

BONE REPORT

ANIMALS IN ARCHAEOLOGY

HPAR 6002

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I wish to acknowledge Kane for volunteering

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And everyone else who contributed to a

Real team effort.

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1. Introduction

This bone report is based on a bone assemblage which was excavated from three archaeological investigations carried out in the late 1990's along Monnow Street, Monmouth prior to commercial redevelopment being undertaken. The bone assemblage was chosen to be a representative sample from the 1990's excavations by lecturers from the School of Archaeology in the University of Wales Trinity Saint Davids prior to the the rest of the recovered bone assemblage being destroyed. The assemblage constitutes a small percentage of the bones originally excavated and individual bones may have been excavated from any of the three excavation sites and been excavated from different contexts within each excavation site. The sample has previously been dated to the twelfth century. Therefore this report has been completed on the basis of the fauna being analyzed on its own merits based on a date of the twelfth century and general location of excavation along Monnow street. The discussion and interpretation of the assemblage has been made on this basis.

2. Description of site / location, history of Monmouth

Monmouth is located on the eastern boundary of the County of Monmouthshire and is two miles from the English border, 30 miles northeast of Cardiff and 113 miles west of London. The town is situated at the confluence where the River Monnow joins the River Wye. The town is separated from the River Wye to the southeast by the A40(T) trunk road and the town is on the junction of A416 which leads to the Forest of Dean to the east and the A466 which leads to Hereford 20 miles to the north.

The centre of the town is located on a raised area of land between the angle created by the junction of the two rivers. Monnow street leads from the location of the old west gate of the medieval town and gently slopes down in a southwestern direction to Monnow Bridge. Monnow Street consists of long narrow burgage plots which run at right angles on both sides of the street. The street also broadens out at its centre. Both these features are characteristic features of a medieval market street (Barley, 1975, p.15). (See Fig.1.).



Fig.1. Aerial view of Monmouth looking East showing the town located between the River Monnow (bottom of picture) and River Wye (top of the picture). (coflein.gov.uk).

Monmouth was established by William FitzOsbern, Earl of Hereford who was a half-brother to William the conqueror between 1067 - 1071 and occupied a strategic position on the border of his lands and protecting his other landholdings and approaches to his castle at Chepstow. (Howell, 1988, p. 50). Monmouth castle was built c1069 and was the birthplace of Henry V in 1387. (Earle, 1972, p. 12) It operated as an independent lordship up to 1267. A Benedictine Priory was founded before 1086, a daughter house of the Abbey Saint-Floret-Les-Saumer in Anjou. A fair was established before the end of the 11th century. A market place was located just below the castle which acted as foundation for later burgal development and the town appears to have had substantial growth over the next hundred years No early charters have survived apart from a grant

of privileges from 1256. By 1300 Monmouth is recorded as having over 200 burgesses which places it as one of the largest medieval urban centres in Wales (Soulsby, 1983,p.182).This increased to 266 burgesses by 1610 when John Speed published his map of Monmouth which depicts a street pattern similar to modern Monmouth (See Fig.3.).

