

Short contributions

An eagle, *Haliaeetus albicilla* (L.), skull from Roman Leicester, England, with some speculations concerning the palaeoecology of the Soar valley

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Summary

In 1991, during an evaluation excavation under the basements of shops fronting the High Street in Leicester, England, U.K., an eagle skull was found in a Roman well. This has been identified as belonging to a white-tailed eagle, *Haliaeetus albicilla* (L.); together with bird remains from other sites in the city, there is a suggestion that rather different ecological conditions prevailed in that part of the Soar valley from prehistoric to medieval times.

Introduction

From November 1991 to January 1992, the Leicestershire Archaeological Unit carried out excavations in the basements of numbers 33 to 47 High Street, Leicester. The purpose of the excavation was to evaluate the surviving archaeological deposits in consideration of a planning application for the redevelopment of the site. This site was situated just within the east gate of the Roman town defences, 50 m north of the main east-west axis road, which was in fact the line of the Fosse Way as it passed through this major Roman town, *Ratae Corieltavorum*.

Twelve trenches, with an average area of nine square metres, were opened up. Throughout the city the construction of cellars in the 19th-20th centuries has caused destruction of the later archaeological levels and in this case approximately 2.5 m of these deposits had been lost. However, a considerable amount of archaeology has survived, mostly consisting of Roman and medieval cut features, predom-

inantly pits, dating from the 1st to the 13th centuries. In one of these, Feature F300 at 37 High Street, an eagle skull was found.

Feature F300

This consisted of a circular shaft, 1.8 m in diameter, with vertical sides (Fig. 13). It was excavated to a depth of 1.0 m, the maximum limit of the evaluation brief, but continued below this level with no indication of bottoming. In this basement, it was estimated that 1.3 m of Roman deposits above the excavation surface had been lost (J. Hagar, pers. comm.). Context 339 consisted of a clean brown friable silty sand and 333 may have contained evidence of a wattle lining. The other fills consisted predominantly of brown silts and in places there were traces of a 'cess'-like element. Some of these contexts produced finds of pottery, tile, animal bone, wall plaster, oyster shell and slag, but others were sterile. F300 was probably a well and has been dated to the mid 3rd century (Lucas *et al.* forthcoming).

The animal bone in F300 was not typical of the site as a whole, containing a high proportion of wild species and immature individuals of domestic species. The following were notable: a foetal or neonatal piglet (*Sus*) in 314; fragments of a second piglet of similar age in 326; incomplete kitten (*Felis*) skeletons from 316 (above 314) and 327; incomplete skeletons of young dogs (*Canis*, <18 months and <15 months) from 326 and 315 (below 316 and above 314); an incomplete crow (*Corvus corone* L.) skeleton from 325 and 327; and an incomplete jackdaw (*Corvus monedula* L.) skeleton from 315. Most of the domestic cattle (*Bos*) and sheep/goat (*Ovis/Capra*) fragments were from sub-adult animals (<18-30 months) and consisted most frequently of head and jaw elements.

The most unusual bone fragments, however, came from contexts 327 and 330, and consisted of a small goose tibiotarsus and an eagle skull, respectively. The goose has been tentatively identified as barnacle goose, cf. *Branta leucopsis* (Bechstein), chiefly on the basis of size after comparison with reference material housed at Leicestershire Museums and the British Museum (Natural History) at Tring. This is a non-breeding visitor from September to May, mainly frequenting western Scotland and Ireland in recent times (Lucas *et al.*, forthcoming). Barnacle goose has been found

