

PLUSCARDEN

McCORMICK

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3: E1

REPORT ON THE HUMAN BONES FROM THE CEMETERY AT
PLUSCARDEN PRIORY

Daphne Home Lorimer

Skeleton F20

F20 was the skeleton of a woman of about 35 to 45 at the time of death and about 1.63 m (5ft 4in) in height. Many bones appeared to have been disturbed. Many were eroded and many damaged, probably *post-mortem*. It was not possible to observe many non-metrical variations. Squatting facets were, however, noted at the lower end of the tibia which, together with the platymeria (or antero-posterior flattening) of the femur, indicated activity over rough or hilly ground and the need for acute dorsi-flexion of the foot (Chesterman 1983; Bacon 1990). No obvious pathology was noted on the bones but caries was seen in some teeth.

Sex: The female sex was deduced from the large 'U'-shaped greater sacro-sciatic notch in the pelvis. (This was divided into two equal parts by a line from the deepest point perpendicular to a line joining the ischial to the inferior anterior iliac spine). In the skull, the external occipital protuberance and the mastoid processes were small and the posterior root of the zygomatic process did not extend over the external auditory meatus.

Age: The age of 35 to 45 at the time of death was calculated from the formulae given by Brothwell (1981) for wear on the molar teeth. In the skull, the sphenoid-occipital synchondrosis was completely united (indicating an age of over 25) but the sutures of the cranial vault showed no signs of union at all. This might have indicated an earlier age group but union can be very variable and a depression for a Pacchionian body seen by the sagittal suture was indicative an age of

40 or over.

Stature: Using the left femur and left tibia, the height of the skeleton was calculated from the formulae of Trotter and Gleser (Brothwell 1981) to be about 1.63 m. or about 5ft 4 ins.

Non-metrical variations: lateral and medial squatting facets were seen on the lower end of the right tibia and a lateral facet on the lower end of the left; the inferior articular facet was double on the right talus and the anterior facet double on the calcaneum (Finnegan 1978). For the skull see Table 5 (Berry & Berry 1967).

Pathology: Caries was found on the anterior portion of the occlusal surface of both lower wisdom teeth and the lower left second premolar. It was also found on the occlusal surfaces of the posterior portion of the upper left second premolar and on the anterior portion of the upper left wisdom tooth.

Skeleton F21

Skeleton F21 was that of a young adult of about 17 or 18 years of age at the time of death and possibly female. The condition of the bones precluded the estimation of stature and the retrieval of more than a few non-metrical variations. The presence of enamel hypoplasia in the canines and upper incisors indicated a metabolic disturbance in early childhood.

Sex: The secondary sexual characteristics do not begin to develop until puberty and are not truly diagnostic until the age of 20. The exception to this, however, is considered to be the shape of the greater sacro-sclatic notch which is determined in the foetus by the presence (or otherwise) of the male hormone testosterone (Boucher 1955). Thus, in

F21, the 'U'-shaped notch indicated the female sex. Consideration of the skull also showed a small external occipital protuberance and mastoid processes, while the posterior root of the zygomatic process did not extend over the external auditory meatus which is probably indicative of a female in this age bracket.

Age: Examination of the molars showed light wear on the first, slight polishing, only, on the second while the third molar was unworn. This placed the age at death between 17 and 25 (Brothwell 1981). The root, however, was only half-formed which gave an average age of 17.9 ± 1.14 . (Hillson 1986, 195). This was confirmed by the fact that union had started in the acetabulum between the ischium and the ilium but not with the os pubis, (ie age could be about 16) and the spheno-occipital synchondrosals had not begun to unite, a process which can occur between 18 and 25.

Non-metrical variations: The condition of the bones, especially the skull, precluded the recording of many non-metrical variations (see chart for skull) and only a double transverse foramen was noted in the 6th cervical vertebra.

Pathology: There was possible reactive bone tissue on the right superior articular facet of the 2nd cervical vertebra and possible hyperostosis on the spine of the 5th lumbar vertebra. The defects in the left mastoid region are, however, probably pseudopathology and due to the effect of the soil.

The dentition was complete and neither caries nor calculus seen, but enamel hypoplasia was present on the canines and upper incisors. It appeared as a series of three or more ridges across the buccal surface of the tooth (the 'washboard effect'). In addition, three pits appeared on the lower left canine. Hypoplasia is considered to be the result of the disruption of enamel formation of a tooth by a systemic disturbance (Hillson 1986). A relatively common condition in man, it can

be produced by a number of serious conditions, but can also be the result of infectious diseases or passing nutritional defects. The position of the defects and the teeth affected, suggested that the disturbance occurred at about the age of 3 or 4.

Skeleton F16

Skeleton F16 was that of a female of about 25 to 35 years of age at the time of death and about 1.62 m (5ft 4ins) in height. The bones were very fragmented and only a few non-metrical variations could be seen on the skull (see chart) while, on the post-cranial bones, damage was such that only on the femora was a variation (Poirier's facet) seen. Two teeth had been lost *ante-mortem* from the mandible with remodelling of the alveolar surface, and caries was noted on three teeth. The right upper third molar exhibited hypercementosis of the roots. The right mastoid process, the right condyle and the odontoid peg showed evidence of being cut *post-mortem* but the cleanness of the cuts suggests trowelling damage.

Sex: The female sex was indicated by the fact that, in the skull, the external occipital protuberance and mastoid processes were small and the posterior root of the zygomatic process did not extend beyond the external auditory meatus. In the pelvis, the sacro-sciatic notch was large, 'U'-shaped and could be divided into two equal portions by a line from its deepest point bisecting at right angles, the line joining the anterior superior iliac and ischial spines. The female sex was also confirmed by the fact that the heads of the humerus (42.3 mm) and femur (42.2 mm) and the circumference of the shaft of the tibia at the nutrient foramen (77 mm) were all within the female limits (Stewart 1979).

