3 BUILDING MATERIALS

A variety of building materials have been recovered, which provide additional information concerning the superstructures of the buildings excavated. Materials found include clay tile and brick, building stone predominantly in the form of stone roof slates, plaster, mortar and cement and evidence of timber in the form of charcoal or post voids.

3.1 Mortar, concrete and plaster

A total of 20 samples in this range of materials were recovered from 15 features and three layers. The material weighed 3919 g and comprised 59 fragments. In addition cement or mortar was sometimes noted adhering to some building stone and clay tiles, but this has not been included generally in the catalogue of mortar. It was found in 15 features and three layers, with the majority being found in trench 1, mostly in close association with the aisled hall (building 1). The samples can be subdivided into six of plaster, nine of mortar and five of cement/concrete.

Plaster

The plaster was white/cream to light brown in colour with a matrix of powdered or crushed chalk or lime and chalky clay sometimes mixed with angular coarse sand and flint grit up to 60 mm. The plaster appeared to be softer and more crumbly than the mortar, though in many respects it was similar. Surviving surfaces were smooth and flat or slightly convex and were left white, but in two samples the fragments had been painted a plain maroon red colour. The total quantity of plaster comprised 12 fragments weighing 168 g plus 25 painted fragments weighing 72 g.

Mortar

The mortar was mostly cream–pale or light brown in colour and made of a fine chalky or lime clay matrix, moderately hard mixed with small chalk grit 2–8 mm (type 1), but occasionally up to 20 mm, or with a high density of angular flint sand and grit 1–3 mm (type 2a) and less frequently fired clay grit or crushed tile grit (type 2b). It appears that several fabrics of mortar are represented, though none of the very pink waterproof mortar was found. One sample was very porous with pores up to 3 mm in size and may have been part of a block from a roofing vault. It was found in the foundations of building 2. Most of the fragments were amorphous but a few pieces had flat surfaces and were up to 60 mm thick.

Concrete

The basic matrix was not significantly different to that of the mortar (type 1), consisting of cream–pale brown chalky/lime clay containing small chalk and flint grit, but all extremely hard and concreted (designated type 1a). The sample regarded as concrete was similar, but contained about 50% small stones up to 30 mm size (type 1b). Most of the samples had at

least one smooth surface and ranged from 17–60 mm thick. One fragment appeared to be wedge-shaped measuring 115 mm long by 62 mm wide and 64 mm high: it appeared to have fitted into a gap between three stones or tiles, possibly forming part of an arch.

3.2 **Timber**

No remains of wood were found except in the form of charcoal fragments within features and layers. Most of the charcoal is likely to derive from fuel used in ovens, hearths and corn driers. Only a small number of contexts have contained charcoal, which might be the remains of structural timber. This could provide information regarding the species used. The size of timbers is indicated by the voids of posts, when these survived.

In trench 1 one of the post pits, F655, of the aisled hall (building 1) contained a large quantity of charcoal, which may derive from the timber which stood in the post-hole. There is no evidence that the building burnt down, but it is possible the ends of timbers were charred to help prevent the rotting of timbers in the ground.

All the 16 post pits of the aisled hall had well preserved post voids. These were all rectangular and of similar size. The smallest measured 0.45 by 0.5 m increasing to a maximum of 0.68 by 0.66 m: the aim was probably to cut timbers to be two Roman feet square. Most were square or rectangular in shape, but one void was distinctly trapezoidal with the width decreasing from 0.6 to 0.52 m. These are considerably larger than post voids preserved in post-holes of the fence lines or other timber structures. An additional contrast is that all the latter voids were circular, indicating no additional shaping of the trunks.

In trench 1 voids were preserved in 27 fence post-holes (PL1–3, 5–8). The average size for most of the fences was 0.22–0.24 m, but the total range was from 0.13–0.35 m. Only two voids measuring 0.18 and 0.2 m were preserved in the post-holes of the timber building (PL4). The four voids in the two two-post structures measured from 0.16–0.25 m with an average of 0.2 m. Of the isolated post-holes eight voids were preserved measuring 0.15–0.36 m with an average of 0.23 m.

In trenches 3 and 4 31 post voids were recorded ranging from 0.1 to 0.38 m in diameter, with an average of 0.19 m. Those of a possible timber building (PL9 and 10) ranged in size from 0.1 to 0.28 m, whilst those in the fences (PL11–13) covered a similar, but slightly more restricted range of 0.14 to 0.25 m.

In trench 3 there was additional evidence preserved for structural timbers in the destruction levels of building 4. The collapsed roofing material within the upper fill of F811 and F812 and in layer 446 contained large quantities of charcoal, including many fairly large fragments up to 100 mm. It is interpreted as being the remains of the roofing timbers, which would have supported the stone tile roof. A superficial examination on site indicated that some of this material was oak, but a more detailed study may reveal a greater variety of species or information on the likely size of timbers.

3.3 **Building stone**

Large quantities of non-local stone occurred across the whole area of the excavations and some attempt was made to quantify the material and to retain a representative sample of the variety of function and stone types found. The rest of the stone was discarded. In the 1998 area from 92 contexts 181 samples were recorded, of which 80% had fragment counts but only 43% were weighed. In the 1999 area 181 samples were recorded from 92 contexts, all of which had fragment counts and weights recorded. However it should be emphasized that the amount of stone recorded from certain contexts was not the complete amount present (in particular P787 and destruction layers in building 4, especially L446).

Rock types

Limestone

The predominant type of limestone was a bioclastic limestone from the Purbeck beds, the nearest source to the site being in the Vale of Wardour about ten miles west of Salisbury. This stone exhibited some variety in character from very fine grained to a coarse texture with a high density of fossil shells and sometimes a high iron content. The rock was laminated and easily split. Other limestones recognized include oolitic limestone, a very fine grained hard grey limestone, possibly carboniferous limestone, a soft cream calcareous limestone and sandy limestone.