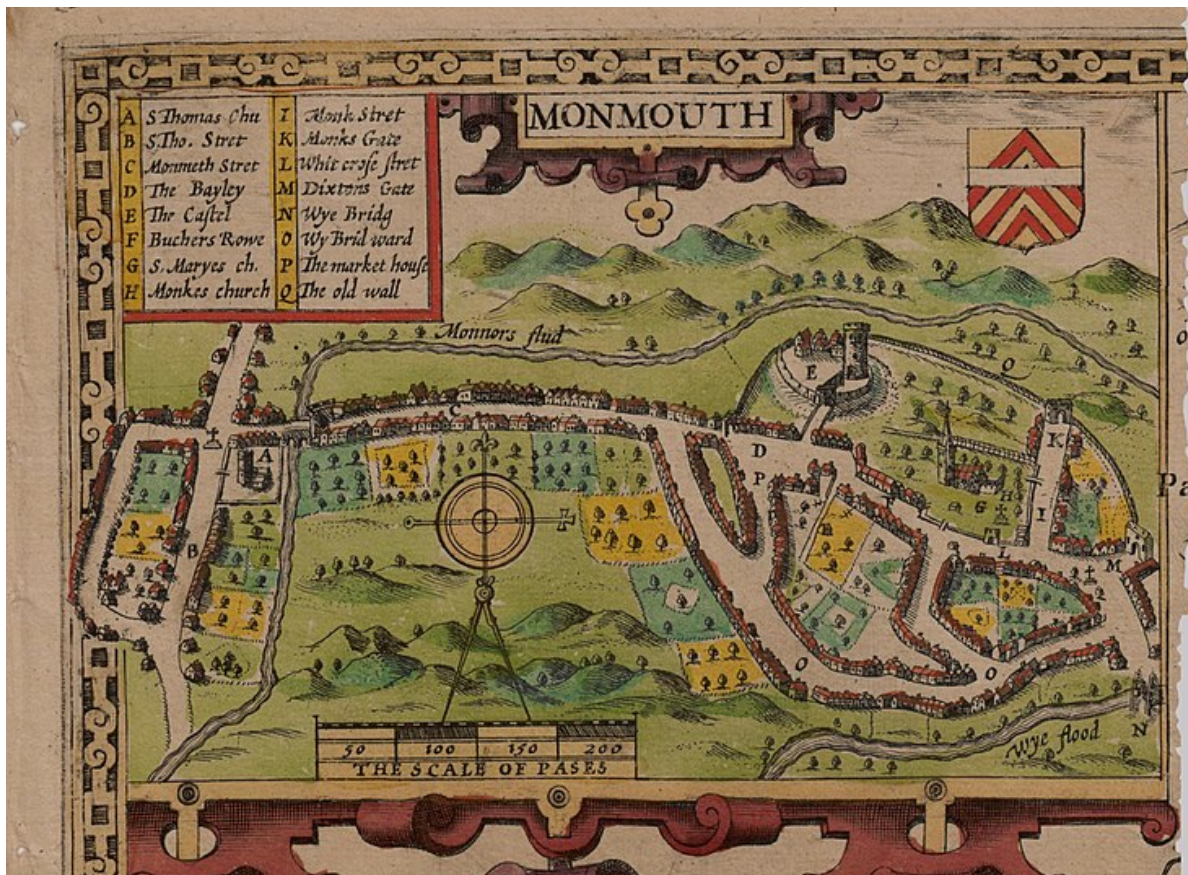


Fig.2. John Speed's map of Monmouth 1601 (Coflein.gov.uk).

There have been a number of previous archaeological excavations along the north and south sides of Monnow street and in its vicinity which have produced evidence from the prehistoric period, Roman period, medieval and post medieval periods. (See Clarke, 1995, Clarke, 1996 and Clarke, Jackson and Jackson 1987a).

3. Methodology

The assemblage was examined and studied in the bone laboratories of the University of Wales Trinity Saint Davids with the aim of collecting and recording taphonic data of each bone specimen (identify species, fused status, right/ left side, cut marks, chopmarks, butchered, description, carnivore activity); and to identify the assemblage's NISP (Number of Identified Specimens) and MNI (The Minimum Number of Animals).