Age: Using the formulae given by Brothwell (1981, 101) for assessment of

age from dental attrition, the age at death was placed between 25 and 35. Unfortunately, the symphysis pubis was too damaged to be of use, but wear on the extant portion was in accordance with the upper end of this range.

Stature: Using the formulae of Trotter & Gleser given by Brothwell (1981), stature was calculated from the lengths of the left humerus and femur and the right tibia to be:-

$$(21.148 \times 0.68) + (43.5 \times 1.17) + (1.15 \times 35) + 53.12 \\ = 162.4 \text{ cm} \quad = 5\text{ft. } 4\text{in}$$

Pathology: Caries was seen on the occlusal surface of the upper first left premolar, the upper right canine and the lower left second molar. There was no evidence of calculus nor of periodontal disease on the extant alveolar surfaces but the lower right first and third molars had been lost *ante-mortem* and remodelling of the alveolar surface had taken place.

Table 5: Pluscarden Priory human skeletons. Non-metrical variations of the crania.

+ = both sides R = right side only L = left side only

- = parts missing

| | 20 | 21 | 16 |
|---|----|----|----|
| Highest nuchal line present | - | - | - |
| Ossicle at lambda | - | - | - |
| Lambdoid ossicle present | R | - | - |
| Parietal foramen present | - | L | - |
| Bregmatic bone present | - | + | - |
| Coronal ossicle present | - | - | - |
| Epiteric bone present | - | - | - |
| Fronto-temporal articulation | - | - | - |
| Parietal notch present | - | - | - |
| Ossicle at asterion | - | R | - |
| Foramen of Huschke present | L | + | + |
| Mastoid foramen excutural | R | + | - |
| Posterior condylar canal present | - | - | - |
| Condylar facet double | - | - | - |
| Pre-condular tubercle present | - | - | - |
| Anterior condylar canal double | - | - | - |
| Foramen ovale incomplete | - | - | - |
| Foramen spinosum open | - | - | - |
| Assessory lesser palatine foramen present | - | - | - |
| Palatine torus present | - | - | - |
| Maxillary torus present | - | - | - |
| Zygomatico facial foramen absent | - | - | - |
| Supra-orbital foramen complete | - | + | - |
| Frontal notch or foramen present | - | - | - |
| Anterior ethmoid foramen exsutural | - | - | - |
| Posterior ethmoid foramen absent | - | - | - |
| Accessory infra-orbital foramen present | - | - | - |

LIST OF ANIMAL BONES

Finbar McCormick

Layer F39 in stone-lined pit

Cattle: 1 humerus, 1 lumbar vert., 1 metacarpal, 1 phalanx 1, 2 phalanx 2. Fragments of large rib.
Sheep/goat: 1 tooth, 1 humerus, 1 cervical vert., 1 lumbar vert., 1 pelvis. Fragments of small rib.
Pig: 1 very young mandible, possible neonate. Deciduous PM4 in eruption.
Cat: 22 vertebrae, 25 ribs. Atlas and axis present. Found in articulation.
Dog: Skull, 2 mandibulae, 25 vert., 22 ribs, 1 scapula, 1 sacrum, 2 pelvis, penis bone.

Find no 29. Under wall F27 and lying on top of steps F26 and demolished wall F34

Human: 1 vert
Cattle: 1 mandible, 1 scapula, 3 radius, 4 metacarpal, (Bd 49.1, 49.5, 52.1, 49.2 mm), 2 phalanx 3.
Sheep/goat: 1 axis, 1 lumbar vert. (split medially), 1 metatarsal, 1 metacarpal.
Pig: 1 tooth.
3 oyster shells.

MICROFOSSIL ANALYSIS OF THE ORGANIC DEPOSIT FROM THE STONE-LINED PIT AT PLUSCARDEN

Coralie M Mills

INTRODUCTION AND METHODS

A small sub-sample was taken for microfossil analysis of the organic deposit (F33) which was found within Layer F39, in the stone-lined pit (F22). The deposit had the appearance of a well-humified peat. The sample was prepared using acetolysis and hydrofluoric acid treatment (Moore & Webb 1978). *Lycopodium* spores were added as a marker to allow calculation of microfossil concentration. Silicone oil was used as the mounting medium. Identifications, undertaken at magnifications up to x900, were made by use of the keys in Moore & Webb (1978) and by comparison with reference slides. Microscopic charcoal particles were classified according to the length of the longest axis.

RESULTS

The results of the microfossil analysis are given in text, Table 1. A total of 435 pollen and spores were counted, including 403 land pollen. Preservation was generally very good and the concentration of pollen and spores in the sample was about 67,000 per ml. The pollen spectrum is dominated by cereal-type pollen, mostly of the *Hordeum* group but with some attributable to the *Avena-Triticum* group (groups as defined by Andersen 1979). The size of some damaged Gramineae grains indicated that they were of cereal-type, but these could not be attributed to a particular 'Andersen' group. In total, cereal-type pollen represented 71.0% of the Total Land Pollen (TLP), and wild grass pollen represented a further 13.2% TLP. About half of the pollen attributed to

the wild grass group was at the upper extreme of the size range for this group, as given by Andersen (1979), and it is possible that some pollen attributed to the wild grass group may actually be from the lower extreme of the size distribution of the pollen type which has been attributed mainly to the *Hordeum* group.

