FAUNAL REMAINS FROM LATE HELLENIC
LERNA (ARGOLID, GREECE)

David S. Reese

Peabody Museum of Natural History
Yale University
P.O. Box 208118
New Haven, CT 06520-8118 U.S.A

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ABSTRACT
Recent analysis of preserved fauna from the 1952-58 excavations at Lerna stored in Argos and Stockholm allows us to reexamine the fauna published in 1969 by the late Prof. Nils-Gustaf Gejvall as the first of the Lerna final report volumes. The present detailed study combines the revised phasing, detailed context information, and fuller analysis of the preserved samples including butchery and burning data.

KEYWORDS: Mammals, Marine shells, N.-G. Gejvall
INTRODUCTION

Lerna was excavated from 1952 to 1958, directed by the late John L. Caskey and under the auspices of the American School of Classical Studies at Athens. The site produced material from the Middle and Final Neolithic (Lerna I and II, pottery published by Karen D. Vitelli in 2007, rest to be published by Elizabeth C. Banks), Early Helladic II (Lerna III, published by Martha H. Wiencke in 2000), EH III (Lerna IV, pottery published by Jeremy B. Rutter in 1995, rest in press by Banks with fauna report by Reese [in press a]), Middle Helladic (Lerna V, to be published by Carol Zemer), Late Helladic I-II graves, bothroi and some settlement debris (Lerna VI, to be published by Michael Lindblom), LH II-III (Lerna VII, published by Wiencke in 1998), and post-Bronze Age material (to be published by Brice Eriksen).

THE LERNA FAUNA

For six weeks in the spring of 1958 the late Prof. Nils-Gustaf Gejvall of Sweden studied the animal bones and shells in Ancient Corinth, where they were stored at the time.

Gejvall wrote his identifications, in English, on a separate index card for each excavated lot. Sometimes more than one card was needed. Full sets of cards are held by Wiencke, Reese, and the Archives of the American School of Classical Studies in Athens. Gejvall wrote on his cards the period assignment he had available in Spring 1958. In July 1958 Elizabeth C. Caskey sent him revised lists of the periods for these lots. Sometimes Gejvall corrected these on his cards and 1969 monograph but at other times he did not make these corrections.

Gejvall had many bones and shells sent to Sweden for further study. The specimens he removed, including all those in his published photographs, were sent to his lab in Solna and in 2005 were moved to the University of Stockholm. They will eventually be sent to the Argos Museum.

Gejvall saw but did not publish bones and shells sent in as objects which in 1958 were stored in Ancient Corinth and in 1959 moved from Corinth to the Argos Museum. He studied some worked bones which he found in the bone bags, but these were generally not extracted and added to the registered objects.

Gejvall recorded on his cards the human bones he found in the animal bone bags in 1958 and removed these bones. However, they were not studied by John L. Angel (who worked on Lerna material in 1954 and 1957) and cannot now be found.

Gejvall published his work on the fauna in 1969 as the first of the Lerna final publication volumes. Gejvall sometimes changed his identifications between writing his cards (1958) and his 1969 publication. These changes were probably due to comparison of the specimens with the fauna stored in the Museum of Natural History in Stockholm and consultations with experts in Sweden and Germany (Gejvall 1969:xi).

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1 See key to Abbreviations and Vertebrates / Intervertebrates below, before the Catalogue.
For 25 years it was assumed that the Lerna faunal remains were discarded. However, in 1984 I discovered in storage in the Old Museum at Ancient Corinth seven wooden crates of animal bones and seven crates of shells from the seven Lerna periods. At that time I studied the shells, and included this information in my 1988 University of Cambridge Ph.D. dissertation and made my identifications known to other members of the Lerna publication team. Wiencke published Gejvall’s 1958 bone and shell identifications in her Lerna VII final report in *Hesperia* but added my revised shell identifications to her Lerna III monograph. The Banks Lerna IV volume includes a faunal report (Reese in press a). I have also completed a reanalysis of the Lerna land snails (Reese in press b).

Sometime after I studied the shells in 1984 all the fauna was sent to the Argos Museum. For a number of years the animal bone crates were stored in an the old storeroom near the ancient theater but in 2002 were moved to the Lerna storeroom in the Argos Museum. The seven crates of shells are no longer in Ancient Corinth but cannot be located in Argos.

In 2003-05 I studied the preserved bones in Argos and in 2005 studied the Lerna fauna in the University of Stockholm. The present study is a reanalysis of the LH faunal remains from Lerna excluding the infilling of the two shaft graves. This fauna will be published in the Lerna VI volume by Lindblom.

The unpublished 1950s Lerna animal bone and shell collection continues to grow. Since 2003 Sevi Triantaphyllou worked on the human remains now stored in Argos and originally studied by Angel in the 1950s and published in 1971. Triantaphyllou found unwashed animal bone and shell material amongst the human bones which in 2004-05 were studied by the present author. Three of these early LH grave samples are published here.

Gejvall noted the bag size (small, medium, large, or a *teneke* [olive oil tin]), and it is clear from my reanalysis that he did not study all the bones in each sample, but only the most easily identifiable pieces.

The Catalogue given here follows the contexts published by Wiencke and includes her reading of Gejvall’s 1958 cards, the actual card description, and my own analysis. I publish, at the end of the main catalogue, certain deposits as “Fauna Not Saved” with descriptions from Gejvall’s cards, even though the record is incomplete and most of this material was discarded about 50 years ago.