Rock type	No. Samples	Percent	Frags	Percent	Weight	Percent
Purbeck Lst	219	65.0%	952 (215)	76.0%	786396 g (155)	81.0%
Oolitic Lst	14	4.0%	59	5.0%	13168 g	1.5%
Calc. Lst	3	0.9%	5	0.4%	0 g (0)	
Carb. Lst	7	2.0%	6 (6)	0.5%	327 g (6)	0.1%
Sandy Lst	4	1.0%	9	0.7%	1080 g (3)	0.1%
Limestone	14	4.0%	39 (12)	3.0%	98930 g (10)	10.0%
Sandstone	27	8.0%	59 (26)	5.0%	16986 g (25)	1.8%
Greensand	18	5.0%	24	2.0%	9292 g	1.0%
Calc. sst	16	5.0%	73 (15)	6.0%	32129 g (15)	3.0%
Fossilif. sst	2	0.6%	2	0.2%	1620 g	0.2%
Mica sst	1	0.3%	1	0.1%	175 g	+
Siltstone	3	0.9%	3	0.3%	840 g	0.1%
Tufa	2	0.6%	9	0.7%	3632 g	0.4%
Slate	1	0.3%	1	0.1%	2 g	+
Chalk	1	0.3%	1	0.1%	14 g	+
Total	335		1246 (326)		965231 (259)	

Table 1. Quantity of non-local stone.
Figures in brackets indicate number of samples for which fragment count/weight available, when less than the total number of samples. + indicates less than 0.1%.

Sandstone

Most of the sandstones have not been identified or assigned to any particular source. A fairly high proportion has been identified as greensand and another group as a calcareous sandstone. Infrequent varieties were a fossiliferous sandstone and a single example of a maroon sandstone flecked with mica, which had been used for a small palette or grinding stone.

Miscellaneous

Other rocks identified and occurring in small quantity included siltstone, tufa and slate.

Function

Amongst the stone samples were a number of fragments, which were artefacts rather than structural material. They are not described in this section, though included in Table 2.

Function	Samples	Percent	Frags	Percent	Weight	Percent
Roof	217	65.0%	969 (212)	78.0%	849008 g (151)	88.00%
Masonry	49	15.0%	135 (48)	11.0%	58305 g (48)	6.00%
Walls	16	5.0%	62 (15)	5.0%	15747 (15)	1.60%
Floor	11	3.0%	12	1.0%	3285 g	0.30%
Tessera	6	1.8%	6	0.5%	156 g	0.02%
Oven	2	0.6%	8	0.6%	3510 g	0.40%
Corndrier	7	2.0%	13	1.0%	29740 g	3.00%
Unid	18	5.4%	32 (16)	2.6%	2495 g (14)	0.26%
Quern	4	1.0%	4	0.3%	2370 g	0.25%
Rubber	3	0.9%	3	0.2%	360 g (2)	0.04%
Palette	1	0.3%	1	0.1%	175 g	0.02%
Slingshot	1	0.3%	1	0.1%	80 g	+
Total	335		1246 (326)		965231 g (259)	

Table 2. Quantity of stone by function.
Figures in brackets indicate number of samples for which fragment count/weight available, when less than the total number of samples. + indicates less than 0.1%.

Roofing

Roofing materials accounted for at least 88% of the stone recorded and in reality more than this as not all samples were weighed or counted and known quantities were not fully recorded at all. For example many of the shattered fragments of the collapsed roof of building 4 were not quantified and only a very small proportion of the whole roof slates in P787 from building 3 were recorded. The roof slating was made exclusively from Purbeck limestone, a honey-coloured stone, which had been burnt to varying shades of pink, purple and grey in building 4. The slates were split to thicknesses ranging from 10–37 mm, with the average being 22–25 mm. They were made in polygonal shapes, predominantly pentagonal and hexagonal, and less often rhomboidal. Frequently the slates had one or two very straight

edges, which probably represent natural planes in the rock structure, roughly at right angles to the basic sedimentary layering. Other edges were roughly chipped to shape. Sizes were variable: lengths ranged from 225 to 480 mm, breadths from 160–334 mm and they weighed between 1150 g and 8000 g. There were two unusually small diamond-shaped tiles 165 x 100 mm and 170 x 110 mm weighing 460 g and 275 g respectively. These smaller slates may have formed the final row at either the top or the bottom of the roof. The sizes and shapes of the complete or near complete examples are listed in Table 3.

Length	**Breadth**	**Width**	**Weight**	**Shape**
165 mm	100 mm	22 mm	460 g	Rhomboidal
170 mm	110 mm	16 mm	275 g	Rhomboidal
>215 mm	>190 mm	30 mm	2000 g	5/6-agon
225 mm	180 mm	19 mm	1150 g	6-agon
260 mm	160 mm	25 mm	1700 g	5-agon
265 mm	164 mm	25 mm	1610 g	5-agon
267 mm	300 mm	14 mm		Rhomboidal
268 mm	228 mm	23 mm	2720 g	5-agon
280 mm	185 mm	21 mm	1375 g	polygonal
>295 mm	310 mm	28 mm	2995 g	5/6-agon
310 mm	210 mm	27 mm	2000 g	5-agon
>310 mm	300 mm	15 mm	2800 g	5/6-agon
>310 mm	>240 mm	20 mm	5840 g	6-agon
316 mm	334 mm	25 mm	3850 g	6-agon
320 mm	290 mm	18 mm	3120 g	D-shape
340 mm	270 mm	25 mm		5-agon
350 mm	315 mm	16 mm	3450 g	6-agon
360 mm	310 mm	23 mm	4200 g	6-agon?
370 mm	262 mm	23 mm		5-agon
375 mm	295 mm	20 mm		6-agon
380 mm	305 mm	23 mm	5150 g	5-agon
390 mm	310 mm	24 mm	5000 g	5/6-agon
400 mm	255 mm	20 mm		Rhomboidal
405 mm	310 mm	22 mm	4900 g	6-agon
410 mm	305 mm	20 mm		6-agon
415 mm	308 mm	25 mm	5700 g	5-agon
>420 mm	310 mm	22 mm	3880 g	5-agon
430 mm	315 mm	25 mm	5400 g	6-agon
430 mm	320 mm	23 mm	3800 g	5-agon
450 mm	300 mm	32 mm	4900 g	6-agon
460 mm	300 mm	32 mm	5900 g	6-agon
460 mm	310 mm	25 mm	6000 g	6-agon
474 mm	310 mm	26 mm	5800 g	6-agon
475 mm	314 mm	27 mm	7100 g	6-agon
480 mm	285 mm	37 mm	8000 g	5/6-agon

Table 3. Sizes and shapes of limestone roof slates.