A range of taxa and habitat types are represented in the remainder of the spectrum. Trees, shrubs, heathland plants, weeds, ferns and aquatics are all represented in small amounts.

DISCUSSION

The organic deposit investigated here was found in close association with fragments of cloth, and close to a deposit of animal bones. The analysis of parasite ova (Pennington *et al* *Infra*) suggests that human faecal matter is an important component of the organic deposit. The animal bones in the pit included a near-complete skeleton of a dog and a less-complete skeleton of a cat. The articulated nature of the dog and cat bones suggests that they decayed after being placed in the pit (McCormick *infra*). The evidence from the remains of the Diptera in the organic deposit (Skidmore *Infra*), however, suggests that it was not in contact with decaying carcasses.

Cereal-type pollen is the predominant type in the sample. Most of this was attributed to the *Hordeum* group (Andersen 1979) which comprises two cultivated species, *Hordeum vulgare* (barley) and *Triticum monococcum* (einkorn), and a number of wild grasses. Of the cultivars, it is most likely that barley is represented; barley grain is a common find on Scottish archaeological sites from Neolithic to post-medieval times (Boyd 1988) while einkorn is a rare component of British sites, generally of the Neolithic and Bronze Age periods (Godwin 1976, 411). Three of the wild grasses (*Ammophila arenaria*, *Agropyron junceiforme* and *Elymus arenarius*) are maritime species and seem unlikely to be represented here since Pluscarden is 17 km from the

present coast. The other wild grasses included in the *Hordeum* group and which may be present are *Hordeum murinum*, *Agropyron repens*, *Glyceria fluitans* and *G. plicata*. *A. repens* is a common weed of fields and waste places while *H. murinum*, also a weed of waste places, is usually found by the sea. *G. fluitans* and *G. plicata* both grow in wet places.

The *Avena-Triticum* group (Andersen 1979) includes only one wild grass (*Avena fatua*), a weed of arable fields, and several cultivated species of wheat (*Triticum* spp.) and oat (*Avena* spp). The presence of the *Avena-Triticum* type pollen in the Pluscarden deposit therefore indicates that at least some of the cereal-type pollen derives from arable activities. Given the presence of parasite ova indicative of human faeces (Pennington *et al* infra), the most likely origin of the cereal-type pollen is from human food such as broth. Other pollen types may derive from the human faeces; aquatics may have entered through drinking water and other taxa may have been 'contaminants' of food and drink. Microscopic charcoal particles may also have been ingested with food.

The bulk of the organic deposit was examined at Sheffield University for the presence of plant remains, including bran fragments, but none were found (Buckland, pers comm). This means that it is not possible to be certain which, if any, cereal plants are represented by the pollen. Given the large number of cereal-type pollen present, it is surprising that no bran fragments were present. The preservation of this small isolated organic deposit on this freely-drained site is also surprising, and it may be that the deposit has undergone partial decay as was suggested for a latrine deposit of similar peaty appearance at Worcester (Grelg 1981, 267). Bran was found in the Worcester deposit but if it was once present in the Pluscarden deposit, it has not apparently survived. The percentages of cereal-type pollen are high at both sites (34 to 50% TLP at Worcester, 71% TLP at Pluscarden). The Pluscarden deposit has a much higher proportion of cereal-type pollen than the human coprolites from Warebeth Broch, Orkney, where

Hordeum group pollen represented 1.1 to 5.6% total pollen and spores (Dickson 1990). These coprolites contained animal hairs and bone fragments and were interpreted as representing a largely meat-based diet (Dickson 1990). It is tempting to interpret the Pluscarden deposit as representing a restricted vegetarian diet at the Priory; however, the absence of the meatier parts from the dog and cat carcasses may indicate otherwise (McCormick *infra*).

It is possible that some pollen in the Pluscarden deposit derives from sources other than the human faeces. These other sources could include water-seepage through the pit and air-fall of pollen from the surrounding vegetation. The range of taxa indicates some heathland, woodland, grassland and wet areas in the vicinity. The possibility has been considered that decaying refuse in the pit, including the dog and cat corpses, may also have contributed some pollen. It is known that in medieval times, hounds were commonly fed on bread or sometimes on broth (Cummins 1988, 26-27) and so it is possible that cereal-type pollen could derive from dog faecal matter. Such a find is not unprecedented; *Hordeum*-type pollen has been found in an animal coprolite from Warebeth Broch (Dickson 1990, 118). As stated above, however, the Diptera evidence suggests that the organic matter was not derived from rotting carcasses.

It is possible that some of the Pluscarden pollen derives from refuse which has since decayed completely; the former presence of crop-processing waste, for example, could lead to an enrichment of cereal-type pollen and the introduction of other pollen taxa (Robinson & Hubbard 1977). The lack of macroplant remains at Pluscarden means this cannot be proved or disproved.

PLUSCARDEN PRIORY PARASITE OVA ANALYSIS

J B Pennington, J P Middleton, C Nicholson and A K G Jones

INTRODUCTION

A sample of soil from the Pluscarden Priory excavation was submitted by Dr Coralie Mills, of the former SDD, ACC, Fleming House, 28-31 Kinnaird Park, Newcraighall, Edinburgh EH15 3RD to A K G Jones of the Archaeological Resource Centre, of the York Archaeological Trust for parasite ova analysis. The sample was taken from organic material (Feature 23/Find 33) associated with some woollen cloth (Feature 39) found in a pit (Feature 22). The excavator was interested to see if the cloth might have been used as an anal wipe before it was discarded.