Gejvall publishes the Lerna VII fauna in a number of categories: VII (79 identified bones, 32 identified shells from 19 small bags, 21 medium bags, 4 large bags and 1 *teneke*), V+VII (58 bones, 44 shells), VII+V (139 bones, 90 shells), and VII+Classical (11 bones, 10 shells) for a total of 287 bones and 176 shells, as follows:

2 *Ovis* (horncore, metatarsus; 1 adult MNI).

11 *Capra* (6 horncore, 3 mandible, radius, metatarsus, 1 cut; 4 MNI [2 young, 2 adult]).

59 *Ovis/Capra* (2 maxilla, 14
mandible, 8 molar, scapula, 5 humerus, 6 radius, ulna, 9 tibia, 4 calcaneus, 7 metacarpus, 2 metatarsus; 11 MNI [3 young, 2 subadult, 6 adult]).

76 Sus (skull fragment, 8 maxilla, 40 mandibles, 5 scapula, 5 humerus, 2 radius, 3 ulna, 2 femur, 4 tibia, astragalus, 3 metacarpus, metatarsus; 24 MNI [1 neonate, 6 young, 7 subadult, 10 adult]).

54 Bos (3 horncore, maxilla, 10 mandible, 2 molars, 2 scapula, 4 humerus, pelvis, 3 femur, 3 tibia, astragalus/centrotarsale, calcaneus, 5 metacarpus, 5 metatarsus, 9 phalanx 1, 3 phalanx 2, rib; 7 MNI [3 young, 1 subadult, 3 adult]).

5 Canis (3 mandible [1 cut], radius, metatarsus; 2 adult MNI). The cut mandible, from a V+VII lot, is more likely to be MH than LH.

18 E. caballus (skull fragment, maxilla, mandible, 3 molars, ulna, 10 femur, metacarpus; 4 MNI [3 adult, 1 senile]).

11 E. asinus (6 mandibles [1 cut]; radius, metacarpus, 2 phalanx 1, phalanx 2, 1 gnawed; 4 MNI [1 young, 3 adult]).

12 Cervus (8 antler, mandible, molar, metatarsus, 1 worked; 4 adult MNI).

5 Lepus (mandible, fibula, pelvis, femur, vertebra; 3 adult MNI).

3 Vulpes (mandible, 2 metacarpus; 1 adult MNI).

1 Sus (wild) skull fragment.

29 Testudo.

1 Alectoris.

58 Cardium, 27 Spondylus, 14 Arca, 12 Pinna, 2 Glycymeris, Venus rugosa, 49 M. trunculus, 2 Cerithium, Patella.

The VII+Classical fauna specifically includes: 1 Ovis/Capra (mandible; subadult MNI), 2 Sus (2 mandibles; 1 subadult MNI), 2 Bos (metacarpus, phalanx 1; 1 subadult MNI), 4 E. asinus (radius, metacarpus, phalanx 1, phalanx 2; 1 adult MNI), 1 Cervus (antler, adult), 1 Testudo; 2 Cardium, 2 Spondylus, Arca, 2 Pinna, 2 M. trunculus, Patella. It is considered to be too disturbed with post LH material. From the 287 identified bones in these four VII groups, he published only three cut bones (Capra bone; Canis mandible; E. asinus mandible), no burnt bones, and one worked Cervus piece (probably an antler). His list compares with the 446 bones identified to species and element in the present Catalogue, from four small bags, ten medium bags, two large bags, and one teneke (142 Ovis/Capra [18 MNI], 116 Sus, 114 Bos [eight MNI], and 56 E. caballus, six Lepus [four MNI]) of 901 bone fragments present in the seven samples retained. My Catalogue also records 119 burnt bones and 173 cut/butchered bones.

Gejvall did not have the specific contexts and final dates available to him. We now can place the fauna recovered in its proper contexts at the site. Some of Gejvall’s identifications have had to be corrected. For the deposit above Room 1 what Gejvall calls Ovis/Capra humerus fragments must be a misidentification. For Area 5, upper floor his Cervus ulna is either Ovis/Capra or Bos, and he did not recognize the Homo vertebra. For fill deposit 7 what Gejvall publishes as a thin Bos distal metatarsus is actually Cervus. What Gejvall noted on his cards as Ostrea he published correctly...
as *Spondylus* (except for one fill deposit 7 shell which actually is *Ostrea*).

The MNI for the preserved samples differs from what Gejvall suggested on his cards. The correct numbers are: Room 1 (3 MNI *Ovis/Capra*, 2 MNI *Sus*, 2 MNI *Bos*), deposit above Room 1 (3 MNI *Ovis/Capra*, 2 MNI *Sus*), Area 5, upper floor (2 MNI *Sus*), Area 5, lower floor (2 MNI *Ovis/Capra*, 2 MNI *Sus*, 2 MNI *Lepus*), fill deposit 7 (6 MNI *Ovis/Capra*, 5 MNI *Sus*, 3 MNI *Bos*, *Testudo*), and Lot D 560 (1 MNI *Ovis/Capra*, 2 MNI *Sus*).

**COMPARANDA**

There are a number of published or in press reports on other mainland Mycenaean faunal remains from palaces and settlements. In the Argolid there is material from Midea (Gejvall 1983; Reese 1998, 2007; Walberg and Reese in preparation; Gardeisen 2007), Tiryns (von den Driesch and Boessneck 1990), and Asine (Moberg 1992, Moberg Nilsson 1996; Reese 1982 and unpublished additions).

