but 8 ft of the original wall collapsed.

The area to the east of the mill represents, as far as could be investigated, a courtyard; certainly there was no evidence of further footings within the area. Timber could, of course, have been used to support roofs, and most of the limited areas where excavation was possible produced fragments of daub. The wall itself was the main wall of the abbey, forming the containing wall for Holy Brook in the mill area and then turning north towards the higher ground, so much easier for the construction of foundations. These stretches of wall had deep foundations of flint in yellow mortar that went down some 3 ft below the level cleared, whereas the beginning of the abbey wall extending to the east had footings of flint in grey clay that did not extend more than 1 ft below the level cleared. That there was not exact coincidence between the flint in grey clay of the west end of the footings running east, and the north end of those running north-south may indicate two building operations being done at the same time. Pottery suggests that the stretch running north-south could belong to the twelfth century (pp. 99–100).

The many fragments of medieval roofing tile suggested that the building was tiled. This would seem likely as it seems to have been the method of roofing elsewhere on the abbey buildings. But there is always the possibility, from the time of the Dissolution of the Abbey, of the re-use of older materials.

The only areas where systematic excavation was possible, even in a very limited way, lay near the foundations of the arches in the west, and near the footings of the arches in the east. In the latter area clean gravel, either natural or back-fill, was overlaid by a layer containing rather indeterminate pottery that can be dated to the twelfth century. This would seem to give a date for the original building, and the level contained no roofing-tile. Overlying it was a continuous layer of charcoal, some 2 in. thick, which clearly demarked it from the next layer. It would appear that at least this part of the mill suffered a fairly disastrous fire about a century or more after its building, for the next layer contained many sherds, all of the second half of the thirteenth century (pp. 97–9), and much roofing tile and burnt daub. Whether the burnt layer c 9 in. thick on the N S stretch of the main west wall (p. 71) is evidence of the same catastrophe is not clear for the layer pattern was entirely different as far as a very limited excavation could show. In favour are the points that the crumbly mortar in the layer below could have been reduced to that state by heat, the burnt layer itself seems to represent the sweeping-up after a fire, the two sherds (illus. 30, 31) found are thirteenth century, and the level is only c. 1 ft higher than that on the east. Unfortunately, all layers above the burnt had been destroyed.

The only certain medieval rubbish pit found (see Fig. 1, Pit 2; Fig. 4) clearly formed part of the mill complex. Its efficient utilitarian sherds can be dated to the second half of the twelfth century (p. 100), and it seems to have been used for sanitary purposes before being sealed with a mixture of soil and gravel. The few bones found were those of sheep, *bos*, and pike or carp. Three had been cut into points but discarded on being damaged.

It was the abbey mill area that produced a slight scatter of possible Romano-British

debris: a sherd (p. 95), three pieces of tile (p. 112) and, very tentatively, three pieces of ceramic building material (p. 112).

The flint in mortar footings on the far west of the site could not be excavated. They had suffered from earlier and current destruction, had been utilized as footings for later buildings and were swamped in destruction and construction debris. Any conclusion is tentative, but they would appear to relate to the reputed abbey stables in this area rather than to the mill complex.

THE LATER MILL AND THE MILL MACHINERY

J. KENNETH MAJOR

All that remains of the Abbey Mill after a working life of some 800 years is a length of rubble masonry with three arches which were part of the original medieval mill. The northern arch is a plain ashlar semicircle 7 ft 6 in. in diameter. The arch spanning the Holy Brook is a four centred arch constructed from 12th century stone with a heavy chevron moulding and a span of 14 ft. The wall containing this work is 56 ft long and approximately 15 ft above the ground. The third small arch lies to the south of Holy Brook.

In 1860 the mill was rebuilt as a roller mill producing the finer flour required by the biscuit trade and it was frequently known as Soundy's Mill. There was a large brick build-building on the Abbey Square frontage, three storeys high with a tiled roof. The basement of this wing was at the same level as the mill yard, which stood to the east of the mill, where loading and unloading took place. The wing of the mill over the Holy Brook and flanking the mill yard was four storeys high and was slightly earlier in construction than the wing on Abbey Square. On the downstream face of the portion in the yard there was a white weatherboarded lucam which ran above the yard roof for two storeys up to the eaves of the block, (pl. 12). The windows of the mill were built of cast iron with central opening portions in typical nineteenth-century tradition. The north west corner of the complex of buildings contained a stair tower and a three-storey weatherboarded lucam (pl. 13). The roof and profile of the buildings were further distorted by the presence of various ventilation ducts, fans and trunkings.

The 1860 reconstruction of the mill still contained the original medieval core. This consisted of a rectangular space 54 ft by 20 ft bounded by the original rubble walls with two internal walls forming a space 25 ft by 20 ft which contained the wheels. This wheel space probably contained two wheels from Tudor times when, after the dissolution, this became one of the town mills. A floor was laid immediately above the mill wheels and there was a second floor above that. However it is unlikely that the mill contained more than 3 floors during the period between the dissolution and the creation of the large trading mill of the 1860s. Until the introduction of trading at the mill at the beginning of the Industrial Revolution toll milling was in force with the need for much less storage space within the body of the mill. The arrangement of the mill in the eighteenth century is likely to have been ground floor, where the gear wheels and hunt frames stood, first floor where the grinding of the grain into meal took place and a second floor for storage and possibly primitive dressing machines.

The millwork that existed at the time of demolition consisted of the two waterwheels and the associated gears taking the motion of the waterwheels up to the floor above or horizontally into the north wing on Abbey Square (Fig. 5). The wheels (pl. 14) were undershot wheels built to designs which were current in the 1860s. The south wheel was undated but the north wheel was dated on the spokes "W. Wilder & Sons Ltd., Crowmarsh, Oxon 1934". However it must have been made to the pattern of the previous wheel for the two wheels were absolutely identical in design. The wheels were 13ft 6 in. in overall diameter, the north being 10 ft

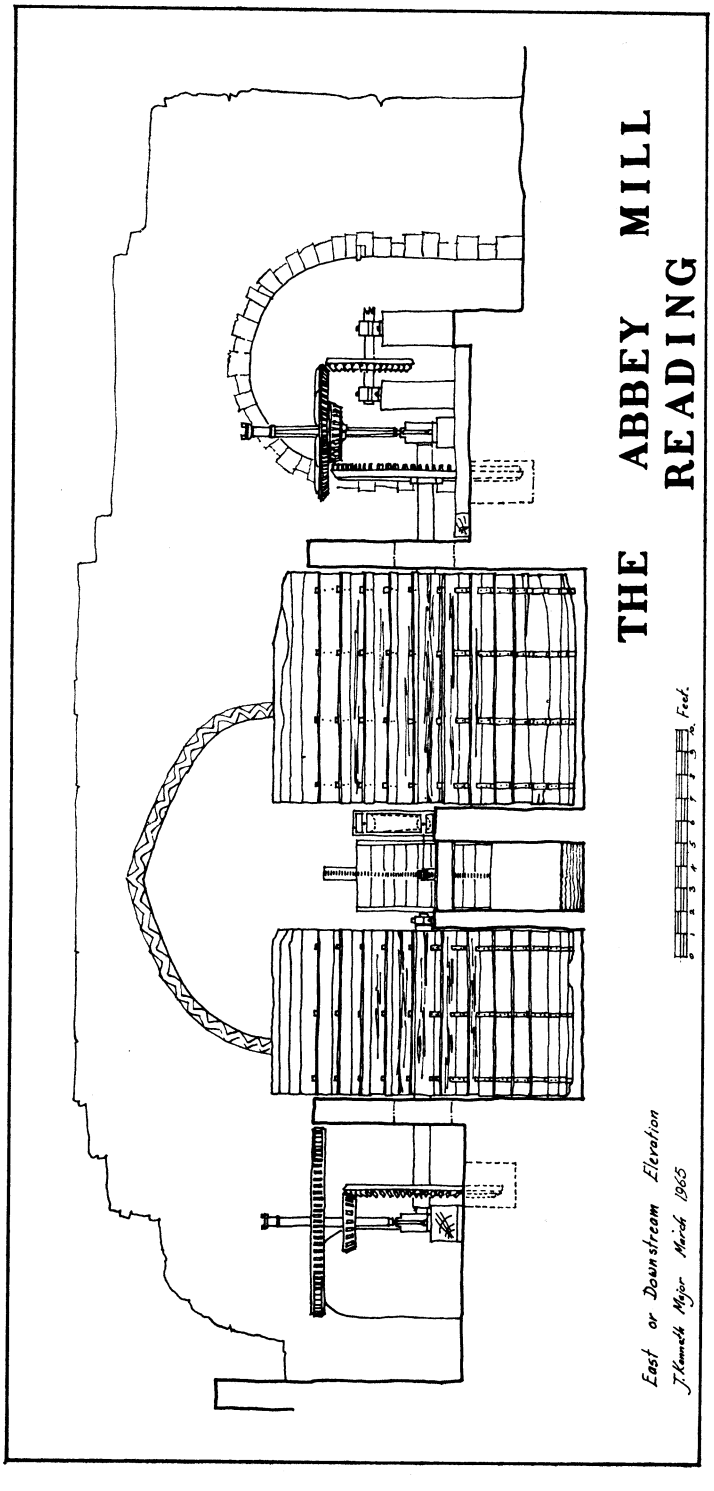

Fig. 5. Abbey Mill : modern machinery.

wide and the south 7 ft 6 in. wide. The north wheel had three bays and the south wheel two bays. Originally the wheels were made to fit oak shafts but when these shafts were converted to steel a hexagonal box of cast iron was inverted to connect the spokes to the new shafts. The spokes were made in two halves bolted together. The rims were socketed so that wooden starts could be inserted to carry the 12 in. deep floats, the floats had boards 10 in. wide along the rim to give a bucket effect. The shafts continued outside the wheelspace and had bearings mounted beyond the cast iron bridges which supported the footstep bearings of the upright shafts. On the south side all that remained was the frit wheel wallower and great spar wheel, which formerly drove four pairs of stones. On the north side all that remained was a frit wheel and wallower, then a second bevel wheel on the upright shaft which drove another bevel wheel in the lay shaft which went through into the north mill.

The water was led from the Holy Brook onto the wheel by means of two hatches which were controlled from the floors above, whilst the escape water went down a chute between the bearing walls of the two wheels.

(2) THE CLOISTER AREA

GENERAL

The layout of trenches in 1964 was conditioned by the use of the area as a car park. This was, however, no handicap for the plan at that time was to establish certain salient features which, it was hoped, could be further traced when deep excavation occurred as part of the projected building development. The first part of the plan was made possible by a general idea of what could still survive, which were floors and foundations of the cloisters, cellarer's offices and refectory, and disturbed soil from the bank and ditch dug during the Civil War period. It was known also that the area had been used for a miscellany of purposes, including gardening, gravel-digging and rubbish dumping, and that these had frequently involved piecemeal destruction of abbey remains. This first part of the plan was generally successful, but the second part never came about, for the major building-scheme was changed to one that produced a one-storey building on shallow foundations instead of a multi-story building on deep foundations. Although this prevented extension of information gained, it did mean that no further destruction happened to the abbey remains there. By 1967 the site was ready for development and it was felt that the limited resources available would be better employed in selective investigation of the area towards the north, which had previously been occupied by a one-storey wartime building just demolished. One of the trenches there produced an area of cloister tiles *in situ* but the other two gave the expected finding of total destruction of any abbey remains.

The varied building that had occurred since the dissolution had left its mark in scattered footings, but these were above the abbey remains. In certain areas deep digging, presumably for gravel, had destroyed remains there; and the laying of drains or drainpipes in the eighteenth and nineteenth centuries also resulted in destruction, for such were frequently lower than abbey remains. Lower also were nineteenth-century rubbish pits. Where destruction had not occurred stratification from any abbey remains upwards was essentially modern. The top 2 ft 6 in. to 3 ft consisted of tarmac, hardcore and dark soil with modern brick and tile. The proportions varied and in Trench I, for example, the dark soil replaced the hardcore. Under this came a light-dirty layer (numbered 3) extending down to abbey remains and, where destruction had occurred, below them. This layer, essentially a mixture of soil and gravel, contained debris of all periods from medieval to later nineteenth century, and had been turned over and worked from the dissolution onwards. In most cases it rested on abbey remains or on natural gravel. Within this light-dirty layer were areas of chalk and mortar rubble, dirty

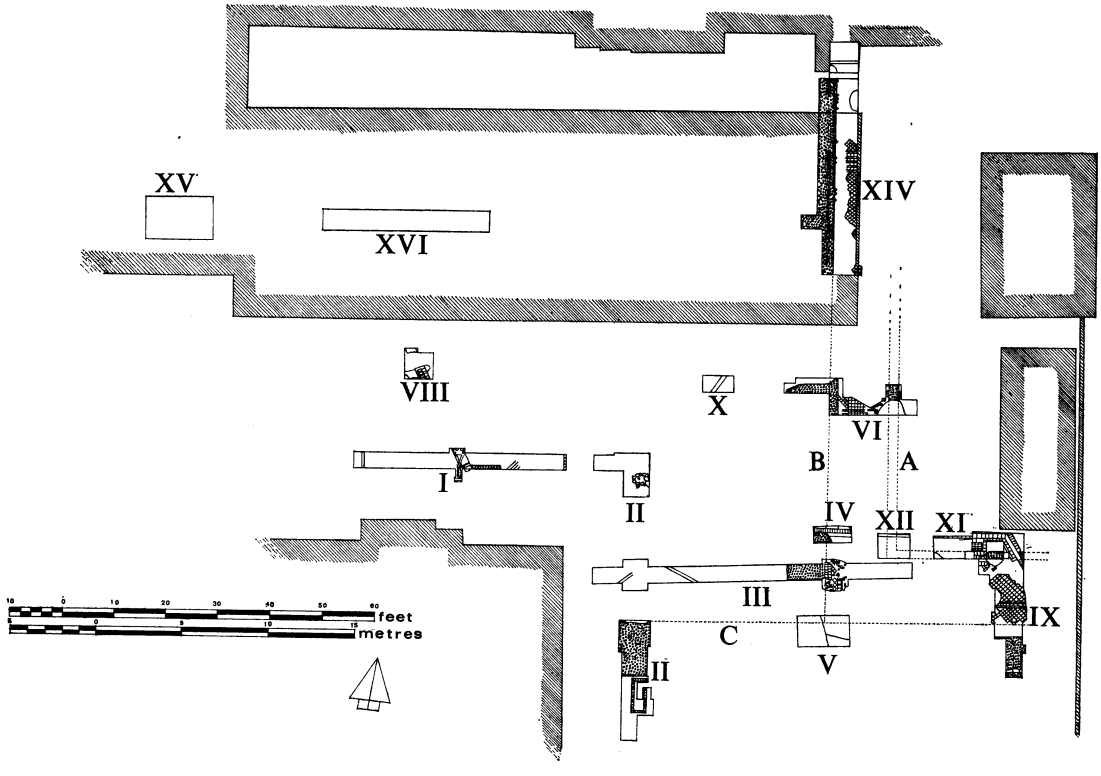

Fig. 6. *Cloister Area : Trenches. Modern buildings are shown with hatched edges. Dotted lines indicate : A. The inner wall of the Cloisters. B. The outer wall of the Cloisters. C. The north wall of the Refectory.*

gravel, and black soil. The first of the upper layers, that of dark soil with modern brick and tile, was probably placed on top of this light-dirty layer, so sealing it, when St. Laurence's School was built in the later nineteenth century.

The trenches so far discussed were essentially those in the car park. Those elsewhere gave different soil patterns. The small trench (VII) by the Refectory wall was cramped and difficult to work and gave a thin rubbish layer over nineteenth-century floor tiles: no further excavation was possible here. The trench (XIII) to the south of the cloister well, the only one possible in this eastern area, showed disturbance extending below the former cloister level. Of the trenches to the north of the car park those to the west (XV, XVI) showed modern disturbance. The pattern of XIV was different for, in the western half under some 18 in. of modern debris, were rough tip-lines of flint and mortar interspersed with earth: the eastern half showed general disturbance.

THE EXCAVATION

See Fig. 6 for the general plan of the trenches in the cloister area.