METHOD

Three grams of soil were taken from the sample, diluted with 42 ml distilled water and left to disaggregate for one hour. The sample was then thoroughly shaken and poured through a freshly flamed sieve of 250 micron mesh aperture to remove coarse particles. The residue was saved for identification of plant and insect remains. A few drops of the sample were placed on a microscope slide with a cover slip and examined at x100 and x200 under a transmission microscope for parasite ova and other biological material.

RESULTS

The sample contained abundant *Trichuris* ova. The counts averaged 20 ova per sample. The ova were not very well preserved -

none had polar plugs. The mean size of the ova was 50.6 microns long (length minus polar plugs) X 27.5 microns wide (sample size 10). Eggs of this size are produced by the human whipworm, *T. trichiura*. The whipworm of rats and mice, *T. muris*, and that of pigs, *T. suis*, also produce eggs in this range. Other trichurid parasites found in the British Isles, (*T. vulpes*, dogs, *T. ovis* and *T. globulosa*, sheep, goats and cattle) produce much larger eggs. No *Ascaris* ova were identified. The sample also contained diatoms and a number of fungal spores as well as fragments of insects of indeterminate species.

CONCLUSION

The number of ova observed indicates that the sample contains faecal material. The size of the *Trichuris* ova indicate that faeces was most likely to be of human origin, although other species may have been responsible.

It seems likely that the cloth associated with the sample was used for sanitary purposes. However, it is possible that the cloth may have been introduced to the feature independently of the organic matter and subsequently became incorporated with it.

ROUTINE SOIL SAMPLES, METHODS AND RESULTS

Stephen Carter

Methods

All samples were subjected to four analyses, the soil being in a field moist condition. pH was determined in a 1:2.5, soil to distilled water mixture. Loss on Ignition used c 10 g of oven dry soil ignited to 400 °C for four hours. The determination of phosphate used a spot test for easily available phosphate (Hamond, 1983). Samples were rated on a three point scale using the time taken for a blue colour to develop following the addition of the two reagents to the sample. The ratings were high (0-30 seconds), medium (30-90 seconds) and low (more than 90 seconds). Calcium carbonate content was assessed semi-quantitatively using a simple field test and the samples assigned to the following classes (Hodgson, 1976, 57).

| Test rating | CaCO ₃ (%) | Description |
|-------------|-----------------------|--------------------------|
| 0 | 0-0.5 | Non calcareous |
| 1 | 0.5-1 | Very slightly calcareous |
| 2 | 1-5 | Slightly calcareous |
| 3 | 5-10 | Calcareous |
| 4 | 10+ | Very calcareous |

Results

Nine samples were analysed, all from a pit (F22), and the full

results are presented in Table 6.

| F | pH | LOI | Phos | CC |
|----|-----|-----|------|----|
| 35 | 8.4 | 4.3 | H | 3 |
| 36 | 8.3 | 3.2 | H | 4 |
| 37 | 8.2 | 3.4 | H | 0 |
| 38 | 8.3 | 5.1 | H | 2 |
| 39 | 7.8 | 3.9 | H | 0 |
| 40 | 7.8 | 6.4 | H | 0 |
| 41 | 7.9 | 4.9 | H | 0 |
| 42 | 7.8 | 3.3 | H | 0 |
| 43 | 7.7 | 2.4 | H | 0 |

Table 6: F = Feature No, LOI = Loss of ignition, CC = Calcium Carbonate.

REPORT ON TEXTILES FROM PLUSCARDEN PRIORY

Thea Gabra-Sanders

Excavations at Pluscarden Priory yielded twenty four textile fragments and two plucks of raw wool. They were retrieved from the waterlogged deposit (F39) in the stone-lined pit F22. The wool cloth fragments are tabulated in text Table 4 (in main text) while the small quantity of raw fibres are catalogued in fiche Table 7.

DESCRIPTION

Woven cloth of wool - plain weave

Ten of the fragments woven from wool are in the simple weave, tabby, also known as plain weave (Table 4). Six of these are worked from combined Z- and S-spun single yarn, and four are worked from S-spun single yarn. They are medium coarse woollens and of no great quality with a low threadcount but of suitable weight for clothing or blankets. The samples woven from combined Z/S spun single yarn have a lower threadcount than the ones entirely woven from S-spun single yarn.

Similar textiles are also known from Fast Castle (Ryder & Gabra-Sanders 1992, 6) where the ones made of entirely S-spun single yarn predominates. The same feature has been noted on textiles from Newcastle-upon-Tyne (Walton 1981, 193) and Perth (Bennett 1987, 159) while the material from Lübeck (Tidow 1982, 272) contained a very large amount of Z/S spun tabbles and S/S spun, but a relative few Z/Z spun tabbles. Likewise material from Haarlem, Netherlands, (Vons-Comis 1980, 66; *ibid* 1982, 151-161) and from London (Pritchard 1982, 199, 200 & 205) contain both Z/S, Z/Z and S/S spun tabbles with Z/S fabrics the most common variety.

After weaving, woollen fabric can undergo a variety of treatments such as fulling, napping and dyeing. The question of whether the cloth is fulled, is often not possible to answer. The term felting is therefore used as it is difficult to make out how far this felting is primary or secondary. Primary felting arises by fulling, that is pounding while wet to shrink and hence to thicken and condense the fabric. Frequent washing results in secondary felting, but it is suggested by Ryder & Gabra-Sanders (1992, 6-7) that secondary felting would not result from burial under damp conditions since neither movement (usually by rubbing), nor warmth would be present to assist the felting process.

Three (17-18-25) of the ten textiles are without finishing unlike four (1-6-10-15) which are felted on one side and one (9) is felted on both sides. Two samples (2-7) show little sign of having been fulled although the surface has a slight nap, but this might be the result of wear.