From elsewhere on the mainland there are published reports from Tzoungiza (Dabney *et al.* 2004), Nichoria in Messenia (Sloan and Duncan 1978; Manz 1989; Reese 1992), the Palace of Nestor at Pylos (Nobis 1991, 1993; Isaakidou *et al.* 2002; Halstead and Isaakidou 2004; Stocker and Davis 2004), Eleusis (Cosmopoulos *et al.* 2003), Ayios Stephanos in Laconia (Reese in press c), and Ayios Konstantinos (Hamilakis and Konsolaki 2004).

Most of the comparanda fauna (Midea, Asine, Tzoungiza, Pylos, Asy. Konstantinos) are only partially published. All the settlement/palace faunas are rather similar in having mainly domestic food animals (in order of importance: *Ovis/Capra, Sus, Bos*), rare non-food domestic animals (*Canis, Equus*) and even rarer wild animals (*Testudo, Cervus, Lepus, Vulpes, birds, fish*).

There are also LH remains from several graves (Blegen 1937; Boessneck and von den Driesch 1984; Payne 1990; Reese 1995; Hamilakis 1996). The main animals intentionally buried with the dead were equid and dog skeletons.

**Key to Abbreviations**

Caskey 1958 list of final phasing sent by Elizabeth G. Caskey to Gejvall

D diameter (in mm)

dP deciduous premolar

F fused

H height (in mm)

JF just fused

L left

Le length (in mm)

M/mo. molar

max. maximum

MNI Minimum Number of Individuals

P/pm. premolar

pres. preserved

R right

T thickness (in mm.)

UF unfused

W width (in mm)

yr(s). year(s)

→ NG-G symbol for erupting tooth

1/1 N-GG symbol for erupted tooth
Vertebrates
Alectoris = Alectoris graeca (rock partridge)
Bos = Bos taurus (domestic cattle)
Canis = Canis familiaris (dog)
Capra = Capra hircus (goat)
Cervus = Cervus elaphus (red deer)
E. asinus = Equus asinus (ass or donkey; N-GG as Asinus asinus)
E. caballus = Equus caballus (horse)
Homo = Homo sapiens (human)
Lepus = Lepus europaeus (hare)
Ovis = Ovis aries (sheep)
Ovis/Capra = Ovis aries/Capra hircus (sheep or goat)
Sus = Sus scrofa (pig)
Testudo = Testudo hermanni (tortoise)
Vulpes = Vulpes vulpes (fox)

Invertebrates
Arca = Arca noae (ark shell)
Cardium = Cerastoderma glaucum (cockle; Gejvall as Cardium)
Cerithium = Cerithium (=Gournya) vulgatum (cerith, horn shell)
Cyprina = Glycymeris (Gejvall’s term for Glycymeris)
Dosinia = Dosinia lupinus (ar ещis shell; Gejvall as Docinia)
Glycymeris = Glycymeris insubrica (dog cockle)
Mactra = Mactra corallina (trough shell)
M. brandaris = Murex brandaris (dye murex; also called Bolinus b.)
M. trunculus = Murex trunculus (rock murex; also called Hexaplex t. and Trunculariopsis t.)
Ostrea = Ostrea edulis (oyster) (most of what Gejvall calls Ostrea are in fact Spondylus)
Patella = Patella coerulea (limpet)
Pinna = Pinna nobilis (pen shell)
Spondylus = Spondylus gaederopus (spiny or thorny oyster)
Tonna = Tonna galea (tun shell)
Venus rugosa (Gejvall 1969 name for what he calls Docinia on his cards)

CATALOGUE

FAUNA SAVED
Area D

Room 1; LH IIIA2-B1. Lots D 238 + 554.

Wiencke (1998, 142, based on Gejvall’s cards): 8 Ovis/Capra remains, 6 Sus, 3 Bos, 2 Lepus; Cardium, 2 Arca, Pinna, 6 Murex, 2 Cerithium.

Gejvall’s card (18 bones/teeth noted; 2 medium bags; cards as VII+V but Caskey 1958 list as VII):
Cardium, 2 Arca, Pinna fragment, 6 Murex, 2 Cerithium.

Reese analysis (134 bones/teeth; 27 burnt, 22 cut):

Ovis/Capra (3 MNI): maxilla fragment (M1 worn, L), M1 (unworn, L, 2 pieces), anterior mandible (no teeth, L), 2 posterior mandible fragments (cut down behind last tooth, burnt black; coronoid process, broken, burnt gray), 2 mandible fragments (side; distal, burnt gray), M3 (unworn, open roots), incisor, scapula (lacks glenoid, burnt gray, L, 2 pieces), distal humerus (F, L), 2 distal humerus shafts (burnt gray, R; L), distal radius/ulna (both F, cut down on angle above articulation, L), distal femur (UF and epiphysis, L), distal tibia (F, R), astragalus (R, Le 25.25, W 17.75), 4 calcaneus (3 L: 2 F, 1 broken [partly burnt gray]; R, F, cut on angle through sustentaculum tali), proximal metacarpus (burnt gray, R), proximal metatarsus and shaft (L), metatarsus shaft (cut down length), metapodial shaft (small), proximal phalanx 1 (F).

Sus (2 MNI): 2 mandible fragments (dP4 alveolus; posterior, young), lower canine (young female), incisor (adult), scapula (very young, worn glenoid, burnt gray, L), radius (F proximal, UF distal, burnt gray, R), 2 radius shafts (1 cut on angle down shaft and burnt gray), 2 astragalus (small, worn, L; larger, Le 37.7, R), metacarpus III (UF, burnt gray, R), metatarsus III (UF, small, R), metatarsus III (F, goes with IV, L), metatarsus IV (F, goes with III, L), metapodial III/IV (broken, small).