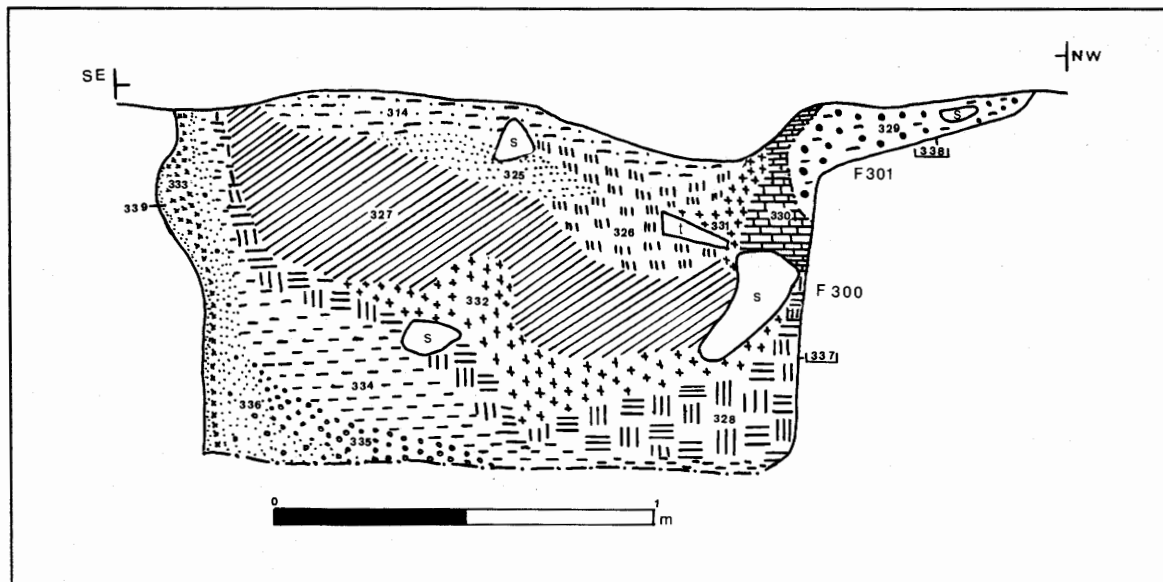


Figure 13. Sketch section of the excavated upper fills of Feature F300 at 37 High Street, Leicester. The eagle skull was found in context 330. s—stone; t—tile.

in Roman contexts at Carlisle and York (Parker 1988, tables 1 and 2).

The eagle cranium

The eagle skull consists of a beakless adult cranium (Figs. 14-16) showing clear signs of having been decapitated in antiquity. Microscopic examination indicates that this was done with a very sharp blade, the blow coming from above and across the left occipital region (Fig. 16). There is also a chop mark on the left side above the processus frontalis which may represent an earlier failed blow. No trace of the beak was found during excavation or processing of the samples and there are no fresh breaks to suggest it was lost at that time; in all probability it had been removed prior to deposition. No other eagle bones were recovered from this or any other context within this feature or any other on the site and, indeed, it is the only eagle bone found so far in archaeological deposits in Leicestershire.

The skull has been identified as belonging to a white-tailed (sea) eagle, *Haliaeetus albicilla* (L.), after comparison with reference material at the British Museum (Natural History), Tring, on the following grounds:

(i) There is no fronto-parietal groove as in the golden eagle, *Aquila chrysaetos* (L.), but a

shallow median groove on the parietal only, as in *Haliaeetus* (Pycraft 1902, 280);

(ii) There is an occipito-parietal cranial nerve foramen, generally present in *Haliaeetus* but not in *Aquila*;

(iii) The interorbital septum is not fenestrated. Out of eight white-tailed eagle skulls examined only one immature specimen (B.M. (N.H.) S/1954.30.104) had a small fenestra in the interorbital, while only one (B.M. (N.H.) 1923.9.3.1) out of twelve golden eagle skulls was unfenestrated. The latter is probably a very old specimen;

(iv) The breadth of the pars nasalis of the frontale (SBO in Table 1) is greater than *Aquila* specimens measured, but within the range of *H. albicilla*. The greater breadth of this region provides support for a more massive bill in white-tailed eagles (cf. bill measurements in Cramp 1980);

(v) Foramina in supraorbitals are more typical of white-tailed eagle than golden eagle;

(vi) The shape of the basitemporal plate and parasphenoid rostrum are similar to *H. albicilla* and differ from those found in *Aquila* (Fig. 15);

(vii) *Contra* Pycraft (1902, 280), the Eustachian channels in *Aquila* are not invariably open grooves (they seem to be partly ossified in the

