

SITE DIRECTOR'S REPORT

Dominican Friary Excavation - Season 1966

The main aim of the excavation this year was to try and locate the church building. A probe survey indicated a blank area adjoining the kitchen buildings and this we presumed to be the site of the cloisters.

Large areas were uncovered to the north and east of the site and walls and cobbling were found. These all proved to be of outbuildings of houses that once bordered the Watling Street. Bottle glass and pottery found in the overlying rubble suggests that these buildings were destroyed during the late eighteenth century.

To the north-east of the kitchen area and the supposed cloisters the natural slope of the chalk had been levelled and this carried a thin spread of mortar. It was probably here had stood the friars' church. Section AA, page 6, shows a portion of the levelled area covered by a filling of destruction rubble that stops off at a spread of mortar on the natural chalk. The destruction of the monastic buildings after the Dissolution had been complete and nowhere did we find an original stone in position. The destruction layer contained fragments of stained glass, lead glazing bars and a mass of floor tiles. All of the tiles were either broken or had been discarded as unsuitable for re-use because the pattern had been worn away by the passage of many feet. With the tiles were many broken bricks identical with those that were used to build the beehive ovens of the kitchen. This is useful confirmation that the construction of brick built ovens had taken place prior to the Dissolution. The gold swan jewel now in the British Museum came from this destruction strata. The small bone whistle and the bronze spoon illustrated on page 13 were also found deep in this layer together with several keys, iron knives, nails, potsherds and abbey tokens.

An area in Square V20 (plan, page 3) exposed the monastic toilets which had been sited outside the western boundary wall. Two toilet pits were found, one of them more than 6 feet deep cutting out a more shallow pit. They were both rectangular and both contained early glazed ware jugs. These are illustrated page 14. Jug No. 1 was incomplete and found lying in the side of the shallow pit. Jug No. 2 was found broken but complete, lying on the floor of the deeper pit; probably dropped during someone's ablutions!

The excavations in Square V15 showed the continuation of the Roman ditch reported in our Magazine No. 16. The section BB page 6 shows the same filling as the two previous cuts made through this structure. The indication is that the bank was on the inner or town side of the ditch and that after a very short life it had been deliberately filled in. As in all the other sections fourth century sherds were found in the lowest filling.

Two other small ditches were found that can be dated to the Roman period. These are parallel ditches 100 feet apart and both contained late Roman sherds. Two Samian types are illustrated page 14 Figs. 3 and 4. No. 4 is so called 'imitation Samian' of very poor quality; other sherds included a small biscuit ware vessel as Verulamium type 80 (late third century), sherds from a large, shell gritted vessel and from black, burnished dishes decorated with a lattice pattern. One coin of Constan c.337 - 341 was found in the fill of the ditch.

One of the small ditches can be seen in section AA page 6 This was also shown in the section of Cut 1 illustrated in our last magazine.

Several substantial post holes were found in the V15 area which may belong to a Roman period building. It is hoped that during 1967 more work will be carried out with particular emphasis on the Roman structures of this site. It is then the intention to produce a complete report of the three seasons' excavations.