Ovis/Capra or Sus: 3 skull fragments, scapula fragment (side, burnt gray), tibia (all UF, very small, burnt gray), 25 shafts (6 cut down length, 4 burnt [3 gray; black]), 2 vertebra fragments (1 UF and burnt gray), 28 rib fragments (7 heads [3 cut], 6 burnt [3 gray, 3 black]).

Bos (2 MNI): skull/horncore fragment, canine (root), incisor (adult), distal humerus (F, R), proximal femur and shaft (probably cut through lower portion of neck, burnt gray at proximal, L), proximal femur fragment (cut on angle below articulation, R; older than L), distal tibia (F, broken), proximal phalanx 1 (F), 9 shafts (5 cut down length, 2 join), 4 rib fragments (1 cut through on angle), fragment (burnt black).


Cerastoderma, 2 Arca (2 MNI), Pinna fragment, 12 M. trunculus fragments (6 MNI), 2 Cerithium.

Deposit above Room 1; LH IIIA2-B1. Lot D 553.


Gejvall (14 bones/teeth noted; medium bag; card as VII+V but Caskey list as V):

Ovis/Capra: mandible fragment (M1→, L), M3 (1/1), 2 humerus fragments, 3 radius fragments, metacarpus fragment (juvenile).

Sus: 2 mandible fragments (M1 1/1, L; M2→, R), ulna fragment, astragalus.
**Bos:** pelvis fragment, phalanx 1 fragment.

4 **Ostrea, Arca, Pinna, 3 Murex.**

Reese (88 bones/teeth; 31 burnt, 20 cut):

**Ovis/Capra** (3 MNI): 3 mandible fragments (3 side, 3 burnt gray), M3 (broken, slightly worn), 3 distal radius (3 F, 3 R, 1 burnt gray, worn; 1 broken, burnt gray), 3 radius shafts (cut down dorsal side, burnt gray; cut down length; smaller, burnt gray), pelvis/acetabulum (L), astragalus (burnt gray/brown, R, Le 29, W 20.25), metacarpus shaft (slightly burnt black), proximal metatarsus and shaft (burnt gray, 4 pieces).

**Sus** (2 MNI): 2 mandible fragments (M1 worn, M2 erupting/unworn, M3 alveolus, burnt gray, R; M1 unworn, burnt black, L), 3 lower canine fragments (2 male: toward tip, cut on 2 sides, recently broken distal end of piece; root end [ancient break]; female, bit worn, 2 pieces), distal radius (UF), proximal ulna and shaft (UF, burnt gray, R, 2 pieces), ulna shaft, tibia shaft (cut down part of length), 3 fibula fragments (1 with end), astragalus (rather large, L, Le 38.5, W 23.25).

**Ovis/Capra or Sus:** skull fragment, 2 scapula fragments,

2 pelvis fragments (1 ischium cut and burnt gray), 21 shafts

(5 cut down length [2 burnt gray], 2 burnt gray), vertebra spine, 4 rib fragments (2 burnt gray), 2 fragments burnt black.

**Bos:** distal humerus shaft (cut down length, L), proximal radius (F, cut down length from dorsal to ventral, L), pelvis/acetabulum fragment (cut through upper acetabulum and through lower acetabulum on L side, burnt gray, rather large, L), distal femur epiphysis (broken), distal tibia (F, cut down length, R), distal metatarsus shaft (cut across on angle in lower shaft), metapodial shaft (cut down length), phalanx 1 (F, 2 pieces), 6 shafts (5 cut down length [3 burnt gray]), fragment (burnt gray).

Worked bone awl: tip end, pres. Le 40, T9 (Wiencke 1998, 145, fig. 13:MO8 [L4.789]).

Shells not saved.

**Area 5, upper floor,** LH IIIB1. Lots D 237 + 263.

Wiencke (1998, 158): 2 **Ovis, 2 Capra, 3 Sus, 4 Bos, E. caballus or E. asinus, 3 Cervus, Testudo; 4 Ostrea, 3 Cardium, Arca, ?Cyprina.**

Gejvall (16 bones/teeth noted; 2 medium bags; card for D 237 as VII+V but Caskey list as VII):

**Ovis:** horncore fragment, metatarsus fragment.

**Capra:** horncore fragment, metatarsus fragment.

**Sus:** maxilla fragment (1/1, R), 2 mandible fragments (1 M1→, L; 1/1, middle).

**Bos:** 2 mandible fragments (1/1, L), tibia fragment, metatarsus fragment.

**E. caballus** M3 (Gejvall 1969, 36, 84, 104, pl. XVI:6 [D 237]).

**Cervus:** antler fragment, mandible fragment (1/1, R), ulna fragment.

**Testudo** carapace fragment.

4 **Ostrea, 3 Cardium, Arca, ?Cyprina.**

Reese (85 non-human bones/teeth; 8 burnt, 20 cut):
Ovis skull/horncore fragment (3 pieces).

Capra horncore fragment.

Ovis/Capra (2 MNI): 4 mandible fragments (coronoid and condyle processes, burnt black, L; coronoid process; 2 side [1 burnt gray]), 2 distal humerus (F, L; broken, smaller than F example, L), proximal radius (F, cut on angle through proximal), proximal radius and shaft (F, proximal burnt gray, R, 2 pieces), radius/ulna shaft (cut down length of radius and on ventral R side of ulna), femur shaft (worn white, 2 pieces), proximal metacarpus (R), proximal metatarsus and shaft (gracile, worn white), 2 metatarsus shafts (gracile, cut down length; cut down length and partly burnt gray).