Trench I

See Fig. 7, no. I for Plan and Section, and pl. 15. The west half of the trench, showing modern disturbance, is not illustrated. Natural gravel here was at a depth of c. 4 ft 3 in. but it had been penetrated for modern drainage at the west end and the north. These drains were at a depth of about 7 ft and were below any

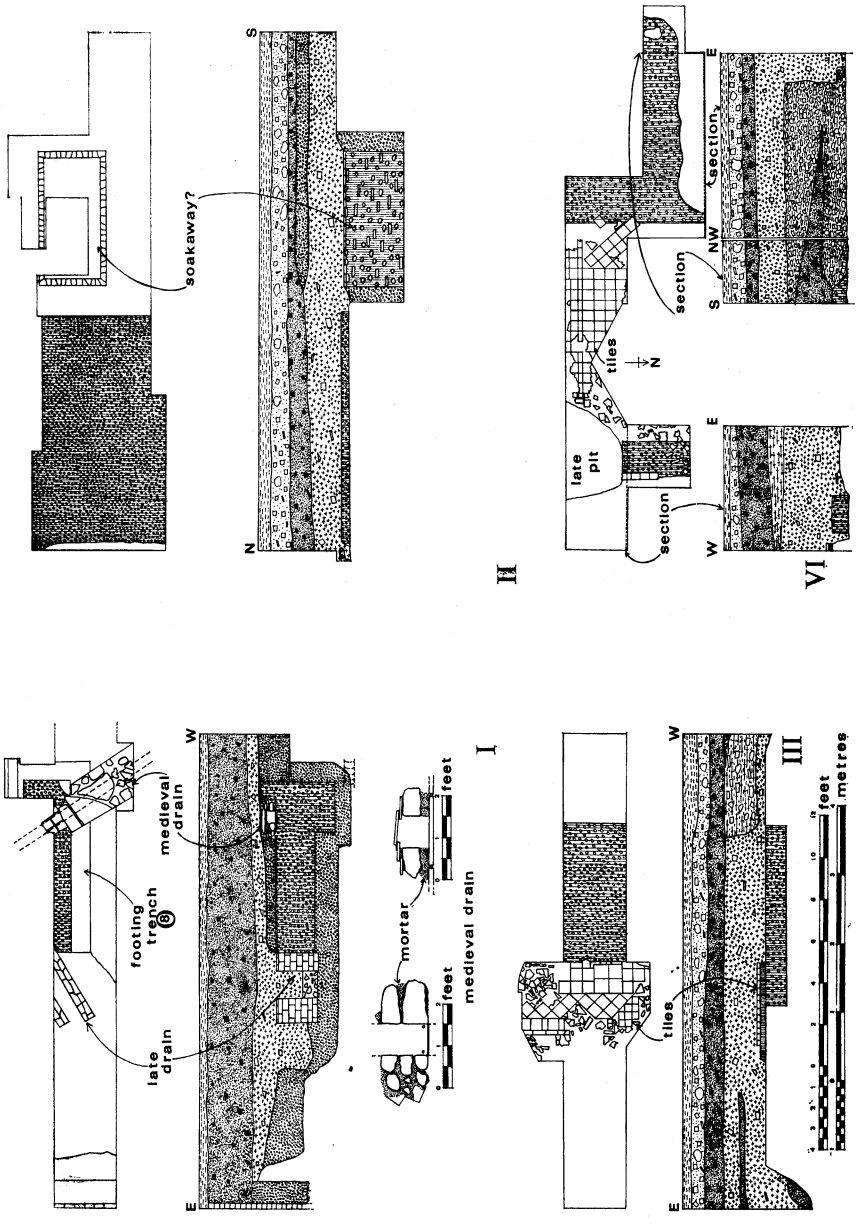

Fig. 7. Cloister Area : Plans and Sections. Trenches I, II, III, VI.

abbey remains. From the centre of the trench and extending 8 ft east was a section of walling whose east end had been destroyed in the making of an eighteenth-century soakaway and the brick channel leading to it, but the penetration into clean gravel suggested the walling had originally extended 5 ft 6 in. further east. This walling, c. 2 ft 3 in. thick, consisted of roughly squared chalk blocks, 15 in. by 5 in. being the largest visible, and flints squared on their outer faces, all set in yellow mortar, the courses being well-laid and level; it stood on about 4–6 in. of chalk and flint rubble. The existing top had, towards the east, a bonding-course of tiles, some 1 in. thick, some a little less, and this, at c. 3 ft 9 in. from the existing ground surface was at about the level of the cloister floor elsewhere. This bonding course showed also at the west corner. The western corner of the wall was slightly higher than this and had a drain running across it, a drain that must once have run through the wall, and had been made when the wall was built. It was 9 in. square in section and was extremely well constructed with a tile base and sides of flints, their internal faces squared, set in mortar. The base tiles were roofing tiles $15\frac{1}{2} \times 8\frac{1}{2} \times \frac{5}{8}$ in., the two nail-holes in each being filled with mortar, and they were on a line with the bonding-course of tiles elsewhere in the wall. Over the wall this drain was roofed with similar tile, mortared; and outside the wall, and leading into it, with flagstones. The drain sloped very slightly from N to S. Under the drain the footings were c. 12 in. deeper than elsewhere. Traces of the drain were found further north in Trench VIII.

Extending outwards from the wall along the north and west faces (the south face could not be investigated) were c. 12 in. of disturbed gravel that was the footing-trench for the wall. This (layer 8) contained a number of medieval sherds, fragments of roof-tile, a piece of iron slag, a lump of hard mortar with stones and 6 animal bones. The sherds are discussed on pp. 95–7).

Overlying the top of the footings and extending west to the limit of excavation was a dirty disturbed layer (7) that contained a considerable number of sherds from medieval to nineteenth century. A report on the medieval and some of the early modern is on pp. 102, 104.

Trench II

See Fig. 7, no. II for Plan and Section and pl. 16. The north half of the trench, showing modern disturbance, is not illustrated. This north half of the trench gave modern drainage works that extended well below the depth of any abbey remains, with a soakaway of chalk lumps and broken brick in the north and a drain-pipe in the centre, both at a depth of some 6 ft. In the southern part the last 5 ft gave natural gravel at a depth of 3 ft 9 in. with the typical disturbed layer (3) resting directly on it. This was succeeded by a rectangular feature, 6 ft 6 in. × 3 ft 3 in., whose top was at a depth of 4 ft from the surface and which extended 3 ft into the natural gravel on which it rested. The walls of this features were 4 in. thick and consisted of flint, a little chalk and many pieces of incompletely fired tile laid horizontally, all set in yellow mortar; the interior faces were of roughly smoothed mortar. Half the interior was cleared and the fill consisted of rubble of smallish chalk, one whole encaustic tile, broken tile, broken two-inch brick, flints, a couple of large worked stones, a few very small fragments of bone and 3 small pieces each of lead and glass all being in a soft light grey soil. Some downwash from this was in the natural gravel under, but only the top 4 in. or so were affected. The footing trenches for this feature seemed from 12–15 in. wide and had been refilled with sterile gravel; in fact the only difference between this and natural was that it was less compacted.

Beyond the north footing trench of this feature, its top also at a depth of 4 ft from the surface, was a patch of rough flint in mortar that varied in colour from yellow to light grey and was somewhat soft. It was just over 11 ft long with its north end rather irregular, possibly the result of destruction in later drain-digging. It was some 6 in. thick, resting on natural gravel and extended right across the trench.

Trench III

See Fig. 7, no. III for Plan and Section and pls. 17 a and b. The west half of the trench showing disturbance down to natural gravel at 6–7 ft, well below any abbey survivals, is not illustrated.

The east area gave a patch of flint in yellow mortar that extended right across the 3 ft trench. Its top was 4 ft from the surface: it was 8 ft 9 in. long and it was 1 ft thick, resting on gravel harder packed than the natural around it. On the eastern 2 ft of it and extending 4 ft 6 in. to the east was an area of encaustic tiling badly damaged at its east end and patched at its west end but in the centre and the west, outside the area of repairs, showing a pattern, albeit a simple one, of laid tiles. The tiles rested on a coherent mortar-bed 1 in. thick which rested on a bed of dirty, crumbly mortar 3 in. thick. Beyond the edge of the flints in mortar this rested on natural gravel. Under the tiles were found various small fragments of inlaid tile, one small piece of lead, and two sherds. One, very small, was unglazed, pink and of good hard fabric. The other was unusual and is discussed on p. 103, no. 48; unfortunately it does not help in dating the overlying tiles.

Trench IV

See pls. 18 a and b. In the S.W. part of this small trench was a patch of flint in yellow mortar, similar to that in Trench III. The northern part had been destroyed for the construction of an elaborate drain or water channel. This was covered by blocks of cut stone 2 ft × 1 ft 3 in. × 4 in. resting on two-inch bricks. The inside of the drain/water-channel wall consisted of four layers of these bricks, the top of headers, the others of stretchers; the outside had headers top and bottom with flint in mortar between. The bricks were mortared with a crumbling mortar and the stretchers showed slight evidence of bonding. The base consisted of post-medieval tiles, complete down the centre, broken at the outer edge where they underlay the bricks, and some of the internal showed faint traces of glaze. Further excavation was not possible but probing with a ranging rod established that this feature extended west at least 6 ft and east 5 ft. The top of the covering flagstones was the same height as the top of the mortar-bed for the tiles in Trench III. Trenches IX, XI, XII gave further sight of this drain.

Trench V

The west half seemed to have been used as a gravel pit, for light, dirty fill (3) was at least 8 ft deep beneath modern build-up layers. The east half had a patch of soft yellow mortar c. 6 in. thick, its top 4 ft 3 in. from the surface and it was overlaid with a layer of c. 1 ft thick of loose mortar, pebbles, pieces of tile in light soil. This mortar was reasonably homogeneous on the south, crumbly and disturbed on the north. It rested on natural gravel.

Trench VI

See Fig. 7, no. VI for Plan and Section. The flint in mortar footings and the patch of encaustic tile were on a level with those of Trench III, but a rise in the level of the surface put them at a depth of just over 5 ft. The patch of flint in yellow mortar in the west part of the trench was some 10 in. to 1 ft thick and was similar to that in Trench III. It had a reasonably straight edge on the east and, although it was broken away along the north, sufficient remained to show that it extended 10 ft to the west when a genuine edge occurred. On the east side of the trench was another feature of flint in yellow mortar at the same depth as the previous. It was c. 9 in. thick, 20 in. wide, ran N–S and, like the other, rested on natural gravel. For 21 in. along the east side of its existing top it had a tile-course, 4 in. wide and two tiles deep, but north of this the edge had been destroyed and to the south the whole feature had been removed in the digging of a nineteenth-century rubbish pit. Between these two features lay an area of tiles in mortar, the tiles being displaced, broken and fragmentary on the east, but most in the centre and west being *in situ*: all were badly worn and no designs were visible. Filling-in had to take place at once. Plans and sections

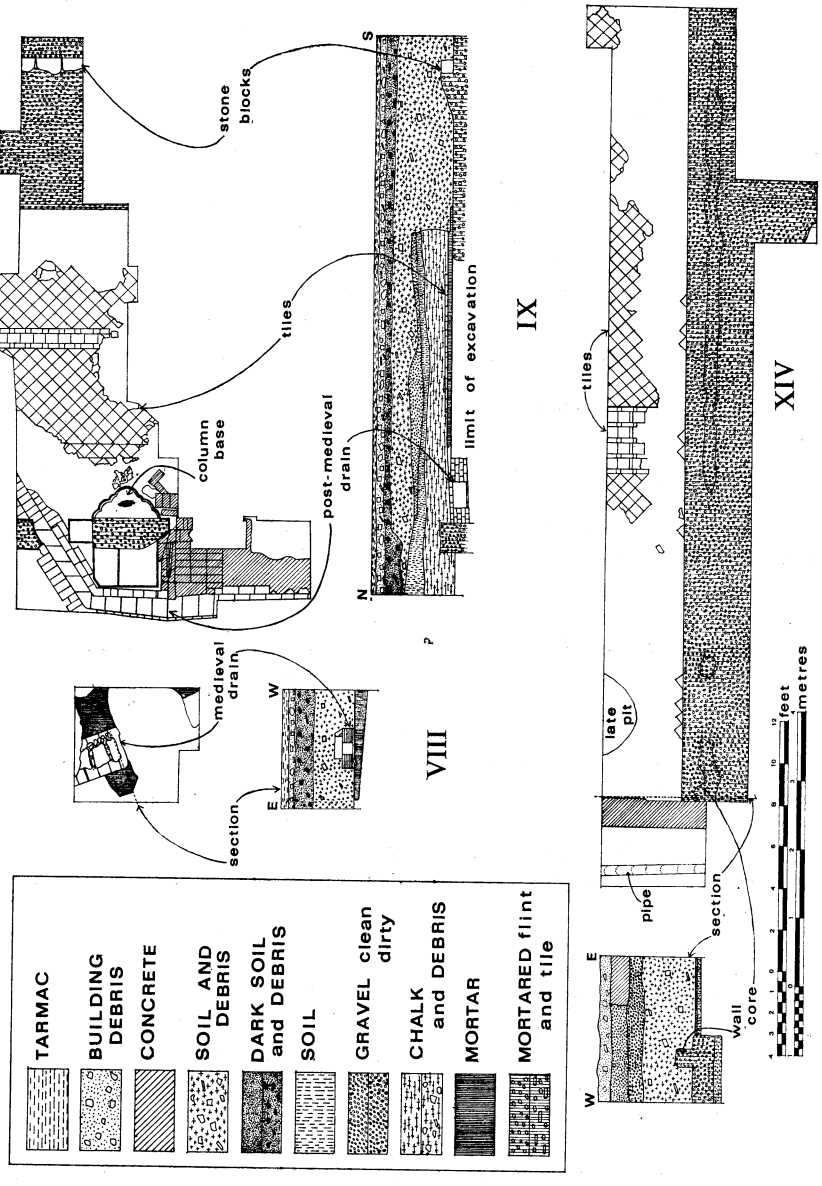

Fig. 8. Cloister Area : Plans and Sections. Trenches VIII, IX, XIV.

were drawn by torch light and no photography was possible.

Trench VII

This, running north from the refectory wall was, as mentioned in the introductory section, unproductive.

Trench VIII

See Fig. 8 no. VIII for Plan and Section and pl. 19.

This Trench was opened on the assumed line of the drain found in Trench I. Natural gravel lay at a depth of 4 ft on the west side, at 3 ft 6 in. on the east side. Destruction had occurred in the central area of the trench and at the southern edge, but between was a section of drain whose top was 2 ft 6 in. from the surface. Its base consisted of tiles 18 × 12 in.; its sides of horizontal tiles each 6 × 8½ in., 7 high with mortar between and a clear central channel 6 in. wide; its cover was of squared stones, one of which had a socket c. 3½ in. in diameter and 3 in. deep, and on the west side, mortared to the top tiles and the covering stones were flints among which a sherd was found. The drain rested on a yellow mortar floor that had been damaged but still extended almost across the box from east to west, being 2 in. thick in the east, 7 in. in the west with its upper surface horizontal. Faint traces of this mortar floor together with one of the drain's base tiles remained in the north-west corner of the trench. Six sherds were found in this mortar floor. These, and that from the drain, were all body sherds, although one had a miniscule portion of base. One had an olive green glaze, the rest were unglazed. All would agree with the dating of those of Trench I, layer 8, i.e. the first half of the thirteenth century. The tiles had no nail holes.

Trenches IX, XI, XII

See Fig. 8, no. IX for Plan and Section and pls. 20 a, b, c. Four distinct structural features occurred in the area exposed in these trenches:

(a) Flint in mortar footings. These occurred at the south end of Trench IX, generally at a depth of 3 ft 9 in. They were at least 9 in. thick, rested on natural gravel and were closely similar to those in Trench II, the northern edges of both being in line. To the south the mortar rose to make a step 7 in. high, the south edge of which consisted of stone blocks with their outer faces worked. Beyond these, smaller flints in mortar extended to the permitted limits of excavation, their top also being at a depth of 3 ft 9 in. Light dirty fill (3) extended from the base of the car park layers to the top of the flints in mortar.

(b) Encaustic tiles. A large patch of these occurred in the centre of Trench IX, although for some 3 ft to the north of the edge of the flint-in-mortar footings only a mortar bed remained (as was also the case to the south of the surviving patch of tiles). The top of the mortar-bed was at a depth of 3 ft 7 in. and where tiles no longer survived there was some evidence of post-medieval disturbance of the mortar-bed, but beneath the surviving tiles the construction was 1 in. of mortar, 4 in. of hard chalk pieces, small flints, loose mortar, c. 6 in. of hardpacked gravel merging into natural gravel. On the west, a nineteenth-century rubbish pit had been dug through the tiles. Over the tile area and partly over the features to be described under (c) and (d) was a layer of chalk debris 14–18 in. thick which was overlaid by a layer of soil and then one of gravel so that the usual layer of light dirty soil occupied only the 1 ft or so under the car park fill. Most of the tiles had copious hair-cracks and were impossible to lift.

(c) Column base. This was set in the mortar of the tile-bed, and a few fragments of tile were roughly *in situ* at the south of the base. This column base stood 4–8 in. above the tile bed and consisted of worked off-white stones with a rectangular core of flint in mortar. To the west this core extended slightly beyond the worked stone before being broken in the construction of a later floor and to the east was a further patch with its west edge damaged by the line of the later drain. The column base rested on flint in mortar some 9 in. thick, which extended c. 12 in. beyond the base to

the south: any extension to the north had been destroyed in the making of the drain.

(d) Drain. This had been cut through the flint in mortar core on the east of the existing column base, and at the north end of the column base a corner of the worked stone had been knocked off in drain-building operations. Constructional details were as described under Trench IV except that the well-cut, uniform capping stones were missing, the two capping stones found being of different shapes and carelessly placed. To the south east, from where encaustic tiles had been removed the drain was covered with brick 2½ in. thick with mortar above. Trenches XI and XII showed the drain continuing towards the west but destruction had occurred in modern times and only the base and two courses—at times one—of brick survived. The drain sloped towards the west, its base being 5 ft deep at the end of Trench IX, 6 ft in Trench XIII. To the west of the column base a floor of three-inch brick had been laid with eighteenth or nineteenth century drainpipes sloping away to the south.

Trench X

This was dug to the west of Trench VI. Natural gravel lay at a depth of 5 ft 9 in. on the west, 6 ft 3 in. on the east. A post-medieval drain of squared chalk blocks on chalk lumps rested on natural gravel and was covered by a layer of flint, chalk, mortar and tiles.

Trench XIII

This was dug to the east of the car park, and the surface was 12–18 in. lower, giving natural gravel at a depth of c. 2 ft 6 in. The area investigated showed general disturbance under c. 8 in. of humus, the space between base of humus and top of natural being occupied by dark soil, mortar, flints, brick and tile debris. Footings located showed re-use of flints from the abbey, and the drain found was modern and set in concrete.