COINS AND ABBEY TOKENS FOUND ON THE SIFT TO DATE

Coins

Roman

Gratian	367 - 383 A.D.	Square K.12
Constan	337 - 341 A.D.	" Q.14

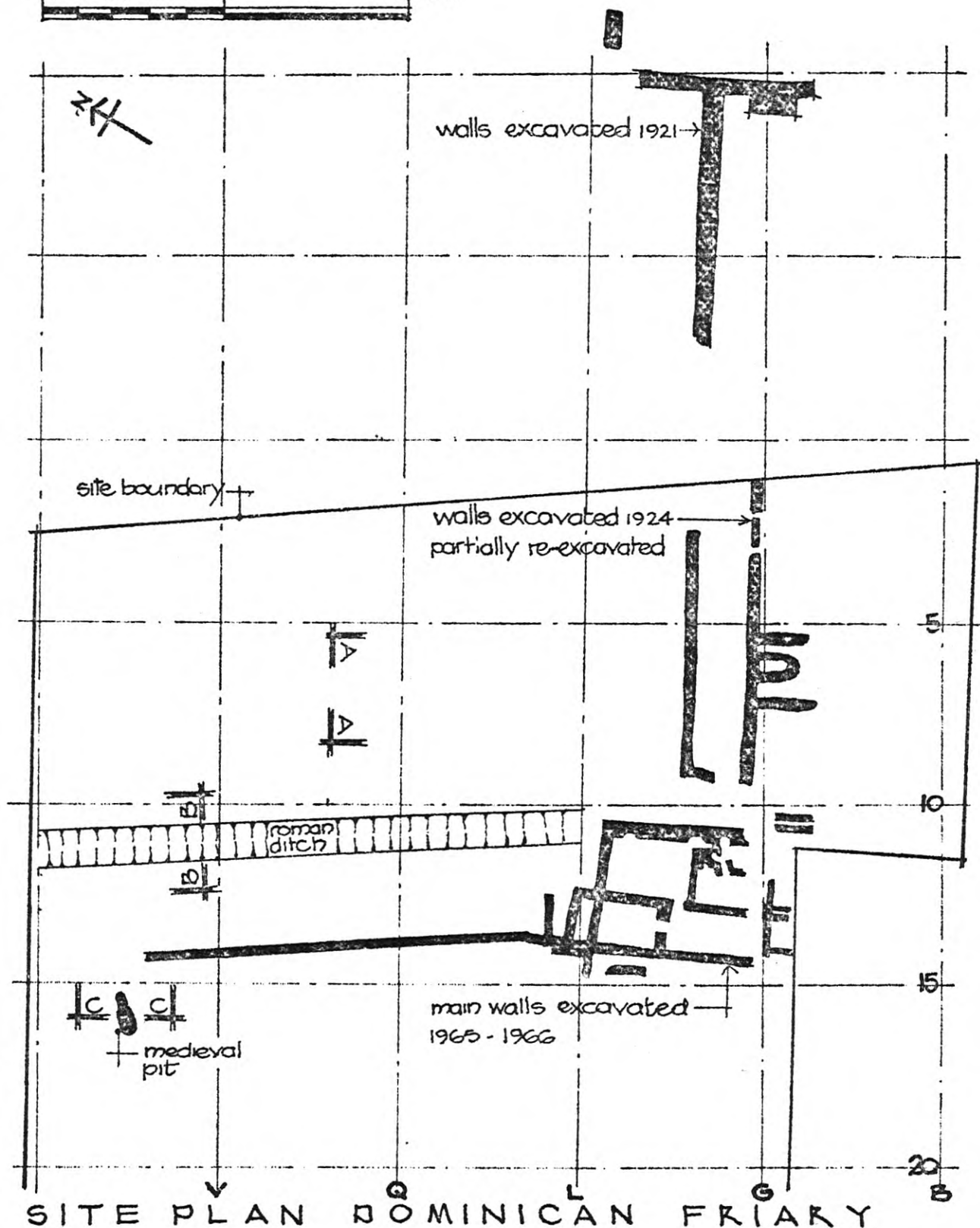
Medieval

Edward III	1344 - 1351 A.D.	Silver $\frac{1}{2}$ d.	Square T.6
Henry VI	1430 - 1434 A.D.	" $\frac{1}{2}$ d.	" N.13
Charles II	1660 - 1685 A.D.	Copper $\frac{1}{4}$ d.	" K.14

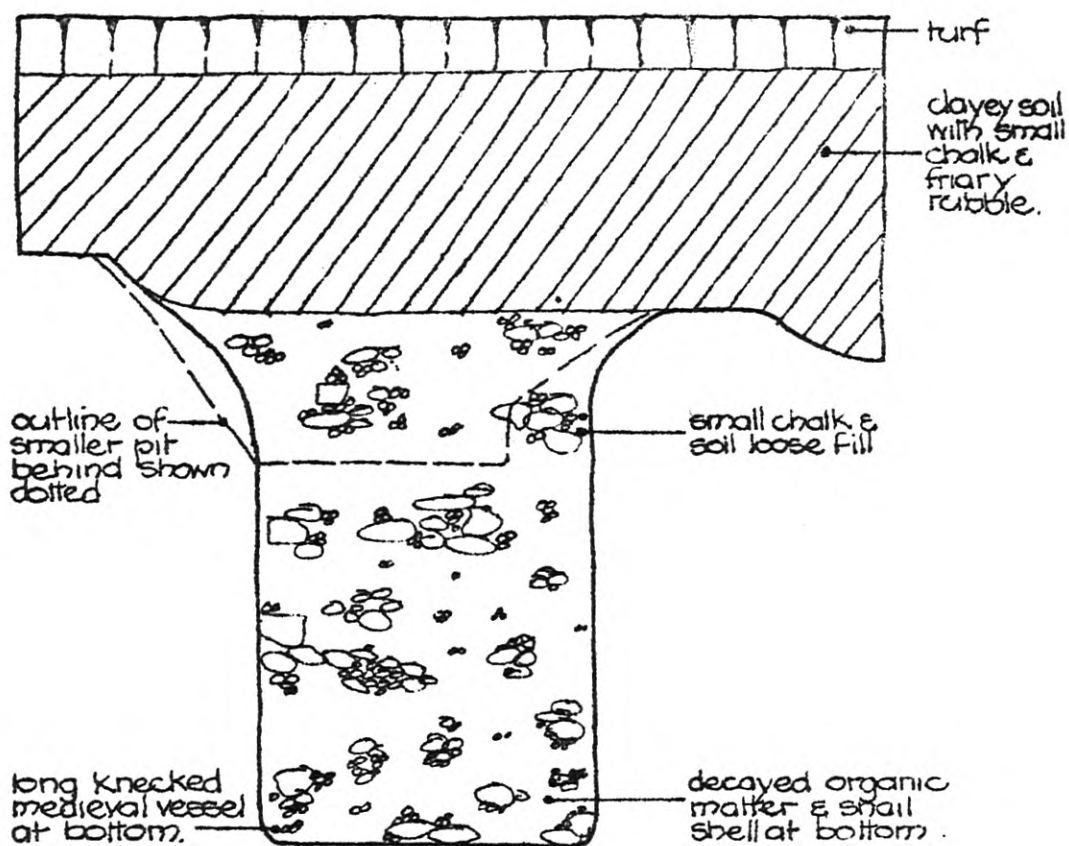
Tokens

7 French Jetton Fifteenth Century - Squares R.4, J.4 and T.5
1 Nuremburg Token 1618/1660 A.D.

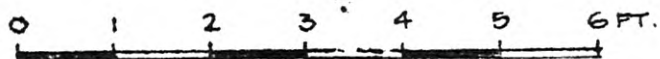
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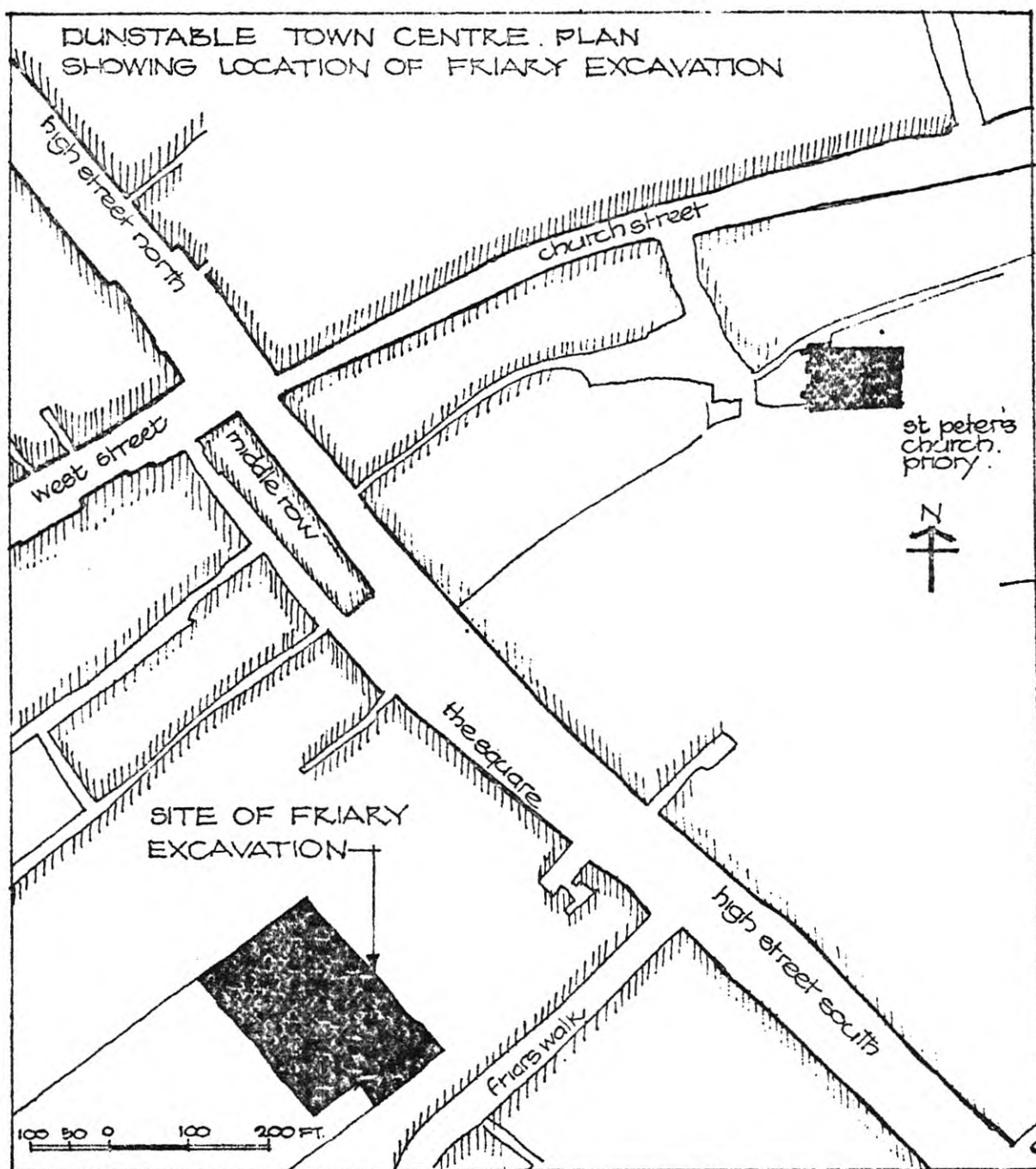
SITE PLAN DOMINICAN FRIARY