Sus (2 MNI): maxilla fragment (P^4 unworn, R), 2 mandible fragments (dP^4, M^1 in hole, L; anterior with canine alveolus, 2 R and 2 L incisors, P^1 alveolus of L), scapula (F, L, 3 pieces), distal humerus (UF, cut down length above articulation, L), radius shaft (cut down length), pelvis/acetabulum fragment (L), proximal femur (all UF, L), distal tibia (F, cut on angle in lower shaft, R), tibia shaft (cut through in mid shaft, R), calcaneus (mid fragment, eroded, L).

Ovis/Capra or Sus: scapula side fragment, 2 pelvis fragments (1 partly burnt gray), 9 shafts (3 cut down length [1 burnt gray]), 2 vertebra (UF, burnt gray; F, cut across below centrum), vertebra spine, 3 rib fragments (1 head cut).

Bos: skull fragment (3 pieces), 2 mandible fragments (anterior, P^1 alveolus, R+L; anterior, burnt gray, R), incisor/ canine (much worn, 2 pieces), proximal ulna (broken, R), radius/ulna shaft (cut down length of radius and ulna), femur shaft (cut down length, has 10 cut marks perpendicular to cut edge [ ] [ ] [ ] [ ] [ ] [ ] [ ] [ ] [ ] [ ] [ ] [ ]), distal tibia fragment (F, worn white, L), tibia shaft (cut down length), metatarsus shaft (rather gracile, cut on angle from ventral to dorsal on angle), phalanx 1 (F).

6 shafts (3 cut down length, 1 in 2 pieces), 4 rib fragments, fragment.

E. caballus M^3 (1969, 36, 84, 104, pl. XVI:6)

Cervus mandible fragment (no teeth, R).

Testudo carapace fragment (mid body).

Homo vertebra.

4 Spondylus (2 collected dead, 4 MNI), 3 Cerastoderma

(3 MNI), Arca (collected dead), Glycymeris (collected dead, possibly holed umbo).

Area 5, lower floor (half sample); LH IIIA2-B1. Lot D 239.

Wiencke (1998, 163) lists Gejvall’s card information for Lots D 239 and 240 together.

Gejvall (5 bones noted; medium bag; card as V-VII but Caskey list as VII):

Ovis/Capra mandible fragment (M^1→, R).

Sus: 2 mandible fragments (M^1→, M^2→, R, L).

Bos mandible fragment (M^5 1/1, L).

Lepus tibia fragment.

Ostrea, Cardium, 2 Murex.
Reese (57 bones/teeth; 4 burnt, 15 cut):

**Ovis/Capra** (2 MNI): mandible fragment (dP₃ roots, M₁ up/bit worn, M₂ unworn/open roots, R, 2 pieces), scapula fragment (body, R), distal humerus (F, cut down ventral side, L), radius shaft,

2 pelvis fragments (1 young, 1 older), tibia shaft (R), metacarpus (UF, cut down dorsal-ventral from proximal to lower shaft), metacarpus shaft, 2 proximal metatarsus (cut down from proximal, burnt black; L).

**Sus** (2 MNI): maxilla fragment (dP₄ unworn and broken, M₁ up/unworn, L), 2 mandible fragments (dP₃ fragment, dP₁ up/unworn, M₁ below, R; P₄ alveolus, M₁ slightly worn, M₂ unworn, broken, L), tibia shaft.

**Ovis/Capra or Sus**: skull fragment, 5 shafts (1 cut down length, 1 in 2 pieces), 2 rib fragments (1 burnt gray).

**Bos**: mandible fragment (P₁ unworn, P₂-3 slightly worn, L), M₁ (worn, L), M₂ (slightly worn, L), distal humerus (F, cut on R side, slightly burnt gray, L), proximal radius (F, cut down 2 sides), proximal metatarsus (cut down length [side-to-side]), 3 pieces), 10 shafts (8 cut down length, 1 in 3 pieces).

**Lepus** (2 MNI): 2 distal radius (2 F, 1 burnt gray, 2 L).

Small mammal tibia shaft (not Lepus).

Pin made on **Ovis/Capra** femur: tip end, polished, pres. Le 7.9 (Wiencke 1998, 163 [L3.54]).

**Spondylus** (collected dead), **Cerastoderma**, 2 M. trunculus.


Gejvall (c60 non-human bones/teeth noted; 3 small bags, 4 medium bags, 2 large bags; cards have all but 210 as VII+V but on Caskey list all are VII):

**Capra**: 2 horncore fragments, 2 mandible fragments (1 M₃, 1 1/1, R, L), radius fragment.

**Ovis/Capra**: maxilla fragment (1/1), mandible fragment (R), M₁ (1/1), scapula fragment, 7 tibia fragments, 2 metacarpus fragments, metatarsus fragment (juvenile).

**Sus**: skull fragment, lacrymal, 3 maxilla fragments (M₁→L; 1/1, R; 1/1 worn down, L), 12 mandible fragments (2 1/1, R, L; M₁→L, M₃→ to 1/1, R; M₃→R; M₃→L; 1/1 worn down [L], M₁→[R], 3 M₂→[2 L, R], M₃→[L]), 4 humerus fragment (2 juvenile), metatarsus fragment (juvenile).