Trench XIV

See Fig. 8, no. XIV for Plan and pls. 21 a and b. This was situated to the north of the car park at the east end of the demolished Weights and Measures office. On the east side the building of the concrete side of the former boiler house had destroyed any abbey remains there and at the north end nineteenth-century building works had done likewise. The main area cleared, 38 ft by 6 ft, had unstratified fill in the eastern part, consisting of a mixture of building material, soil and gravel, and in the western part fill showing rough tip-lines of flint, mortar and earth. Below these, at the same depth as elsewhere, was a patch of cloister tile *in situ*, the west edge being marked by a line of triangular tiles, and a number of loose tiles. The tile bed survived overall and consisted of mortar that varied from 1 in. to 4 in. in thickness, the variation occurring at the bottom where it rested on uneven natural gravel. At the north end of the box 1 in. of mortar rested on c. 3 in. of shingle in mortar. West of this survived part of the flint in mortar core of the former west wall of the cloister. This surviving core was 9 in. or more high and c. 10 in. wide, its base being level with the top of the tile-layer, and it rested on a footing of heavy flint in yellow mortar 12 in. thick. Under this came a layer of shingle in mortar c. 2 in. thick and beneath this natural gravel. The footings extended about 8 in. east to the edge of the tile layer. Their westward spread was found in a small west extension and was about 15 in. to the west of the rubble core. The same small extension showed a mortar-bed, similar to that elsewhere, extending west, but no tiles were on it. The considerable number of sherds found are discussed on pp. 106–9.

Trenches XV and XVI

The first was taken down to between 6 ft and 8 ft, parts of the second to 5 ft 6 in. Both showed major disturbance, probably of the nineteenth century.

INTERPRETATION AND DISCUSSION

The major feature of this area was the cloisters with patches of paving tile *in situ*. Tile types and patterns have already been

discussed,[1] so it is sufficient to note here that all tiles apart from the glazed unpatterned were inlaid. As inlaid in general preceded printed tiles this would put them to the earlier middle ages, but they can hardly represent the first floor of the cloisters, which were built before 1164, the date of the consecration of the abbey church: the virtually unique sherd from the mortar bed in Trench III (p. 103 no. 48) has to be dated from the tiles rather than vice versa. Excavated areas showed that tiles in different parts of the cloisters were arranged in different patterns. The tiles rested on a mortar bed generally c. 2–4 in. thick which rested on natural gravel.

Elsewhere in the areas excavated were footings of flint in yellowish mortar, that were between 6 in. and 9 in. thick. The patch at the south end of Trench IX is part of the footings of the north wall of the refectory. The faced stones may show the line of the inside wall. These footings underlay part of the tile bed to the north. To the west of these footings was, in Trench II, a similar patch, on the same line and about the same dimensions. It was impossible to prove they were part of the same building owing to total destruction in Trench V, but their dimensional and constructional similarity makes it likely. Should this be so then refectory and presumed kitchen would be integral. Other similar patches of flint in yellowish mortar occurred to the west of the north-south groups of tiles, and were footings of the wall that separated the cloisters from the range of offices or guest accommodation to the west. In Trenches III and VI the footings underlay part of the mortar bed, but in Trench XIV tiles ran up to their edge. These last had also the flint in mortar core, standing c. 9 in. high, of the wall. In two cases, part of the inner wall of the cloisters was found. That in Trench VI consisted simply of a block of flints in yellowish mortar, but Trench IX showed the relationship of such a footing to a column base (pl. 20 c.).

Other medieval features were found in Trench II and in Trenches I and VIII. The construction in Trench II was impossible to interpret except as a soakaway, but the soft light grey soil it contained and the clean condition of the tile etc. in it suggest that only reasonably clean liquid was tipped down it. Trench I contained footings of flint and chalk blocks in yellow mortar with a drain cut through them, the drain being found again in Trench VIII. Excavation in the area of the footings was limited but the use of chalk blocks and flints squared at their outer ends did not occur elsewhere. The identifiable sherds in the footing-trench could all be placed in the first half of the thirteenth century, and the considerable number of body sherds, both glazed and unglazed accommodated with this (pp. 95–7); and the seven sherds found in Trench VIII in the drain and the underlying mortar-bed could also fall into this period. Negative evidence, in the shape of the absence of floor-tile fragments, supported this dating; and the constructional details of the footings were unlike those of footings that could be dated to the original building phase.[2] These footings, then, seem to represent an extension to the abbey buildings during the first half of the thirteenth century and, lying just outside the west range of the cloisters, may represent an increase in accommodation for abbey officials.

The slope of the drain from north to south suggests some building further north, although Trenches XV and XVI produced nothing but later debris. If the quality of the drain is any criterion then the building from which it came must have been of some importance. Its cleanliness and absence of debris suggested that water only had flowed down it.

Other features in this area were post-medieval drains. A number were indicated only by land-drain pipes. But the north end of Trench II contained, at about 8 ft from the surface, a

[1] *Berks. Arch. J.*, 64, pp. 9–19.

[2] Later excavation in chancel and ambulatory areas of the abbey church (to be the subject of a separate report), showed the characteristic heavy flint in mortar footings that seem standard for the first phase of abbey building.

soakaway with sides of chalk lumps and pieces of three-inch brick nearby. To the northeast of this, in Trench X, was a drain consisting of chalk blocks supported by chalk lumps on the natural gravel which pointed directly to the soakaway of Trench II. The making of this drain had destroyed any overlying abbey remains, and it was surrounded by debris of all periods to and including the nineteenth century. Trench I gave the end of an elaborate brick drain, of three-inch brick, whose construction had destroyed part of the east end of the medieval footings. The elaborate and well-constructed drain visible mainly in Trenches IV and IX included two-inch brick in its construction. As far as Trench IX was concerned, this drain could have been later medieval building, but the destruction to the tile bed that had occurred in Trench IV indicated that the drain was constructed after this part of the abbey was in active use. But it can hardly have been later than the sixteenth or early seventeenth century.

The line of the Civil War ditch was not located, although the unusual stratification of Trenches IX and XIV certainly owed something to it; and it was these Trenches, especially XIV that produced the great bulk of the mid-seventeenth century pottery found (pp. 106–9).

(3) ADJOINING THE REFECTORY WALL

GENERAL

The occasion of this excavation in 1966 was the collapse of part of the wall to the west of the standing portion of the Refectory wall. The area of the excavation is that shown on the Plan (Fig. 1, p. 66) as XVII. Opportunity was taken to make two small excavations (XVIII, XIX) in connection with the Refectory wall, and another (XX), more extended, to see whether footings ran south of that wall. Excavation in area XVII was limited as the wall-collapse had left a near-vertical face on which excavators had to perch, and the continued use of the higher level as a car park meant that a horizontal clearance of between 18 in. and 24 in. was the maximum permissible. Safety reasons limited the scope of excavation in area XX.

The ground to the north of the Refectory wall stands some 9 ft higher than that to the south, a pattern that was deliberately maintained where the later wall continued approximately on the line of the Refectory wall. This split-level building technique had been employed in the building of the abbey, for the ground sloped south towards the river Kennet.

THE EXCAVATION

See Fig. 9 for the general plan of the trenches in this area.

Trench XVII

The debris of the collapsed modern wall made it impossible to excavate for traces of the lower courses of the main abbey wall. At a depth of 3 ft 9 in. from the upper ground level was a mortar floor, which may have been a tile-bed although no tiles were *in situ*. It was c. 2 in. thick and rested on natural gravel, being on a level with the cloister floor located further north. Its western limit was marked by the trench of a robbed partition wall. Beyond this was a thicker patch of more modern mortar and a large block of flint-in-mortar that had been detached from the abbey wall. The overlying layers consisted of car park make-up, a light dirty layer (3) and building debris overlying the mortar floor. Among this debris were glazed medieval floor-tiles. The robbed partition wall rested on 6 in. of clay in the natural gravel and contained mortar rubble and pieces of $2\frac{1}{2}$ in. brick.

Trench XVIII

This was dug close to the wall on the upper ground level, but work was made very difficult by the presence of trees and cycle racks. At a depth of 2 ft below ground level the whole trench showed a layer of modern concrete extending 1 ft 3 in. from a standing wall for which this concrete, c. 9 in. thick, was the footing. Under this in the east part of the trench were flint-in-mortar footings. Their north edge was on a line with the standing

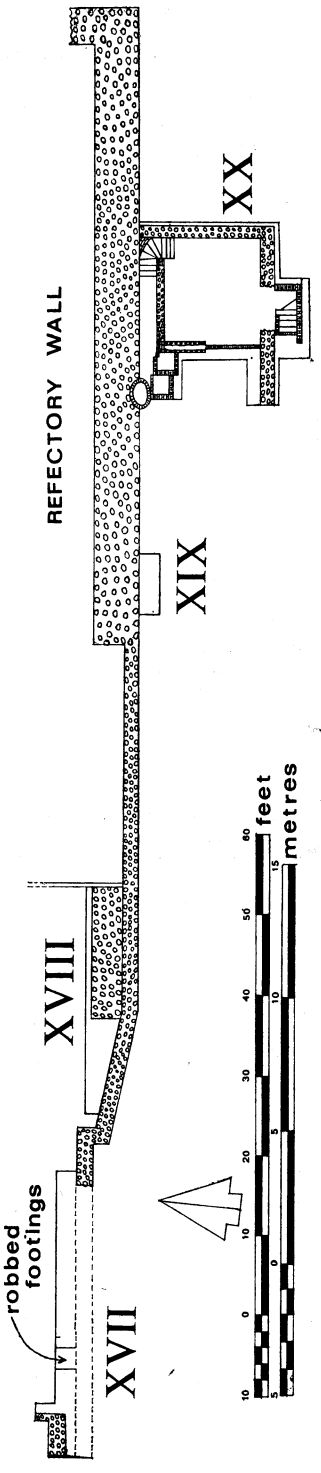

Fig. 9. Adjoining the Refectory Wall: Trenches.

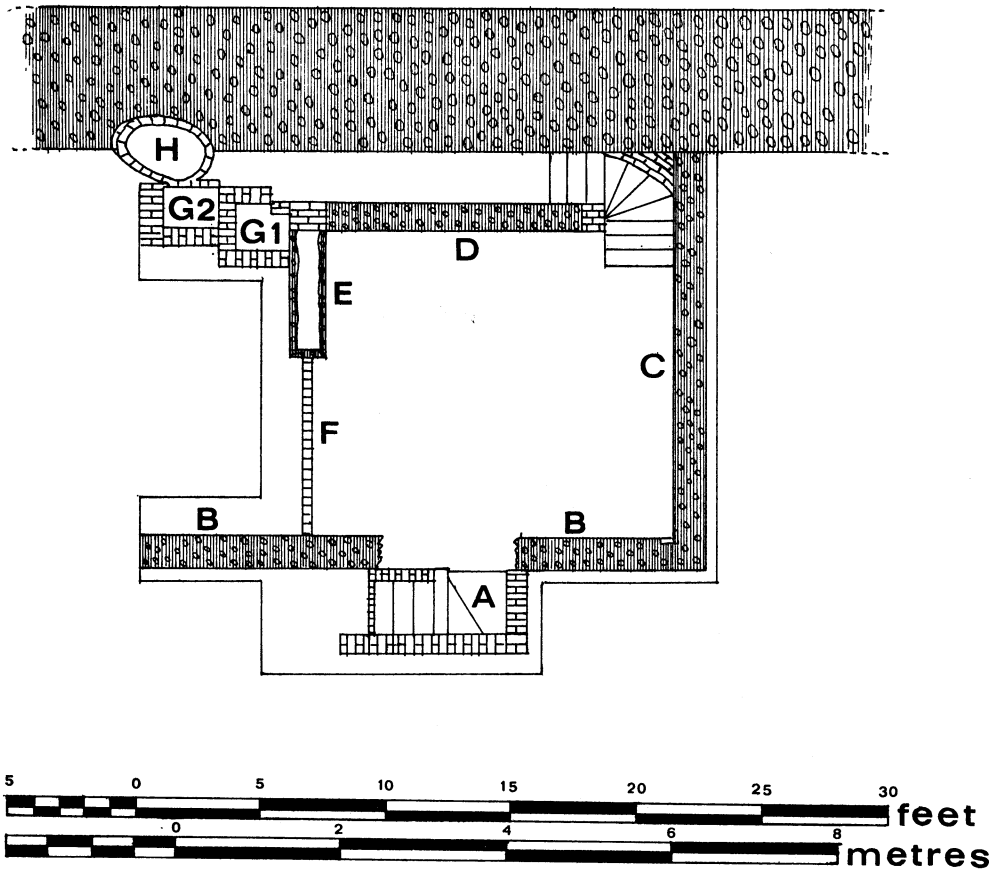

Fig. 10. *Adjoining the Refectory Wall : Trench XX.*

refectory wall but it was impossible to say whether the west edge was a genuine edge or caused by earlier destruction. The edges were traced to a depth of c. 2 ft. They continued but time did not permit further investigation.

Trench XIX

This was dug to investigate the base of the standing refectory wall at lower ground level. The base of the wall was found to be virtually at this level and was marked by a line of mortar c. 1½ in. thick, resting on natural gravel. The west 2 ft 6 in. showed a wall of 2½ in. and 3 in. brick, one brick thick, extending downwards from the south face of the standing refectory wall. This brick wall was followed downwards to a depth of 2 ft and it continued. It also continued westward. At this point filling-in took place to avoid inconveniencing the occupants of the adjacent house.

Trench XX

See Fig. 10 above for Plan. Time did not permit total clearance of this area. The main feature was a cellar bounded on the north, east and south by flint-in-mortar walls that contained a certain amount of 2½ in. brick. Bonded, they formed the top 8 in. of the internal junction of walls B and C; at least two courses each a single brick thick were visible in the internal

face of wall B; there were recurring designs on the interior face of wall C; and both ends of wall D had been repaired with it. The west limit of the cellar was beyond the area excavated but within the area excavated was a partition wall. The southern half (F) consisted of a wall of three-inch brick, one brick thick, which continued below the depth of 2 ft. excavated. This was butted against wall B and against the end of wall E. Both ends of this consisted of 2½ in. brick, but the centre, which had suffered considerable destruction, consisted of a double line of flints-in-mortar, the space between them being filled with dark and dirty soil. Both sides were investigated to a depth of about 1 ft below the existing surface of the wall. Only the small part of the cellar near the original entrance on the north was cleared to floor level. This was 7 ft 9 in. below the base of the Refectory wall, and consisted, in the very small area cleared, of rough mortar and sand, and it was level with the base of wall C. Miscellaneous debris and soil filled the cellar and extended west beyond walls E and F: outside walls B and C was natural gravel which also underlay the cellar floor.

The earlier of two entrances to the cellar was that to the north which consisted of 9 steps descending in a curve. To the west of the first step the base of the Refectory wall rested on natural gravel, but to the east, starting at the base of the Refectory wall, descending with the steps and following their curve was a wall of 2½ inch brick. It was not ascertained whether this was more than one brick thick where it lay directly under the Refectory wall, but where it curved south brick filled the area to the base of that wall. The end of this brick was cut into the face of wall C. The steps consisted of flagstones on brick. The later entrance to the south was marked by outer walls (A) of three-inch brick with steps of slate slabs 2 in. thick. About 4 ft of wall B had been removed to make the actual entrance but it survived below this.

The features G1, G2 and H consisted of three-inch brick but time did not allow them to be cleared to any depth. H was beehive-shaped with a layer of concrete c. 3 in. thick over the brick dome. Its entrance was 1 ft 2 in. wide and the interior top of the dome 15 in. above this. The exterior top of the dome was 2 ft 6 in. below the base of the Refectory wall, the space, not cleared, being filled with dirty soil, gravel and building debris.

INTERPRETATION AND DISCUSSION

The west end of the site, where the modern wall had collapsed, was reputed to be that of the abbey kitchen. The mortar floor indicated that the area was an internal one and that at some stage a partition wall ran north-south. There was no indication surviving of the southern limit of this floor and the block of flint-in-mortar at the extreme west of the area seemed, in the small area there cleared, to have tumbled rather than being *in situ*. The heavy flint-in-mortar footings further to the east were on a line with the standing south wall of the refectory. There was no evidence of a turn north or a continuation west, but either could have occurred below the limits of excavation.

The main area cleared to the south of the refectory wall contained two distinct phases of building. The first was represented by the walls of flint in mortar and 2½ in. brick, which was used in the construction of the north entrance and to make designs on the inner faces of the footings. It could have been later medieval or Tudor work, but in either of these cases it could represent rebuilding. Buckler, in the earlier nineteenth century, described and partially planned medieval walls existing in this area which he identified as representing cellars and storage accommodation for the abbey.[3] He did no excavation and later abbey planners disregarded his work. The second phase of building is represented by the features of three-inch brick, part of the partition wall, the southern entrance and the ovens, (G1, G2, H). Dwelling-houses were built along this face of the refectory wall, the last being demolished in 1927, and this later building work would seem to have some connection with these features. The base of the refectory wall is only

[3]B.M. Add. MS. 36400.

a few inches below the ground surface on the south side, and rests on gravel. The discovery in Trench XIX of brickwork underlying the refectory wall suggests further cellarage. It is hoped that further archaeological investigation will be possible in this area.

THE FINDS

(1) THE POTTERY

STEPHEN MOORHOUSE

INTRODUCTION

The pottery from the Abbey excavations is the first systematically excavated medieval sequence from Reading, although a large quantity of material has been amassed over the years from various sources.[1] Although these groups can be regarded as homogeneous in themselves, it is extremely difficult to attribute a closely toleranced date to them. General comments have been made on specific types and where possible these have been related to more closely documented material from adjoining regions. The initial study of medieval pottery in the region from both archaeological and documentary sources was set out by (Prof.) E. M. Jope in 1947[2] but since then little work has been attempted. It is hoped that the present material will form a solid foundation for future workers.