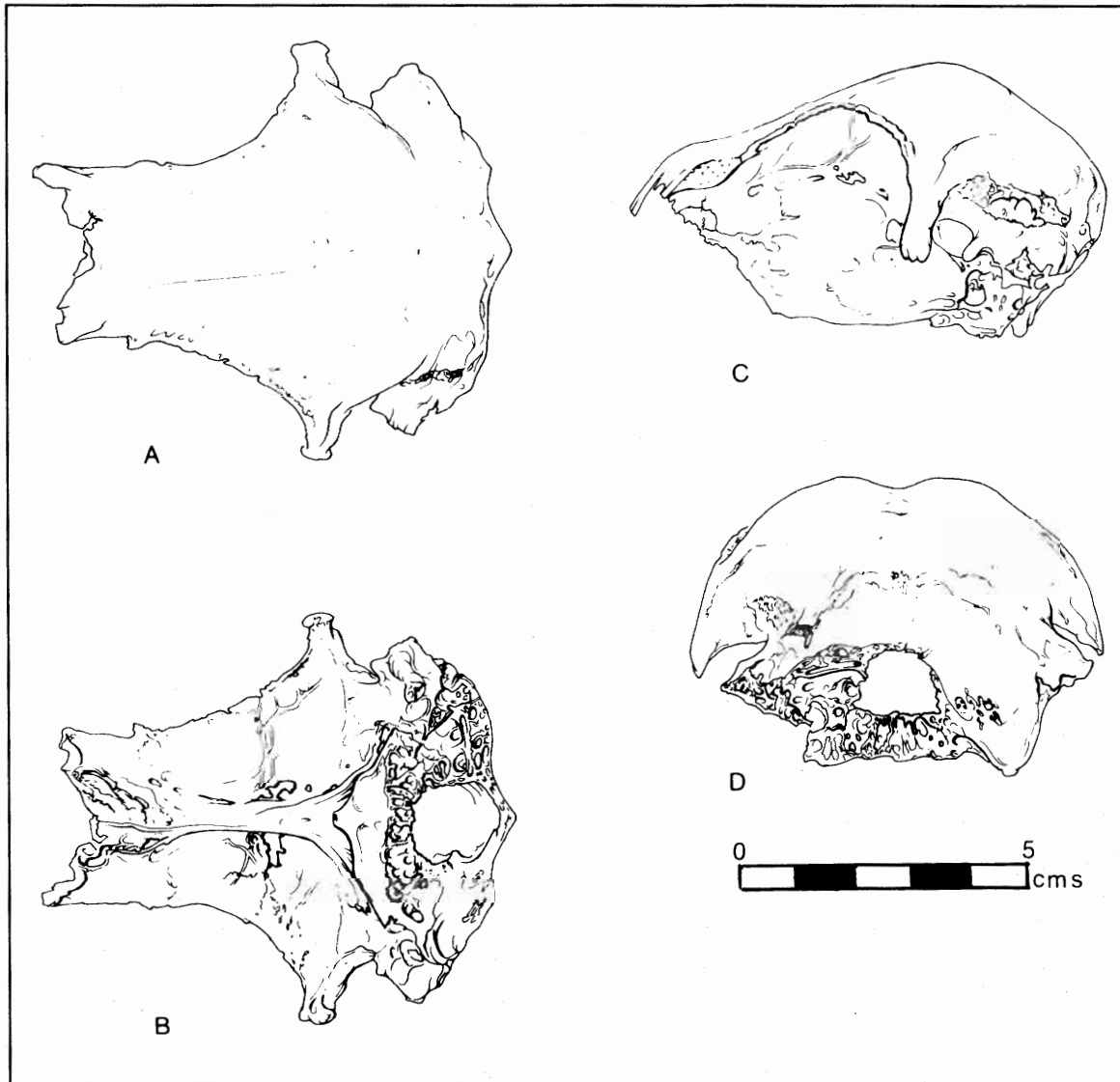


Figure 14. The eagle skull from F300 at 37 High Street, Leicester. A—dorsal, B—ventral, C—lateral, D—occipital.

Leicestershire Museums specimen B1952/146, for example), and those of *Haliaeetus* are not invariably ossified (they are open in B.M. (N.H.) specimens 1851.11.10.46 and 1862.3.30.2). They are open in the archaeological specimen from Leicester, which seems to be undamaged on the right side (Fig. 15).

While some of these morphological details may seem relatively trivial, others, such as (i), (iii), (iv) and (vi) above, are more significant and combine to provide a reasonably secure identification. The interorbital septum and basitemporal of the Leicester specimen are notably asymmetric (Figs. 14(B) and 15).