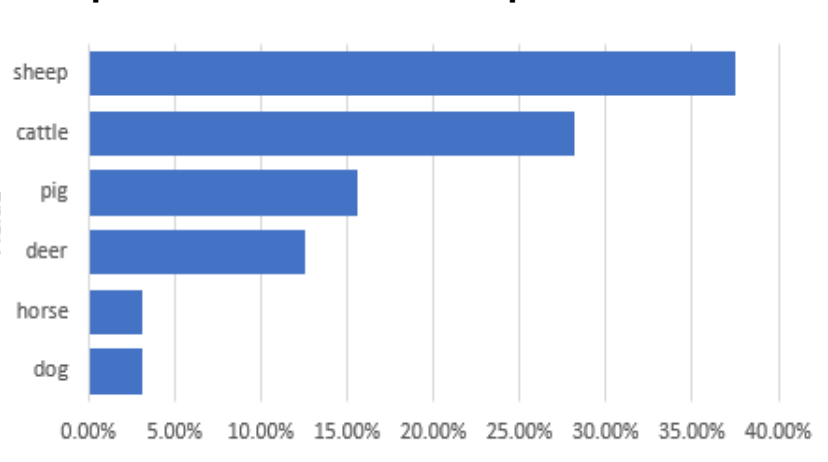
The bone assemblage was initially examined and bones were placed in groups of similar skeleton elements using identification plates from Schmid (1972). As per Reitz and Wing (1999, p.362.) and others the importance of access to a good reference collection was acknowledged and identification and analysis was informed by using the reference collection in the bone laboratory of the The University of Wales Trinity Saint Davids, Lampeter. Each element grouping was then subdivided into separate species groupings and reorganised according to size / age. Each specimen was then individually examined and taphonic data (species, element, side, segment, age, butchered, cut marks, chopmarks, description, carnivore activity) collected and recorded on an excel spreadsheet. The bone assemblage for each species was then rearranged according to its skeleton position.

The NISP was collated by manual counting of the bone assemblage according to species and cross referencing this to the data sheet to obtain the NISP of each species and total for the assemblage. The MNI was calculated based on using the element of each species which had the highest number of either right or left sided specimens. Individual element specimens were matched where possible to its corresponding opposite side elements in order to obtain the MNI. All specimens were only matched visually. Diagnostic measurements were not taken. The MNI was also collated by matching specimens from the highest right or left sided element and matching these against specimens across all other elements to obtain an alternative (maximum) MNI count. (See Table 1.)

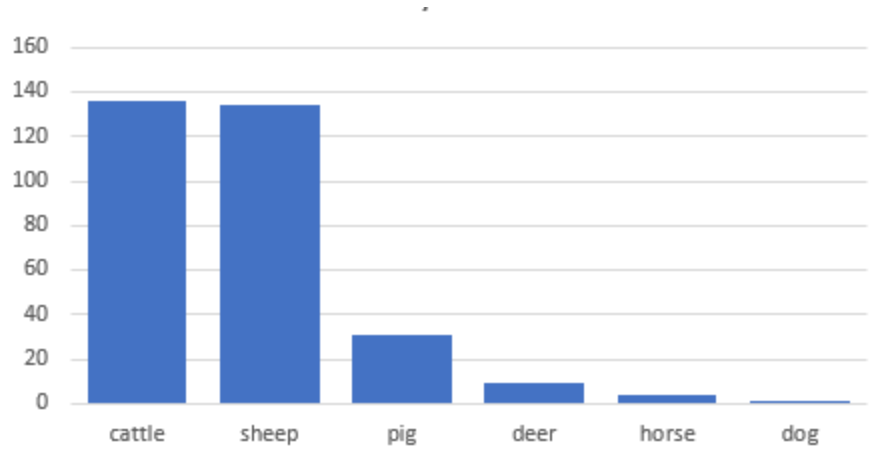
Species	NISP	NISP %	MNI	MNI %
Cattle (Bos)	136	43.17	9 (10)	28.1 (28.6)
Sheep (Ovis)	134	42.5	12 (13)	37.5 (37.1)
Pig (Sus)	31	9.8	5	15.6
Deer (Cervus)	9	2.9	4 (5)	12.5 (14.3)
Horse (Equis)	4	1.3	1	3.1
Dog (Canus)	1	0.3	1	3.1
Totals	315		32 (35)	

Table.1. NISP and MNI. Figures in brackets are maximum MNI count figures.