The material has been roughly arranged in chronological order, in very general terms. The dating of the groups depends solely on the pottery itself as none could be dated from documentary or relative stratigraphical evidence and their dating rests solely on typological development and dating evidence for certain types from adjoining areas. It is rapidly becoming evident that medieval ceramics conform to a strict and regional distribution pattern;[3] certainly for coarse wares, more highly decorative products being traded over greater distances. Even when similar types in different regions have been defined they may not conform to the same date ranges. It is with these points in mind that the dating of the Reading Abbey groups has been attempted, relying heavily on the well established sequence from Oxford—especially in respect of the tripod and painted pitchers—from whence the influence appears to come in the earlier period. Despite the lack of reliable dates for the material their relative associations will be of value when further, more closely datable, material is available from the area, and help form a foundation for a chronology of medieval pottery in the Reading hinterland.

Tripod pitchers

The tripod pitcher is perhaps the best guide in relating the Reading material to neighbouring types. Unfortunately it was impossible to reconstruct a profile from any of the present groups but even on the evidence of fabrics, method of decoration and construction techniques it is evident that a distinct and similar tradition existed between tripod pitchers of the Oxford region and those from Reading.[4] Similarities can be seen in the tubular spout attached with a strap at the top (Fig. 11, nos. 1, 2 and Fig. 12, no. 19) and in the handle types[5] (Fig. 11, nos. 8 and 9). Little work has been carried out on the Reading pitchers and these are the first groups to be published from the area containing them. The Oxford pitchers have been subjected to a closely toleranced date range based on the evidence of sealed and associated finds from Oxford, emerging in the early 12th century, developing and devolving throughout the century, finally emerging during the first half of the 13th century as painted jugs.[6] This same development can be seen in the Reading vessels and it is in fact to this overlap period that the Reading groups can be attributed for the two largest, and earliest, groups from the site contain a preponderance of painted jugs rather than true tripod pitcher types. As with the earlier pitcher a similarity can be seen in painted designs again suggesting a strong link with similar products in the Oxford area.

Although the Oxford sequence is well established in the development of tripod and painted vessels, it is uncertain how much the dating evidence can be relied upon for the Reading area, especially in view of the strict regionalization of ceramic forms and types in general. The dating of tripod pitchers generally however, wherever they occur is attributed to the 12th century,[7] and although certain hybrid types go on into the 14th century,[8] these are extremely rare occurrences and are not found to be common types during this later period. The foundation and main building period for the Abbey occurred between 1121 and 1164 and as the earliest of the group containing pitchers (Fig. 11, nos. 1 to 13) was not associated with primary levels, the earliest date for this group can be placed in the second half of the 12th century. As the true tripod pitcher is the minor form in this group, the earlier finer painted wares being in predominance, a date around the later 12th to early 13th century could be suggested for it.[9] The occurrence of the three sherds from the decorated glazed jug (Fig. 11, no. 12) would however suggest a date further towards the middle of the 13th century, for although evidence is accumulating to suggest decorated jugs start earlier in the century it would be extremely dangerous at this early stage to suggest a date *c.* 1200 for their introduction. It is unlikely that three unabraded sherds from the same vessel are derived or residual. Until further evidence is available it is only possible to suggest a date somewhere in the first half of the 13th century for the group.

In the second group (Fig. 12, nos. 14 to 22) the development of the painted jug or pitcher can be seen, the fine line designs becoming devolved into thick crude very basic patterns, the body of the vessel becoming thicker, more lumpy and generally less aesthetic. Tripod pitcher types can still be seen in the form and fabric of no. 18 with the typical incised line decoration and the notching of the handle sides. It is doubtful whether no. 19 is a true association but it has been included as it is uncertain how long pitchers persisted in the Reading region. The vessel no. 14 is unique in every respect on the site and indeed it has been impossible to parallel it elsewhere in this combination of form, fabric or decoration. It is certainly linked with the earliest painted wares as it exhibits typical pitcher fabric and general form and the quality of the painting and glaze is of the highest standard as found on any of the painted jugs, suggesting it is very early in the type's history. As it was in association with other characteristically 13th century vessels in the group, nos. 21 and 22, and as later painted wares predominated, a date around the middle or second half of the 13th century is possible.

A type of pitcher not recognized from the Reading Abbey material, but seen in miscellaneous groups from Reading[10] and associated groups from Basingstoke[11], appears to be a localized variant in north-east Hampshire and southern Berkshire of the later tripod pitchers. The fabric of these is similar to, but harsher than, the tripod pitchers of Oxford and Reading, unglazed and with little or no decoration. A complete profile of these vessels is not yet known but appears to be a devolved tripod pitcher type. The quality and style of these vessels suggest they are an attempt by local potters to copy the more aesthetic genuine tripod pitchers. Associated groups from Basingstoke[12] and Oakley[13] suggest they are contemporary with the overlap period between the tripod pitcher and painted jug, one group from the site of the Co-op., Basingstoke, suggesting they were current during the first half of the 13th century.[14]

Construction techniques

Examination of the Oxford and neighbouring pitchers has shown that a number have well thrown bodies with coiled necks.[15] Partial and completely coiled vessels have since been more widely recognised not only in the late Saxon period but much later in medieval contexts.[16] Like the Oxford vessels, the Reading pitchers show a high degree of potting skill and competence, with their exceedingly thin walls, well fired hard fine sandy bodies and glazes. Due to the fragmentary state of the present material, with no more than a few sherds coming from

any one pitcher, it is impossible to detect coil construction with any certainty. A technical development or devolvement in the painted vessels is clearly seen as there is more of a sequence. Those in group nos. 1 to 13 (Fig. 11) show a slightly coarser, less sandy fabric than the earlier pitchers, and still made on a moderately fast wheel as evidenced by internal throwing grooves. The decoration on these early painted wares, like the later types, is always in a white slip, no. 4 being the exception; the designs are generally finely executed. The fabric of the later types becomes thicker and less highly fired, with relatively little sand, giving a soft porridgy texture to the pot. They display internal rotating marks suggesting the vessel was either hand moulded on a hand rotated wheel or the coil marks obscured by intensive finishing; the internal surfaces are very lumpy and uneven. Certainly they are not thrown with the same degree of skill as even their immediate predecessors. No. 6 shows clear signs of coil construction on the shoulder, but the rim appears to have been thrown. Invariably coil-made vessels were finished on a slowly rotating (?) hand operated wheel to obscure external coil junctions, sometimes the potter paying more attention to the rim and making it look as if the vessel were thrown; possibly this could be implied for no. 6 (Fig. 11) and no. 15 (Fig. 12). The fabric of nos. 15, 16 and 17 (Fig. 12) together with a number of unillustrated similar sherds from different vessels in the same group, are identical in fabric to the thumbed base no. 33 (Fig. 13), possibly suggesting the fabric type has a long life span.

STRATIFIED MATERIAL NOT ILLUSTRATED

A. *From the Abbey Mill excavations*

1. A group of seven sherds and one roof tile fragment came from a hard ochre coloured chalk level above sterile gravel adjacent to the southern pier in the footings of the eastern arches (see p. 69). All are body sherds from cooking pots; one of these, heavily mortared, could be from a tripod pitcher, in a finer sandier fabric than the rest of the group. One of the largest sherds in a very hard thin fine sandy fabric with smooth almost burnished external surface is characteristic of Early Medieval Sandy wares[17]; the regional types for the Reading area have not as yet been clearly recognized or defined. The rest of the group occurs in cooking pots that are not susceptible to a close date range, generally being attributed to the 12th, throughout the 13th and into the 14th century, but the association of the fine sandy sherd and the tripod pitcher sherd suggest a 12th century date, a suggestion strengthened by the lack of any glazed or painted sherds. The Mill was built at some time after 1121.
2. Three small body sherds from cooking pots came from the main flint in mortar footings in the foundation trench on the thin mortar layer by the batter of the footings east of the piers of the eastern arches (see p. 71). The most characteristic sherd is in a well fired hard granular dull brown fabric with pimply surfaces; unglazed. The dating of the three sherds is difficult but could quite easily lie in the 13th century. Two small sherds occurred in the grey clay above this but cannot strictly be regarded as stratified. One, a body sherd of hard red fabric with lines of white painted decoration, is probably 13th century; the other is from a rough cooking-pot that could be 12th century.
3. Two joining sherds came from the western end of the east stretch of the Abbey Wall, at the bottom of the flint in grey clay footings (see p. 71). They are in a hard-fired grey sandy fabric with a vertical white paint strip covered sparsely in watery olive green glaze. The vessel from which this sherd comes is developed from the tripod pitcher (see p. 93). It could therefore date to the first half of the 13th century, but until further work is done on the development of these earlier 13th century wares, a more precise or even accurate date is unlikely.

4. A single base (?) sherd came from saturated dark clay containing the curved wooden pieces, by the chalk in mortar footings of the west stretch of the main Abbey wall (see p. 73 above). Due to the waterlogged conditions in which the sherd was found, it has become very abraded and rounded. It is in a fine sandy friable fabric with near jet black core and light brown surfaces. It is not likely to be medieval, or at least contemporary with the Abbey Mill period. Although it is extremely abraded the fabric and indeed the sharply tapered clubbed foot can be more readily seen in Roman contexts, although a possible Saxon date cannot be ruled out.

B. *From the Footing Trench* (8) *in Trench I of the Cloister area*

Over 150 small sherds came from here in addition to those illustrated (Illustrated pottery, nos. 1–13). Many showed close affinities with those illustrated and are noted under the appropriate numbers in the section of illustrated pottery; and all, including the unglazed, showed similarity of fabric. They all, therefore, accommodate within the dating of those illustrated.

5. Five body sherds with patchy green glaze over grey fabric.
6. Thirteen body sherds with patchy green glaze one including part of a flat base. These sherds came from 4 vessels.
7. Four body sherds with light green and brown glaze. These sherds come from two vessels.
8. Six sherds with patchy light brown glaze. One is a very small rim sherd with a poor vertical line of white paint, showing dull yellow under glaze. Five are body sherds. These sherds come from three vessels.
9. Four body sherds, well glazed, one medium brown, two brown with traces of white painted design showing yellow under glaze, one olive green with darker patches.
10. Thirty-one unglazed sherds, surface colours ranging from grey to dull red. Three are base sherds the rest body sherds. Seven have slight grooving, two show faint bands of dull purple paint, one of off-white paint.
11. Sixteen unglazed body sherds, surface colours ranging from very dark grey to blue-grey and dull red. These are probably from cooking pots.

ILLUSTRATED POTTERY

I MEDIEVAL

Cloister Area: Trench I: (8) *Early foundation trench* Fig. 11, nos. 1 to 13

This large but fragmentary group came from an early foundation trench in the Cloisters. Its location and excavation are discussed on pp. 80–2 and shown on Fig. 7.

1. Near complete spout and body sherd in a hard fine sandy fabric with light grey core and dull pink to light brown surfaces; glazed all over externally, with internal streaks, in a dull watery lime green glaze with a yellow tinge on the spout front. The body is decorated with annular groups of combed grooves, the surviving sherd having a thin vertical applied strip with shallow crescent shaped incisions down its length. Unillustrated are 21 body sherds, one including part of a flat base and nine showing shallow, grooved decoration.
2. Rim from tripod pitcher with top of tubular spout strapping attached, in a hard fine sandy light brick red fabric with partial light grey core. Glazed internally, externally and patchily on the rim in a glossy dull olive green glaze with brown tinges externally. The rim edge is decorated with a neatly rouletted notch design. Unillustrated are 17 body sherds, one including part of a flat base, one showing faint horizontal rouletting, seven showing horizontal grooving.
3. Shoulder and body sherd from a pitcher in a hard fine sandy dull brick red fabric with partial grey core to the body sherd. Glazed externally all over in a glossy reddy brown glaze over a white painted design, showing a dull creamy yellow below the glaze. Unillustrated are 12 sherds, three

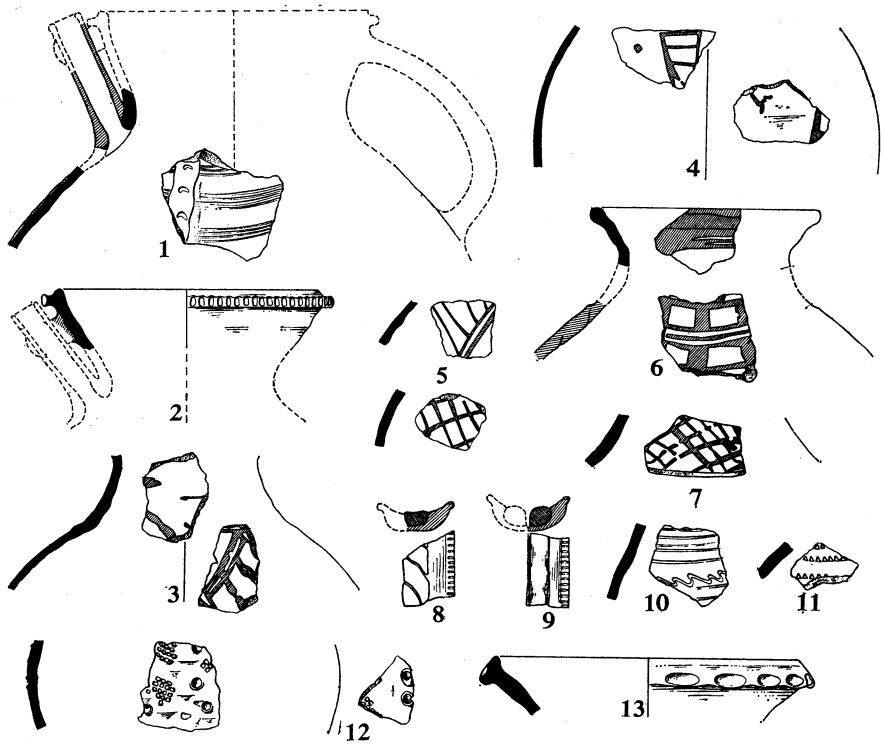

Fig. 11. *Pottery :* 1 *to* 13 *group from Cloister Area, Trench I* (8) (*pp.* 80–2) *: Scale* ¼.

showing traces of white painted design. All are body sherds except one which has a foot and small part of the base of a tripod pitcher. The foot has a small hole as with no. 49.

4. Two body sherds in a hard very fine sandy dull brick red fabric with lighter inner surface and light purple external surface. The decoration is in a thin lined purple paint with a diagonal creamy yellow line (right of lower sherd) beneath a patchy watery glossy light brown glaze. Unillustrated are 5 body sherds.
5. Two body sherds from a pitcher in a fine sandy though harsh textured fabric with dull brick red core partially reduced to a light grey, uniform light grey-brown inner surface and dull pink outer surface. Decorated with thin lines in a slip showing creamy yellow below a patchy light glossy brown to glossy orange glaze. Unillustrated are 2 body sherds, one lacking the white slip decoration.
6. Rim and body sherd from a pitcher in a hard fine sandy dull brick red fabric with partially reduced grey core. The rim has a light grey-brown outer surface with unglazed dull cream paint, the body paint showing a dull creamy yellow below a patchy watery dull olive green glaze; the vertical streaks were painted first, then the horizontal bands. For a similar rim and neck decoration see a jug from the site of Radcliffe Camera Square, Oxford.[18] Unillustrated are 7 body sherds.
7. Shoulder sherd from painted pitcher in a hard fine sandy fabric with blue-grey core contrasting with a bright brick red inner margin and duller inner surface. Painted

design showing creamy-yellow below all-over dull olive green glaze. Unillustrated is one body sherd.

8. Fragment of pitcher handle with diagonally cut applied central rod of clay, in a fine hard sandy fabric with well defined dark grey core dull brick red margins and surfaces, covered all over in a dull matt olive green glaze over a patchy dull off-white slip; the edge has been notch rouletted.[19] Unillustrated are 21 body sherds, 6 showing horizontal grooving.
9. Fragment of pitcher handle with applied central rod of clay, deeply cut down the centre; in a hard fine sandy fabric reduced to a blue-grey, completely covered in a uniform unglazed dull off-white slip; finely executed notched rouletting down the edge.
10. Shoulder from a pitcher (?) in a harsh textured hard fine sandy fabric, partially reduced to light grey with uniform dark grey inner surface; external incised decoration under a dull deep olive green glaze, thicker where it has gathered in the design. Unillustrated are 12 body sherds.
11. Body sherds from a pitcher (?) in a harsh fine sandy light brown fabric with horizontal bands of finely executed triangular notched rouletting under an all-over external dull yellow ochre glaze.
12. Three sherds in a fine sandy though slightly lumpy fabric with light grey partially reduced core and bright uniform pinky brick red surfaces; decoration of diamond notched grid stamps and ring and dot, in alternate vertical lines, under an overall white slip, and covered with a shiny uniform mottled apple-green glaze. The 'ring-and-dot' design is created by a hemispherically ended instrument being pressed into the surface and forcing the surrounding clay into a ridge, thus creating a cratered effect. Unillustrated are 2 body sherds lacking the 'ring-and-dot' design.
13. Cooking pot rim in a fine sandy fabric with blue-grey core and dark smooth purple brown external surface and light grey internally; the edge of the rim has been thumbed.

The dating of this group has been discussed in conjunction with the tripod pitchers and painted jugs (pp. 92–3 above) where it is suggested the group belongs to the first half of the 13th century. The association of true tripod pitchers (nos. 1, 2, 8 and 9) and their derivatives, painted jugs or pitchers (nos. 3 to 6) demonstrates that the group falls in the crucial overlap period between types. The fabric glaze and decoration of no. 11 is identical in every respect to no. 34. This is the only sherd of its type in this large but very fragmentary group, and its size could suggest it is derived from a later deposit. However it has been included as this cannot be certain. The association of the stamped jug no. 12 is a useful and important association for, as already pointed out, it is unlikely that three independent sherds from the same vessel are later intrusive pieces.

Abbey Mill: Footings of central and south piers of eastern arches Fig. 12, nos. 14 to 22

This large group is discussed on p. 93 Its location is given on Figs. 2 and 3 (no. 4) and p. 69 (layer 5). It was uncontaminated by later material and can therefore be regarded as a sealed deposit.

