The eggshell from the Roman depositsat Number One Poultry, London

Site code: ONE94

Undated

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Introduction

Eggshell was recovered from 24 samples collected from Roman horizons during the excavations undertaken on the site of Number One Poultry (see Table 1). These were collected from bulk samples taken for the recovery of a range of biological material, notably plant macrofossils and small vertebrate bones and come from a range of feature types. During the assessment phase of the project (Sidell, 1998) and whilst the updated project design was being constructed (Hill *et al*., 1998), it became apparent that these samples had the potential to contribute to the major research issue of diet. Consequently, analysis was authorised and the results are presented here.

Methods

The samples, although cleaned through conventional wet sieving, required additional cleaning prior to microscopy. To this end, each sample was placed in a water-filled beaker within a water filled ultrasonic tank. This process gently lifts dirt adhering to the individual pieces of shell without damaging the sample. The shells were then air-dried. Each sample was then scanned using a low-power Leica stereo microscope at magnifications of between 10 and 40 times. This was done in order to pick out superficial differences and ascribe types, based on gross morphology such as thickness and relative size of mammillae. The types were described (see below Table 2) Sub-samples were then selected for scanning electron microscopy (SEM). These were mounted on Cambridge type aluminium stubs using conductive carbon cement and gold-coated using an Edwards sputter coater. Image analysis was undertaken using a Hitachi SEM at an accelerating voltage of 20kv and using magnification of between 25 and 4000 times. Fuller details of this methodology may be found in Sidell (Sidell, 1993). Characteristics taken from (Simons, 1971) have been used to investigate whether the samples could have come from hatched rather than otherwise broken eggs.

CONTEXT	FEATURE TYPE	PERIOD	LANDUSE
3441	Quarry pit fill	9	OA55
3500	Floor	22	B64RE
3824	Construction cut fill	16	B63
3907	External dump	6	OA37
3917	External dump	7	OA35
7768	Non structural cut fill	7	B24RB
7893	Structural cut fill	7	B24RB
8063	Drain	18	R1p18ph3
8963	Well fill	6	B22RB
9252	Well fill	6	B22RB
9422	Well fill	3	OA11
11852	Drain	18	R2p18ph3
11976	Drain	18	R2p18ph3
12229	Drain	8	R1
12532	Drain	18	R1p18ph1

CONTEXT	FEATURE TYPE	PERIOD	LANDUSE
12572	Drain	18	R1p18ph1
12575	Drain	18	R2p18ph1
12617	Drain	18	R2p18ph1
15444	Floor	3	B3RJ
15606	Well fill	3	OA6
15652	Quarry pit fill	2	OA4
18083	Make-up	10	OA75
18172	External dump	7	OA45
18211	Make-up	6	OA44

Table 1 Samples and context details

Results

Three types of shell were observed in the initial scan.

TYPE	INTERNAL SURFACE	EXTERNAL SURFACE
A	White, glassy, poorly defined mammillae. Some staining noted in various samples, ranging from iron staining to a dark unidentifiable type. Membrane was often preserved.	Cream, glossy, slightly undulating with poorly defined pores. In some cases, eroded with the loss of the glossy cuticle and better pore definition.
B	Cream, glassy with poor mammillae definition. Large sutures, splitting across the inner surface.	Brown, smooth, glassy with good pore definition.
C	Yellow, glassy, good mammillae definition with deep fissures.	Brown, glossy, undulating with relatively poor pore definition.

Table 2 Types identified

Period 2

Open Area 4

This period corresponds with the initial occupation prior to the formal laying out of the site and must date to between roughly AD 50 and 61. One sample was collected from a quarry pit in OA4, [15652], which contained three fragments of what appeared to be chicken shell, presumably food waste dumped into a convenient open pit. Both membranes obscured the internal surface of all pieces. This exceptional organic survival suggests that the feature has been continually waterlogged.

Period 3

This period is dated to the pre-Boudican phase of *Londinium*, and must therefore lie between approximately AD 50 and 61. Four samples came from deposits of this date, two from well fills and the third from a floor surface. All come from different areas, however.

Building 3 RJ

[15444] represents the floor surface sampled in room J of B3. Only one fragment of chicken shell was recovered – this was battered and suggests that on the whole these areas were kept very clean with only sporadic waste becoming incorporated into the fabric of the surfaces.

Open Area 6

The well fill [15606] from OA6 contained four fragments of chicken shell, with some organic preservation of the membrane, presumably as a result of waterlogging.

Open Area 11
The well fill [9422] from OA11 contained a further 35 pieces of chicken shell. Overall, the evidence from this period suggests that wells may have been commonly used for disposal of waste and has certain things to say about the standards of hygiene practiced in the area.

Period 6

This period approximates to the Flavian period, *circa* AD 70-100. Three samples were collected, from a dump, a make-up horizon and the fill of a well. Again, they all come from separate areas of the site.

Building 22 RB
A fill of a well [9252] associated with room B of B22 contained the largest assemblage from the site, with 480 fragments of chicken shell, none of which appeared to be from hatched birds and probably represents the casual disposal of food waste into a convenient well. [8963] contained an assemblage of 7 chicken shell fragments.

Open Area 37
The dump deposit, [3907] uncovered within OA37 contained 43 fragments of chicken shell, some of which were heavily stained, possibly as a result of a corroding iron artefact within the fill. Some of the material appears to come from eggs that hatched, which suggests that the dump contained a mixture of breeding and food waste. It seems possible that chickens were bred locally to this area.

Open Area 44
The makeup horizon [18211] comes from OA44 and contains a few fragments of stained chicken shell. The staining is likely to have been taken up from the matrix. None were hatched and so this is likely to have been food waste.