Graph 1. MNI% for each species

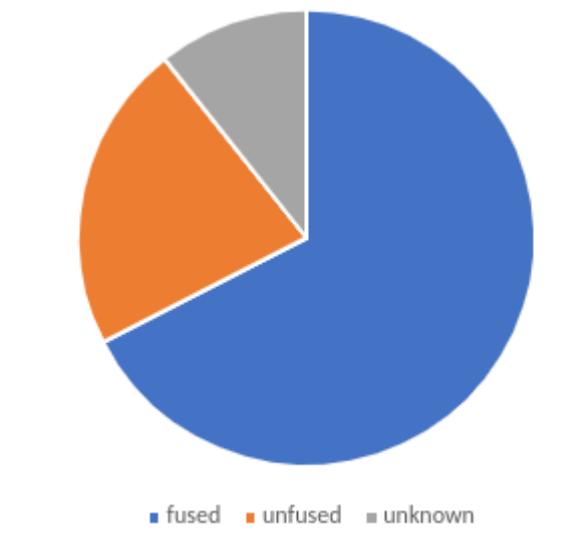


Graph 2. NISP for each species

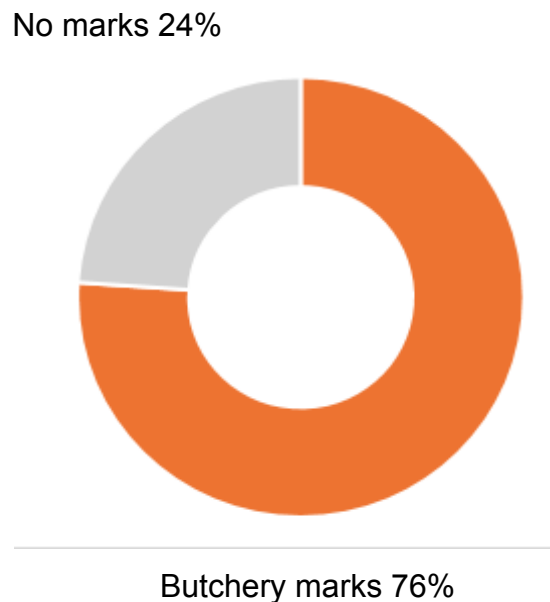


Graph 3. Pie chart % of fused and unfused bones

Fused 67%. Unfused 23%. Unknown 10%.



Graph 4. Pie chart of % of specimens showing butchery marks



4. Results

The assemblage consisted of a total of 315 individual bones and bone fragments. All bones were identified to species. Due to the identification difficulties of identifying sheep and goat bones; the inexperience of the group and the time available sheep / goat bones have been recorded under the sheep category.

Six species were identified : cattle, sheep, pig, deer, horse and dog. The assemblage was calculated to have a NISP of 315 and an MNI of 32. Cattle, sheep and pig make up 96% of the assemblage. Cattle are the largest species present with a NISP with 136 with a NISP% of 43.17%. Sheep were the second most common species with a NISP at 134 with a NISP% of 42.5%. Pig have a NISP of 31 and a NISP% of 9.8%. The three other taxa present have a combined NISP of 14 and a NISP% of 4.5%. (see table 1.)

Sheep have the highest MNI of 12 with a MNI% of 37.5%. (See pie chart 1). Cattle have MNI of 9 with a MNI% of 28.1%. Pig have a MNI of 5 with a MNI% of 15.6%. Although deer have a low NISP of 2.9% they have a MNI of 4 and a MNI% of 12.5% which can be

considered statistically significant. If maximum MNI figures are used deer would have the same MNI (Maximum) as pig.

In an analysis of the assemblage a number of points have been identified.

- 1.** The bones in the assemblage were typically in good condition and had no significant evidence of weathering, bleaching, cracking or flaking which would indicate that the assemblage had not been exposed to the elements. This would place the bone assemblage at 'stage 0' on Behrensmeyer's scale of weathering stages.(Behrensmeyer in O'Connor, 2000, p.44). There was no significant evidence of taphonomic processes of movement and deposition of the bone edges with the bone assemblage typically having clear unrounded edges. The assemblage bone condition would be consistent with being disposed of in a pit and bones being covered up by the addition of subsequent disposals laying on top.
- 2.** 76% of the bones showed evidence of butchering. Butchering marks consisted of chop marks, cut marks and possible hook marks. High percentage of long bones showed horizontal chop marks, chop marks were also recorded across other elements of the assemblage. Chop marks were consistent with a metal bladed tool such as a cleaver and can be related to subdivision of the carcass into smaller pieces. Bones in the assemblage also evidenced cut marks particularly horizontal to the bones indicative of attempts to remove flesh from the bone. At least four bones show possible hook damage. (see fig.3 and 4).