14. Thirteen sherds forming upper part of pitcher (?), in a thin very hard pinky brick red fabric with blue-grey core; painted in a white slip showing a creamy yellow below a patchy watery bright orange glaze. The handle has closely spaced opposed diagonal slashing down the back, with a horizontal row across its junction with the rim. There is an unglazed band of slip 1 in. deep around the inside of the rim, and the inner surface of the neck only has a partially reduced grey tinge. This vessel is finely made.
15. Seventy-six sherds, many joining, from a large tripod (?) pitcher in a harsh fine sandy dull brick red completely oxidized fabric with external decoration in an off-white slip, faded in parts; unglazed, except for seven unattached sherds with

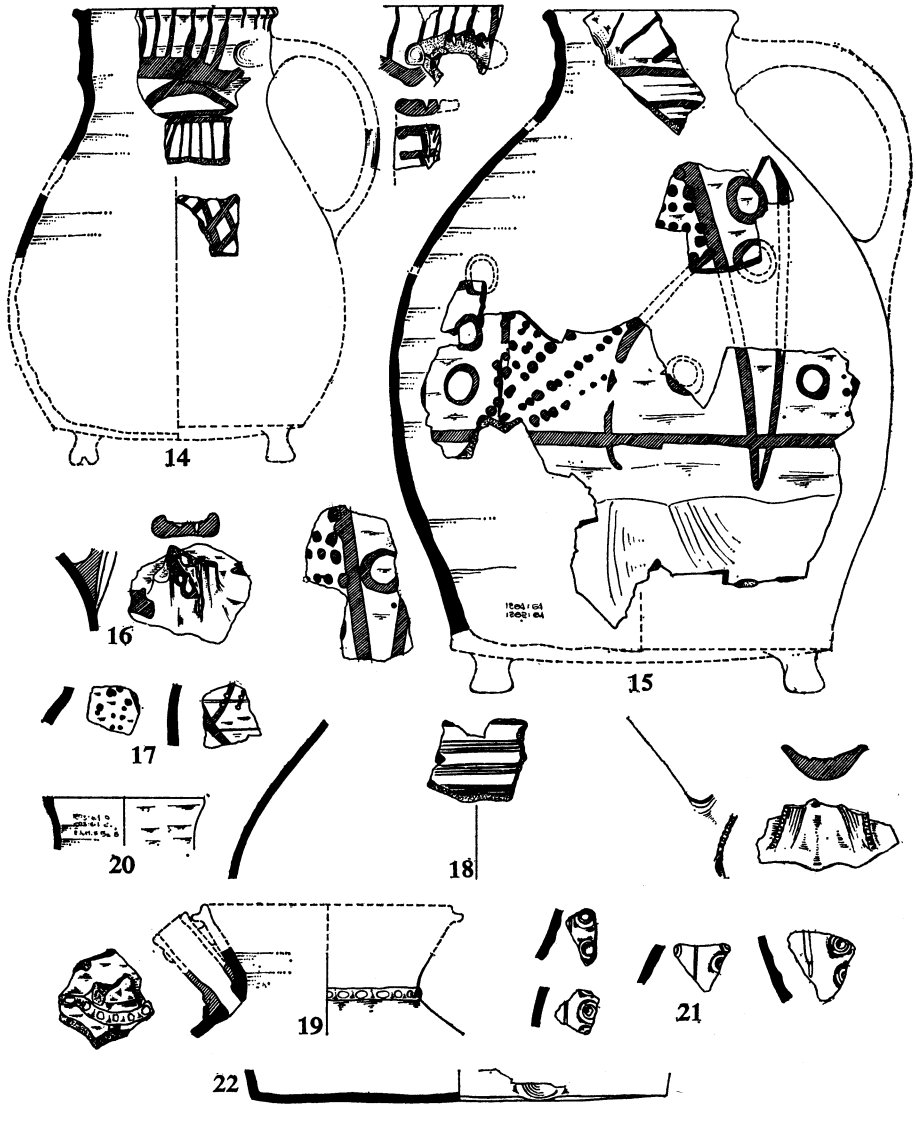

Fig. 12. *Pottery :* 14 *to* 22 *group from Reading Abbey Mill* (*p.* 93) *: Scale* $\frac{1}{4}$.

traces of mottled green that from their association and fabric must belong to this vessel. The lower half of this large clumsy vessel shows no signs of wheel marks although these are clearly seen on the only rim fragment; there are many large sweeping internal smoothing marks. It has been knife trimmed externally towards the base.

16. Handle base in similar porridgy fabric to no. 15 above with dull white painted decoration covered in a very patchy deep

orange glaze. The back of the handle has a central groove with separate incisions alongside.

17. Two body sherds in similar fabric to no. 15 above with external incised dot and white paint decoration below a patchy glossy orange glaze, very faded on the larger sherd.
18. Thirteen sherds joining to make four large pieces, of which one is illustrated, from a tripod pitcher, in a very hard fine sandy completely reduced dark grey fabric. Decoration of annular incised combed grooves under an overall dull olive green glaze. The broad strap handle has been very neatly applied at the base and appears to have had an incised central rod of clay well smoothed in; the handle edges are notched, not rouletted.
19. Tripod pitcher neck with attached base of spout in a very fine sandy fabric with well defined light blue-grey core, dull brick red margins with pinkish inner surface. The junction of the neck and shoulder has an applied strip of white clay which runs round the front of the spout; it is very faintly thumbed. It is patchily covered externally in a glossy dull olive green glaze with dark patches internally.
20. Three rim sherds, two of which join, in a very hard thin sandy fabric with pimply surfaces. Very well defined dark blue-grey core with dull brick red margins and light purple inner surface, decoration of thin vertical light purple streaks with a very patchy mottled orange to deep brown glaze. This is the only vessel in this fabric from the excavations and it has not been parallelled from material in Reading Museum.
21. Four non-joining sherds from a jug in a sandy fabric with dark blue-grey core and dull brick red margin and surfaces. Decoration of true ring and dot motifs between vertical incised lines, covered with a white slip and glazed overall showing a dull mottled light and dark apple green. Sherds in very similar fabric and glaze with identical decorative motifs are known from Prospect Park[20] clay pit and in mid to late 13th century contexts at the mid 13th to mid 14th century farm complex at Oakley Park[21] five miles to the west of Basingstoke.
22. Five joining sherds forming the flat base from a large jug in a very hard, very fine sandy fabric, completely reduced to a grey with a dull brown outer smooth surface. There is evidence for a thumb mark on the base angle and there is enough of the vessel to show they were not continuous round the base. There is also one, unillustrated, body sherd.

This large deposit has been discussed, along with the previous group, as evidence for the development of tripod and painted vessels from the site. A date in the second half of the 13th century was suggested. The only true tripod pitcher type (no. 19) in the entire group suggests it could be residual but has been included as this is uncertain. Twelve of the unillustrated decorated body sherds are all in the more developed painted fabric of nos. 15 to 17; a fairly soft lumpy relatively low fired fabric with smooth surfaces. Useful associations in this group are the more conventional 13th century jug forms and fabrics of nos. 21 and 22 There are in addition seven glazed body sherds of which one possibly belongs to no. 19, and twelve unglazed. These all agree with the suggested date range.

Abbey Mill: N.–S. footings to E. of piers of arches Fig. 13 nos. 23 to 25

This small group came from the main flint in mortar footing trench adjacent to the batter (see p. 71 and Fig. 2, area B; Fig. 3, no. 5). Only five sherds, from three vessels, were found, all of which are illustrated. It is extremely difficult to date a small group like this. The combed decoration of no. 23 occurs in horizontal grooves at Oxford in late 11th to early 12th century contexts[22] and elsewhere in the general region during the later 11th and earlier 12th century and later.[23] Such an early dating is unlikely here for the wall, with whose founda-

tions the sherds were associated formed part both of the outer wall of the Abbey and also of the mill complex and even the earliest building on the site did not start until after 1121. The hard fired fine sandy reduced fabric of all four sherds suggests a 12th rather than a 13th century date.

23. Two non-joining sherds, the largest of which is illustrated, in a hard sandy harsh textured fabric with blue-grey core and brick red margins and outer surface; inner surface a uniform light blue-grey. The shoulder of the vessel has uniform vertical continuous combing round the body; unglazed.
24. Rim in a very fine sandy slightly lumpy fabric reduced to a light grey with a light pinky brown external surface; unglazed.
25. Two non-joining fragments from a base, possibly the base to no. 24 above, in identical fabric texture with internal light pinky brown surface with heavy black sooting towards the centre and fired light grey all over externally with domestic use.

Abbey Mill: Pit 2 Fig. 13 nos. 26 and 27

This pit is described on p. 73 above and the section illustrated on Fig. 4. The lower level contained seven sherds of cooking pot all from independent vessels, all occurring in a very fine thin sandy grey reduced fabric with dull brown surfaces. The middle layer contained six sherds from independent cooking pots in similar fine fabrics, although two were thicker and more lumpy; also included was a sherd from a tripod pitcher with all over external watery olive green glaze. The upper layer contained two sherds of fine sandy reduced cooking pot from different vessels and three small sherds from independent tripod pitchers in a thin hard fine sandy pinky brown fabric, one with a grey interior. The two illustrated sherds are from the top layer and are not described above.

The dating of this pit is difficult. The three distinct layers appear to have been deposited within a short time of each other on the evidence of the hemogenic fabric contained in each. The tripod pitcher sherds are from high quality pitchers and together with the sandy cooking pot vessels suggest for the pit a date in the second half of the 12th century.

26. Cooking pot rim in a hard fine sandy totally reduced grey ware with darker surfaces, externally sooted.
27. Shoulder from a cooking pot in a thin hard fine sandy fabric with dark grey core and inner surface and dull pinky brown exterior; unglazed. The shoulder has continuous rather crude diagonal combing, similar to the fine work on no. 23 above.[24]

Abbey Mill: West wall of Abbey N.–S. stretch Fig. 13 nos. 28 and 29

These two sherds came from near the flint in yellow mortar on the east side of the wall (see p. 73). Their dating is difficult especially as the form and fabric of no. 29 is not found amongst the other groups on the site. A date in the first half of the 13th century could be suggested.

28. Handle from tripod pitcher (?) in a hard fine sandy totally reduced dark grey fabric with smooth surfaces. The centre of the handle has had a row of separately dished pads applied while its turned up edges have been diagonally thumbed; unglazed.
29. Cooking pot rim in a hard totally reduced light blue-grey fabric, very coarse textured due to the many irregular quartz sand inclusions; unglazed. A rim in identical fabric and similar form comes from a 13th century context at Seacourt.[25] A variation in surface colour is to be expected due to varying conditions of kiln firing.

Abbey Mill: West wall of Abbey N.–S. stretch Fig. 13 nos. 30 and 31

The context of these sherds is discussed on pp. 72–3. They came from the burnt layer on the east side of the wall. Their dating is difficult but can be placed generally in the 13th century.

30. Shoulder sherd in a hard fine sandy lumpy fabric totally reduced to a grey with near black surfaces. The shoulder has faint diagonal striations but the sherd is too small to determine whether this was intentional;

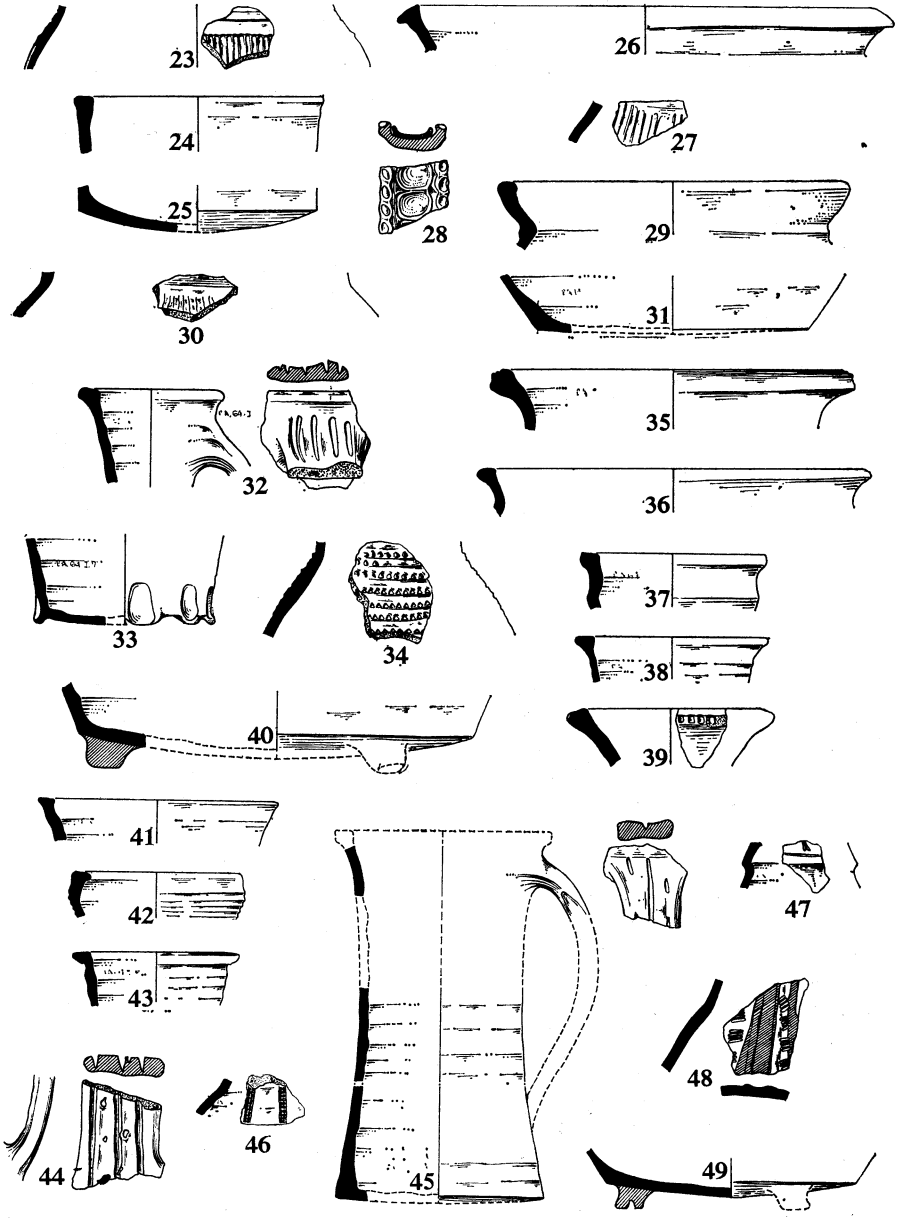

Fig. 13. *Pottery :* 23 *to* 25, *Group from the Mill arches* (*p.* 71); 26 *to* 27 *Group from the Mill pit* 2 (*p.* 73); 28 *to* 29 *Group from west wall of the Abbey* (*p.* 73); 30 *to* 31, *Group from west wall of the Abbey* (*pp.* 72–3); 32 *to* 39 *Group from the Cloister trench I* (7) (*p.* 82; 40 *to* 46 *Group from the Cloister trench I* (3) (*p.* 82); 47 *to* 49 *miscellaneous : Scale* $\frac{1}{4}$.

as there are two other such sherds from the site with this surface treatment (nos. 23 and 27) possibly it was intentional; unglazed.[26]

31. Cooking pot base in hard fine sandy fabric with light grey core, dull pinky brown to grey inner surface with heavy black sooting towards the rim, and a very smooth light grey-brown exterior; unglazed.

Cloister : Trench I ; layer (7) Fig. 13 nos. 32 to 39

The context of this group is given on p. 82 and its location in Fig. 7, no. I. It was contaminated by later material but because this was not wholly mixed with earlier material it has been regarded as a homogeneous group, with identifiable later intrusions.

All rim sherds from this deposit are illustrated. The much worn and abraded tripod pitcher rim no. 39 can be regarded as residual. Considering the next group, nos. 40 to 45, where Surrey white wares (nos. 43 to 45) are current, and the quantity of Surrey white wares in the Reading area, a possible terminal date is suggested for this group for it is fairly certain now that the characteristic white ware of the northern Surrey kilns was introduced shortly before *c.* 1300.[27] A date in the second half or later 13th century is therefore likely for this group. Unillustrated are eleven body sherds of hard, sandy fabric with pink surfaces. One of these includes a small part of a flat base and has a number of faint scratch-marks on the body.

32. Jug rim with attached handle, and two small body sherds, in a hard sandy rough fabric with well defined light grey core, brick red margins, dull brown external surface, with spots of bright deep olive green glaze and a bright pink-red inner surface. The handle junction has five long deep incisions running down the back.
33. Large sherd and small sherd from the base of a baluster jug in similar fabric to no. 15; very lumpy and uneven surface with no clear indication of throwing marks. The fabric is coarse with large granular inclusions although the unglazed surfaces are relatively smooth. The thumb marks have been formed by squeezing with thumb and first finger, pulling towards the base with the first finger; the slight thumb impression has therefore been left under the base. This jug is in an identical fabric to no. 15 above.
34. Single sherd from decorated pitcher in similar fabric and glaze to no. 11 with very similar annular bands of triangular notched rouletting.
35. Single cooking pot rim in a hard totally reduced dark grey fabric. The sand grains are large giving the vessel a harsh lumpy texture although the inner darker surface is extremely smooth particularly in the rim recess, suggesting it was used with a wooden or possibly metal lid.
36. Cooking pot rim in a hard fine sandy brick red fabric with well defined light blue-grey core; unglazed. External throwing grooves imply the vessel was thrown on a very vast wheel.
37. Jug rim in a hard harsh sandy dull creamy pink fabric; unglazed.
38. Jug rim in a thin very hard brick red fine sandy fabric with grey-brown inner surface. The dark glossy olive green to brown glaze was flaked off suggesting a handle springing
39. Rim from a tripod pitcher in a hard fine sandy light blue-grey fabric with dull purple-brown surfaces patchily covered all over in a watery dark olive green glaze; notched on the outer rim angle. This sherd is possibly residual.