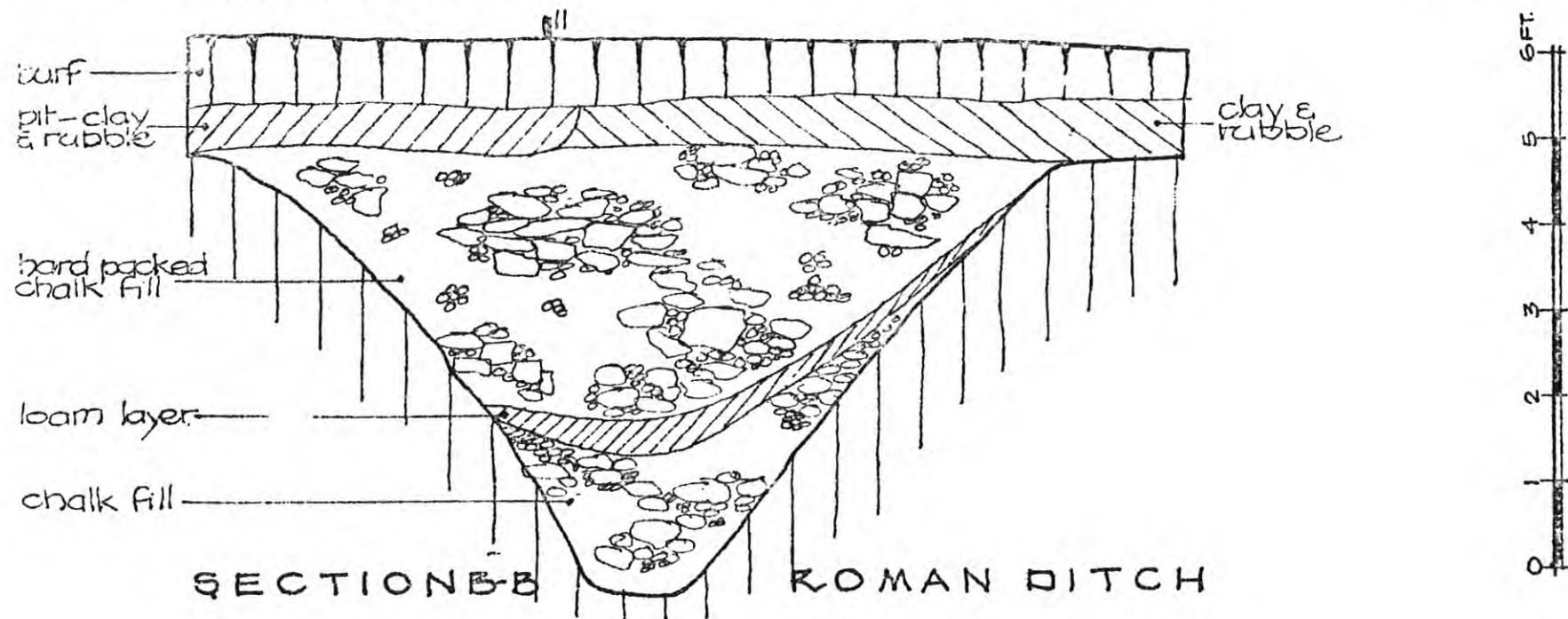
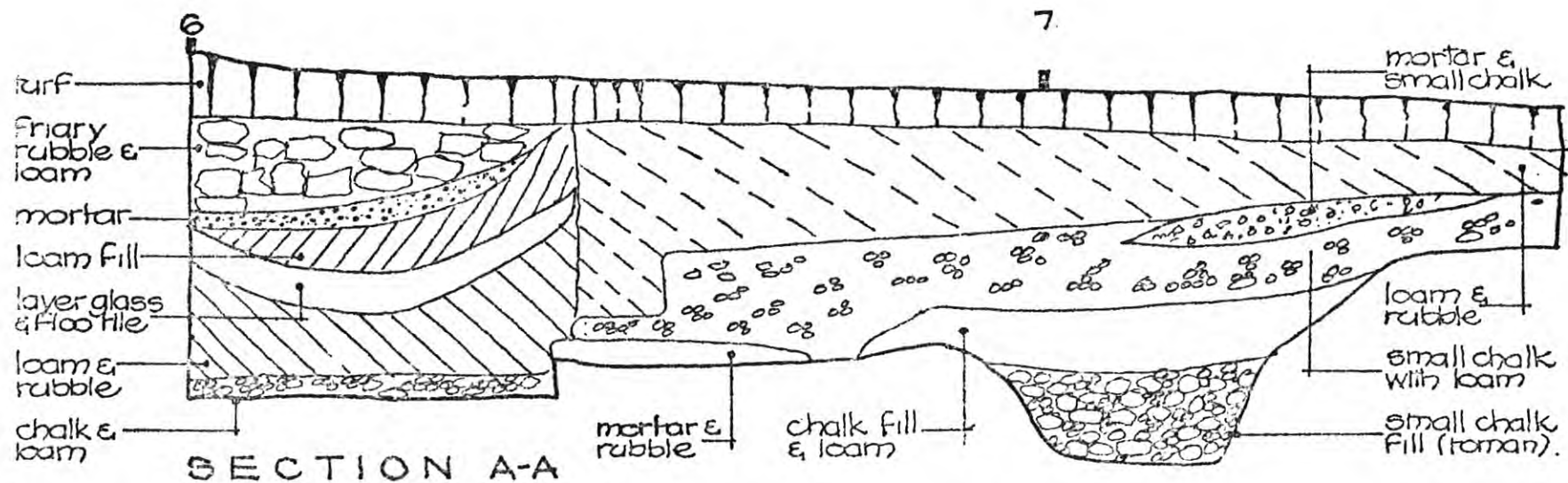