2/1 twills

Nine (Text Table 4) wool textiles in 2/1 twill, also known as three shaft twill, are of the same quality as the plain weave. Four (5, 8, 16, 21) have Z-spun single yarn in system 1 and S-spun single in the other. In one case (21) the Z-spun system is the warp, identified by the presence of a selvedge.

Another four samples (11, 14, 20, 22) are worked from Z-spun single yarn one of which, textile (14), has a reinforced selvedge. There is only one (13) textile woven from S-spun yarn.

Five samples (5, 14, 20, 21, 22) are felted on both sides whereas one (13) is slightly felted on both sides and two (11, 16) are slightly felted on one side. One (8) is without finishing.

Similar 2/1 twills worked from Z/S and of no great quality are familiar finds on Scottish medieval sites and might be described as typical, at least for eastern Scotland.

Comparable fabrics are already known from Fast Castle, thirteenth and fourteenth century levels in Aberdeen (Bennet 1982, 197-198) and in considerable quantity, with or without finishing, from Perth (Bennett 1987).

One (24) of two samples worked from Z/Z spun single yarn was too small and the other (19) too felted to identify the weave. Another three samples (3, 4, 12) worked from Z/? spun yarn are also too felted to identify the weave.

Twenty fragments have cut edges (Table 4) some of them being straight strips and others curved offcuts or cut on the bias. A number of them had been oversewn to prevent fraying. Eleven have signs of sewing although all the stitching has disintegrated. This almost certainly indicates that flax thread was used. The stitch-holes and impressions of the thread show how even the stitching was (3-5 stitches per cm). Of interest are the pieces 4 and 5; fragment 4 is very worn and has been patched with fragment 5 over the worn area with a hemming stitch.

Measures have been taken to strengthen the selvedge with extra paired warp threads. In sample 14 the outermost six warp threads are paired, two pairs are in a dark colour and one in a lighter colour. Sample 21 is also reinforced with three paired warp threads but they are all the same colour. These strong selvedges must have been necessary for cloths which were to be heavily fuiled and stretched on cloth tenters.

Two samples (16, 25) show mistakes in the weaving process. Sample 16 probably has a weft fault caused by incorrect treadle sequence. In sample 25 a weft has been passed accidentally twice through a shed - this is the most common mistake - or the warps incorrectly tied.

Sample 23 consists of two plucks of unspun wool. No staple formation (locks) is apparent but both have formed a layer of loose felt about 1-2 mm thick which appears to be neither manufactured nor natural clotting of a fleece. A possible interpretation is the 'pilling' of clothing.

CONCLUSION

All finds are of wool in two basic weaves plain and an almost equal number of 2/1 twill. They show similarities to the cloth types found in Scotland, London, Germany and the Netherlands. A fifteenth century date is possible for all pieces.

Most of the samples are fragmented and worn. The majority show clear signs of having been cut, sewn and sometimes re-used. A few of them also show remains of a seam, hem or a raw edge overcast.

The threadcount is average for everyday clothing, and the presence of weaving faults suggests that the fabric is woven at home and in this case possibly by the religious community.

The general standard of the fragments is moderate. It would appear from contemporary reports (Innes 1867, 93) that in the fifteenth century bolts of cloth were being sent from East Scotland to the Low Countries to be dyed and presumably, finished; this suggests that at the end of the fifteenth century textile skills in the area were poorly developed. The textiles are best interpreted as discarded remnants of worn out clothing and tailors' waste. Since faecal material has been found in the pit, containing what were almost certainly parasites of human origin, it is probable that these textiles were used for sanitary purposes.

CATALOGUE

The systems are designated 1 and 2 as the warp and weft cannot be identified. The direction of the spin of the yarn is indicated by Z (for clockwise, if a yarn is held vertically, the twisted fibres slope in the same direction as the centre portion of the letter Z) and S (for anti-clockwise, if a yarn is held vertically, the twisted fibres slope in the same direction as the centre portion of the letter S).

The number of threads per cm has been recorded (in general a

higher thread count can be taken to indicate a finer fabric).

TEXTILES

1. Fragment, 45 x 43 mm of stained light brown tabby weave very fragmented and worn. Felted on one side. System (1), S-spun, 9 threads per cm. System (2), S-spun, 9 threads per cm. One side is cut on the bias and has a seam.

2. Fragment, ± 50 x 35 mm of brown tabby weave very fragmented shows a slight nap but this might be the result of wear. System (1), Z-spun, 6 threads per cm. System (2), S-spun, 6 threads per cm.

3. Fragment, 65 x 40 mm of brown ? weave very felted, perhaps fulled. System (1), Z-spun, ? threads per cm. System (2), ?- spun, ? threads per cm. Three sides cut.

4. Fragment, 80 x 33 mm of brown ? weave very felted, perhaps fulled. System (1), Z-spun, ? threads per cm. System (2), ?- spun, ? threads per cm. This fragment was sewn onto fragment 5 with a hemming stitch. Two cut curved sides. Stitch holes along one edge c. 4 mm apart.

5. Fragment, 110 x 59 mm of brown 2/1 twill weave felted on both sides, perhaps fulled, but one side is very worn and has been patched with fragment 4. System (1), Z-spun, 9 threads per cm. System (2), S-spun, 10 threads per cm. One straight and one curved cut side. The straight one has a raw edge overcast with stitch holes c 2 mm apart. Two rows of stitch holes present in the middle of the fragment c 3 mm apart.