Archaeological eagles

The white-tailed eagle was present in Britain from towards the end of the penultimate (Wolstonian) glaciation until its extermination at the beginning of this century (Reid-Henry and Harrison 1988, 78). Their remains are more frequently found on archaeological sites than those of the golden eagle (Cohen and Serjeantson 1986, 2). The bones of around 14 white-tailed eagles were found in the chambered tomb of Isbister in Orkney (Bramwell 1983), and others have been found on prehistoric and historic sites in Wessex (Coy 1983). The remains of white-tailed eagle have been found at six other Roman sites in

		LP	SBO	GB
<i>Aquila chrysaetos</i>	range	60.6-72.6	20.6-27.5	57.9-65.1
n=12	mean	69.24	24.76	63.37
	S.D.	3.35	1.93	1.85
<i>Haliaeetus albicilla</i>	range	66.7-71.7	27.3-32.1	59.6-64.5
n=7	mean	69.27	29.67	62.47
	S.D.	1.94	1.86	1.68
High Street, Leicester		69.1	28.7	66.6

Table 1. Measurements of the eagle cranium from 37 High Street, Leicester (based on von den Driesch 1976). LP—length from the protuberantia occipitalis externa to the most aboral points of the processus frontales of the incisivum in the median plane; SBO—smallest breadth between the orbits on the dorsal side (the smallest breadth of the pars nasalis of the frontale); GB—greatest breadth across the processus postfrontales. 'Student's t test': the difference in means for SBO in the two species greatly exceeds the tabulated value of t for 17 degrees of freedom and $p = 0.001$.

Britain: Droitwich, Uley, Dunstable, Sheepen (Camulodunum), and Southwark and Billingsgate in London. Three of these are urban contexts and three rural, including a Romano-Celtic temple site (Parker 1988, 208, tables 1 and 2).

Habits and habitat

The white-tailed eagle is described by Reid-Henry and Harrison (1988, 78) as a 'lowland waterside eagle', while Brown (1978) considers them to have been coastal and estuarine in Britain. It is possible that in pre- and early historic times white-tailed eagles were more common inland than in the recent past. They do breed inland at the present day in Sweden, Germany and Finland (*ibid.*, 86). Certainly, it would be hard to find a more inland locality in England than Leicester. Although young birds ringed in Norway have been found up to 60 miles from the place of ringing (*ibid.*, 88), it would be exceptional to find an adult any great distance outside its home range. Generally a sedentary species with a home range of about 600-800 hectares, white-tailed eagles tend to be more sociable than other large birds of prey and may roost

or feed in groups of five or six if food is abundant in a certain locality (*ibid.*, 92). Frequently referred to as a companion of the wolf and raven at battlefields in Anglo-Saxon and Norse literature (Reid-Henry and Harrison 1988), even larger gatherings probably occurred after battles. Such gatherings happen opportunistically in present-day Alaska, where large numbers of a related species (bald eagle) flock during salmon spawning. Fish constitute about two-thirds of the normal prey of white-tailed eagles with diving birds, hares and carrion comprising most of the rest of the diet (Brown 1978, 87)

Ecological implications

The barnacle goose from 3rd century Leicester probably represents an individual blown off course, rather than being evidence of a regular visiting population. In recent years the Spitzbergen population winters on the Solway Firth, but the recovery in Norfolk of specimens ringed in the Netherlands suggests a possible origin of the rare but regular visitors to more southerly localities in England (Cramp 1977, 432).

Figure 15 (right). Ventral aspect of the eagle skull from 37 High Street, Leicester. *p*—parasphenoid, *e*—Eustachian channel, *b*—basitemporal.