Fig.4. Possible evidence of butchering hook marks on bones 293, 113, 102 and 89. (Lewis 2023).

3. The assemblage does not contain complete skeleton elements. There are no skulls, or pelvis elements present. The assemblage contains 4 vertebrae only. This may be indicative that the animals in the assemblage primarily consist of secondary butchery waste material.
4. The bones show no evidence of being heated or subject to food cooking processes.
5. Two of the bones show evidence of being worked. Bone element 194 shows evidence of the bone surface being worked and filed possibly to make a bone pin. The end of the bone has broken off which may be why the bone was discarded. A cow horn (37) shows evidence of being worked with a semi circular section having been removed. (See Fig. 5 and 6). The assemblage contained six horn specimens which can be considered statistically significant.



Pic. 5. Worked sheep proximal Shaft (194) (Lewis 23)



Pic. 6. Cattle horn showing evidence of being worked. (37) (Lewis 23).

6. 67% Of the bone assemblage consists of fused elements consistent with the assemblage mainly consisting of juvenile and young adult animals. The assemblage only contains 3 / 4 bone specimens from fully mature older adult animals.
7. The assemblage contains a single adult dog recovered which in view of the small sample size of the assemblage compared with the original assemblage size can be considered statistically significant.
8. The assemblage contained a higher than expected percentage of cattle foot bones recovered which can be considered statistically significant.

5. Discussion and interpretation

The importance of understanding the archaeological context where bones have been excavated when seeking interpretations has been stated by Greene (1995, p.147.) who

also states that it is a '*waste of specialist time*' in analysing bones from a disturbed deposit. However, Carver (2009, p.209) has pointed out that analysis, and thereby interpretation of archaeological artifacts can be informative at differing scales. Therefore, although acknowledging Greene, the assemblage can be seen and interpreted as allowing an insight into understanding aspects of the medieval period and medieval Monmouth in particular. The assemblage can be seen as a result of human and animal interactions and can be interpreted as aspects of the social, economic and symbolic lives of the inhabitants of 12 century Monmouth.

The three dominant species identified in the assemblage (cattle, sheep and pig) are consistent with the animals to be expected from the medieval period. If NISP% is calculated using these three species only and ignoring the other species, the NISP% for cattle is 45%, sheep 45% and pig 10%. In comparing these with the averages contained in Historic England's 2019 review of bone evidence from central England (cattle 44%, sheep 37% and pig 17%) there are significantly less pig and more sheep elements contained in the Monmouth assemblage (Albarella, 2019, p.207). This may evidence differences in the local Monmouth and surrounding areas animal economy

The majority of the bones in the assemblage have butchery marks, which consist of chop and cut marks. The chop marks are consistent with a carcass being subdivided into smaller elements and are consistent with a metal bladed tool such as a cleaver being used. There are no signs on the bones of a serrated blade being used. Four bones have possible evidence of butchery hook marks which bear distinct similarities to sheep scapula from the assemblage to sheep scapula excavated from the City of Lincoln (Dobney, Jaques and Irving, 1996, p.27) which excavated a number sheep scapula where the scapula were perforated by a butchers hook in the blade of the scapula (See fig.4).