Nail holes were present in most of the more complete slates and in a few cases the iron nails were still present. The nail holes generally measured 5–8 mm in diameter encircled by a shallow conical hollow (20–50 mm wide) on one side, probably the upperside and on the underside by a wider more irregular hollow (up to 70 mm wide) where a flake of stone had sheared off from the impact. On a few the nail hole had been initially made too close to the

edge of the tile and had broken through. Two or three attempts have been made on some tiles to achieve a successful nail hole. It was also noted that the nail hole was placed asymmetrically most often so that the apex of the stones would not have hung pointing directly downwards, but to one side.

Walls and masonry

This formed the next largest category of material after roofing stone. A total of 63 samples were assigned to this category, all of non-local stone, mainly varieties of sandstone and limestone, but not including any Purbeck limestone. Much of it took the form of irregular and unshaped lumps (21 samples), sometimes with a worn surface. It was not unusual for fragments to be burnt (25 samples), especially those from trench 3 in the area of building 4. A small number of samples had fragments of mortar adhering to the surfaces. From the wall foundations remaining *in situ* it is clear that the buildings were predominantly constructed in flint and cob. Much of the flint appears to have had at least one roughly knapped face and one block (SF2515) had been carefully knapped to a rectangular shape with a trapezoidal cross-section. In addition to the flints there is evidence that other stone, such as broken quern and other non-local stone, was incorporated in the walls from the evidence of mortar adhering to surfaces. Imported sandstone and limestone appear to have been used for quoins, mouldings and decorative features such as pilasters.

Most surviving blocks tended to have a rectangular cross-section or form a right-angled corner. Ten samples had a single smooth flat surface surviving, sometimes cut or sawn and in three examples the surface had been covered with tool marks. A further ten samples had two flat surfaces at right angles to each other, four of these having tooling pecked or bladed generally across the surface at a diagonal to the edge. Four samples had three shaped surfaces surviving generally in the form of one smooth (sawn or cut) surface with rougher flat surfaces with tool marks at right angles to either side.

Tool marks generally had two basic forms: those made with a point or pick type end resulting in a dimpled effect or those made with a flat adze or a chisel type blade resulting in flat facets which varied from very fine and shallow to quite wide (15 mm or more) and more angled. They were generally cut at a diagonal to one side or longitudinally down the length of the block. In some cases blade tooling achieved a very smooth finish, that may well have been the exposed surface, but in other cases was left very uneven, implying the surface was not exposed. The pecked surfaces probably formed internal joints.

Many of the right-angled corner blocks may have formed the quoins of the buildings. No examples of this practice survived at Grateley though greensand corner blocks were observed in the Roman buildings at Houghton Down and Fullerton. There are in addition several different forms that may indicate other functions or the presence of mouldings. Most of the shaped blocks came from the area of building 4, with a few similar pieces from buildings 1 and 3.

Of the more complete rectangular blocks, one (SF2359) had a slightly trapezoidal cross-section with one surface slightly convex. It measured 435 mm long, 190 mm deep and 75–120 mm wide. The curved surface, which probably formed the exposed face, was well finished and smooth with only very fine striations remaining from tooling. One of its side surfaces was covered with wide chisel-type marks running longitudinally and diagonally, whilst the opposite side was roughly finished with fragments of mortar adhering.

An almost cubic block (F787 1) measuring 180 x 190 x 170 mm had roughly-shaped squared faces with mortar adhering to some. Another rectangular block (SF2378 A) measuring over 170 mm long by 85 x 90 mm had one smooth curved plano-convex surface, with a little evidence of fine tooling on this and coarser bladed tool marks on the sides and back surface. From the same context was a slightly smaller rectangular block (SF2378 B) 95 mm wide and 60 mm deep but with a pentagonal cross-section, two of the corners being chamfered. A block with a similar cross-section (S2926) measuring 85 x 80 mm wide came from the area of building 1. A block with a trapezoidal cross-section (SF2514) measuring 43 mm deep by 53–73 mm wide and over 215 mm long had smooth flat surfaces on all sides. The wedge-shaped cross-section may indicate it formed part of an arch.

From the area of building 4 there were five samples (SF2513, S3483, S3485, S3490 and from L447) with blocks where the surfaces came together at an acute angle (usually *c*. 40°–60°) to form a triangular or polygonal cross-section. All of these blocks had some tooled surfaces or cut smooth and flat. There were two blocks from trench 1 with triangular (S2917) or polygonal (S2889) cross-sections.

Found in the collapsed structural debris of building 4 was another incomplete block (SF2465) measuring 140 mm wide by 165 mm deep and over 155 mm long. It had three flat surfaces at right angles to each other with one smooth, flat side, one roughly tooled and the third damaged, most of its surface having sheared off. The fourth side was plano-concave with a semicircular profile forming a hollow 130 mm wide and increasing in depth from 55 mm to 100 mm along its length. It had been formed by some sort of pick-ended tool which created long linear grooves 8 mm wide. The surviving end was cut flat with some remains of tooling. This block may have formed a ridge stone for the roof.

Part of a curving stone pilaster was found in the occupation accumulated in the top of the quarry F748. This measured 200 mm in diameter by 45 mm deep and >155 mm high. The curving plano-convex surface was finely tooled and well finished. It joined to flat straight side surfaces, which were covered with shallow tooling at right angles to the edge. The back surface had straight cut margins along the edges with a roughly pecked surface between. The base was roughly tooled flat and had a circular hole 12 mm in diameter recessed into it. Three other similar fragments came from the same context, but these appeared to have slightly smaller diameters of about 140 mm.

Flooring

Some stone may have been used for floor surfaces. No flagstones were found *in situ*, but a small number of samples may have been paving slabs. Most of these were of Purbeck limestone plus one each of sandstone, calcareous sandstone, calcareous limestone and carboniferous limestone.

These slabs were rectangular or square with straight sides and split or rough chipped edges. On an example from L441 one surface was very worn, while the opposite surface had mortar adhering. These slabs measured 25–45 mm thick and the complete examples measured 400 x 260 mm, 300 x 235 mm, 85 x 45–60 mm in area and one broken one 118 mm wide.

Several had been burnt and the sooting on the surface of one suggests it may have been reused in an oven or hearth. Most of these flagstones were found in the upper fills of ditches and quarries in the vicinity of building 1 and building 4, frequently incorporated with other

collapsed or discarded building debris. The small number of possible flagstones suggests only small areas of any of the buildings had stone floors or that they were only used for specific purposes such as door sills. Certainly building 4 only had trampled dirt floors at the time of its destruction and the same appears to have been the case with buildings 1 and 3.