6. Fragment, 50 x 40 mm of stained light brown plain weave slightly felted on one side. System (1), S-spun, 8 threads per cm. System (2), S-spun, 8 threads per cm. Three sides cut, on the bias, one of which has

a raw edge overcast.

7. Fragment, \pm 70 x 70 mm of light brown plain weave. Very fragmented and worn. Shows a slight nap but this might be the result of wear.

System (1), Z-spun, 5-6 threads per cm. System (2), S-spun, 5 threads per cm. One side ? oversewn.

8. Fragment, \pm 35 x 27 mm of light brown 2/1 twill weave. Very fragmented. System (1), Z-spun, 6 threads per cm. System (2), S-spun, 6 threads per cm. One raw edge overcast.

9. Fragment, 75 x 10 mm of brown plain weave felted on both sides. System (1), Z-spun, 6 threads per cm. System (2), S-spun, 6 threads per cm. Three sides cut, on the bias.

10. Fragment, 102 x 4 - 10 mm of brown plain weave felted on one side. System (1), Z-spun, 7 threads per cm. System (2), S-spun, 7 threads per cm. Two sides cut on the bias. One raw edge overcast with stitch holes c. 3-4 mm apart.

11. Fragment, \pm 70 x 25 mm of light brown 2/1 twill weave, very worn and slightly felted on one side. System (1), Z-spun, 10 threads per cm. System (2), Z-spun, 10 threads per cm. Two sides cut. Near one side is one hole diameter 3 mm, use unknown.

12. Fragment, 67 x 3 - 9 mm of brown indeterminable weave, very felted on both sides, perhaps fullled. System (1), Z-spun, ? threads per cm. System (2), ?-spun, ? threads per cm. Two sides cut.

13. Fragment, 108 x 10 mm of brown 2/1 twill weave, slightly felted on both sides. System (1), S-spun, 11 threads per cm. System (2), S-spun, 10 threads per cm. Four sides cut. Two herns, 10 and 7 mm deep. One raw edge overcast with stitch holes c 2-3 mm apart.

14. Fragment, 120 x 5 - 19 mm of brown 2/1 twill weave, preserved reinforced selvedge on one side (the outermost six warp threads are paired, two pairs in a dark brown and one pair in a light brown colour), felted on both sides. Warp, Z-spun (high twist), 10 threads per cm. Weft, Z-spun (high twist), 8 threads per cm. Two sides cut.

15. Fragment, 140 x 20 - 40 mm of stained light brown plain weave, felted on one side. Very fragmented and worn. System (1), S-spun, 9 threads per cm. System (2), S-spun, 9 threads per cm. Two sides cut.
- One small raw edge overcast.

16. Fragment, 140 x 90 mm of stained light brown 2/1 twill weave, with fold, slightly felted on one side, worn with various holes. System (1), Z-spun (high twist), 8 threads per cm. System (2), S-spun (high twist), 12 threads per cm. Three sides cut, on the bias. Weaving fault, probably a weft fault caused by incorrect treadle sequence.

17. Fragment, 140 x 110 mm of stained brown plain weave, very worn with various holes. System (1), Z-spun, 7 threads per cm. System (2), S-spun, 7 threads per cm. Cut on four sides. One raw edge overcast. Near this edge are two holes with a diameter of 2 mm, use unknown.

18. Fragment, 185 x 7 - 85 mm of brown plain weave. Very fragmented and worn. System (1), Z-spun, 6 threads per cm. System (2), S-spun, 6 threads per cm. Uneven spun yarns. One curved cut side.

19. Fragment, 380 x 19 - 26 mm of reddish brown indeterminable twill weave, felted on both sides, perhaps fulled. System (1), Z-spun, ? threads per cm. System (2), Z-spun, ? threads per cm. All sides cut, on the bias. Torn.

20. Fragment, 370 x 10 - 50 mm of reddish brown 2/1 twill weave. Felted on both sides, perhaps fulled. System (1), Z-spun, 7 threads per cm. System (2), Z-spun, 7 threads per cm. All sides cut, on the bias. One

seam with some stitch holes and one raw edge partly overcast with some stitch holes.

21. Fragment, 185 x 5 - 30 mm of brown 2/1 twill weave, preserved reinforced selvedge (the outermost six warp threads are paired, three pairs of two warp threads). Felted on both sides, perhaps fulled. Warp, Z-spun, 8 threads per cm. Weft, S-spun, 6 threads per cm. One side cut.

22. Fragment, 150 x 10 - 25 mm of reddish brown 2/1 twill weave, felted on both sides, perhaps fulled. System (1), Z-spun (high twist), 10 threads per cm. System (2), Z-spun (high twist), 8 threads per cm. All sides cut.

23a. 0.09 g of matted dark brown fibres.

23b. 0.04 g of matted light brown fibres.

They have no staple formation.

23c. One length (65 mm) of light brown Z-spun yarn.

24. Fragment, 70 x 5 mm of reddish brown Indeterminable weave (fragment too small). System (1), Z-spun, ? threads per cm. System (2), Z-spun, ? threads per cm. Felted on both sides.

25. Fragment, 85 x 25 mm of grey/brown plain weave. Very fragmented and worn. System (1), S-spun, 9-10 threads per cm. System (2), S-spun, 7 threads per cm. One side cut. Weaving fault, a weft has passed accidentally twice through a shed, or warps are incorrectly tied.

Table 7: Catalogue of raw fibres

| SAMPLE NO. | COLOUR | OTHER DETAILS |
|------------|-------------|------------------------------|
| 23 a | Dark brown | 0.09 g of matted unspun wool |
| 23 b | Light brown | 0.04 g of matted unspun wool |

PLUSCARDEN WINDOW GLASS

B A Ford

Catalogue

1. Thickness 3 mm.

Very corroded opaque fragment. One fire-founded edge.