**Bos**: horncore fragment (short), maxilla fragment, M₃ (1/1), 2 mandible fragments (1/1, 2 L), scapula fragment, femur fragment, tibia fragment, metacarpus fragment, distal metatarsus with shaft (F, ½) (Gejvall 1969, 83, 103, pl. X:12 [D 245]), metatarsus fragment, 5 phalanx 1, fragments.

**Canis** mandible fragment (L) (1969, 65 [D 243])

**Cervus**: 2 antler fragments (point).
FAUNAL REMAINS FROM LATE HELLADIC LERNA (ARGOLID, GREECE)

Lepus: vertebra fragment.

Homo: 3+ bones.

22 Ostrea, 4 Cardium, 4 Arca, Pinna, Docinia (removed by Gejvall and probably what he publishes as Venus rugosa), ?Cyprina, 12 Murex + 2 fragments.

Reese (417 non-human bones/teeth; 41 burnt, 91 cut):

Capra: horncore fragment, horncore/skull/oculus fragment

Ovis/Capra (6 MNI): premaxilla (R), M\(^1\) (worn), maxilla fragment (P\(^2-3\) worn, M\(^1\) worn, R), P\(^1\) (unworn, open roots), M\(^2\) (slightly worn, open roots), upper molar fragment, 9 mandible fragments (P\(_{1-3}\) alveoli, R; P\(_1\) root, P\(_{2-3}\) worn, M\(_1\) much worn, M\(_2\) worn, R; M\(_2\) bit worn/broken, M\(_3\) erupting, has coronoid process, L, 2 pieces; no teeth, burnt gray, R, 3 pieces; anterior, gracile, L, 3 pieces; 2 condyle process [young, gracile, L; cut through bottom of coronoid process, burnt gray, R]; part coronoid and condyle processes, R; side), premolar fragment, M\(_1\) (slightly worn), M\(_2\) (slightly worn), M\(_3\) (broken, worn, L), 3 scapula (F, L; F, R; side), distal humerus (broken, R), 3 distal humerus shafts (cut down shaft and burnt gray; cut down shaft except at distal, L; L), proximal radius (UF), radius shaft (cut down length, partly burnt gray), ulna shaft, pelvis/iliium fragment (young, gracile), tibia (all UF), proximal tibia and shaft (F, burnt gray, R), 9 distal tibia (9 F: 5 L [very slightly JF; cut on angle on upper shaft; cut down length except at very distal], 4 R [1 JF line visible, cut down shaft except at distal; cut on angle in mid shaft; broken]), 2 tibia shafts (1 cut down length, 1 in 2 pieces), astragalus (Le 27.25, W 18.25, R), calcaneus (F, L), metacarpus (complete, F, R), 2 proximal metacarpus (R, 2 pieces; L), 2 distal metacarpus (2 F: cut on angle through R condyle; cut through above R condyle on angle and burnt gray), metacarpus shaft (small, burnt gray), metatarsus (rather complete but no distal, cut through shaft), 2 metatarsus shafts (gracile, burnt gray; burnt gray/black), 2 metapodial shafts (1 gracile), phalanx 1 (F).

Sus (5 MNI): skull fragment (has oculus, cut, 2 pieces), lacrymal (in Stockholm [155]), 3 maxilla fragments (P\(_{3-4}\) unworn, M\(_1\) somewhat worn, M\(_2\) unworn, M\(_3\) erupting/mainly below, R; M\(_2\) unworn, M\(_3\) not fully up [unworn, open roots], R; M\(_2\) very worn, M\(_3\) [Le 18.25, W 29], L, 2 MNI), 16 mandible fragments (dP\(_3\) unworn, dP\(_4\) unworn; dP\(_4\) unworn, R; dP\(_4\) much worn, M\(_1\) unworn/broken, M\(_2\) below, R; dP\(_4\) much worn, M\(_1\) roots, M\(_2\) below, L; M\(_1\) slightly worn, M\(_2\) erupting/unworn, M\(_3\) below, L; M\(_2\) slightly worn, M\(_3\) mainly up/unworn [Le 30.75, W 15.25], L; M\(_2\) alveolus, M\(_3\) hole, L; M\(_2\) bit worn, M\(_3\) erupting [1/3rd up], L; P\(_{1-3}\) alveoli, M\(_{1-2}\) much worn, M\(_3\) not fully up/unworn [Le 36, W 14.75], R; M\(_2\) broken, M\(_3\) much worn [Le 29.25, W 17.75]); M\(_2\) up/unworn, M\(_3\) alveolus/roots, adult, burnt gray); M\(_2\) unworn/broken; anterior [R+L halves, has canine alveolus]; 2 distal fragments [1 young]; distal posterior fragment [adult], 5 MNI), incisor, premolar fragment, 5 scapula (small, young, R; F, L, 2 pieces; broken glenoid, adult, L), cut down middle, R; body fragment, burnt gray, R).
proximal humerus shaft (adult), 5 distal humerus (2 UF, 2 R; small, R; 2 F, R, L), 3 distal humerus shafts (cut down ventral side, L; adult, cut on lower shaft on angle, R; L), 2 proximal radius (2 F, R, L), distal radius (UF, R), 3 radius shafts (cut on angle at one end; gracile, burnt gray; adult), proximal ulna (broken, R), distal ulna shaft (adult, burnt gray), pelvis/acetabulum fragment (UF, L), 3 proximal tibia (3 UF; broken, burnt gray, 2 pieces; broken, R; unsided), distal tibia (F, cut on angle through lower mid shaft, R), tibia shaft (burnt gray, R), distal tibia shaft (burnt gray, R), calcaneus (body fragment, adult, burnt light gray, R), metacarpus III (UF, burnt gray, L), metacarpus IV (F, R), proximal metatarsus III (adult), metatarsus III (F, cut through proximal, L), proximal metatarsus IV (L).