In addition to flagstones, stone tesserae were recovered from the area of building 2. These were all found in ploughsoil above the floor foundations of the building. A number of tesserae were recovered, of which six were individually weighed and measured. All were made from a creamy grey very hard fine grained limestone. There was also a cube of chalk of the same general size that may have been deliberately shaped to form a tesserae. The tesserae fall into two size ranges. The smaller one weighed 12 g and measured 15 x 15 x 12 mm. The larger tesserae weighed 22–50 g and measured 17–27 x 18–25 x 25–30 mm. Most were square cut to form a cube, but one was slightly trapezoidal and one had a triangular surface 20 x 20 x 25 mm.

Ovens and corn driers

Non-local stone was retained from 12 ovens. Four ovens contained amorphous blocks of sandstone, some of which were burnt. It is unclear whether their presence in the ovens was purely fortuitous. Pieces of limestone slab were noted fairly commonly in the course of excavation of the ovens, but were recorded for six only. Most of this appeared to be broken fragments of Purbeck limestone roof slates and four samples had been burnt. These fragments of roof slates may have been reused in the ovens.

A number of slabs appear to have been selected primarily for use in the oven and not reused following an earlier use. All were of Purbeck limestone, had rough chipped edges and split surfaces and had been intensely burnt to a bright purplish red colour on one side only. One rectangular slab found in oven F678 had been deliberately shaped to have a rounded semicircular end. It measured 235 x 140 mm and was 35 mm thick. A slab of identical shape occurred in the top fill of F811 (corn drier CD4). This measured 250 mm long by >120 mm wide and 30 mm thick. A third piece occurred in oven F790; this was a plain rectangular slab 215 x 150 mm and 35 mm thick. The slabs may have been laid across the ovens to form a floor over the firing chamber.

In trenches 3 and 4 six samples of limestone slabs were found in three of the corn driers and another piece discarded in a ditch. These appeared to fulfill two different functions. Rectangular slabs had been found in F811 *in situ* partly set into the rear wall of the corn drier and projecting out across the rear flue with their front edge supported on upright clay *imbrices*. They had straight cut or roughly chipped edges with rectangular corners and rough split undulating surfaces. These slabs were 25–40 mm thick and measured over 350 mm long by 330 mm wide. On the slab found *in situ* was a thick layer (*c.*30 mm) of cob or daub on its upper surface and along the front edge of the under surface was a deposit of black soot 1–2 mm thick.

From CD2 came two saddle-shaped stones, one from each of the drying chambers (F819 and F820). Both were very similar in character and though made of Purbeck limestone, the same material as the roof slating, these slabs were not recycled roof slates, but had been carefully shaped to fulfill a specific purpose presumably associated with the construction and use of the corn drier. They were found dumped in the rear flues of the corn drier suggesting they may have been associated with the rear shelf in some way, possibly used in controlling the flow of

air/heat. Both stones were subrectangular split slabs with smooth surfaces and roughly chipped or cut edges. Their long sides had been shaped to curve inwards to create a saddle-shaped stone. On one the shorter sides also curved in very slightly. One measured 350 mm long by 208–190–225 mm wide and 35 mm thick, the other 330–302–313 mm long by 204–160–224 mm wide and 32–44 mm thick.

3.4 **Tiles and bricks**

A total of 991 fragments weighing 59,460 g of clay tile and brick were recovered from the 1998 excavation and 700 fragments weighing 62,139 g from 1999: a total of 1611 fragments weighing 121,599 g. Four clay fabrics were identified and the major forms represented were *tegula, imbrex,* box tile and brick. Quantities are summarized in Table 4 by fabric and form. The tile was present in 175 contexts, which comprised 76 individual features and 45 layers subdividing into 433 individual samples. In the 1998 area a high proportion of the material derived from features and stratigraphy associated with the aisled hall, whilst in 1999 the material was more evenly distributed within features and layers across trenches 3 and 4.

Form	**Fabric A**	**Fabric B**	**Fabric C**	**Fabric D**	**Fabric E**	**Percent**	**Total**
Teg: frg	59	72	158	44		21%	333
Teg: wt	7139	9503	15238	3281		29%	35161
Imb: frg	20	42	321	49	1	27%	433
Imb: wt	1866	3957	19616	2007	24	23%	27470
Box: frg	2	4	35	21		4%	62
Box: wt	316	232	4074	1904		5%	6526
Brick: frg	8	14	119	39		11%	180
Brick: wt	525	6492	24342	12016		36%	43375
Tg.mam: frg			2			0.10%	2
Tg.mam:wt			2045			2%	2045
Tess: frg		1	7	1		0.60%	9
Tess: wt		8	50	10		0.06%	68
Unid: frg	11	328	180	71	2	37%	592
Unid: wt	320	1826	3143	1615	50	6%	6954
Total frags	100	461	822	225	3		1611
percentage	6%	29%	51%	14%	0.20%		100%
Total weight	10166	22018	68508	20833	74		121599
percentage	8.04%	18%	56%	17%	0.06%		100%

Table 4. Quantification of tile by fabric and form.

Fabrics

Fabric A

This fabric consisted of a fine chalky clay matrix mixed with fine–medium quartz sand and typified by small rounded spherical chalk inclusions 1–8 mm in size. The clay was laminated resulting in some cases in a differential colouring after firing. The material generally fired to

a yellow or yellowish brown colour, but sometimes with a reddish tinge. Additional inclusions were red-brown clay pellets 1–3 mm and rare red grits, possibly an iron-rich sandstone or haematite. The fabric had been used for *tegulae, imbrices,* box tiles and brick.

Form	Frag. no.	Frag. %	Wt gm	Wt %	Av. Size	No. samp.
Tegula	59	59%	7139	70%	121 g	19
Imbrex	20	20%	1866	18%	93 g	12
Brick	8	8%	525	5%	66 g	5
Box	2	2%	316	3%	158 g	1
Unid	11	11%	320	3%	29 g	6
Total	100	100%	10166	100%		43

Table 5. Quantities of fabric A by form.

Fabric B

This fabric was typified by a sandy clay matrix, predominantly quartz sand, inclusions of burnt angular flint 10–15 mm size and an organic component. The latter could take the form of black carbonized fragments 1–2 mm if the clay was reduced or as open pores if the organic material had been fully combusted in oxidized examples. An additional distinctive inclusion were red-purple grits 1–5 mm of burnt ironstone or an iron-rich sandstone. Other inclusions in lesser quantity included chert pebbles, chalk or limestone, unwedged clay and occasionally shell.

