ANCIENT MONUMENTS LABORATORY

REPORT

2673

SERIES/No CONTRACTOR

AUTHOR P Murphy Oct 1978

TITLE Norwich; Avian Eggshell

AML Rpot 2673

Norwich : Avian Eggshell

Shell fragments were common in both medieval and post-medieval deposits. A semi-complete egg came from 159N 227, but most of the material consists of relatively small quantities of fragments recovered from soil-samples by wet-sieving. Occasional concentrations of shell fragments were encountered (e.g. 200g from 172N 39.)

Frequently samples of material labelled 'eggshell' by the finds assistant proved on closer inspection to consist of fragments of brachiopods, echinoids or other calcareous crystalline material derived from the Upper Chalk. Such material could be quite deceptive; curved fragments 0.53-0.65 mm. thick from 149N 297 have a patterning on the 'inner' surface which closely resembles the 'mammillae' of avian eggshell, though the outer surface appears structureless, with no pores, and in fractured cross-sections radially-oriented calcite crystals are not visible.

The fragments of eggshell are mostly white to cream in colour, sometimes stained reddish or brown, and their microstructure is well-preserved, showing little sign of chemical or physical weathering, this chiefly on the outer surface. Pores and mammillae are clearly visible, and elongate caloite crystals can be seen in fractured sections. Since shell thickness is considered to be a useful feature in identification (Keepax 1977 and pers. comm.) the thicknesses of a maximum of 30 fragments from each sample were measured with a micrometer. (Table 1). Generally, mean thicknesses of 0.30-0.35 mm. were obtained. These measurements fall within a range characteristic of the domestic hen; Romanoff and Romanoff (1949, 150) quote mean shell thicknesses of 0.26 mm. (Bantam), 0.31 mm. (Leghorn) and 0.36 mm. (Cochin China).

The partially-intact egg from 159N (Westwick Street, North) 227 is illustrated in Plate 1. Fragments found associated with this specimen ranged from 0.24-0.40 mm. thick; Plates 2-5 are 'Stereoscan' micrographs of typical fragments. Plates 2 and 3 are of the innter surface at x 51 and x 205 respectively, showing the inner cones and basal caps (mammillae). Plate 4 shows the outer surface (x 51). This is rather worn, and pores are not clearly visible. The fractured cross section (Plate 5, x 237) is similar to that illustrated in Keepax (1977, Plate 13); the zone of cones and basal caps and the compact upper-part of the palisade layer seem quite clear; the central zone of apparently structureless material is presumably the part of the palisade layer with vesicular holes.

Domestic hens provided a useful means of converting poor quality cereals into high-grade protein. They were no doubt widely kept in the courts and back-yards of the medieval city.

References

Keepax, C. 1977 'Identification of Avian Egg Shell from archaeological sites and the potential use of the Scanning Electron Microscope' Ancient Monuments Lab. Report 62/77.

Romanoff, A.L. & Romanoff A.J. 1949. The Avian Egg New York : Wiley

Table 1 : Eggshell thicknesses (mean)