Area 7; Feature 39; SF no 36.

2. Thickness 2.5 mm.

Plain glass with a green tint. Partly opaque due to patches of brown staining on the surfaces. Darker staining along one edge. Iridescent.

Area 7; Feature 39; SF no 36.

3. Thickness 2.5 mm.

Rectangular pane with three grozed edges. Plain glass with a pale green tint. The surfaces are badly corroded, pitted and laminating. Partly opaque due to patches of brown staining on the surfaces. Iridescent.

Area 7; Feature 39; SF no 36.

4. Thickness 2.75 mm.

Badly corroded. Opaque but probably originally plain. Three grozed edges. Iridescent.

Area 7; Context 23; SF no 36.

5. Thickness 2 mm.

Badly corroded pale blue glass. Originally clear now partly opaque due to patches of milky staining on the surfaces. Two grozed edges.

Iridescent.

Area 7; Context 23; SF no 36.

6. Thickness 1.5 mm.

Plain glass with a pale green tint. Partly opaque due to patches of brown staining on the surfaces. Iridescent.

Area 7; Feature 39; SF no 36.

7. Thickness 2 mm.

Partly opaque due to patches of brown staining on the surfaces.

Probably originally plain. Iridescent.

Area 7; Feature 39; SF no 36.

8. Thickness 2 mm.

Plain glass with a green tint. Partly opaque due to patches of brown staining on the surfaces. One grozed edge. Iridescent.

Area 7; Feature 39; SF no 36.

9. Thickness 2 mm.

Plain with a green tint. Partly opaque due to patches of brown staining on the surfaces. Darker staining along the two grozed edges. Iridescent.

Area 7; Feature 39; SF no 36.

10. Thickness 2 mm.

Plain with a green tint. Partly opaque due to patches of brown staining on the surfaces.

Area 7; Feature 39; SF no 36.

11. Thickness 2 mm.

Plain with a pale green tint. Partly opaque due to patches of brown staining on the surfaces. Iridescent.

Area 7; Feature 39; SF no 36.

12. Thickness 1.5 mm.

Plain with a green tint. Partly opaque due to patches of brown staining on the surfaces. Darker staining along all three edges. One grozed

edge. Iridescent.

Area 7; Feature 39; SF no 36.

13. Thickness 2 mm.

Opaque due to brown staining on the surfaces. The fracture shows the glass was originally plain with a green tint. Iridescent.

Area 7; Feature 39; SF no 36.

14. Thickness 2 mm.

Plain with a green tint. Partly opaque due to patches of brown staining on the surfaces. Darker staining along all three edges. One fire rounded edge. Iridescent.

Area 7; Feature 39; SF no 36.

15. Thickness 1.5 mm.

Plain with a pale green tint. Partly opaque due to patches of brown staining on the surfaces. One fire rounded edge. Iridescent.

Area 7; Feature 39; SF no 36.

16. Thickness 2 mm.

Plain glass with a green tint. Partly opaque due to patches of brown staining on the surfaces. Iridescent.

Area 7; Feature 39; SF no 36.

17. Thickness 2 mm.

Plain with a green tint. Partly opaque due to patches of brown staining on the surfaces. Darker staining along part of four edges. One grozed edge. Iridescent.

Area 7; Feature 39; SF no 36.

18. Thickness 1.75 mm.

The core is plain with a green tint. Opaque with brown staining on surfaces.

Area 7; Feature 39; SF no 36.

19. Thickness 2 mm.

Plain with a green tint. Partly opaque due to patches of brown staining on the surfaces. One grozed edge. Iridescent.

Area 7; Feature 39; SF no 36.

20. Thickness 2 mm.

Plain with a green tint. Partly opaque due to patches of brown staining on the surfaces. One grozed edge. Iridescent.

Area 7; Feature 39; SF no 36.

21. Thickness 1.75 mm.

Plain with a green tint. Partly opaque due to patches of brown staining on the surfaces. One grozed edge. Iridescent.

Area 7; Feature 39; SF no 36.

22. Thickness 1.75 mm.

Plain with a green tint. Partly opaque due to patches of brown staining on the surfaces. Iridescent.

Area 7; Feature 39; SF no 36.

23. Thickness 2 mm.

Plain with a green tint. Partly opaque due to patches of brown staining on the surfaces. Iridescent.

Area 7; Feature 39; SF no 36.

24. Thickness 1.75 mm.

Plain with a pale green tint. Partly opaque due to patches of brown staining on the surfaces. Iridescent.

Area 7; Feature 39; SF no 36.

25. Thickness 2 mm.

Plain with a green tint. Partly opaque due to patches of brown staining on the surfaces. Darker staining along one edge. Iridescent.
Area 7; Feature 39; SF no 36.

26. Thickness 2 mm.

Plain with a green tint. Partly opaque due to patches of brown staining on the surfaces. One grozed edge. Iridescent.
Area 7; Feature 39; SF no 36.

27. Thickness 1.5 mm.

Plain with a green tint. Partly opaque due to patches of brown staining on the surfaces. One grozed edge. Iridescent.
Area 7; Feature 39; SF no 36.

28. Thickness 2 mm.

Plain with a green tint. Partly opaque due to patches of brown staining on the surfaces. Two grozed edges. Iridescent.
Area 7; Feature 39; SF no 36.

29. Thickness 2 mm.

Plain with a green tint. Partly opaque due to patches of brown staining on the surfaces. One grozed edge. Iridescent.
Area 7; Feature 39; SF no 36.