The clay was generally fired to red or hues of yellowish red in the oxidized variety, sometimes with a grey or weak red inner band, or where fully reduced the clay was mid-dark grey with a reddish brown veneer at the surface.

This fabric was used for *tegulae, imbrices*, box tile, brick and tesserae. Quantities are shown in Table 6.

Form	Frags	Frag.%	Wt gm	Wt %	Av. size	No. samp
Tegula	72	16%	9503	43%	132 g	29
Imbrex	42	9%	3957	18%	94 g	23
Brick	14	3%	6492	29%	464 g	6
Box	4	0.90%	232	1%	58 g	2
Tessera	1	0.20%	8	0.04%	8 g	1
Unid	328	71%	1826	8%	6 g	9
Total	461	100%	22018	100%	48 g	70

Table 6. Fabric B quantities by form.

Fabric C

This fabric was basically a sandy clay containing mid-coarse quartz sand in variable density, but few other inclusions. These included small grits and rounded pellets 1–12 mm of red or brown clay, which could on occasions be fairly common and sometimes a high density of brown unwedged clay fragments. Subcategories were sometimes obvious. C1 contained very

high density of well-sorted quartz sand, sometimes with additional grit of other rock types (C1a). One variety had common chalk grit. C2 contained frequent clay pellets and C3 contained low densities of sand. Both the latter might on occasions contain coarser grits of other rock types (C2a, C3a). It was fired to various shades of red, reddish brown and yellowish red mainly.

Fabric C was used for *tegulae*, *imbrices*, brick, *tegula mammata*, box tiles and tesserae. The quantification is shown in Table 7.

Form	Frags	Frag.%	Wt gm	Wt %	Av.size	No.samp
Tegula	158	19%	15238	22%	96 g	53
Imbrex	321	39%	19616	29%	61 g	81
Brick	119	14%	24342	36%	205 g	32
Teg.mam	2	0.24%	2045	3%	1023 g	1
Box	35	4%	4074	6%	116 g	13
Tessera	7	0.85%	50	0.07%	7 g	7
Unid	180	22%	3143	5%	17 g	36
Total	822	100%	68508	100%	83 g	223

Table 7. Fabric C quantities by form.

Fabric D

This fabric was a fine laminated clay mixed with fine sand, predominantly quartz and containing small red and brown clay pellets. In some cases there was a very high density of these clay pellets, which measured 1–12 mm in size. The clay was generally fired to shades of red and brown in colour.

The fabric was used for *tegulae*, *imbrices*, box tile, brick and one tessera. The quantities are shown in Table 8.

Form	Frags	Frag.%	Wt gm	Wt. %	Av. size	No.samp
Tegula	44	20%	3281	16%	75 g	20
Imbrex	49	22%	2007	10%	41 g	21
Brick	39	17%	12016	58%	308 g	15
Box	21	9%	1904	9%	91 g	9
Tessera	1	0.40%	10	0.04%	10 g	1
Unid	71	32%	1615	8%	23 g	29
Total	225	100%	20833	100%	93 g	95

Table 8. Fabric D quantities by form.

Fabric E

This fabric was typified by a high density of burnt flint grit.

It was identified in three fragments only, one of which was part of an *imbrex*, the others

unidentified.

Discussion

It is immediately apparent that fabric C was the most commonly occurring variety of the fabrics accounting for over half the tile, followed by B, D and A in decreasing order of quantity. They were all used for the main forms encountered, except for box tiles which were not found in fabric A, possibly because of the small quantity of this type rather than any other factor.

Fabrics C and D were similar, differentiated mainly by the size of the sand component. Fabric B was very distinctive and easily differentiated from the others. Most of it occurred in the 1998 excavation area. The chalk component of fabric A suggests it may have been fairly locally produced. The others were perhaps originating further south in the Hampshire Basin or New Forest area, though occasionally chalk grit was found in examples of these. Fabric C, which showed some variation in character, may in fact encompass several fabrics from different sources.

One other element relevant to the fabric is the sand coating that occurred on the lower surfaces of many of the tiles as part of the tile production process. In most cases this was a fairly coarse whitish quartz sand, but in a smaller number of examples it was a distinctive pink-purplish quartz sand, perhaps deriving from a red or iron-rich sandstone or the colour possibly being produced by burning sandstone. Occasionally sandstone grits were found embedded in the surface also. This pinkish maroon sand occurred most frequently in relation to fabric A on 15 samples with ten and 11 each in fabrics C and D and none in B. It was most frequent on *tegulae*, box tile and *imbrices*, but also occurred on bricks.

Forms

The forms present on this site were *tegulae*, *imbrices*, box tiles, *tegula mammata*, bricks and tesserae. Roofing tiles represented approximately half of the assemblage. Bricks formed over a third of the assemblage by weight, but only 11% by fragment count. Box tiles only accounted for *c*.5% of the tile. Unidentified fragments accounted for over a third of the fragments, but these only represented 6% by weight with an average fragment size of 12 g compared to an average of 75 g for all fragments.

Form	Frags	Frag.%	Wt gm	Wt.%	Av.size	No.Samp
Tegula	333	21%	35161	29%	106 g	121
Imbrex	433	27%	27470	23%	63 g	138
Brick	180	11%	43375	36%	241 g	58
Teg.mam	2	0.10%	2045	2%	1023 g	1
Box	62	4%	6526	5%	105 g	25
Tessera	9	0.60%	68	0.06%	8 g	9
Unid.	592	37%	6954	6%	12 g	81
Total	1611	100%	121599	100%	75 g	433

Table 9. Quantities of tile by form.

Tegulae

No complete tiles of this form were found but many recognizable fragments based on the presence of the side flanges were identifiable. No complete dimensions of length could be obtained, the maximum surviving length being 260 mm. One example of complete width measured 320 mm, but otherwise maximuum surviving width was 215 mm. Thickness and flange size could usually be measured. The thickness covered a range of 15–34 mm, which overlaps at the lower end of the scale with *imbrices* and at the upper end with bricks. The most frequent thickness for fabrics B, C and D was 18–25 mm, but for fabric A it was 23–28 mm (Table 10).