36N	91	0.31 mm. (N=1)
36N	92	0.33 mm. (N=1)
149N	23	0.34 mm. (0.33-0.35 mm.) N=4
149N	297	0.29 mm. (0.21-0.33 mm.) N=30
149N	308	0.35 mm. (0.29-0.38 mm.) N=30
149N	517	0.32 mm. (0.28-0.34 mm.) N=4
149N	791	0.33 mm. (0.31-0.35 mm.) N=4
149N	1011	0.31 mm. (0.27-0.38 mm.) N=30
149N	1042	0.35 mm. (0.28-0.42 mm.) N=30
149N	1058	0.34 mm. (0.28-0.42 mm.) N=30
149N	1269	0.34 mm. (0.35-0.34 mm.) N=2
150N	178	0.33 mm. (0.28-0.38 mm.) N=8
153N	212	0.37 mm. (0.35-0.41 mm.) N=30
153N	304	0.32 mm. (0.28-0.38 mm.) N=30
154N	73	0.29 mm. (0.27-0.34 mm.) N=30
159N	227	0.35 mm. (0.24-0.40 mm.) N=30
170N	427	Not measureable
170N	602	
170N	1339	
170N	220/3	Not measureable
171N	67	0.29 mm. (0.27-0.33 mm.) N=24
171N	68	0.28 mm. N=1
171N	77	0.29 mm. (0.26-0.34 mm.) N=3
171N	90	0.31 mm. N=1
172N	39	0.32 mm. (0.26-0.37 mm.) N=30
172N	535	0.34 mm. (0.28-0.43 mm.) N=30
283N	123	0.33 mm. (N=1)
283N	134	0.35 mm. (0.33-0.37 mm.) (N=4)
283N	241	0.33 mm. (0.32-0.34 mm.) (N=4)
283N	341	0.32 mm. (0.30-0.33 mm.) (N=4)
283N	359	0.33 mm. (0.31-0.36 mm.) N=2
283N	421	0.32 mm. (0.31-0.32 mm.) N=2
283N	506	0.32 mm. (0.30-0.34 mm.) N=4
302N	34	0.33 mm. (0.29-0.40 mm.) N=15
302N	222	0.32 mm. (0.28-0.36 mm.) N=4
302N	1225	0.34 mm. (N=1)
302N	1267	0.28 mm. (N=1)
302N	1301	0.31 mm. (0.30-0.31 mm.) N=4

302N	2128	0.33 mm. (0.31-0.35 mm.)	N=2
302N	2209	0.35 mm. (0.34-0.36 mm.)	N=4
351N	68	0.30 mm. (0.26-0.31 mm.)	N=8
351N	167	0.35 mm. (0.34-0.36 mm.)	N=3
351N	366	0.33 mm. (0.27-0.39 mm.)	N=2
351N	375	0.31 mm. (N=1)	
351N	595	0.35 mm. (0.28-0.39 mm.)	N=30

Plates

1. Egg from 159N 227
2. Inner surface of shell fragment from 159N 227 (x 51)
3. Inner surface of shell fragment from 159N 227 (x 205)
4. Outer surface of shell fragment from 159N 227 (x 51)
5. Fractured cross-section of shell fragment from 159N 227 (x 237)