30. Thickness 2 mm.

Plain with a green tint. Partly opaque due to patches of brown staining on the surfaces. One grozed edge. Iridescent.
Area 7; Feature 39; SF no 36.

31. Thickness 1.5 mm.

Plain with a green tint. Opaque due to brown staining on the surfaces. Iridescent.
Area 7; Feature 39; SF no 36.

32. Thickness 1.75.

Plain glass with a green tint. Partly opaque due to patches of brown staining on the surfaces. Iridescent.

Area 7; Feature 39; SF no 36.

33. Thickness 1.5 mm.

Plain glass with a green tint. Partly opaque due to patches of brown staining on the surfaces. Two grooved edges. Iridescent.

Area 7; Feature 39; SF no 36.

34. Thickness 3 mm.

Very corroded now opaque, with milky brown surfaces. Brown painted decoration representing part of a stalk and trefoil.

Area 4; SF no 37. Stray find from site in vicinity of wall F24.

35. Thickness 1.25 mm.

Plain with a pale green tint. Originally clear but now part of the surfaces are milky and pitted. One fire rounded edge. Iridescent.

SF no 25.

Vessel Glass

36. Beaker, Thickness 0.5 mm.

Two fragments of very fine heavily bubbled glass with a straw coloured tint. Part of a hand blown beaker with grooved decoration below the rim and small applied prunts on the body.

Stray find from site.

CATALOGUE OF STRATIFIED POTTERY

C J Murray

1. Find No 19. Feature No 30. Area 4. Rubble foundation for possible steps.

Ten sherds making up a considerable portion of the base and lower body of a jug. The fabric is sandy with small quartzite inclusions, slightly micaceous, and has been fired to a buff red exterior and light grey interior. Exterior splash lead glaze, drab olive. Wheel thrown. Sagging base. Local. 13th/14th century.

H 95 mm; T 8 mm; Dia 148 mm.

2. Find No 20. Feature No 27. Area 4. Within fabric of wall.

Sherd of lower part of strap handle where it joins the body of the jug.

The fabric is sandy, slightly micaceous and has been fired red with red-brown outer skin. Patches of thick lead glaze on exterior. Wheel thrown. Local. Probably 14th/15th century.

L 35 mm; T 7 mm; W 58 mm.

Same fabric and vessel type as Find No 00205. 115, 121 High Street, Elgin excavated by Scottish Urban Archaeological Trust.

3. Find No 12. Feature No 2. Area 5. Topsoil

Body sherd of jug. The fabric is sandy with abundant quartz and other grits, slightly micaceous and has been fired buff-orange. Exterior orange splash glaze with spots of copper additive. Very abraded or weathered. Wheel thrown. Local. 13th/14th century.

L 25 mm; T 4 mm; W 32 mm.

4. Find No 2. Feature No 15. Area 5. Topsoil.

Sherd from base of neck and shoulder of vessel, probably a jug. The fabric is sandy, slightly micaceous and has been fired dark grey with lighter grey core. Unglazed. Wheel thrown. Possibly E Anglian. 13th/14th

century.

L 47 mm; T 5 mm; W 28 mm.

5. Find No 3. Feature No 15. Area 5. Topsoil.

Small base sherd of a vessel, probably a jug. The fabric is sandy with quartz inclusions and has been fired buff-orange. Very abraded and weathered. Local. 13th/14th century.

L 15 mm; T 9 mm; W 20 mm.

6. Find No 9. Feature No 16. Area 5. Burial; Find No 15. Feature No 21.
Area 5. Burial

Two joining body sherds of a vessel, probably a jug. The fabric is sandy, slightly micaceous and fired red. Trained iron enriched lead glaze on exterior surface. Wheel thrown. Local. 13th/14th century.

L 22 mm; T 5 mm; W 37 mm (conjoined).

7. Find No 10. Feature No 16. Area 5. Burial.

Small body sherd as No 4 above and probably from the same vessel.

L 18 mm; T 5 mm; W 22 mm.

8. Find No 13. Feature No 16. Area 5. Burial.

Body sherd, probably from the shoulder of a jug. Same fabric as No 3 above, with small spots of external glaze. Local. 13th/14th century.

L 26 mm; T 5 mm; W 29 mm.

9. Find No 35. Feature No 20. Area 5. Burial.

Body sherd from the shoulder of a jug. The fabric is sandy with abundant quartz grits as Nos 3 and 8 above. The lower part of the shoulder is decorated with two parallel horizontal incised lines. Exterior orange and olive green splash glaze. Local. 13th/14th century.

L 52 mm; T 7 mm; W 68 mm.

10. Find No 14. Feature No 2. Area 7. Topsoil.

Body sherd of a jug. The fabric is sandy with quartz inclusions, micaceous and has been fired buff with smoothed interior. Drab olive glaze covers the exterior. Wheel thrown. Scottish. 13th/14th century.
L 29 mm; T 5 mm; W 20 mm.

11. Find No 49. Feature No 26/27. Area 4. Junction of steps and secondary wall.

As No 10 above.

L 27 mm; T 5 mm; W 34 mm.

12. Find No 47. Feature No 36. Area 7. Fill of stone-lined pit.

Body sherd from a vessel, probably a jug. The fabric is slightly sandy, slightly micaceous and fairly fine. Fired to buff-orange. Exterior covered in a thick orange-green glaze. Wheel thrown. Local. 14th/15th century.

L 30 mm; T 6 mm; W 38 mm.

13. Find No 48. Feature No 36. Area 7. Fill of stone-lined pit.

Body sherd, probably from a jug. As No 12 above.

L 21 mm; T 7 mm; W 36 mm.