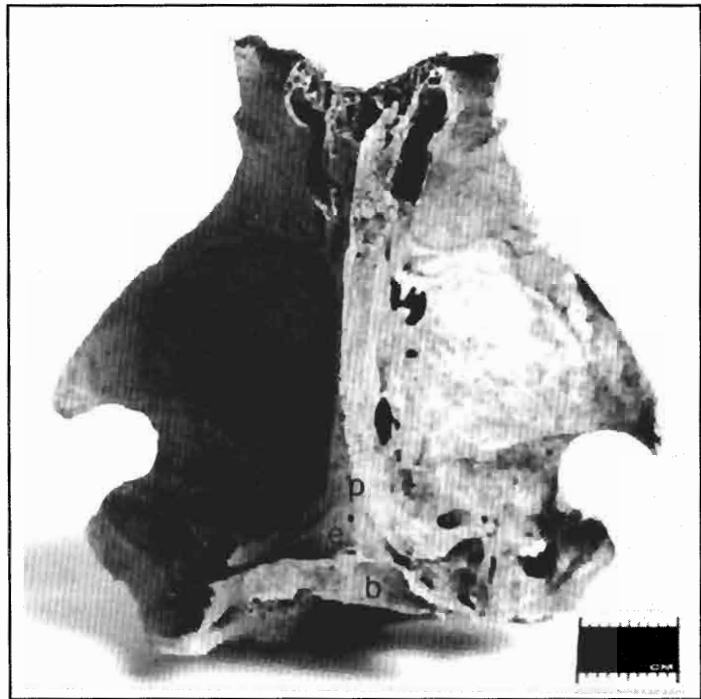
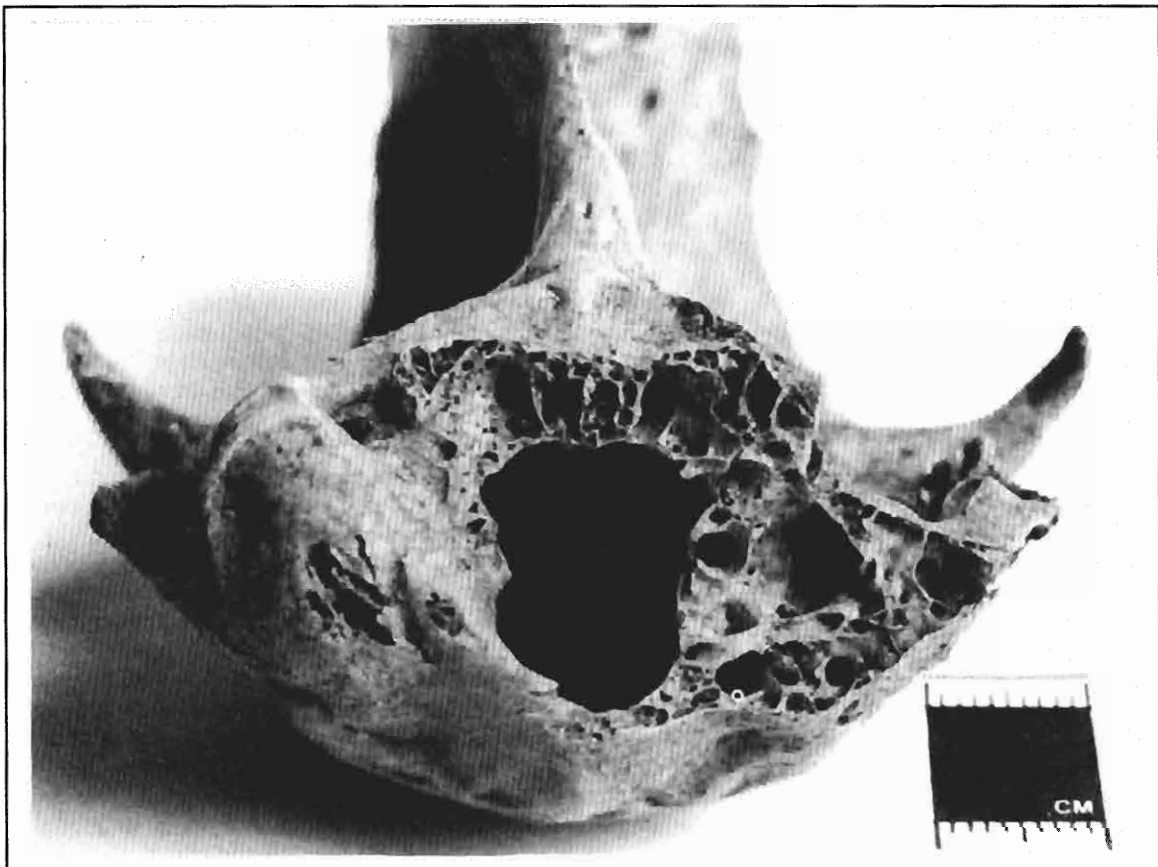


Figure 16 (below). Occipital view of the eagle skull from 37 High Street, Leicester, showing area sliced through.