The basic characteristics observed typically included a well-smoothed upper surface and flange, whilst the lower surface and side edges were generally rougher and more irregular with a high proportion of samples having a thin veneer of sand over the latter. In some cases the angle of the sides or ends had been sliced along with a blade to leave a smooth angle ranging from a few degrees up to 45° to the surface cut. More rarely a cut along the top edges of the flange, both inner and outer, were observed.

The flanges measured 15–34 mm high at their inner edge and 13–32 mm wide at the base. Table 11 records flange width and height in relation to flange type. There appears to be no preferred size range for any particular flange form. The preferred sizes appear to be 20–25 mm wide and 20–24 mm high. A variety of flange profiles were recorded and these can be separated into six types: A: rectangular; B: trapezoidal; C: angled S; D: curved, S-profile; E: ¼ circle; F: full curve. The numbers of each type in relation to fabric are shown in Table 12.

Thickness	**Fab A**	**Fab B**	**Fab C**	**Fab D**	**Total**
15 mm	–	2	–	–	2
16 mm	–	1	4	–	5
17 mm	–	–	4	–	4
18 mm	1	1	5	1	8
19 mm	–	1	6	1	8
20 mm	–	7	12	7	26
21 mm	–	1	1	4	6
22 mm	–	2	7	4	13
23 mm	2	1	3	–	6
24 mm	2	2	1	1	6
25 mm	2	1	7	2	12
26 mm	3	1	1	3	8
27 mm	1	–	1	–	2
28 mm	2	–	1	–	3
30 mm	1	1	–	2	4
34 mm	–	–	–	2	2
Total	14	21	53	27	115

Table 10. Range of *tegulae* thickness.

The variations in flange type generally only affect the inner part, except in type F where the curved profile continues over the top of the flange and partly down the outer edge. The most common was the simple rectangular profile (A), followed by B, a variant on this, where the

internal edge is at an angle. The curved variants (D, E, F) were moderately common. Type D with an S-profile could be regarded as a variant of type E, as the effect appears to be created to some extent by finger grooves from smoothing along the internal edges of a rounded flange. The least common was type C in which an angled flange had finger grooves running along its length creating an S profile and the lower outer angle had been sliced off at an angle of *c*.45° leaving a very narrow flange along the whole length of the tile. The flange types in relation to fabric are quantified in Table 12. There appears to be no distinct patterns except in the case of flange type F, which occurred more frequently in fabric A, in contrast to the other flange types, which appeared to reflect the overall proportions of each fabric. Flange A as the commonest type had also been subjected to the greatest variety of cutaways. Cutaways A2 and B4 were the commonest forms and occurred in relation to a greater variety of flange types. All other cutaways were relatively infrequent.

Wdth	8	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	30	32
Ht																			
8	F																		
12																			
15		D												A			A		
16	u								B										
17			A				A												
18								E				A	A			A	(A)		
19											E			B	B				
20			A	A E			F* B		AAA		A	A	B						B
21						A¬				A	B			A					
22			C		A				A				F	E# E D					
23				D#					AAA				F	A¬	E		B		
24							A	F	AE					D					F
25									B			E							
26									D										
27									D-E					F					
28				C								F		F				F	
30																		B	
32												F							
34																F*			
uncl		C				A		A	2, C	1				A, 2	A				

Table 11. *Tegulae* flange sizes.

Wdth: Base width, Ht: Internal height.

A5, D#/E#, F* double measurements for a single tile indicate size/shape change

along length of flange. ( ) = incomplete height measurement. u = unclassified

Type	Description	Fab A	Fab B	Fab C	Fab D	Total
A	Rectangular	4	3	22	3	32
B	Angled 1	4	4	–	9	
C	Angled S	–	2	1	1	4
D	S-curve	–	3	1	1	5
E	¼ circle	–	5	3	–	8
F	Full curve	8	–	3	–	11
Unid		2	3	4	2	11
Total		15	20	38	7	80

Table 12. Numbers of flange types by fabric.

The treatment of the tile corner and the flange end also exhibited a variety of cutaway forms. These can be broadly divided into rectangular (A) and angled (B) cuts, which can then be further subdivided. In type A the corner has been cut away to leave a rectangular cutout normally the width of the flange, which may remove the whole thickness of tile and flange (A1), the flange only (A2), the upper half of the flange only (A3) or the full thickness of flange and tile, but only half the width of the flange (A4).

Flange	A	B	C	D	E	F	Unid	Total
Cutaway								39
A1	6	~	~	~	~	~	~	6
A2	4	2	~	~	2	2	2	12
A3	1	~	~	~	~	~	~	1
A4	1	~	~	~	~	~	~	1
B1	~	~	1	~	~	~	~	1
B2	1	~	~	~	~	2	~	3
B3	~	~	~	~	1	~	~	1
B4	3	2	2	0	1	5	1	14

Table 13. Flange type in relation to cutaway.

The diagonal cuts can also be subdivided into four groups. The diagonal line of the cut is along the length of the flange. In the first type (B1) the cut is sliced through both flange and the full thickness of the tile, following the width of the flange. More frequently it is only the flange which is removed (B2). A variant of this is where the cut forms a curving concave surface (B3) removing the flange only. The fourth type of angled cut (B4) is distinctly different, in that it is the lower corner that has been cut away removing a triangular profiled wedge, which results in a surface being left between the side and base surfaces at an angle of about 45° to them. These corner features usually extended for 20–45 mm from the corner of the tile. In the case of flange type C it seems that the lower angle of the side has been cut away for the full length of the tile. However without any complete tiles this must remain uncertain.

The cutaways are quantified in Table 14 in relation to fabric and in Table 13 in relation to flange type. There appears to be no significant relationship between fabric and cutaway and

little correlation between the style of flanges and cutaways.

Type	Description	Fab A	Fab B	Fab C	Fab D	Total
A1	Rectang. full	–	–	5	1	6
A2	Rectang. ½	2	2	7	1	12
A3	Rectang. ¼	–	–	–	1	1
A4	½ Flng. full	–	–	1	–	1
B1	Diag. full	–	–	1	–	1
B2	Diag. half	2	–	1	–	3
B3	Circ. half	–	1	–	–	1
B4	Base angle	5	5	3	1	14
						39

Table 14. Cutaway of *tegulae* corners and flanges in relation to fabric.