SECTION THRO' MEDIEVAL
PIT. C-C



DUNSTABLE TOWN CENTRE. PLAN
SHOWING LOCATION OF FRIARY EXCAVATION





MEDIEVAL PAVING TILES AT DUNSTABLE FRIARY

J.M. Bailey

Considerable numbers of glazed and unglazed tiles were excavated on all parts of the Friary site, but unfortunately none were found 'in situ'. They appear to have been scattered over the area during the periodic rebuilding and the final destruction of the buildings.

Fortunately several hundred tiles were found in what is assumed to be a Dissolution destruction mound. Tiles of a wide variety dating from mid-thirteenth to early sixteenth century were in a tip layer within the mound which measured approximately 24 inches deep and extended over fifteen or more square feet. This gave the impression that a floor had been taken up systematically and deposited to one side.

The decorated tiles fall into four general groups:-

- 1) Mosaic
- 2) Inlaid
- 3) Fourteenth Century Printed
- 4) Early Sixteenth Century

A great many fourteenth century tiles were found, but from the other groups only small numbers of fragments have so far been discovered. In addition to the decorated tiles several plain glazed and unglazed tiles of all periods were excavated, the early types being up to nine inches square. The majority of these tiles have been described in a paper by Mr. Christopher Hohler and his classification numbers have been added in brackets after the description to enable a cross reference to be made.

The types have been broken down into the four main groups listed above, viz:-

Group 1 - Mosaic

Only one example - leaf form, one inch thick, red clay plain glaze.

Group 2 - Inlaid (Debased Wessex)

- 1) Fragment, possibly wing of double-headed eagle. Could be (W.7)

Group 2 - Inlaid (continued)

- 2) Two fragments, part of four tile pattern of two concentric circles enclosing twelve pierced cinquefoils with four fleur-de-lis at centre. Could be (W.36).
- 3) Fragment, possible eight-rayed leaf form radiating from centre.
- 4) Two fragments, possible pierced rosette, enclosed by four quadrants, with four half rosettes, one on each outer edge.
- 5) Four fleurs-de-lis springing from the angles of a square.

Group 3 - Printed Mid-fourteenth Century (Chiltern)

- 1) Fool's head, ringed by legend "Ricard Me Fecit" (Richard made me). (P.1).
- 2) Pierced cross potent, ringed by legend "Signum S̄e Crucis" (Sign of the Holy Cross). (P.2).
- 3) Three coats of arms (a cross Moline, three chevrons and a cross) beneath formal foliage within a border. (P.7)
- 4) Lion passant in a lozenge formed by four segments of circles enclosing trefoil ornament. (P.38).
- 5) Fleur-de-lis with long leaves and foot askew set diagonally.
- 6) Fleur-de-lis with long trefoil tail between four quadrants cusped and enclosing alternatively two halved quatrefoils and two petals. (P.50).
- 7) Quatrefoil within a circle bordered by four trefoils all enclosed in lozenge formed by four quadrants enclosing crowned heads - derivation of (P.55).
- 8) Eight separate petals encircling a ring enclosed in a ring.
- 9) Eight separate petals in a ring with dots in the outer angles. (P.70a).
- 10) Pierced eight-petalled flower in a guilloche pattern with two dots in the interstices (P.62).
- 11) Pierced eight-petalled flower in a ring between four cusped quadrants, enclosing alternatively trefoil and quatrefoil ornament. (P.66).

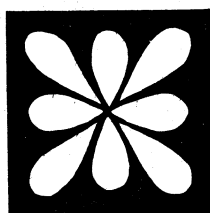
MEDIEVAL GLAZED FLOOR TILES

GROUP 2

INLAID 'WESSEX'



2



3



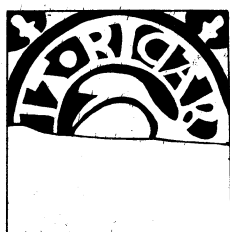
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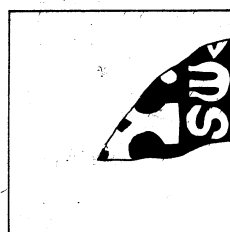
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GROUP 3

PRINTED 'CHILTERN'



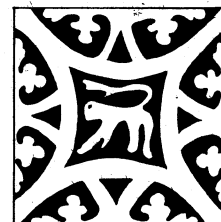
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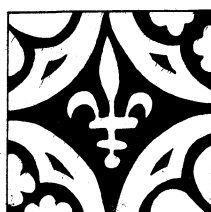
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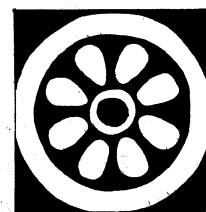
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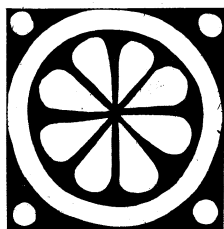
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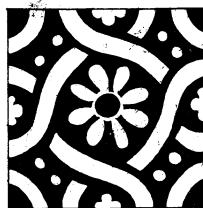
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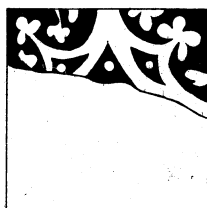
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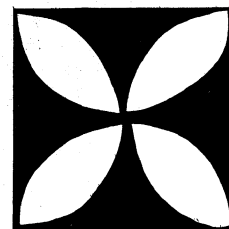
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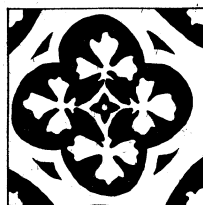
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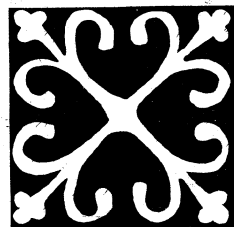
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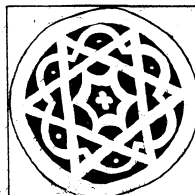
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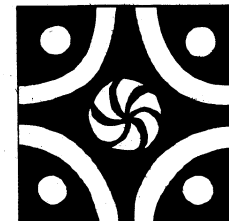
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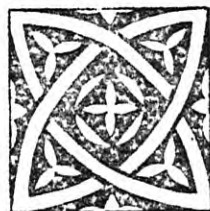
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GROUP 3