The generally coastal habitat of white-tailed eagles in north-western Europe (*ibid.*, II, 49) suggests that the specimen under consideration may also have arrived in Leicester from the east coast. However, elsewhere white-tailed eagles frequent large rivers and inland waters. They may have bred at Windermere up to the 18th century (Brown 1978, 86). It is known that they show a preference for the proximity of colonies of tree-nesting species such as herons and cormorants. Both adults and eggs of these species are prey items, along with fish, diving birds and carrion (Cramp 1980, 49).

While there is a lack of data for the Roman period, it is known that the Soar (which runs through Leicester) in prehistoric (Shackley and Hunt 1985, 10), medieval (Mellor and Pearce 1981, 6) and in recent times was a sluggish river subject to extensive flooding, with the consequent creation of shallow ponds or lakes, marshland and reedbeds, not far distant from the Roman and medieval city. These circumstances persisted until the flood relief schemes of the late 19th century (Stevens 1972, 53).

Wader bones similar in size to snipe, *Gallinago gallinago* (L.), a femur of redshank, *Tringa totanus* (L.), size and a swan, *Cygnus cygnus* (L.), mandible have been found in Roman deposits at the nearby Shires site at Little Lane in Leicester, along with duck and goose bones that are probably domestic (Gidney 1991a). Further waterfowl remains were recovered from the medieval deposits at Little Lane and St Peter's Lane (Gidney 1991b; 1991c). The wide range of wild bird species, including waders, in one post-medieval phase at St Peter's Lane suggests wildfowling was practised at that time (Gidney 1991d).

Waterfowl account for nearly 50% of wild bird species recovered from the excavation of the medieval Augustinian friary, situated by the River Soar, about 500 m from the High Street site. These comprise mallard, *Anas platyrhynchos* (L.) (at least some of which may be domestic duck); cormorant, *Phalacrocorax carbo* (L.); grey heron, *Ardea cinerea* (L.); smew, *Mergus albellus* (L.); and crane, *Grus cf. grus* (L.), (Thawley 1981, 173). All, with the probable exception of smew, were native species until comparatively recent times and potential prey of the white-tailed eagle. Cormorant, heron, crane and smew all nest in trees, as does the white-tailed eagle. The rare migrant smew is said to like 'drowned

woodlands with many dead trees and oxbows or other backwaters of large rivers...' (Cramp 1977, 669).

The Soar may be expected to have supported many fish. Analysis of the fish remains from the Shires sites in Leicester, very near the High Street site, suggests that a greater proportion of freshwater fish was consumed in the Roman period than at any time during the medieval era. Most of the freshwater fish were small, suggesting they were caught by net, but large examples of chubb, *Leuciscus cephalus* (L.), and tench, *Tinca tinca* (L.), were also represented (Nicholson, forthcoming). In 1357 the Dominicans were granted 'liberty to fish three day weekly in the river Soar with a net of convenient mesh so as not to destroy the young fish...', and it has been suggested that the Augustinian friary in its early years may have obtained its fish exclusively from the adjacent river (Mellor and Pearce 1981, 15).

The presence of domestic livestock, particularly sheep and goats, in the farmsteads and villas outside the Roman city would have provided a regular source of carrion, especially during lambing and in winter. Urban butchery sites such as slaughteryards would have provided similar opportunities, which ravens, kites and buzzards are known to have exploited in Leicester and elsewhere.

The white-tailed eagle may thus have been resident in the Soar valley or a visitor from the coast. Given the probable environment at the time and the sedentary habits of the species, an adult bird such as this was probably a resident. It may have been killed as vermin (white-tailed eagles were exterminated in 19th and early 20th century Britain as sheep stealers) or to provide feathers for fletching. The absence of any postcranial remains and of the bill leaves room for less prosaic speculation, however. The beaks and claws of eagles and other raptors seem to have been used as talismans in prehistoric Europe (Clark 1948, 129-30), and it is well known that the Romans associated the eagle and the thunderbolt with Jupiter. A neolithic polished stone axe-head (a thunderbolt?) was found in an earlier Roman pit on the same site only 15 m away from that containing the eagle skull (Lucas *et al.*, forthcoming). The present evidence is too slight, however, to provide an adequate basis for cultural speculation and the presence of the eagle skull in the backfill of a Roman well must remain problematic.

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