Combing occurred on four *tegulae* on their upper surfaces. On one a band of combing 25 mm wide with six teeth marks ran at right angles from the edge. On another two were two bands of combing converging to form a V, in one case meeting at the edge of the tile. Both bands had six teeth marks: in one set it appeared that the fourth and sixth teeth were worn shorter and narrower and from a gap between the 5th and 6th another may have broken off completely. In the other set the fouth tooth appeared to be worn or broken to a shorter length than the others. On the fourth example the band of combing formed an arc starting from the tile edge, possibly originally forming a full semicircle. The band was 21 mm wide with five teeth marks. In general the teeth marks were 1–2 mm wide with a U-shaped profile and were 2–3 mm apart.

Imbrices

Imbrex tiles accounted for 23% by weight (27% by fragment count) of the tile and brick. No complete examples were found and the maximum surviving length recorded was 330 mm. The width could be assessed in many cases from the diameter of their curve and these ranged from 80–220 mm, with a fairly even spread across this range recorded but with the main concentration between 100 and 150 mm. This may represent the normal increase in width from top to bottom of the average tile. Only one fairly large fragment produced evidence of this widening from 90 mm to 160 mm along its length. In the few other examples where the actual breadth of the tile could be measured this ranged from 130 to 190 mm. A couple of fragments appeared to have unusually large diameters of 360 and 400 mm. The thickness of the tiles measured between 50 and 220 mm with the main peak at 12 and 17 mm.

Although all tiles were incomplete identification as *imbrices* could be based on the typical plano-convex profile of the fragments. The profile appeared to be either semicircular or an inverted U-shape. The upper surface was normally well-smoothed, sometimes with distinct finger grooves apparent. The underside was generally much rougher and coated in a thin film of quartz sand. Five samples had the distinctive pink-purple sand coating mentioned above.

The edges of the tiles were simply moulded at both ends sometimes thickening to form a slight ridge ringing the edge. The side edges were cut flat and then both the angles were frequently pressed over towards each other to form a narrow groove running along the length of the side edges. This may have been nothing more than a side effect of the general process of forming the tiles in a mould.

On the outer surface of three tiles was a band of combing running parallel to the end edge around the curve about 12 mm from the edge. In two cases this had been made using an 8-toothed comb. In one case the teeth at either end appeared to be worn producing shallower grooves, whilst on the other the last two teeth at one end were broken or worn. The total width of this combing was 26 mm with individual grooves 2–2.5 mm wide. On the third example the band of combing was 22 mm wide with four teeth marks 2–3 mm wide with a rectangular profile and scored 1–1.5 mm deep and 3–4 mm apart. As combing was usually intended to facilitate cement or mortar adhering to the tile surface, it may indicate that these fragments came from the top end of the tile, which would have been overlapped by the next tile above. However the infrequency of combing on *imbrices* suggests it was not normally considered necessary or perhaps only in certain positions in the roof such as ridge tiles.

Imbrices were made in all fabric types, but occurred most frequently in fabric C. There appeared to be no significant difference in size or character of the tiles between different fabrics.

Though *imbrices* were normally used as roofing tiles, it was clear from the excavation of corn drier 4 that they were also used to support the rear shelf of the corn drier that projected above the back flue. The tiles had been placed on end with their outer surface pointing towards the rear wall of the corn drier. These particular tiles had a noticeably pointed cross-section compared to the normal semicircular form and it is possible that tiles were expressly produced for use in corn driers.

Box tiles

A total of 25 samples of box tiles were identified, totalling 62 fragments weighing 6526 g. They were all made in all fabrics, though C and D were the most frequently encountered. All were incomplete though a few complete measurements could be obtained from a small number. The thickness of the tile walls ranged from 10 to 23 mm, but 18–20 mm was the most frequent. A concentration of several near complete examples in pit F787 provided some complete measurements detailed in Table 15 below. Two different size groups appear to be present. One of these had the length ranging from 150–180 mm and widths/breadths from 115–130 mm producing a square cross-section. In this group the length increased from one side to the other so that two faces were trapezoidal in shape. In the other group only one example exists of a much larger tile (nearly 300 mm long) with a distinctly rectangular cross-section. This example had combing in contrast to the plain surfaces of the others.

The outer surfaces of these tiles were generally smooth, whilst the interior surfaces were rougher and coated with sand. The corners were frequently rounded and some of the edges retained clear signs of being cut. Most of the examples from P787 had distinctive maroon sand coating on both the exterior and interior surfaces, which tended to be fairly rough.

In 11 samples evidence of vents being cut into the side surface survived. In a couple of samples it was clear that vents had been cut into two opposing sides and it is assumed that this normal arrangement was originally the same for the less complete examples. In all but one the vents were circular (or slightly oval) apparently cut with a blade and generally ranging in size from 25–35 mm, though one larger oval vent was 40 mm long and a particularly small example of 13 mm occurred on a small fragment, which was probably part of a box tile. It was also apparent that some had a slightly conical profile being wider at the outer edge than the inner edge.

Combed patterns were present on eight samples and in some cases this was taken to indicate the likelihood of them being box tiles, when lacking other diagnostic features.

Four basic combed patterns were encountered. The most common occurring on four examples was two bands of combing crossing to form an X. These were set at angles of 55–75° and where the bands were visible across their full width measured 20–38 mm wide with between five and eight teeth marks. One of these sets of cross combing was scored between two straight bands of combing running parallel to the tile edge. The latter were made first followed by the two crossing diagonal bands. This was the most complex of patterns found. The other face of this box tile had a similar arrangement of bands parallel with the edge, but enclosing two diagonal bands coming together to form a V-shape. Each band varied from 33–44 mm wide with six to eight teeth visible mostly, but the eighth tooth only forming a faint score being broken or worn. Another tile fragment had two bands of crossed combing, made with a six-toothed comb, of which the end tooth was worn or broken leaving only a narrow, shallow and intermittent line. The combing was 20 mm wide with the teeth at 2 mm intervals.

Sample No.	Height - 1	Height - 2	Breadth	Width	Vents
F819 [3563] A	152 mm		115 mm		O - 35 mm
F819 [3563] B					O x2 - 31 & 40 mm
P787 [3550]	164 mm	150 mm	130 mm	130 mm	O x2 - 30 & 35 mm
P787 [3544] & [3545]	c. 285 mm		172 mm	110 mm	[_] x2 38x>43 mm & 40 mm
P787 [3546]D	175 mm	152 mm	120 mm	>45 mm	O - 22x24 < 26x29 mm
P787 [3546]A	147 mm		120 mm	120 mm	O - 28 mm
P787 [3546]C	c. 180 mm		122 mm	>60 mm	O - 35 < 40 mm
P787 [3546] B	>90 mm		120 mm		O - 32 mm

Table 15. Box tile dimensions.