Ovis/Capra or Sus: 10 skull fragments (1 oculus, 1 cut), 3 scapula fragments (1 side, 1 burnt gray), 2 tibia shafts (2 young), 67 shafts (22 cut down length [2 burnt gray, 2 burnt black], 1 cut on angle near proximal, 1 burnt black, 1 burnt gray/black), vertebra (UF, cut down center), vertebra fragment, 8 vertebra spines (1 cut), 13 rib fragments (4 heads [1 cut, 1 burnt gray, 1 burnt black], 1 burnt gray, 1 burnt black/gray; 1 in 2 pieces), 4 scapula (4 F: cut through glenoid and down length on R side, L, 2 pieces; cut through glenoid, 2 chop marks on upper part of glenoid before cut area, cut along bone on collum, R; cut along spina, L; F, R, 5 pieces), scapula fragment (side), 2 distal humerus (UF, L; F, cut down between 2 halves of distal and also on angle through ventral side, burnt light gray, L), proximal radius (F, ancient break down shaft, R, 2 pieces), proximal ulna (cut across above articulation, L), pelvis/acetabulum fragment (L, 2 pieces), femur head (UF), proximal femur (F head, lacks trochanter major, chop mark and cut through end of head and cut across on angle below articulation and also cut through head on side near trochanter major, L, 2 pieces), 2 distal tibia (JF, R; F, cut on angle above articulation, L), astragalus (cut off proximal lateral side, Le 54, W 38, R), 3 proximal metacarpus (3 R, 1 cut down length in 2 areas; 1 in 2 pieces), 6 phalanx 1 (6 F, 1 gracile [Le 54.25]), 63 shafts (32 cut down length [1 in 2 directions, 2 burnt gray, 2 in 2 pieces; 1 cut down part of length], 2 vertebra (2 UF, 1 burnt gray), 4 vertebra spines (1 in 2 pieces; 1 large), 10 rib fragments (1 has cut mark on body; 1 has head; 1 in 4 pieces; 1 in 2 pieces), 9 fragments (2 cut; burnt black/white; charred gray/brown).


Cervus: distal metatarsus and shaft (F, distal W 40.75) (1969:33 [thin], 83, 103, pl. X:12 [D 245] as Bos distal metatarsus and shaft, ♀️), distal
metatarsus (F, burnt gray, max. W 44.75, depth 26.25, 3 pieces), 2 phalanx 1 (2 F; Le 56, proximal W 22.25; Le 60, proximal W 21.5) (all in Stockholm).

*Bos* or *Cervus*: 2 scapula fragments (2 body), radius shaft, proximal metatarsus (gracile, 2 pieces), phalanx 1 (F, thin, gracile, Le 51.25, proximal W 19.25).

*Lepus* vertebra (F).

*Testudo* carapace fragment.

*Homo*: 36 bones (to be published by Triantaphyllou).

Worked *Cervus* antler “comb”: broken at both ends, 18 teeth preserved, pres. Le 84, W 33.25, max. T 6.5 (Wiencke 1998, 175, fig. 29: MO36 [L3.203], pl. 30).

Worked *Cervus* antler: cut and smoothed down for 45 mm on 2 faces; tine, probably smoothed down, L c165, recent and ancient breaks at end, visible smoothed area 16 x 12; 3 pieces.

Worked bone pin (?*Lepus* bone): tip and shaft, pres. Le 41 (Wiencke 1998, 175, fig. 29: MO8 [L3.55]).

22 *Spondylus* (18 MNI, 6 collected dead), 4 *Arca* (3 MNI), *Ostrea*, *Pinna*, *Glycymeris* (collected dead), 12 *M. trunculus* + 3 fragments (13 MNI).

Shells from D 210 were not saved. Gejvall's card notes 2 *Ostrea*, *Arca*, *Cardium*, *Dosinia* (probably what he publishes as *V. rugosa*). 60% "coarse", 25% LH (both plain and painted), 15% MH (personal communication from Wiencke, 12 January 2005).

Gejvall (3 bones noted; small bag):

*Sus*: 2 mandible fragments (R, L), scapula fragment (juvenile).

*Ostrea*.

Reese (21 bones/teeth; 8 burnt, 5 cut):

*Ovis/Capra*: distal humerus shaft (R), proximal ulna (UF, R), ulna shaft, 2 pelvis fragments (1 with acetabulum cut along ventral side and burnt black).

*Sus* (2 MNI): anterior mandible (I, P1 alveolus, R), mandible (dP4 worn, M1 up, L), lower canine (broken, adult male, 2 pieces), scapula fragment (very small, cut through glenoid on angle, burnt black, L), metatarsus III/IV (F, cut through anterior, burnt black, 2 pieces).

*Ovis/Capra* or *Sus*: tibia (very small, proximal broken, distal UF, burnt black, R), 4 shafts (1 in 2 pieces, 2 cut down length and burnt black; 1 burnt black).

*Spondylus* (fresh, upper, Le 61+), *Pinna* fragment, *M. trunculus* (body fragments).

**Trench F**


Gejvall (8 bones noted; 1 teneke):
Ovis/Capra: mandible fragment (1/1, R), tibia fragment.