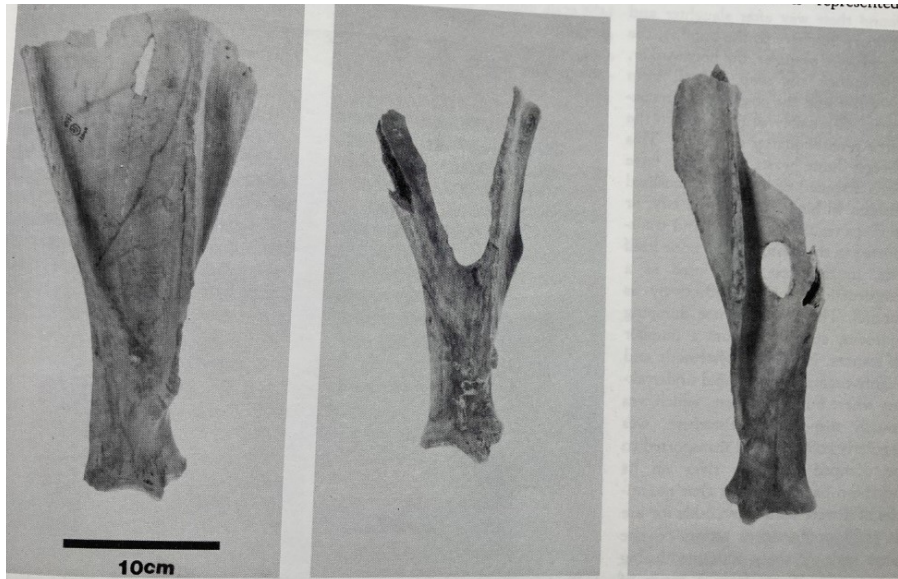


Fig.3. Hook damaged scapulae - 4th century Lincoln.
(Dobney, Jaques and Irving 1996 p. 27)

This supports a view that the assemblage is the result of butchery activity. O'Connor (2000, p.165) has pointed out that as towns developed this often resulted in the development of specialist butchers and differing areas being used for slaughtering, carcass subdivision and trade. Each of these activities can produce distinctive assemblages. It is noticeable that the assemblage does not contain skull or pelvis elements which would support the waste being the result of initial slaughtering activity. The lack of these elements therefore points to the assemblage consisting of secondary butchery activities.

In considering bone condition, the assemblage can be considered to be typically in good condition and as highlighted in the results chapter have been classed as '0' on Behrensmeyer's weathering scale. If the bones had been exposed to the elements and laid on the surface it would be expected that the bones would show evidence of sun bleaching, cracking and deterioration which is not evident. (O'Connor, 2000, p.43). This supports the bone assemblage being disposed of being covered and protected from the elements, perhaps in a pit. This view of the disposal practice is also supported by the bones not exhibiting significant carnivore damage or activity. The lack of carnivore gnawing provides evidence of the bones being quickly covered perhaps by regular dumping of new material.

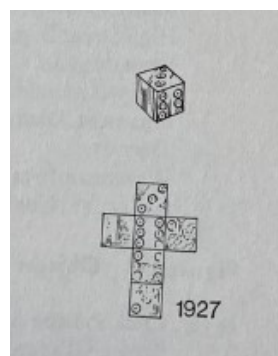
The process of cooking and eating in a domestic setting also produces distinctive assemblages. (O'Connor, 2000, p.165). There is no evidence of the bones in the assemblage being subject to burning or heating which would be consistent with the bones having been subject to cooking or roasting activities. In addition there is a lack of

fish, bird or other small animal bones elements within the assemblage which may be expected if the assemblage resulted from domestic activity of food preparation and disposal. Fish would be expected to have formed an important part of diet in the medieval period (Hammond, 1993, p.18) especially due to Monmouth's position on two rivers. This supports the view that the assemblage is predominantly the result of commercial activity and not domestic in origin.

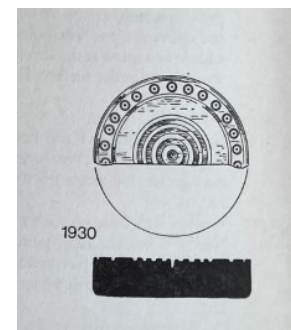
The higher than expected concentration of foot bones can be considered to be unusual in relation to the overall assemblage. Butchery practice would be for the animals feet to be rolled up in the animal skin when the animal had been slaughtered and the skin to be used for secondary tannery purposes. An assemblage related with tanning would be expected to have an assemblage with concentrations of foot bones (MacGregor in Cameron, 1998 and Dobney, Jaques and Irving, 1996, p.26). This raises the possibility that the toe bones may be evidence of tanning leather being carried out in the area. Tanning activity would be one of the expected activities / trades carried out within the vicinity of a medieval town. There were thirteen tanners in Colchester recorded in 1301 and over thirty in Beverly in 1366. (Miller and Hatcher, 1995, p.57). Alternatively the bones may be going to be utilised for bone working. Bone has often been utilised for gaming pieces and other purposes. In excavations carried out in medieval Southampton a number of bone gaming pieces were excavated including a gambling die, draughtsmen and gaming pieces (Platt and Coleman- Smith, 1969, p.272) (see fig. 7,8 and 9).