Almost as frequent were single bands of diagonal combing running from the tile corner. The more complete of these consisted of a band 30 mm wide with six teeth marks, each 2–2.5 mm wide, except for the fourth tooth, which was 1.5 mm possibly as a result of damage. On another tile the band of combing was 33 mm wide made by six teeth, which formed marks with an asymmetric V cross-section 2–3 mm wide and 1 mm deep set 3–4 mm apart. Another incomplete band set at 63° to the tile edge had three teeth marks surviving, all with a sharply rectangular profile 2–3 mm wide and apart and up to 2 mm deep. These diagonal bands may have formed part of an X- or V-shape, seen on the more complete tiles.

One example had a curved arc of combing 16 mm wide with five teeth marks each 2–3 mm wide and apart.

Other markings were incised on the surface of three other samples. Two of these had a large V inscribed on the surface, the lines being deeper, sharper and more pronounced than combing. Another fragment had three widely spaced incised lines 10–12 mm apart and each line 1–2 mm wide. These may have been tally marks, possibly representing the numbers three and five.

In the 1998 trenches the tiles occurred in layers associated with the aisled hall (building 1), one in the fill of the ditch to the north of the hall and one in the outer enclosure ditch on the

west side of the excavation. There is no evidence for their use as part of a hypocaust, but it is possible they may have been used in the structure of the aisled hall. In the 1999 area most of the material came from pits and the corn drier within building 3, plus a small quantity associated with layers or features in building 4 and in the upper fills of some of the earlier ditches.

Bricks

There were a total of 58 samples of brick producing 180 fragments weighing 43,375 g. All fabrics had been used, but fabric C was the most common accounting for 56% by weight (66% of fragments). Only two complete examples survived from a hearth, F770. These both measured 200 mm square and 34 mm thick indicating them to be *bessales*. Of all the incomplete examples most had a surviving length/breadth less than 200 mm. However some larger brick types are indicated by a few examples with a larger surviving length of >240–>290 mm indicating some may have been of *pedalis* size. One with a maximum surviving length of >355 by >290 mm indicates the presence of one of the larger brick types such as Lydion, *sesquipedalis* or *bipedalis*.

The bricks ranged in thickness from 19–45 mm, but it was apparent that those made in fabric A clustered at the thinner end of the range at 25–34 mm, compared to the others, which averaged about 35 mm, though a slight increase in thickness may be noted from fabric B (20–42 mm) through C (25–44 mm) to D (28–45 mm). Samples were generally identified as bricks, where simple square corners were present with an absence of flanges. In some cases however identification was tentatively assigned solely on the thickness, especially where this appeared to be beyond the overlap with other tile forms.

The bricks usually had a smooth upper surface and rougher base with sand coating, which sometimes extended up the sides of the brick. Corners were usually sharp and angular and sometimes the top or base angle of the sides had been sliced off at a diagonal. Occasionally mortar or cement adhered to the top or base surface. A few examples had been burnt and blackened or sooted probably from use in ovens, hearths or corn driers.

It is likely that the majority of bricks were *bessales*, whose main use was to create *pilae* in hypocausts. The few larger bricks were probably either *pedales* or Lydions, which were used either as the base or capping of *pilae*, for bonding in walls or as floor tiles.

One fragment of a *tegula mammata* was identified from P787. It was incomplete measuring in excess of 250 mm by 165 mm and 30–33 mm thick. This suggests a minimum brick size equivalent to *pedalis*. On the upper surface a sub-oval knob (*mamma*) of clay had been attached about 47 mm from the corner. It measured 50 x 47 mm and stood 20 mm high. Mortar adhering to the other side of the brick suggests it may have been built into a wall, the purpose of the projecting *mamma* being to help keying.

From trench 1 11 samples had the general character of *pilae* bricks, though there was no evidence on site of them having been used in this manner. Six of these occurred in oven F686 and one in oven F687. It is not clear however whether this was merely a convenient place in which to dispose of them or whether they formed part of the ovens'structure. Of the remaining samples the majority derived from features or layers associated with the aisled hall. A small number occurred in other features including a quarry hollow, post-hole and enclosure ditch.

In trenches 3 and 4 the complete bricks were preserved in the hearth F770 and of the remainder a dense concentration occurred in pit F787, several were associated with corn driers (CD1, CD2 and CD4) and a few occurred in occupation debris in quarry and ditch.

Tesserae

A total of nine tesserae made from fired clay were identified. Six came from the ploughsoil overlying the villa in trench 2, where a mosaic had previously been recorded and one was unstratified. However two tesserae were found in layers in trench 1.

The individual tesserae ranged in weight from 4 to 10 g each and generally formed cubes, though some tended to be rectangular or trapezoidal. They ranged in thickness from 10 to 26 mm suggesting they were cut from *tegulae* and *imbrices*. They measured in area from 12 x 22 mm up to 24 x 25 mm. The majority were in fabric C, with one each in fabrics B and D.

Surface markings: combing, tally marks, trademarks or signatures

A number of the tiles had combing on the surfaces and this has been described above with the different varieties of tiles. To summarize, combing occurred on *tegulae*, *imbrices* and box tiles in a limited number of patterns: straight bands parallel to the tile edge, diagonal bands sometimes combine to form V or X pattern and more rarely a curving band. Band thickness varied from 20–40 mm and the number of teeth present was generally five to eight with several examples suggestive of worn or broken teeth. The teeth usually had a rounded U-shaped profile 1–3 mm wide and 2–3 mm apart. More rarely a very sharp rectangular cross-section was evident with a slightly wider spacing.

Possible tally marks have also been described in association with the box tiles. These totalled only five and occurred on a *tegula*, box tiles and brick. They consisted of sharp, narrow incised lines, probably cut with a blade. These either took the form of a V or a number of parallel lines and probably represent numbers (three, four and five).

Signature marks generally take the form of grooves made with one or more fingers forming a variety of patterns. At Grateley these occurred on *tegulae* and bricks and a total of seven examples were observed. They were all similar in form consisting of one, two or three finger grooves sweeping across the tile surface in a gentle curve. On one tile there was a slight variation with two clear finger marks running straight at right angles to the edge, but on the same surface there were also five shallow, faint curving finger marks.