PRINTED 'CHILTERN'



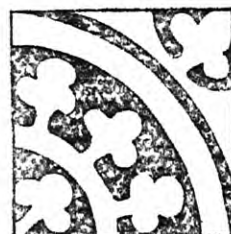
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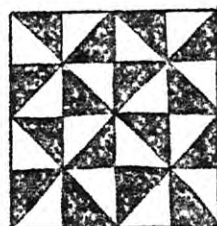
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22



23



24



25



26



27

GROUP 4

PRINTED 'LITTLE BRICKHILL'.



1



2



3

Group 3 - Printed Mid-fourteenth Century (Chiltern) continued

- 12) Fragment, possibly pierced eight petalled flower in ring from which spring fleur-de-lis into the angles and trefoils towards the middle of the sides, with dots between. (P.67).
- 13) Four-petalled flower. (P.80).
- 14) Four floriated trefoils springing from the corners of a cusped square set cornerwise and enclosing a dot within a circle with cusps containing dots. (P.85).
- 15) Saltire with thickened centre and trefoiled ends. (P.91).
- 16) Design based on the Solomon's Seal with a quatrefoil at the centre in a circle. (P.93).
- 17) Whirligig between four quadrants, each enclosing a single pellet. Derivation of (P.95).
- 18) Interlocking ellipses, about four segments enclosing a quatrefoil. (P.101).
- 19) Two oak leaves and an acorn growing from the inner of two concentric quadrants, with three petals in the inner, and two petals in a small quadrant in the outer angle. (P.138).
- 20) Four quatrefoils springing symmetrically on three stems from the outer of two concentric quadrants. In the inner angle two indented petals and a triangle, with a bar across it enclosing a trefoil, in the outer angle a mask with a ring about it. (P.153).
- 21) Three fat trefoils springing from the inner of two concentric quadrants. Similar trefoils in the inner and outer angles. (P.160).
- 22) Band of pellets between two quadrants enclosing three petals with a whirligig in the outer angle. Variant of (P.164).
- 23) Part of four tile pattern of two concentric circles with eight loops hanging inwards from the outer, containing and separated by prickly ornaments. In the outer angles a trefoil. (P.168).
- 24) Gyrony
- 25 & 26 Two portions of what appear to be the same or similar tiles, the fragments not being large enough for full identification.

Group 3 - Printed Mid-fourteenth Century (Chiltern) continued

- 27) Fleur-de-lis with a small crossed foot between four quadrants cusped and enclosing two petals. (P.48).

Group 4 - Printed Early Sixteenth Century (Little Brickhill)

- 1) Large, broad, interlacing quadrants with three lobed motifs springing from bars across the corners. (L.35).
- 2) A quadrant bearing the legend "In Domino Confido" (In God I place my trust). (L.B.11).
- 3) Part of continuous design of circles, each enclosing four fleur-de-lis and squares enclosing multifoils. All outlined in the ground colour.

TYPE I - MOSAIC TILES

As only one piece of mosaic has so far been found no conclusions can be drawn as to the extent or design of any mosaic floor that may have been laid. Indeed it is possible that it may have originated from elsewhere.

Assuming that a mosaic floor existed it would have been laid in about the middle of the thirteenth century, in fact possibly soon after the establishment of the Friary in 1259.

Almost all the sites where mosaic is found are Cistercian and it is possible that this mosaic may be connected with Old Warden, Bedfordshire, where elaborate tile mosaic has been found. Most mosaic was probably made on the site where it was used and it may be that it was made at Dunstable by lay workers hired from the Cistercians by the Friars.

Manufacture

The tile was made from fine, red earthenware. Intricate mosaic patterns were cut to shape before firing, using a template placed on a block of sanded clay. After the shape was scored round the sides were pared down towards the bottom to facilitate bedding in the mortar.

Rectilinear shapes, such as triangles were fired in scored blocks which had been first half cut through before firing with twisted wire or string. These blocks would then be broken along the scored line as required for use.