Pic.7. Illustration bone gaming piece
(Platt and Coleman- Smith)



Pic.8. Illustration of
bone die
(Platt and Coleman- Smith)



Pic. 9 Illustration of bone
draughtsmen
(Platt and Coleman- Smith)

Bone, antler and horn were extensively utilised to make tools and other items in the medieval period and would have been an important secondary product of animal butchery. In the excavation at 12c contexts in medieval Southampton apart from gaming pieces a range of other bone and antler artifacts were excavated including bone pins, needles and bodkins (See Pic.7). The two worked bone specimens in the assemblage (see Pic. 5 and 6) provide clear evidence of craft working. In addition the higher relative number of horn in the assemblage may indicate horn being used for hornworking as

concentrations of horn are a marker for hornworking (Dobney, Jaques and Irving, 1996, p29).



Pic.7. Illustrations of small bone artifacts from excavations in Medieval Southampton (Platt and Cole-Man Smith (1969) p.272).

The evidence of craft working highlights the role of medieval towns as being manufacturing and trading centres, selling goods manufactured within the town as well as brought in from outside (Miller and Hatcher, 1995, p.259). The assemblage was excavated from sites located in medieval burgage plots. Burgage plots were often on major through traffic streets arranged as long and narrow plots along both sides of a street. (Slater, 1981, p.211). The street also often widened in the middle to

accommodate a street market. (Barley, 1975, p.15). A plot would have a building facing the street with workshops and other buildings behind and normally rented at 1 shilling per burgage (Griffiths, 1978, p.15). The evidence of bone and hornworking would therefore be appropriate interpretations in relation to the excavations sites.

The assemblage contains a high maximum MNI of deer which was equal to that of pig which can be considered to be significant. Of the nine deer elements four were right sided jaw fragments of juvenile / young adults. All four were deer of a similar age. This possibly points to deer being slaughtered at a set age. Possible uses of deer could be for food, leather or vellum. Deer are an animal connected to high status. Class distinction was integral to society in the medieval period (Seetah in Pluskowski, 2007, p. 24). Gumerman (1997, p.106) has asserted the role that food played in how social relationships were both defined and maintained via food. In Wales there have only been a few large animal bone assemblages of deer dated post 1066 and these have related to castle sites.(Maltby and Hambleton in Baker, Corden and Madgewick, 2014, p. 193). The relationship of deer bone assemblages to sites of high status may very speculatively point to a link to Monmouth Castle or Monmouth Priory both being high status.



Pic. deer jaws (22,44,56,93) from the assemblage. (Lewis 23)

The single dog tooth highlights the role of dogs in the medieval period. Dog bones are a common artifact in archaeological excavations from the roman period onwards. At excavations in the city of Lincoln dog bones were identified from 1stC to the Post medieval period (Dobney, Jaques and Irving, 1996, p.132). Poole (in Hausmair et al, 2018, p.238) states that 83.8% of late Anglo- Saxon

sites contained dog bone in bone assemblages. Dogs may have been used for guarding, hunting or herding and would have been a common feature of a medieval town.



Pic. Canus dog tooth - 34 (Lewis 23)

6. Conclusion 200

In conclusion, the assemblage appears to be consistent with primarily coming from secondary butchery waste and is not related to initial slaughtering activity and can be interpreted as being related to Monmouth's position as a market town. There is also evidence of bone and horn activity being carried out within Monmouth. There are indications of possible tanning activity. There is a high proportion of deer contained in the assemblage which is unusual which would benefit from further research.

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Appendix One - Excel data sheets.