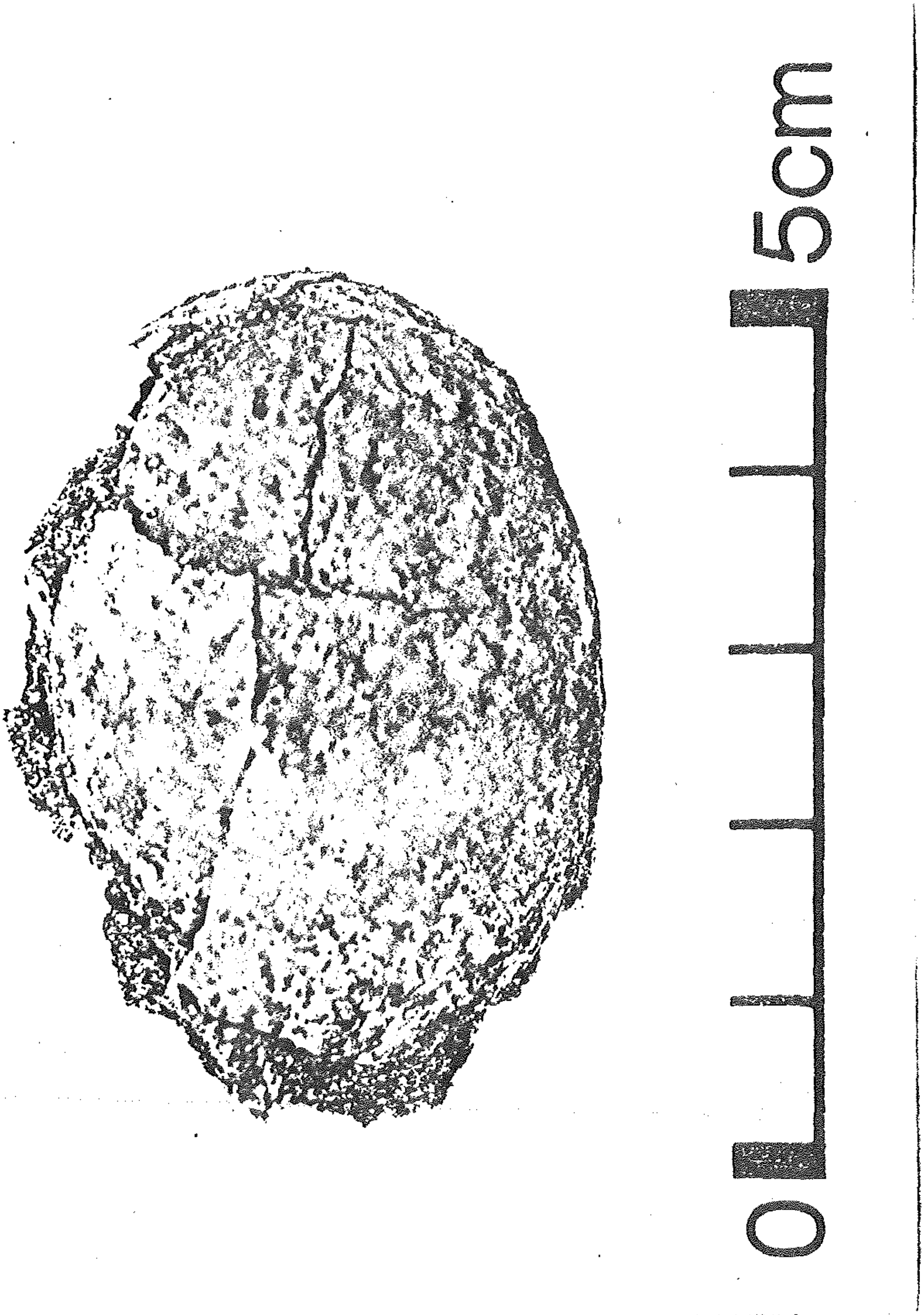

Plate 1.

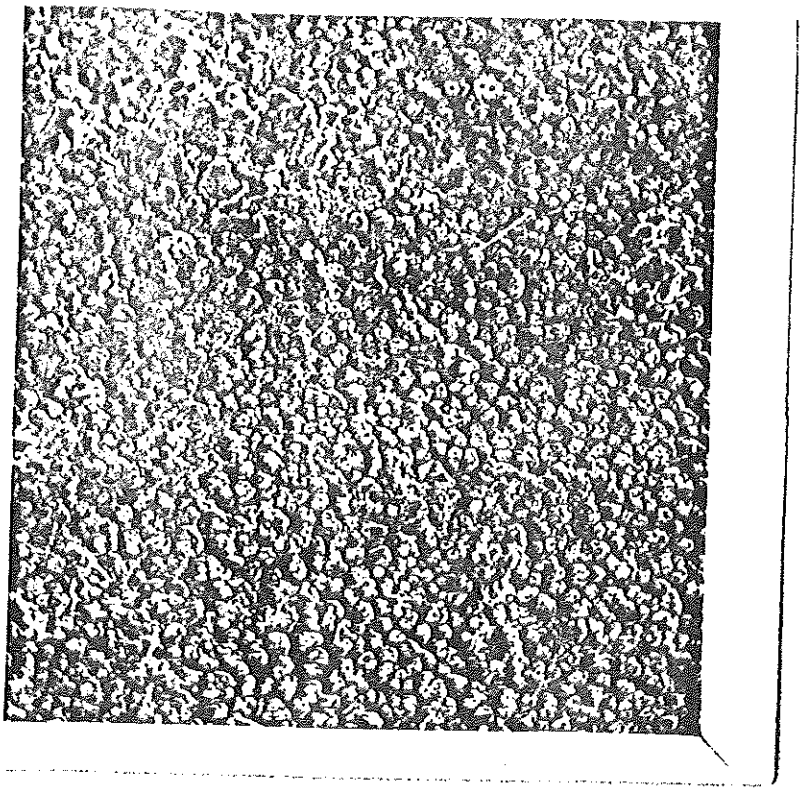

Plate 2.