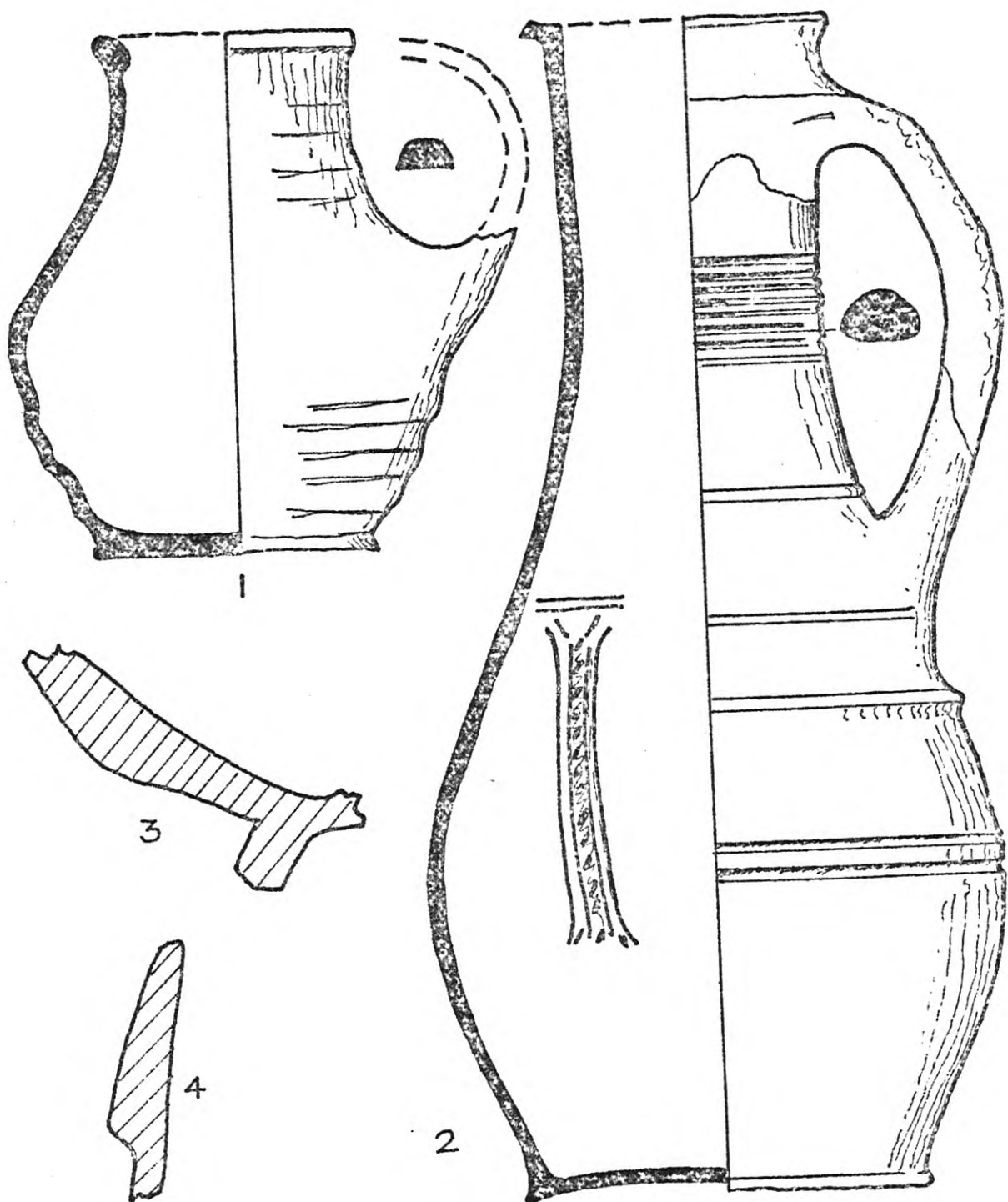
After glazing the tiles were placed on edge in the kiln and fired once only.

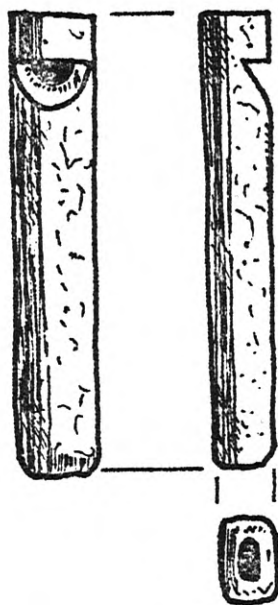
Dominican Friary Pottery

No.1 Jug with yellow-green flecked glaze

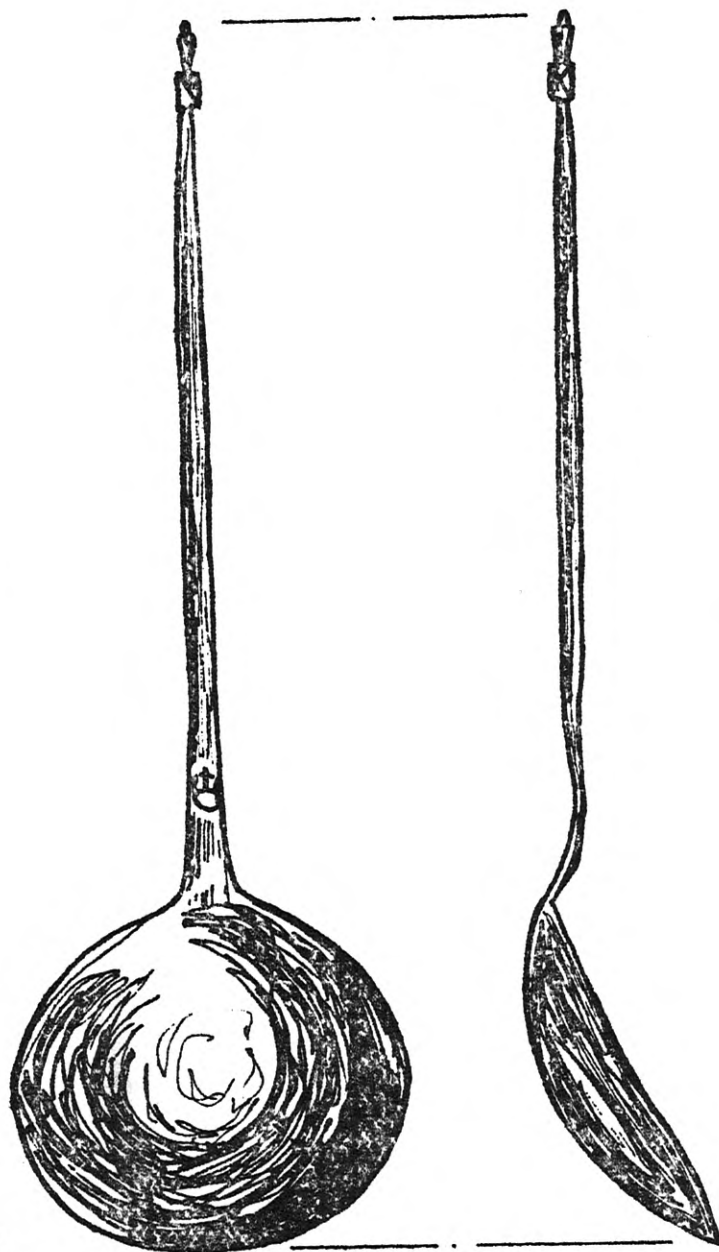
No.2 Jug with yellow-brown glaze below rim

No 3 & 4 Profiles of Samian dishes





BONE WHISTLE



MEDIEVAL
BRONZE SPOON

TYPE II - INLAID TILES

The fragments of inlaid tile are of similar type and pattern to those catalogued by Mr. Hohler. These are in form closely related in design to the Wessex series, but in quality inferior. It is therefore reasonable to conclude that the patterns were copied from the original Wessex. The main difference between these and the Wessex are as follows:-

- 1) The shape and thickness and quality of clay is inconsistent.
- 2) The design is not as precise as the Wessex layout and it appears to have been very roughly drafted.
- 3) Large, carefully placed dish-shaped scoops were taken out of the rear of the Wessex tiles, whereas stab marks made with the end of a stick are scattered over the back of the Dunstable tiles.