Cloister : Trench I ; layer (3) Fig. 13 nos. 40 to 46

This small but important deposit was found in similar circumstances to that above (nos. 32 to 39), in that it was contaminated with much later material but relatively little earlier material. Its excavation and location are discussed on p. 82 above and shown on Fig. 7, no. I.

All pieces in this group are illustrated. The base of the painted tripod pitcher, no. 40, can be regarded as residual for it is much worn with

abraded surfaces and fractures; it is in identical fabric to no. 15 above. Two distinct sources can be recognized in the group; the white Surrey kilns (nos. 43–45) and the pinky Oxfordshire kilns (nos. 42 and 46). The handle, no. 44, is characteristic of the large bung-hole cistern with a flattened shoulder and short neck, dated generally to the 15th century. A most likely date for this group is in the later 14th to early 15th century.[28]

40. Large sherd from base of large pitcher with an attached foot in hard granular dull pinky brown fabric with lumpy surfaces, similar to no. 15 above. There is a very patchy light lime green glaze over the surface externally, flaked off in parts; the foot is well worn underneath.
41. Pitcher (?) rim in a hard fine sandy light blue-grey fabric covered all over in a shiny thick olive green glaze.
42. Jug rim in a hard fine sandy totally reduced light grey fabric with a corrugated neck; unglazed. The rim has the edge of a pulled spout, not shown in the drawing.
43. Jug rim in hard pimply dull creamy buff Surrey ware; unglazed.
44. Base of a large strap handle in a hard pimply off-white fabric with dull pink surfaces, covered all over the back in a thick shiny deep green glaze. Three deep parallel incisions run down the handle back with sporadic smaller incisions between. Handles of this type are commonly found on the large high shouldered, short necked cisterns with bung holes produced in the Surrey kilns during the 15th century.[29]
45. Three non-joining sherds from a short straight-sided drinking jug in a hard pimply light yellowy buff fabric with light grey outer surface; unglazed. The handle, which came from the same layer (3) but in Trench IV, has a central incised groove with incisions down either side.[30]
46. Two small body sherds in a very hard, highly fired coarse granular fabric with dull purple core, dull brick red margins and dark purple surfaces, smooth internally. The sherd suggests alternate bands of thin red and white square notched rouletted vertical strips around the jug. Covered externally in a glossy pimply bronze-brown glaze. This type is found among the later medieval Brill wares.

Miscellaneous Medieval

47. Carinated body sherd in a very fine sandy light pinky bud fabric with very smooth internal surface covered externally in a very bright lustrous shiny apple green glaze; a small deliberate (?) incised groove has been made on the upper part of the sherd. The small diameter of the vessel, the lack of internal glaze and the fact that the inner surface is beginning to curve inwards, suggest a domed top and possibly the sherd comes from an ornate form of money box.[31] A general 16th century date is to be suggested although a pre-Dissolution context is likely. Unstratified; from Trench I; layer 2, mixed with 19th century material.
48. Shoulder sherd from ornate tripod pitcher in a hard fine sandy fabric with light blue-grey core and dark pink inner surface. The body has been vertically fluted externally by running an implement down the pot; the flutes then appear to have been coated in a strip of white paint and then in between a vertical line of parallel incised grooved stamps of oval form applied. The exterior is covered with a watery patchy clear lead glaze showing a dull yellow ochre; the glaze has run inside where it is slightly denser in colour. The form of decoration on this vessel appears to be virtually unique although a large bulbous pitcher is known from Ascot D'oilly[32] with vertical flutings only around the body of the pot; there it was found in a pre-1180's context possibly dating to around the middle of the century. The fabric of the present sherd is lightly more porridgy than the conventional tripod pitcher vessels and it may be therefore slightly later than the Ascot vessel. This sherd was found

sealed in the tile-bed in the Cloisters (see p. 83). Stratigraphically it is therefore unlikely to be later than the middle of the 13th century.

49. Large single base sherd from a tripod pitcher with one attached foot, in a hard fine sandy fabric with light blue-grey core, dull brick margins with pink tinged inner surface; covered all over externally and underneath in a thick lustrous shiny greeny brown glaze, thicker on the base angle; there are a few internal dull watery lime green glaze spots. The underside of the finely applied foot has no glaze, presumably due to excessive ware, and a small tapering hole 5 mm diameter pierces it slightly off centre. The only other tripod pitcher base, in the typical characteristic tripod pitcher fabric from the site (no. 3), had a similar hole piercing the underside of the foot. The function of these holes is not clear but a possible explanation is that they were made by the potter to ease vaporization during firing. Unstratified; from modern deposits (layer 3) in Trench III. The foot discussed under no. 3 (p. 96) can be dated to the first half of the thirteenth century.

II EARLY 16TH CENTURY

Pre-Dissolution Group Fig. 14 nos. 50 to 53

This small group came from Trench I, layer 7 (p. 82 Fig. 7, no. I), concentrated in the area above the drain. Although small it is important for it contains a number of distinctive types of vessel. All these types would fit happily into a context around the early 16th century, certainly pre-Dissolution. All pieces capable of being drawn are illustrated; those not include two small fragments of typical Tudor Green and five sherds of Raeren stoneware representing four independent vessels; one sherd from a corrugated body is only fired to a hard earthenware giving the flaked glaze the effect often seen on tin glazed vessels; the glaze has slightly decayed and flaked off appearing a dull off-white colour.

50. Five large sherds forming three independent pieces from a mami-formed costrel in a very fine smooth pink fabric, very competently thrown with a thin section and covered on the curved part externally in a clear lead shiny bright light watery orange glaze with spots of very light lime green. The surviving fragments from the vessel suggest it was made in one piece, flattened on one side to form the base as can be seen in the section, and then a neck and (?) adjoining lug handles applied. The vessel form is similar to others known in later medieval contexts especially in the Surrey kilns;[33] this particular type of costrel as opposed to the barrel or cylindrical costrel[34] has recently been the subject of a special study by Dr. G. C. Dunning.[35] The source for the present vessel is likely to be amongst the group of kilns somewhere in the Oxford area, for similar fabrics are known, and are in fact typical of 15th and 16th century finer wares from Oxford itself. Possibly a continental influence can be seen in the present form. This is perhaps to be expected in local potteries of the Oxford area at this date for a characteristic form of cup in this fabric copying German glass forms has come from a mixed deposit at the Clarendon Hotel site, Oxford.[36]
51. Small handle in fine smooth buff fabric with all over dull green glaze. This handle is typical of 'Tudor Green' types although the form of vessel from which it comes is more difficult to determine, for handles from nearly every Tudor Green form are identical in general size, section and form, unless the rim junction is attached.[37]

Raeren Stonewares

52. Two large joining sherds from a typical Raeren mug in a fine grained bluey-grey stoneware with uniform internal light glossy bronze colour and all over external glossy bronze glaze with light grey spots and streaky mottling. The lower body is heavily corrugated with an incised groove on the shoulder cordon.

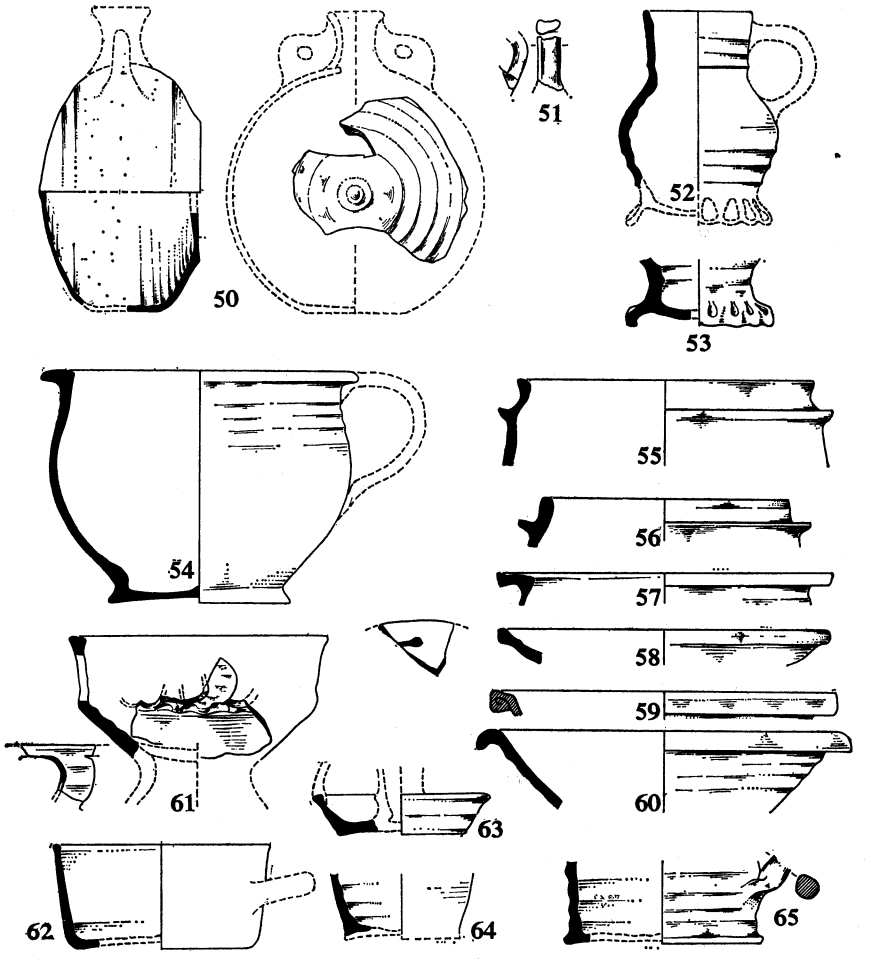

Fig. 14. *Pottery:* 50 *to* 53 *group from Cloister drain* (*p.* 82)*;* 54 *to* 65 *mid-17th century from the site of the Weights and Measures Office, White wares* (*p.* 86)*: Scale* ¼.

53. Single base fragment from a Raeren mug in a fine grained dirty buff stoneware, unglazed internally, glazed all over externally in a very thick bright glossy light greeny grey glaze with darker green mottling in the indentations.

Vessels of this charcteristic form and type come from the vast Raeren factories in the middle Rhineland. They were imported into this country in large quantities from the 1480's onwards although decreasing in numbers towards the middle and second half of the 16th century. They have become fossils of any early 16th-century site.[38] A tremendous variation within this basic form occurs but so few are found in securely closely dated contexts, although thousands of examples are now known, it is difficult to determine whether a typology exists or even isolate distinct types as coming from particular potters or kilns.

III MID 17TH CENTURY

Figs. 14, 15, nos. 54–84

This large group, the more significant of which are illustrated, came from post-Abbey deposits in Trench XIV to the north of the car park and on the eastern part of the site formerly occupied by the Weights and Measures office (see p. 86 and Fig. 8, No. XIV). The stratigraphy of the group, above tile and demolition rubble from the Abbey buildings, suggest a homogeneous date for the deposit. The area examined was extremely limited and the group recovered undoubtedly formed part of a much larger deposit. Both the general date of the group, in the second quarter of the 17th century, and its location near the line of a known Civil War ditch (p. 88) suggest it is of Civil War date, but only further excavation will substantiate this.

Much of the red and white earthenwares in the group are undoubtedly derived from the large number of kilns operating along the Blackwater and its numerous tributaries in north-west Surrey. A number of these sites have been and are currently being excavated.[39] However, a number of large groups from the area,[40] predominantly of Surrey white wares, contain details in form which bear little resemblance to known or excavated material from the kilns, stressing the magnitude of the Surrey industry at this date. For this reason no attempt has been made with the present material to relate individual pieces to specific kiln sources. Due to the tenous association with the known Civil War ditch and the uncertainty in closely dating pottery of this period, as in other periods, an accurate date for the group has not been suggested. Present evidence, the pipe no. 84 and the ceramic types present, suggest a date in the second quarter of the 17th century; doubtless further work will more closely define this and the excavation of further kiln sites will isolate the querks of individual potters.

54. Six sherds making three large independent pieces and forming the complete profile of a chamber pot in a hard fine light pinky buff fabric with all over internal bright glossy yellow ochre glaze and small brown speckled spots over the lower part. Burnt externally to a light uniform grey on the upper half; no handle. This general form with the flattened rim is more charcteristic of the Hawley kiln excavated by Mr. F. W Holling, dated to the 1630–40s, in contrast to the types produced at the much earlier Farmborough Hill kilns.
55. Lid seating from a tripod pipkin[41] in a very fine smooth light buff fabric with internal shiny very watery light creamy yellow and light lime green glaze; unglazed externally. The rim fragment comes from just above the hollow handle typical of these vessels, for there are the junction mouldings where it was applied to the body, evident on the sherd.
56. Similar rim in slightly harsher darker fabric with a fire stained outer surface and covered all over internally and externally above the lid seat in a shiny deep dull yellow ochre glaze with dark orange spot mottling.
57. Large fragment from a flat rimmed chamber pot in a hard smooth pinky buff fabric covered all over both internally and externally in a rich glossy lustrous deep leaf green glaze. This typical flat-rimmed chamber pot with a raised edge copying the pewter examples appears during the second quarter of the 17th century and runs through well into the 18th century.
58. Small rim fragment from a slip ware dish in a hard pinky buff fabric with internal shiny yellow ochre glaze over a simple linear red clay slip; copper has also been used in the dish decoration for the existing decoration is two-tone; in colour leaf green and dark purple-brown. Slip decoration formed a small facet of the products of the earlier 17th century kilns in northern Surrey. A near complete dish is known from a Civil War deposit at Farnham Castle,[42] sherds from Tunworth south of Basingstoke[43] and a few found on the mid 17th century kiln sites excavated by Mr. Holling are known.[44]

59. Bowl rim in fine smooth buff fabric with internal bright shiny rich yellow glaze; unglazed externally except for light watery apple green spots under the rim. The method of forming the rim can be seen in the section.
60. Three fragments forming one large piece from a bowl with gentle rolled over rim in a hard pinky buff fabric covered all over internally and under the rim in a glossy leaf green glaze with darker and lighter mottled spots.
61. Three sherds, two joining, from the bowl of a perfume pot, in a hard fine sandy light buff fabric covered all over internally and on the vertical wall externally in a rich shiny yellow ochre glaze with dark brown speckled mottling. Decorated externally with a thrown thumbed cordon above the angle of the bowl. This type of ceramic vessel, which comes in a number of varying forms, is similar to the chafing dish, but is characterized by an invariably constricted rim and variously shaped cut-outs in the wall of the bowl.[45]
62. Two joining sherds forming the complete profile of a vertically sided drinking bowl in a smooth hard light buff fabric covered all over internally in a uniform glossy yellow ochre glaze, with external spots of light green glaze under the base. This form is unrecognized on the Surrey kiln sites to date.
63. Drip tray from a handled candlestick in a hard pinky buff fabric with internal glossy creamy yellow glaze flaked off in parts. A series of roughly contemporary candlesticks can be seen from Basing House, Hampshire.[46]
64. Lower wall of a small jug in a hard smooth pinky buff fabric with a gathering of rich glossy dark green glaze internally on the base. Externally the vessel is unglazed, but heavily sooted. The sharp well-defined internal throwing grooves suggest a small vessel possibly of the type seen from the Inns of Court.[47]
65. Large single sherd from the base of a vertically sided tankard in a hard fine sandy smooth buff fabric covered all over in a rich glossy dark brown glaze with lighter mottling in parts. The glaze has flaked off internally.

Red Wares Fig. 15 nos. 66 to 81

The association of this red ware group within this deposit is useful for establishing local mid 17th century types. Although basic forms are current over a wide area subtleties in details of form are strictly regional and can perhaps be related no further than the particular localized distribution of one potter's wares. This is seen amongst dated 17th century material in the region and elsewhere in the south of England.[48] The finer White Surrey table wares attracted a much wider marketing potential, the red ware being for local consumption. A further small group of these red wares came from the layer of chalk debris in Trench IX. The group consists of one rim, two body sherds and three horizontal handles. It is not illustrated.

66. Upper part and handle from a chamber pot in a hard fine sandy purply red fabric covered all over internally in a very deep glossy indigo brown glaze.[49]
67. Large rim fragment from a large bowl in a very smooth brick red fabric with a well defined contrasting blue-grey core, covered internally with a patchy shiny glaze varying from bright orange to watery olive green colour, which extends slightly over the rim in places.
68. Large fragment from a jar rim in a fine sandy hard fired though slightly powdery brick red fabric with all over rich glossy deep orange brown glaze with small black iron specks; the glaze has partly flaked off externally.
69. Rim from a deep dish in a fine sandy hard fired brick red fabric covered internally with a glossy dull orange glaze.
70. Angular rim from a bowl in a fine sandy brick red fabric with very smooth surfaces, patchily covered internally in a dark orange glaze.