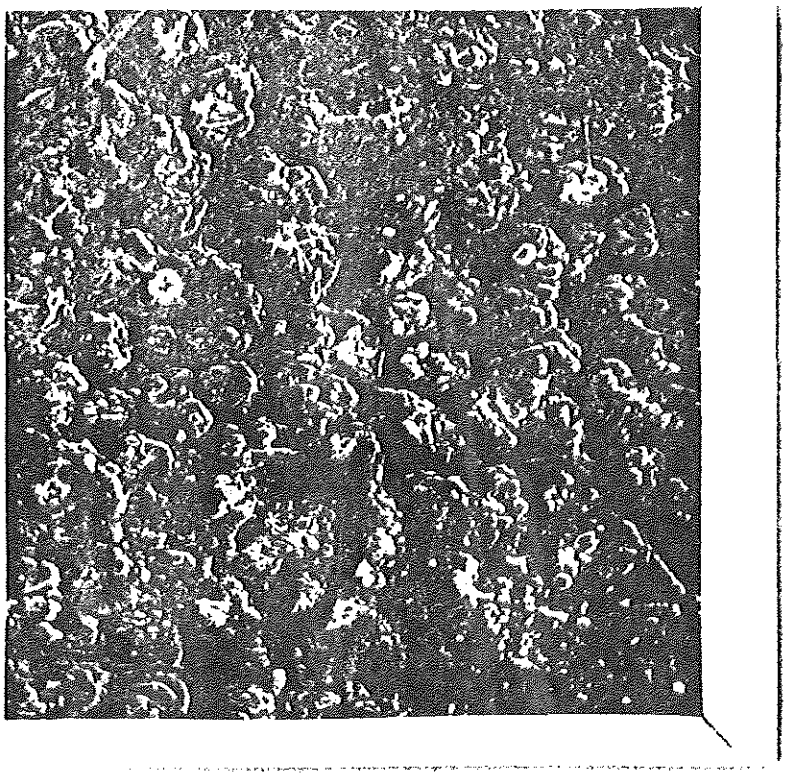

Plate 3.

Plate 4.

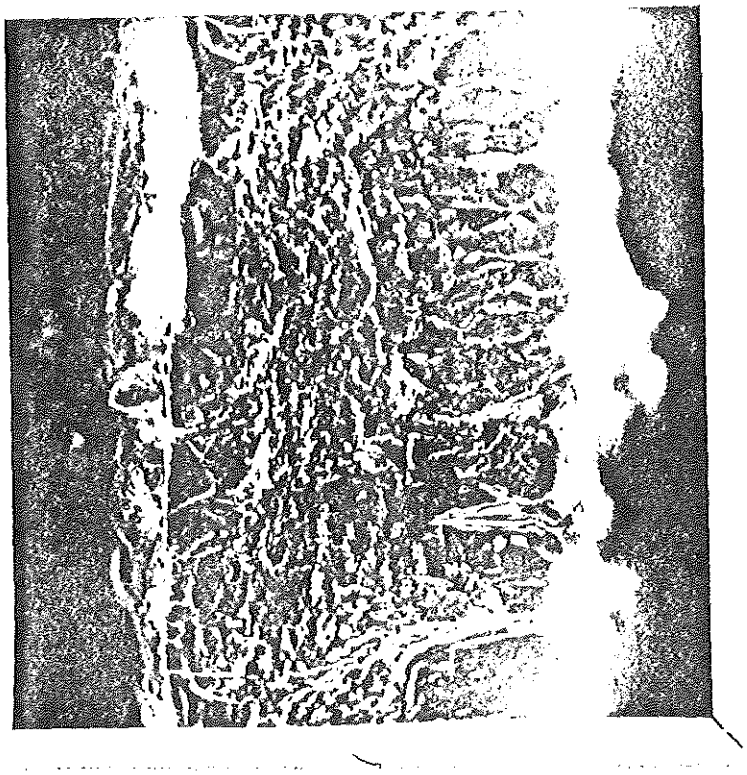

Plate 5.