Stab marks normally only occur in the tiles which are not "factory" produced at an established permanent kiln site. When tiles were produced on "factory" lines the processes were kept to a minimum, and non-essential stabbing omitted. It is thought that the stabbing was to assist bedding in to the mortar and possibly to reduce the firing time.

The tiles almost certainly would have been manufactured on site or locally by a travelling tiler. Mr. Hohler dates this type of tile as early fourteenth century, but there is no positive dating evidence available at this stage. There is indeed a possibility that they are of early fifteenth century manufacture?

It is also interesting to note that two of the types numbers 2 and 4 are catalogued in a paper by Norma B. Whitcomb under types 8 and 13. These with several others were found at Leicester Abbey.

Manufacture

Moulds were used to cast the red earthenware into the general shape and thickness. The desired pattern was impressed on the "green" tile and the hollows so formed filled with a white clay slip. Surplus material was then scraped from the tile surface and the glaze applied.

If half or triangular tiles were required, square tiles would be cut half through while "green". The tiles were then stacked on edge in the kiln and fired.

TYPE III - MID-FOURTEENTH CENTURY PRINTED TILE

This is the main group of tiles found on the site. Although many designs have been identified, the very large number of pattern number 19 would make it reasonable to conclude that the floor was covered mainly with this four tile pattern. The remaining designs would then, it is assumed, be used for borders and strips running in the main design. Many green, white and black plain, glazed tiles belonging to this period, have also been excavated.

Permanent kilns in the Chilterns were established apparently by private Master Tilers as individual business ventures. These mass produced stock designs were produced for many classes of customers and distribution was widely spread over the adjacent counties and London. It is believed that the main tilery was based at Penn in Buckinghamshire although a Chiltern kiln for the manufacture of printed tiles has not been positively located.

There is also the possibility that a kiln was set-up in London by a tiler from the Chilterns to manufacture printed tiles based on the "Penn" design for distribution in the London area. Although the designs are almost identical many of those found in London are inferior in quality to those found in the locality of the Chiltern kilns.

Manufacture

As with the inlaid tiles, printed tiles were red earthenware, cast in moulds to the desired shape and thickness.

Patterns are thought to have been made and filled in simultaneously by putting a white strip on the stamp and pressing in to the wet tile.

The method of cutting part way through the tile before firing was still used for obtaining triangular shapes.

Tiles were glazed and fired after the edges had been knife pared towards the bottom.

TYPE IV - PRINTED TILE, EARLY SIXTEENTH CENTURY

Three types of this kind of tile produced just prior to the Reformation have been identified. Mrs. James suspects that the type 3 (Hohler LB.5) example is perhaps from a different period and kiln, as although the pattern is correct the general standard of workmanship bears no relationship to the examples found on this and other sites. We have, however, for the purpose of this report, left it in this section as far as description and drawing is concerned.

Type IV (continued)

These tiles differ from the earlier series, perhaps most basically by the larger areas of white strip to bare tile. The design now appears as red on white.

Although there are similarities between these and the Chiltern printed series, in particular Hohler Nos. P.53 and LB.15, they generally do not have the same neat appearance and quality of design.

A kiln was found for the manufacture of these tiles at Little Brickhill in Buckinghamshire in the 1930s. Tiles possibly all from this kiln are distributed around the Watling Street between St. Albans and the Northamptonshire/Warwickshire border.

Manufacture

The manufacture would be in a similar manner to the Chiltern patterned tiles.

GLAZING

A precise description of the method of preparing the glaze taken from a medieval manuscript is given in a paper by Mr. Gardener and Mrs. Eames³

Briefly, the glaze had a lead base; salt and washed sand were mixed in two separate processes and the liquid so formed left to harden into a glass form. This was then ground into a powder and sifted, then finally mixed with either sour wine or ale and water. The glaze thus obtained was painted on to the green tiles ready for firing.

Basically the various colour glazes were as follows:-

- | | | |
|--------|---|---|
| Brown | - | Clear lead glaze applied direct on red earthenware. |
| Yellow | - | Surface of tile coated with white clay strip before clear lead glazing. |
| Green | - | Copper oxide added to lead glaze, (dark green and light green obtained by putting this glaze over red earthenware or white strip respectively.) |
| Black | - | Achieved by adding either manganese or higher proportion of copper to lead glaze. |

KILNS

It is thought that kiln forms were of two basic kinds one being of a specialised form for mosaic tiles.

Mosaic Kiln

Most kilns appear to follow a basic form⁴ this being a two-chambered oven, fired from two parallel furnace chambers. The oven floors were made from layers of fired tiles pugged with clay, gaps having been left at intervals to allow heat to pass through the oven.

A horizontal shelf divided the oven into two halves. This comprised tile fire bars resting on arches springing from the sides of the oven walls.

Kiln furnaces were generally, where possible, built below ground to conserve the heat. The roof - a temporary structure - would then possibly be turved over for added insulation.

Files were stacked on edge in the oven for firing.

Inlaid and Printed Tile Kiln

It is thought that the kilns were generally of single oven chamber construction, apparently without any dividing wall or intermediate partition. These would be fired generally from a double chambered furnace.

The oven floor it is thought was formed by laying roof tiles on the basic oven floor each structure with gaps left for the hot gasses to pass through. A roof was constructed from further roof tiles spanning across a framework with gaps left as required for the products of combustion to escape.

In the majority of cases tiles were stacked on edge in the kiln for firing. This was particularly evident from inspection of the tiles found during this excavation where it was noticed that the glaze had run down to one edge of the tile and built up in the form of a ridge. There₅ is evidence, however, that certain tiles were laid flat in the oven.

Method of Firing

Wood was in general the fuel used for firing the kilns and a maximum temperature of 1000° Centigrade had to be achieved to fuse the lead glaze.

No exact medieval information is available for the firing sequence but by analogy with modern or nineteenth century practice it probably lasted over a period of approximately three days. This would be made up of 36 to 48 hours under 200° Centigrade slow, drying fire, then one day building up the temperature to 1000° Centigrade for the glaze to fuse. The fires would then be allowed to die down so that the tiles would cool during the night ready to be withdrawn from the kiln on the fourth morning.