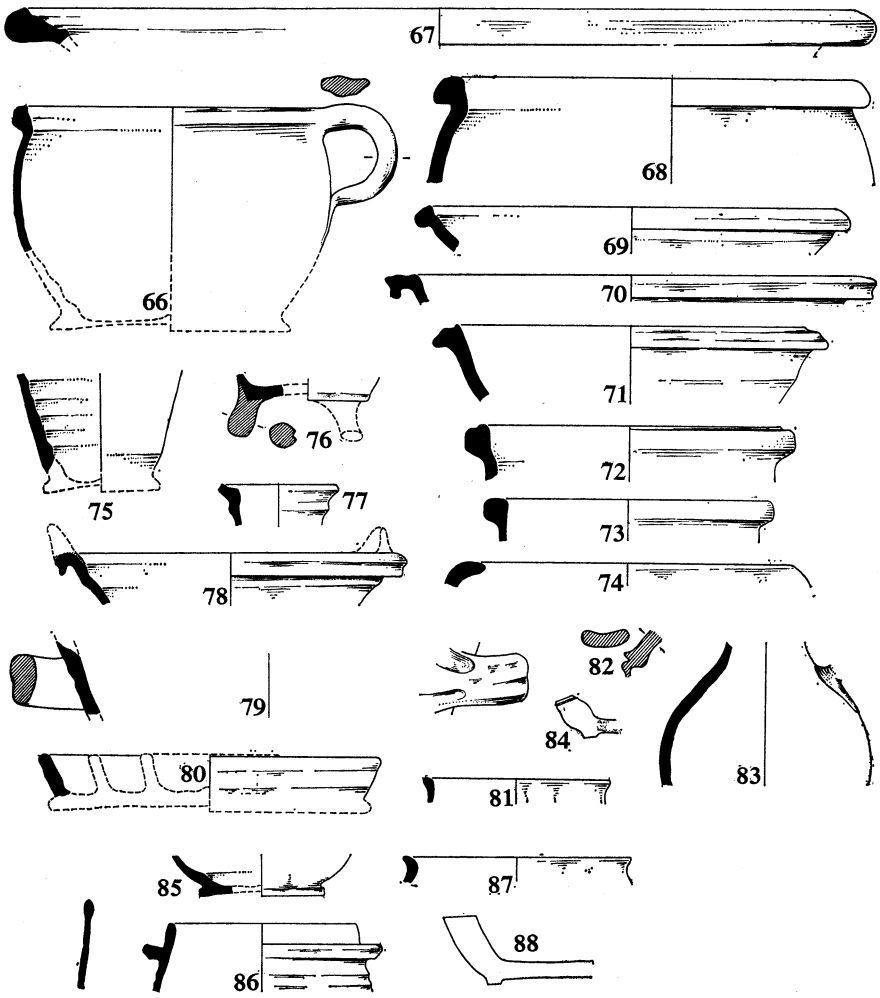

Fig. 15. *Pottery :* 66 *to* 83 *; Clay tobaco pipe :* 84 *mid-*17*th century group from site of the Weights and Measures Office* (*p.* 86)*; Pottery* 85 *to* 87 *; Clay tobacco pipe :* 88 18*th century group from the Mill* (*p.* 71) *: Scale* $\frac{1}{4}$.

71. Bowl rim in a fine sandy hard fired, though powdery, dull brick red fabric with a dark blue-grey core and dull purple inner surface. Patchily covered internally with a watery olive green glaze.
72. Jar rim in similar fabric to no. 71 above, but with deep glossy indigo brown internal glaze; unglazed externally except for the rim top.
73. Bowl rim in a fine sandy powdery brick red fabric covered all over internally and on top of the rim in a glossy orange red glaze with a few iron purple specks.
74. Rim from an inturned bed pan with long hollow pouring handle in a fine sandy bright brick red fabric covered all over externally and internally under the rim in a glossy deep orange glaze; the interior

surface is a shiny purple colour. Pans of this form occur towards the middle of the 17th century; the form can be seen in an example amongst rubbish deposits made in the period 1652–1656 at St. Nicholas' Almhouses, Bristol.[50]

75. Wall from lower part of a small jug (?) in a fairly crudely made dark brick red fabric, an uneven though smooth exterior and internally glazed with an all over pitted light yellow ochre to orange; unglazed and burnt externally. Possibly copying the form represented by no. 64 above.
76. Base with single foot from a tripod footed vessel in a smooth dull red fabric with a partial blue-grey core and glazed internally only with a dull thick orange glaze with purple iron specks.
77. Rim in a fine sandy bright brick red fabric with all over thick glossy deep yellow ochre to dark orange glaze.
78. Two non-joining sherds from the rim of a chafing dish in a hard fine sandy dull brick red fabric with smooth outer surface; covered all over internally and in patches outside in a thick glossy deep orange glaze. The only evidence for these sherds coming from a chafing dish is that one retains a rise in the rim where the support knob was luted on. Other local red ware chafing dishes can be seen from Basing House in a roughly comparable context, where chafing dishes in general are discussed.[51]
79. Bowl with large horizontal side handle, in a fine sandy bright pinky red fabric, glazed internally with a thick lustrous chocolate brown glaze.
80. The outer rim of multi-ringed concentric dish in a fine sandy brick red fabric with all over deep glossy chocolate brown glaze with dark purple iron spots. These vessels, fairly common in late medieval and early post medieval deposits have as yet defied any logical function being applied to them. The reconstructed form in the present example is purely conjectural as it is not known how many rings there were originally; examples are known with up to six. The earliest dated examples are from Nuneaton[52] associated with coarsewares and Cistercian ware wasters of late 15th to early 16th century date, and they are known up to the present day. Their most popular interpretation as 'chicken feeds' has yet to be substantiated from either documentary or pictorial evidence, although similar forms are in use in some areas for the feeding of young chickens today.
81. Rim possibly from a lid seated vessel in a thin hard fired fine sandy dull red fabric with very smooth outer surface, glazed internally a glossy deep orange to brown.

Delftware

82. Handle in a smooth yellow buff fabric covered with a thick dull glossy off-white tin glaze, gathering to form a blob under the handle. The rim impression can be seen in the broken handle junction although not sufficient remains to either determine the rim form or its diameter, although the angle of rest for the handle is clear. It is likely to come from a spouted possett pot.[53]

Stoneware

83. Two large joining fragments from the body of a Bellarmine, minus beards medallion and handle, in a fine grained blue-grey stoneware with a uniform internal light matt bronze sheen and covered all over externally in the characteristic 'tiger skin' glaze, a dark brown and light grey rich glossy mottling. The lack of both the beard and medallion make it difficult to date this piece other than to assign a general 17th century date bracket.

Clay Tobacco Pipe

84. Complete clay pipe bowl of Oswald & Atkinson's (1969) Type 3 dating to *c.* 1610–40.[54] This is the only pipe fragment from the deposit.

IV 18TH CENTURY

Fig. 15 nos. 85 to 88

This small group from the Abbey Mill came

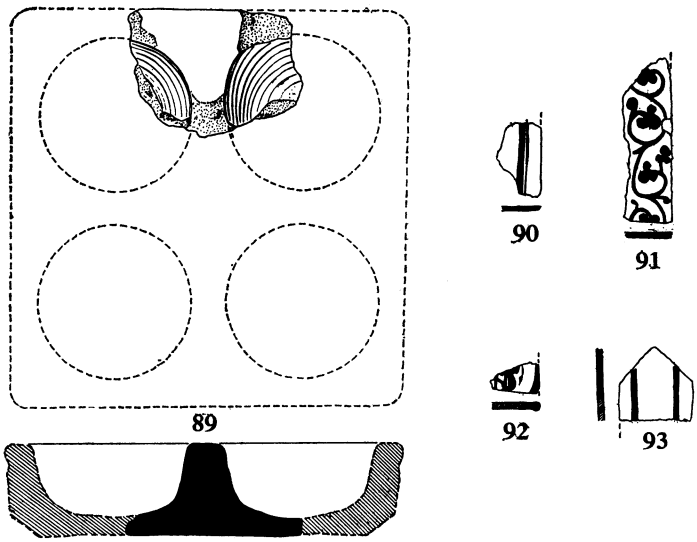

Fig. 16. *Ceramic cresset :* 89 (*p.* 71) *; Window Glass :* 90 *to* 93 *: Scale* ¼.

from the 'floor' to the west of the main flint-in-mortar footings to the east of the piers of the eastern arches (p. 71). The only dating evidence is that of the clay pipe no. 88 belonging to the first half of the 18th century.

85. Large base fragment from a cup (?) in a fine smooth dull brick red fabric nearly completely reduced to a light grey with an overall internal and external shiny dark brown glaze.
86. Small fragment from a lid seated vessel in a fine sandy light brick red fabric covered all over in a glossy yellow ochre glaze.
87. Large rim fragment from a hollow handled tripod pipkin similar to nos. 55 and 56 above, in a fine sandy light buff fabric covered all over internally with a light watery lime green glaze, also externally in the base of the lid seating; externally sooted.
88. Near complete clay pipe and stem of Oswald & Atkinson's (1969) Type 25 dating to the period c. 1700–1770.[55]

V CERAMIC CRESSET

Fig. 16

89. Piece from a large square ceramic cresset in a fine smooth dull red-brown fabric with partial blue-grey core merging into the body colour. Covered all over, including under the base, in a dull deep olive-green glaze with brown tinges in places; the thicker concentration of glaze under the rim beading (see the section) and on top of the cresset suggests it was fired in an inverted position in the kiln. The piece came from the area of the group above but in the grey clay of the foundation trench to the east of the footings. It was in the higher part of the trench that showed some slight disturbance. In the same small area were six body sherds, probably thirteenth century. Multiple cressets of this type have recently been discussed by Miss K. Jane Evans, where it was shown that they are commonly of stone. They occur frequently throughout the medieval period and are at present not susceptable to any closely dated typology. It may be of significance that the present example, made in pottery and not stone, was found in proximity to thirteenth century pottery. The present example conforms to Type II cressets, as defined in Miss Evans' paper.

(2) WINDOW GLASS

STEPHEN MOORHOUSE

Fig. 16, nos. 90–3. Four pieces of decorated glass were recovered from modern disturbance (3) in Trench III. All are from quarries the form of which is indicated in nos. 91 and 93; the latter is more than likely a border. Nos. 90, 92 and 93 are in a light sea green glass with heavy patination on the surfaces. Their edges are flakey. Decoration in a very light purple paint. No. 91 is in a dull cherry red glass. The design is in the reversed technique where the semi-opaque paint is applied and the actual design left negative. Unillustrated are a number of fragments of the light sea green glass but undecorated. There is one piece virtually unpatinated. In addition there is one roughly circular piece of *c.* 1¼ in. diameter that comes from the tile-bed of Trench III, which would date it to *c.* 1250.

(3) BUILDING MATERIALS

The whole area, especially that of the mill, was littered with building materials medieval and modern. These were mainly flint, brick and tile, and building techniques have already been discussed. The objects considered below are those identified as medieval or earlier.

I CERAMIC

1. *Roof tiles*

a. Unglazed

i. Flat. Two complete tiles were recovered and gave virtually identical dimensions of 15⅜ × 8¾ × ⅝ in. They were medium red in colour, their centres incompletely oxidised. Each had two nail holes ¾ in. in diameter and set in *c.* 1½ in. from one short side. One of these came from the debris in Trench XIV, the other functioned as part of the base for the drain in Trench I, and can thus be associated with pottery of the first half of the thirteenth century. The few other pieces that gave dimensions showed very slight variation, with widths up to 8⅞ in. nail holes down to ½ in. diameter and one tile unusually thin at ½ in. A few were completely oxidised to a uniform red. A small group of pieces from the footing trench of the wall in Trench I (see p. 82) can also, from the associated pottery, be placed in the first half of the thirteenth century.

ii. Ridge. Three pieces from disturbed levels in the Cloister Area. These are medium red, one showing finger-smoothing. They are 10 in. across the chord, 3¼ in. into the ridge and ⅝ in. thick. One piece, medium red, 6 in. across the chord, 1½ in. into the ridge and ⅝ in. thick. This came from the mill in the area by the footings of the eastern arches in association with sherds of the thirteenth century.

iii. Flanged. Damaged edge of piece from disturbed levels in Trench XIV. Hard fired dullish red and essentially the shape and proportions of a Roman *tegula*. It was the only such fragment found.

b. Glazed

i. Flat. Many pieces came from the disturbed levels. None were complete but two gave widths of 8¼ in. and 8¾ in. respectively, the former being largely reduced and somewhat warped in firing: it came from the feature in Trench II and so may never have been used for its ostensible purpose. The thickness of each was ⅝ in. and their length was, given the agreement of these other dimensions, presumably that of the unglazed. The larger piece shows very little glaze after *c.* 7½ in. in from the edge; so many unglazed pieces may be from the 'hidden' ends of glazed tiles, which would account for the absence of nail-holes in the glazed pieces. One piece, 9 in. long, in fact, shows the last traces of glaze near the broken end and a nail-hole near the complete edge. The thickness of all pieces is between ⅝ in. and ¾ in., and the fabric is generally good with variation from very partial to complete oxidisation. Many show signs of finger-smoothing and one has been knife trimmed to give a rounded end. The glaze varied: medium green, olive green, light brown, dark brown.

A number of small pieces were found in association with sherds. Eight came from the footing trench of the wall in Trench I with

sherds of the first half of the thirteenth century: manufacture was somewhat rougher than with those above and there was a unique piece $\frac{3}{8}$ in. thick. Another small group came from the mortar bed for the tiles in Trench III and was deposited probably about the mid-thirteenth century. Three pieces only came from the mill: one of these was below the burnt layer by the N–S section of the west wall of the abbey and could have been deposited in the thirteenth century.

ii. Ridge. Only seven small pieces survived, but in five cases sufficient remained to show that their proportions were those of the unglazed ridge-tile from the mill (no. a ii above). The fabric was generally rough and only slightly oxidised. Three pieces came from the mortar-bed for the tiles in Trench III and were deposited probably about the mid-thirteenth century: one of these small pieces had an oblique nail-hole near its apex. One small piece, showing flattening at its apex, came from the west end of the eastern stretch of abbey wall near the Mill, coming from a level that gave thirteenth-century sherds and the flanged piece (below, iii).

iii. Flanged. This unique piece was in the same level as the ridge-tile mentioned immediately above. Its base was dull red, the rest reduced and on the reduced surface was a dull olive glaze. It has a flange $\frac{5}{8}$ in. high running above the glazed surface and, $5\frac{1}{4}$ in. from the edge, a nail-hole. It is $\frac{5}{8}$ in. thick. Its association with a piece of glazed ridge-tile could indicate *tegula-imbrex* construction: if so it would be early and unique on this site.

iv. Finial. (pl. 22) This has red surfaces with partial reduction in the centre. It has a heavy olive green glaze and edges are knife-trimmed. It is unique but unstratified.

2. *Bricks*

Five pieces of, presumed, brick were found at the Mill in association with medieval sherds.

a. Hard fired, dull red partly reduced with one large surface dusted with small grits. In Pit 2 with sherds probably of the twelfth century.

b. Three pieces from the west end of the east wall of the abbey mill in rough association with thirteenth century sherds. The first is heavily shell-gritted and fired a light red except for one grey surface, the gritting giving an abrasive feel to the surface: it seems to be $3\frac{7}{8}$ in. wide and 2 in. thick, but damage makes measurement uncertain. The second has less shell-gritting, is fired dull red and is $1\frac{3}{8}$ in. thick. The third, $1\frac{7}{8}$ in. thick, is very hard dull red with thin grey surfaces, and one surface seems worn down by nearly $\frac{1}{4}$ in.

c. Shell-gritted and poor fabric with dull red surfaces and crumbling grey centre. In the area of the footings of the eastern arches and with sherds of the second half of the thirteenth century.

3. *Unidentified*

Three pieces of ceramic building material came from the Mill, in the area of the footings of the eastern arches. The first was in association with sherds of the later thirteenth century, the other two lay in the disturbed level immediately above. All are medium red and well-fired. The first is at least $6\frac{1}{4}$ in. wide and $2\frac{1}{4}$ in. thick with slight shell-gritting. The second is $1\frac{1}{2}$ in. thick with slight shell-gritting. The third is $1\frac{3}{4}$ in. thick with large pieces of shell and with red slip on one face. These are not typical of the building materials of the mill and could easily pre-date it.

4. *Tile with linear decoration*

These three pieces came from the Mill, the largest from the area of the footings of the eastern arches, the other two from the west end of the east stretch of abbey wall but in no sure association with dateable sherds. They are medium red, well-fired, and $\frac{7}{8}$ in. to 1 in. thick, the largest having a cutaway flange along one edge. Their surfaces are decorated with 4 or 5 square section parallel grooves *c.* $\frac{1}{8}$ in. deep and $\frac{1}{8}$ in. to $\frac{1}{4}$ in. apart. They would seem to be pieces of Roman hypocaust tiles.

5. *Floor Tiles*

These have been fully described in *Berks. Arch. J.* vol 64 pp. 9–19. Using the numbering

given there (I standing for Inlaid and P for printed) the tiles *in situ* in the relevant trenches in the Cloister area were:

Trench III: I.1 and unpatterned I., with repairs of I.3, 16, 27, 33 and unpatterned types I and III.

Trench VI: I.20a. The others *in situ* here were too worn for any pattern to survive.

Trench IX: I.2, 3, 4, 14, 21 unpatterned I.

Trench XIV: I.1, 8, 15, 24, unpatterned I, II, III, with I.6, 7, 25 used for patching.

Pieces of the above were found also in the disturbed layers together with I.10, 12, 13, 18, 20b, 22, 26, 28, 29, 30, 31, 32 and P. 2, 7, 8, 10, 11.

II STONE

1. Roof shingles. Two were found, one an irregular $8\frac{3}{4}$ in. $\times 6\frac{3}{4}$ in., the other $8\frac{1}{2}$ in. $\times 4\frac{1}{2}$ in., but the smaller has been damaged and should probably be approximately the same width as the other. Their maximum thickness is $\frac{3}{8}$ in. reducing to fairly sharp edges. Each has a surviving nail-hole near the outer edge and probably had two originally. Both show traces of mortar on one face. They came from the presumed Civil War destruction layer in Trench IX.

2. Moulding.[57] There were many pieces of this in the disturbed layers in the Cloister area. The stone was of two kinds, a creamy coloured, and a very light green, the former being identical with the blocks of casing stone that survive elsewhere in the abbey. Some of each kind have traces of whitewash and one squared piece of the light green has traces of red paint.