Period 7

This period equates to the first third of the second century, roughly AD 100-135, ending with the Hadrianic fire. Four samples are assigned to this period, two from dumps and a further two from units associated with Building 24.

Building 24 RB
A cut feature from within room B contained 28 fragments of chicken shell likely to be food waste, some quite badly stained, presumably from other material within the fill. A structural feature, [7893] from this room also contained a further 7 fragments of chicken shell, again also certainly food waste which became incorporated into aspects of the building – yet the small size of the assemblage suggests that on the whole, the rooms were kept very clean.

Open Area 35
Assemblage [3917] from one of the dumps in OA35 contains three fragments of chicken shell, none of which appear to have hatched and are likely to be food waste dumped on a general waste heap which could have served a number of buildings.

Open Area 45
However, the large assemblage from the dump in OA45 ([18172]) does contain hatched chicken shell, as well as material which was from eggs which did not hatch. 243 fragments of chicken shell were recovered as well as 2 x Type B.

Period 8

This period dates to between AD 70-100.

Road 1 Period 8
Only one sample from this period contained eggshell, from one of the roadside drains, [12228] (this is a void context – could this be from sample 730 [12217] (Group 515) which did contain shell?) and contained one highly eroded piece of chicken shell, suggesting possibly that the roadside drains were kept extremely clean.

Period 9

Period 9 is associated with robbing and dumping of the post-Hadrianic fire period. Eggshell was recovered from one quarry pit only.

Period 10

Open Area 75
This period dates to approximately the first half of the second century. Again, only one sample was recovered and in this case comes from a make-up horizon and includes a piece of goose and a piece of chicken shell. This is extremely likely to be re-deposited and cannot usefully inform any spatial interpretation.

Period 16

This period dates from the mid second to early third centuries. One context, a roadside ditch contained shell.

Period 18

This period dates from the mid-third century to the final disuse in the late fourth/early fifth century and it is from this phase that the largest number of Roman samples come, all of which are derived from roadside ditches, the roads in question being R1 and R2.

Road 1 Period 18 phase 1
[12532], a drain fill from R1 contained eleven fragments of chicken shell; one from a hatched egg. [12572] contained one small fragment of chicken shell.

Road 2 Period 18 phase 1
[12575], a further drain fill of road 2 contained twelve fragments of chicken shell. [12617], a drain fill associated with R2 contained a further seven fragments of chicken shell.

Road 2 Period 18 phase 3
[11852], a drain fill from the second road contained five fragments of chicken shell. [11976], a layer of R2 contained a fragment of goose and nine fragments of chicken shell.

Period 22

Building 64 RE

This is the last period from which deposits yielding eggshell come and dates to the late fourth century. Two assemblages, both from Building 64 contained eggshell; one from a floor and the other from a dump of building debris. The assemblage found on the floor of room E, [3500] contained only one fragment of chicken shell, which did not appear to have been hatched. This may indicate that food was consumed in the room, but it was kept clean, with only few fragments of material remaining. What/where is the other assemblage from Period 22?

Discussion

The assemblages of Roman eggshell from Poultry can contribute to the discussion about diet and also to a limited extent, food production and waste disposal. Indeed, the fact that there is very little evidence for local breeding is intriguing. Only two of the samples appear to contain shell from eggs that hatched out, and these are both from context types that indicate redeposition of material. On the whole, shell is not likely to travel far from its source and normally, it would be acceptable to infer that if hatched shell is recovered, then it is close to the breeding site. It seems possible therefore, that in this period very little poultry raising was taking place locally. And yet eggs were obviously being consumed, therefore they are likely to have been purchased from shops and stalls rather than being raised by local inhabitants in backyards. Unfortunately, there is no evidence available from this study as to where these shops or stalls may have been located.

It does not seem likely that there is under-representation of hatched shell compared with non-hatched as they would suffer equally from the usual taphonomic and post-depositional processes; furthermore hatched shell is just as likely to end up on local dumps/middens than food waste. There is likely to be significant under-representation in the record for shell generally, as a result of factors such as total destruction and poor recovery. Nevertheless, this should not fluctuate through the periods, and it is noticeable that the samples containing shell cluster at the beginning and end of the sequence, with practically no samples from the second and third centuries. Furthermore, the majority of material from the later period is derived from drain fills. It seems unlikely that there is a valid cultural reason for this, nevertheless with what is a relatively small assemblage and in the absence of data from other Romano-British towns, it is difficult to account for these anomalies. Why disposal methods transfer from the usual trend of dumping waste down convenient features such as wells and quarry pits to dumping material into the water system is a difficult question to answer, unless, perhaps, rules regarding waste disposal were made and enforced in the later period. A further point to make regarding waste disposal is that in all periods where material was recovered from surfaces within buildings, the assemblages are extremely small. This indicates a high level of cleanliness was maintained, whilst confirming that eggs were part of the diet of the inhabitants of these houses.

With reference to what was actually being eaten, the picture is, unfortunately, extremely bland. Hen's eggs formed almost the entire assemblage, with only a couple of fragments of goose to indicate any diversity of diet. Chickens are easy to raise and can prove extremely good egg-producing birds and so are economic to keep, whereas geese are more difficult to raise and are relatively less productive. Nevertheless, it is slightly suprising that so little goose was recovered, and also that no goose shell was recovered before

period 10, which may suggest it was not included in the diet of the early Roman occupants. However, it is perhaps invalid to argue this solely on the basis of negative evidence. Furthermore, as mentioned above, the lack of data from other sites and towns makes it hard to reach valid conclusions as to what can be considered normal.

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