Acknowledgment

We would like to record our thanks to Mrs. Elizabeth Eames, M.A., M.Litt., who kindly examined examples of the tiles found and read through the draft notes of the report, giving much helpful advice.

References

- 1) "Medieval Paving Tiles in Buckinghamshire"
Records of Buckinghamshire, Volume XIV
 - 2) Recent evidence in the possession of Mrs. Eames seems to indicate the later dating for these.
 - 3) "A Tile Kiln at Chertsey Abbey"
Journal of the British Archaeological Association,
Volume XVII, 1954.
 - 4) "A Thirteenth Century Tile Kiln Site at North Grange
Meaux, Beverley, Yorkshire", by Elizabeth S. Eames.
"Medieval Archaeology", Volume V, 1961.
 - 5) "A Tile Kiln at Chertsey Abbey", page 28.
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MASONRY, J.M. Bailey

Subsequent to the publication of the last report it was found that a wall adjacent to the ovens comprised almost entirely of re-used, carved Totternhoe stone. It was nearly all part of a demolished tracery screen a single piece of which was illustrated in the last report (page 9, Fig. 6).

The general form of the various main portions of this tracery

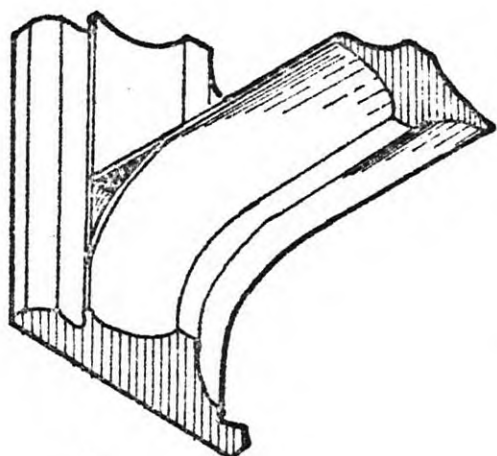
is illustrated on page 21 Figs. 1 to 6. Figs. 1 to 3 are $\frac{1}{8}$ full size, and Figs. 4 to 6 are $\frac{1}{4}$ full size.

The junction between a tracery bar and the side of the frame is shown in Fig. 1; the corner junction between side and bottom of the frame in Fig. 3.

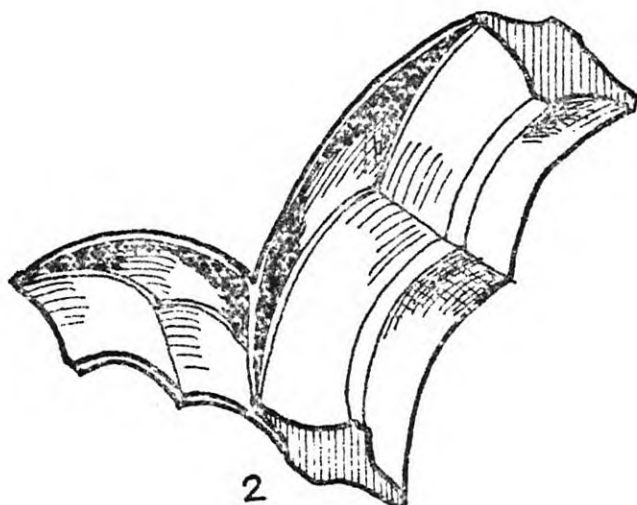
A section through the main frame is shown in Fig. 6 and is of the same form as the main mullions shown in Fig. 5.

The finer tracery bars were as Fig. 4 and the junction of two curving portions, Fig. 2, is a typical detail of these bars.

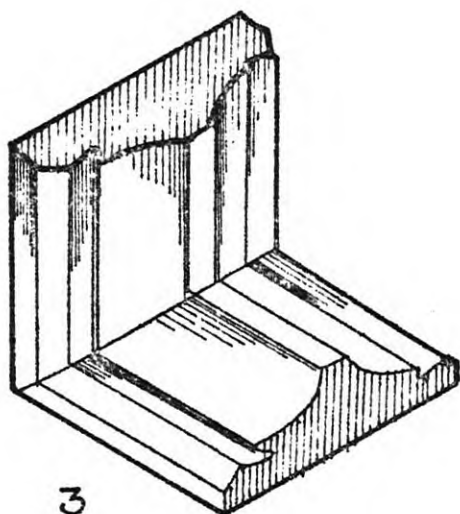
The upper portion of a column base, (Fig. 7, $\frac{1}{4}$ full size) formed from four quadrants was found complete. The segments would have fitted around a column shaft of approximately five inches diameter.



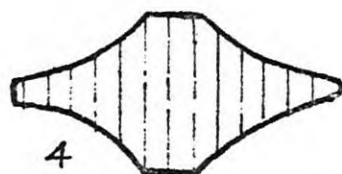
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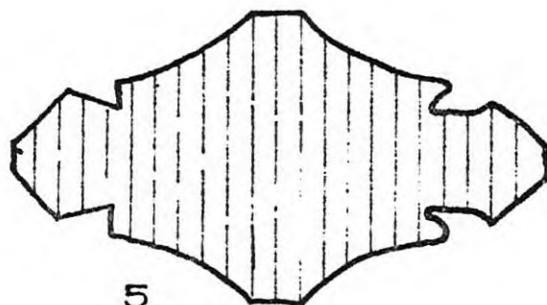
2



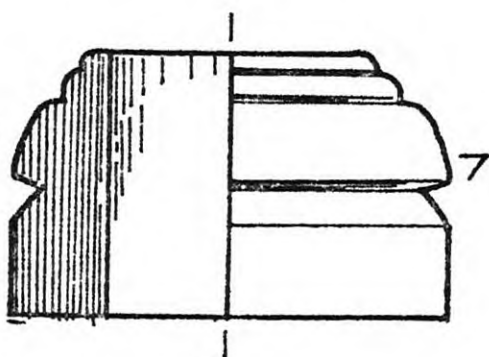
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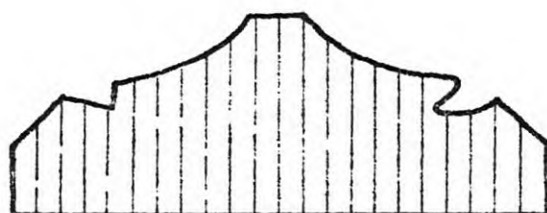
4



5



7



6

TOTTERNHOE STONE
MOULDINGS

J. M. Bailey