3. Decorated stonework.[57] There were three pieces with individual characteristics. For b. and c. see pl. 22.

a. Part of a roughly-executed chevron pattern in creamy-coloured stone.

b. Part of a well-executed scallop shell in creamy-coloured stone.

c. A poorly-executed human head in light green stone. Its chin had been damaged.

(4) OTHER OBJECTS

I LEAD

There were a number of small cut pieces of lead, one from the tile bed of Trench III in addition to the two identifiable objects below, both of which came from disturbed levels in the Cloister area.

1. A weight in the form of a truncated cone, (pl. 22e) its base $2\frac{1}{4}$in. in diameter; its vertical height 1 in. The top has an indented circle c. $\frac{5}{8}$ in. in diameter in which is stamped a double broad arrow. Much of its surface is covered with a thin layer of hard white mortar which conceals any other markings. It weighs 1 lb.

2. A bracket made to hold together two adjacent stone blocks. It was made by running molten lead into a hole in each stone and into a channel connecting them. Its overall length is $4\frac{3}{4}$ in.

II BONE

Considerable quantities of modern bone were found. Those few mentioned below came from undisturbed levels or have been worked.

1. Abbey Mill, Pit 2: In association with twelth-century sherds

a. Bos: calcaneum, right, with unfused epiphesis

b. Pike or carp: 1 vertebra

c. Sheep:

Pelvis: 2 pieces worked to (damaged) points

Radius: 2 pieces, one worked to (damaged) point

Ribs: 7 fragments

Ulna: cut obliqueley

2. Cloister Area, Trench I, footing trench for wall; in association with sherds of the first half of the thirteenth century

1. Bos:

Epiphesis: part

Phalange

Rib: part

b. Sheep:

Rib: part

Scapula: part

3. Worked bone in disturbed levels

a. Complete pointed implement for piercing or boring, $5\frac{1}{2}$ in. long, made from the tibia of *bos.*

The wider part of the bone makes an excellent grip.

b. Incomplete pointed implement made, possibly, from the ulna of a sheep.

c. Bone ring $\frac{3}{4}$ in. wide and 1 in. internal diameter made by sawing.

III MISCELLANEOUS

1. Bronze strap-end buckle (pl. 22) from the Abbey Mill. It was found in association with sherds probably of the thirteenth century.

2. Part of small iron ring 1 in. diameter from the mortar bed under tiles in Trench III. It can be dated to about the mid-thirteenth century.

3. Iron slag. One piece *c.* 3 in. diameter in footing trench for wall in Trench I.

4. Jeton: From disturbed level. French, official, probably late fourteenth century.

Obv: Crown with fleur-de-lis: surrounding legend AVE MARIA GRACIA: P

Rev: Cross in quatrefoil

5. Iron blade from the Abbey Mill. It came from the Footings east of the Footings of the Eastern Arches (p. 71) and only fragments survive.

NOTES

[1] A large collection of medieval material is in Reading Museum. It is hoped in the near future to systematically work through this material and at least establish a series of types and fabrics for the area.

[2] E. M. Jope 'Medieval Pottery in Berkshire', *Berks. Arch. Journ.*, 50 (1947), 49–76, with full bibliography up to that date.

[3] This is discussed along with other facets of regional culture in E. M. Jope 'The Regional Cultures of Medieval Britain' *Culture and Environment: essays in Honour of Sir Cyril Fox* ed. I. L. Foster and L. Alcock (London, 1963), 327–350. The problem and pitfalls of dating local pottery on sequences established in other areas has been outlined by J. G. Hurst 'White Castle and the dating of medieval pottery', *Med. Arch.*, VI–VII (1962–3), 135–149.

[4] For the initial discussion and distribution of these vessels see R. L. S. Bruce-Mitford 'Medieval Tripod Pitchers', *Antiq. Journ.*, XX (1940), 103–112 and fig. 1. The Oxford pitchers have been defined in E. M. Jope and R. I. Threlfall 'The Twelfth-Century Castle at Ascott Doilly, Oxfordshire: Its History and Excavation', *Antiq. Journ.*, XXXIX (1959), 256–259 with full references; see also a summary of the evidence in *Arch. Journ.*, CXIX (1964), 190–192.

[5] These handles can best be parallelled in both form and fabric in the late 12th- early 13th-century well group from St. John's Oxford; E. M. Jope, H. M. Jope, and S. E. Rigold 'Pottery from a late 12th-Century Well-filling and other Medieval Finds from St. John's College, Oxford, 1947', *Oxoniensia* XV (1950), 49, fig. 16 generally; compare especially nos. 2, 8 and 9 at St. John's with no. 6 here.

[6] The Reading painted vessels can be equated almost in every respect with Group B types from the Bodleian Oxford; see R. L. S. Bruce-Mitford 'The Archaeology of the Site of the Bodleian Extension in Broad Street Oxford', *Oxoniensia*, IV (1939), 119–123 where their dating is discussed. Painted vessels are likely to appear in Oxford *c.* 1200 for they do not occur in the late 12th-century well-filling at St. John's, Jope *et. al.* in note 5 above or in the tower at Ascott Doilly demolished *c.* 1180, Jope and Threlfall *op. cit.* in note 4 above, yet constitute a large proportion of types in Well 1 from the site of the Bodleian dated to *c.* 1210–1230, Bruce-Mitford above p. 118-119.

[7] Genuine tripod pitchers of 12th-century date invariably have a tubular spout, either attached or detached to the flared neck of the vessel. During the 13th-century the spout disappears and is replaced by a pulled lip; see for example two associated vessels from Gloucester dated to the period 1250–1300 plus, K. J. Barton 'Two Medieval Vessels from a pit at the Bon Marche Site, Gloucester' *Trans. Bristol and Glouc. Arch. Soc.*, LXXXVIII (1969), 209–212 where the development and distribution of pitchers in general is discussed. As it is now known that 'tripod' pitchers have a long life as opposed to the specific types under discussion, it may be the opportune moment to re-term the accepted form of tripod pitcher, i.e. that found in Oxford dating to the 12th- and early 13th-century, as 'spouted' pitchers, thus defining them more closely than by their other typical feature, the three feet, which persists on tripod pitcher derivatives, the pulled lip pitcher, and indeed later.

[8] Cf. a vessel from Havant, Hampshire, Kenneth James Barton 'Three Groups of Medieval Jugs and their Wider Significance', *Proc. Hants. Field Club*, XXIV (1967), 66 fig. 16 no. 15 and a vessel from the site of Russell and Bromley, Winchester of mid 13th-century date, Barry Cunliffe, *Winchester Excavations* 1949–1960 (Winchester 1964), 114 fig. 39 no. 3.

[9] See note 6 above and a painted sherd from Seacourt, Berkshire, in an early 13th-century context,

Martin Biddle 'The Deserted Medieval Village of Seacourt, Berkshire', *Oxoniensia*, XXVI-XXVII (1961–2), 143 fig. 19 no. 7 and p. 144.

[10] Material in Reading Museum, particularly a group from Minster Street, acc. no. 51/69/2 and 3.

[11] Material from various sites now in Chilcomb House Museum, Winchester.

[12] From an associated pit group excavated from the site of the Co-op in New Street in 1958, lately in the Willis Museum, Basingstoke, now deposited in Chilcomb House Museum, Winchester, acc. no. 1959: 228/9.

[13] From excavations by the writer in 1971 on a mid-13th to mid-14th-century farm complex.

[14] See note 12 above.

[15] Jope *op. cit.* in note 4 above p. 258 and p. 262 fig. 10 no. OXF. 6; see also E. M. Jope and W. A. Pantin 'The Clarendon Hotel, Oxford', *Oxoniensia*, XXIII (1958) 53 fig. 19 nos. BIB. 48–49 and Z.18 and pl. II, A.

[16] This has been briefly discussed by the writer; Stephen Moorhouse 'The Finds', in C. F. Tebbutt, Granville T. Rudd and Stephen Moorhouse 'Excavation of a Moated Site at Ellington, Huntingdonshire', *Proc. Camb. Antiq. Soc.*, LXIII (1971), 52–53. The best example of completely coiled vessels in a medieval context comes from the 13th- and 14th-century crofts on the kiln site at Lyveden, Northants., where all vessels without exception are completely coil constructed, and finished off on a hand rotated wheel.

[17] Originally defined in *Med. Arch.*, III (1959), 44 and 48 , further discussed in *Med. Arch.*, V (1961), 259–261 and *Norfolk Archaeol.*, XXXIII pt. II (1963) 155–157.

[18] Bruce-Mitford *op. cit.* in note 6 above, pl. X, no. 8, in the Ashmolean Museum, acc. no. A.M. 1915.71.

[19] See note 5 above.

[20] Amongst material in Reading Museum, acc. no. 96: 30, nos. 368 and 380.

[21] From excavations by the writer; see *Med. Arch.*, XVI, 1972,.

[22] From the Clarendon site, Jope and Pantin, *op. cit.* in note 15 above, p. 42 fig. 14, Z6 and Z3.

[23] The type is briefly discussed along with examples from Northolt, Middlesex J. G. Hurst 'The kitchen area of Northolt manor, Middlesex', *Med. Arch.*, V (1961), 263. Types from northern Hampshire and their development are discussed in Stephen Moorhouse 'An 11th-Century Group of Pottery from Westbury, Hampshire', *Proc. Hants. Field Club*, XXVIII (1971), *forthcoming.*

[24] See note 23 above.

[25] Biddle *op. cit.* in note 9 above, p. 150, fig. 22, no. 14.

[26] See note 23 above.

[27] Originally discussed by J. G. Hurst in Hurst *op. cit.* in note 23 above, 273–274. This is more closely defined by recent finds, cf. Stephen Moorhouse 'The Pottery' in Peter Curnew 'The Wakefield Tower, the Tower of London', in *Studies presented to A. J. Taylor, forthcoming.*

[28] Groups of this date are still extremely rare, due to the lack of readily identifiable types, as there are for dating groups around *c.* 1300 and similarly for groups *c.* 1500. The present group can be compared with an important extensive deposit of the late 14th early 15th-century, solely incorporating types from Oxfordshire and northern Surrey kilns, from the Royal Palace at Kings Langley, Herts., Stephen Moorhouse 'The Pottery' in David Neil 'Excavations on the Palace and Priory at Kings Langley' *Herts. Archaeol.*, 3 (1972), *forthcoming.*

[29] For a typical example of this type see G. C. Dunning 'The Pottery' in *The London Museum Medieval Catalogue* (H.M.S.O. reprinted 1967), pl. LXIV, no. 3.

[30] A drinking jug of similar form in the fine smooth pinky Oxfordshire fabric can be seen from Oxford, cf. Jope *op. cit.* in note 2 above, p. 64, fig. 8, no. 4.

[31] The introduction of French types and techniques into the limited northern Surrey late medieval pottery industry produced a whole new range of products from the northern Surrey kilns. Their full range is not yet known.

[32] Jope and Threlfall *op. cit.* in note 4 above, p. 261, fig. 17, no. E24, p. 260 and pl. XXXIX, a.

[33] From the Cheam kiln, C. J. Marshall 'A Medieval Pottery Kiln Discovered at Cheam', *Surrey Arch. Coll.*, XXXV, (1924), 86, fig. 8, class D.

[34] G. C. Dunning 'Barrel and Cylindrical Costrels on the Continent and in England' in Cunliffe *op. cit.* in note 8 above, p. 127–140 and figs. 46–49.

[35] G. C. Dunning 'The Typology of the Knighton Costrel' in L. R. Fennelly, *et. al.*, 'A Late Medieval Kiln at Knighton, Isle of Wight', *Proc. Hants. Field Club*, XXVI (1969), 108–110 and fig. 40. A similar construction technique to the Reading costrel, where the thrown base forms the flat back, can be seen in the example from Bosworth Field, *ibid.*, p. 109, fig. 40, no. 3 and in an example from Selborne Priory, Hampshire, Stephen Moorhouse 'Medieval Chemical Apparatus of Pottery and Glass', *Med. Arch.*, XVI (1972), *forthcoming.*

[36] Found in unstratified deposits on site Z, cf. Jope and Pantin *op. cit.* in note 15 above, p. 4, fig. 1 and p. 33; material in the Ashmolean Museum, Oxford; other northern European types produced in kilns supplying Oxford are discussed in Stephen Moorhouse 'Two Late and Post-Medieval Groups from Farnham Castle, Surrey', *Surrey Arch. Coll.*, LXVIII (1971), 98.

[37] Cf. Stephen Moorhouse 'A Sixteenth Century Tudor Green Group from Overton, Hampshire' *Post-Med. Arch.*, V (1971) 182.

[38] Cf. J. G. Hurst 'The Pottery' in L. Keene 'Excavations at Old Wardour Castle, Wiltshire', *Wilts. Arch. Mag.*, LXII (1967), 74 where all previous references are brought together. The early evidence for their introduction comes from Port Books i.e. Southampton and Kings Lynn, cf. Stephen Moorhouse 'Finds from Basing House, Hampshire (*c.* 1540–1645): Part I, *Post-Med. Arch.*, IV (1970) 76.

[39] Mr. Felix Holling has been excavating a number of these kilns in recent years; for a summary of the evidence up to 1968 see F. W. Holling 'Seventeenth -Century Pottery from Ash, Surrey', *Post-Med. Arch.*, III (1969), 18–30. An extensive study of the pottery throughout the medieval and post-medieval period in north east Hants. and northern Surrey is being prepared by Mr. Holling: F. W. Holling 'A Preliminary Note on the Pottery Industry of the Hampshire-Surrey Borders', *Surrey Arch. Coll.*, LXVIII (1971), 57–88.

[40] A group of Civil War date from Farnham Castle keep, Moorhouse *op. cit.*, in note 36 above, p. 102–105 and fig. 2 nos. 28–40 and a large collection from Basing House, Hampshire, Moorhouse *op. cit.*, in note 38 above, p. 42–59 and figs. 10–14. This latter material is from clearance excavations carried out last century, but the bulk of it belongs to the period of the great siege 1642–1645 when the site was destroyed.

[41] For the complete profile of these vessels see Moorhouse *op. cit.* in note 38 above p. 44, fig. 10, no. 1 and David H. Kennett 'A Post-Medieval Pipkin from Northampton', *Journ. Northampton Museum and Art Galleries*, 3 (June 1968), 15–18 pl. 4 and fig. 5.

[42] Moorhouse *op. cit.* in note 36 above, p. 102–103.

[43] Material formerly in the Willis Museum, Basingstoke, now in Chilcomb House Museum, Winchester, acc. no. Oc: 750.

[44] Holling *op. cit.* in note 39 above (1969), p. 24.

[45] On the range of Surrey ware perfume pots see Moorhouse *op. cit.* in note 38 p. 66; other examples are discussed in Martin Biddle 'Nonsuch Palace, 1959–60: an interim report', *Surrey Arch. Coll.*, LVIII (1961), 17, fig. 6, no. 12 p. 18.

[46] Moorhouse *op. cit.* in note 38 above, p. 44, fig. 10, nos. 16 to 19 and p. 46.

[47] L. G. Matthews and H. J. M. Green 'Post-Medieval Pottery of the Inns of Court', *Post-Med. Arch.*, III (1969), 13, fig. 2, nos. 13 to 23.

[48] The even stricter regionalization of red earthenware coarsewares has been demonstrated in northern Hampshire; Moorhouse *op. cit.* in note 38 above, p. 62. This has also been demonstrated for Cambridge in comparing local 17th-century coarseware groups, P. V. Addyman and Martin Biddle, 'Medieval Cambridge: Recent Finds and Excavations', *Proc. Camb. Ant. Soc.*, LVIII (1965), 118.

[49] This basic form has a long history amongst red earthenwares in the post-medieval period.

[50] K. J. Barton 'The excavation of a medieval bastion at St. Nicholas's Almshouses, King Street, Bristol' *Med. Arch.*, VIII (1964), 208, fig. 70, no. 77.

[51] Moorhouse *op. cit.* in note 38 above, p. 65–66; they are also discussed by Addyman and Biddle *op. cit.* in note 48 above, p. 122 and 124.

[52] For interim notes on this extensive and important kiln site see *Med. Arch.*, XII, 208–210 and fig. 58; *ibid.*, XIII (1969), 287 and *ibid.*, XIV (1970), 205.

[53] I am grateful to Mr James Thorne for his comments on this piece. For the form of vessel see an example from Waltham Abbey, P. J. Huggins 'Excavations at Sewardstone Street, Waltham Abbey, Essex, 1966', *Post-Med. Arch.*, 3 (1969), 84 fig. 30, no. 1.

[54] The clay pipes of the Reading area have yet to be studied in detail; the London evidence is used as the nearest source. Cf. David Atkinson and Adrian Oswald 'London Clay Tobacco Pipes', *Journ. Brit. Arch. Assoc.*, 3rd ser., XXXII (1969), 178, fig. 1, no. 4 or 5. In Mr. Oswald's previous general classification, Type 2b the form is dated 1600–1640, Adrian Oswald, 'The Archaeology and Economic History of English Tobacco Pipes', *Journ. Brit. Arch. Assoc.*, 3rd ser., XXIII (1960), 51, fig. 21.

[55] Atkinson and Oswald *op. cit.* in note 54 above, p. 180, fig. 2, no. 25 and p. 179 and dated in Oswald's original paper, Type 9 *c.* 1690–1740, Oswald *op. cit.* in note 54 above, p. 51, fig. 21.

[56] K. Jane Evans 'A Discovery of Two Unusual Objects in New Shoreham', *Sussex Arch. Coll.*, CVII (1969), 'The Cresset Stone', p. 80–84, Bl fig. 1, no. 1 and pl. J, A and B.

[57] This stonework will be discussed in more detail in the Report on the 1971–3 excavations at the east end of the abbey church.