Sus mandible fragment (M3, R).


Murex.

Reese (99 bones/teeth [unwashed]; 0 burnt, 0 cut):

Ovis/Capra: anterior mandible (P1 alveolus, P2, M1 slightly worn, L), ulna shaft, distal tibia (F, R).

Sus: mandible (dP4 alveolus, M1 unworn, M2 below, R), metatarsus (F, L).

E. caballus: skull fragments, maxilla (has M1-2) (1969, 36, 84, pl. XVI:8 [M3]), mandible (2 molars worn down) (1969, 36, 85, pl. XVI:7), jaw fragment (has incisor), incisor, scapula fragment (F, R), proximal humerus (F), distal humerus (F, R, 2 pieces), 2 humerus shaft fragments, proximal radius (F, broken), distal radius (F, R), proximal ulna (F, L) (1969, 36, 85, pl. XVI:10), pelvis fragment, 2 proximal femur (2 F, R, L), 2 distal femur (F, R; F, broken) (1969, 36, pl. XVI:9 [R one]), distal tibia fragment (F), carpus/tarsus, metacarpus (F, slightly burnt on upper L side, R) (1969, 36, 86, pl. XVI:3), proximal metapodial, distal phalanx 1, vertebra (F), 28 rib fragments (5 heads) (Reese 1995, 36).

M. trunculus (collected dead).

Area DC

Grave DC-1, skeleton 2 (LH I), about 49 years old (female) (Angel 1971:66 [146 Ler]).

1 bone - Sus phalanx 1 (UF, robust).

Grave DC-1-2 (LH I), about 3 years old (possibly male) (Angel 1971, 66 [148 Ler]).

1 bone - Canis posterior mandible (has M1 root, M2 alveolus, R); M. brandaris siphon (fresh, medium).

Area DE

Grave DE-1 (early LH IIB), 7 months old (male) (Angel 1971, 61 [150 Ler, as LH I]; Wiencke 1998, 125, 196).

M. trunculus body/internal columella (worn, medium); cf. Mactra fragment (encrusted exterior, shiny interior).

FAUNA NOT SAVED

Area D

Area 5, lower floor (second half); LH IIIA2-B1. Lot D 240. Card as VII with some V+VI, Caskey list as VII with some V, 1969 volume as VII+V).

Wiencke (1998, 163) combines card information for Lots D 239 and 240.

Gejvall (medium bag):

Ovis/Capra: 2 mandible fragment (M5→, R; L); Sus: lacrymal (in Stockholm), femur (fetus or newborn); Bos: tibia fragment, calcaneus, phalanx 1; Canis: mandible fragment (R), radius fragment, metatarsus; E. asinus phalanx 1 (F [but young], worn) (Gejvall 1969, 86, 104, pl. XV:5; not noted by Wiencke); Cervus: 3 antler fragments (not noted by Wiencke); Vulpes: mandible (lacks teeth, has M1-2).

**West of Room 1**: LH II to IIIA2-B1. Lots D 264 and 555-59. Card has 264 as VII with some V+VI but 1969 volume as VII+V. Cards for 555-59 as VI with some V. Caskey list as all VII with some V.

Wiencke (1998, 179): 12 Ovis/Capra, 7 Sus, 5+ Bos, E. caballus, Cervus, 3 Homo; 3 Ostrea, 4 Cardium, 2 Arca, Pinna, 2 Murex.

Gejvall (6 small bags):

*Ovis/Capra*: mandible fragment (L) (D 264); M2 (worn down)
(D 555); mandible fragment (M1→, R), humerus fragment, radius/ulna fragment, tibia fragment, metacarpus fragment (D 556); tibia fragment (juvenile), calcaneus fragment (juvenile) (D 557);
M3 (worn down), humerus fragment, radius fragment (D 559); *Sus*: mandible fragment (M1→, L) (D 264); ulna fragment, femur fragment (juvenile) (D 557); maxilla fragment (M2→, L), mandible fragment (M2→, L) (D 558); mandible fragment (M3→, L), ulna fragment (D 559); *Bos*: metacarpus fragment, fragments (D 555); metatarsus fragment (D 556); phalanx 1 (5) (D 557); mandible fragment (R) (D 558); phalanx 2 (D 559); *E. asinus* mandible fragment (M1 broken, M2, M3, young, L) (Gejvall 1969, 36, 85, 104, pl. XV:4, D 264; card and Wiencke as E. caballus); *Cervus* M3 (1/1, worn) (D 557); *Homo*: metacarpus (adult), metatarsus (adult) (D 556); phalanx fragment (D 559); *Ostrea*, Cardium, Murex (D 264); 4 Spondylus (3+ MNI), 3 M. trunculus, Cerastoderma fragment, Arca, 2 Pinna (1+ MNI) (D 555 = 511, studied by Reese); Arca, Cardium (D 556); Ostrea fragment, Pinna fragment (D 557); Cardium (D 558); Ostrea, Pinna (D 559).

**Street south of Wall W-6**: LH III. Lots D 265-66. Cards as VII with some V. Caskey list has 265 as VII with some V and 266 as V with some VII). Wiencke 1998, 180 notes only the 265 fauna: 1 Sus, 1 Cardium. The pottery was not retained.

Gejvall (1 small and 1 medium bag):

*Ovis/Capra* mandible fragment (R) (266); *Sus*: canine fragment (265), fragments (266); *Bos*: M3, fragments (266); Cardium (265); 2 Ostrea, 3 Murex (266).

**Lot D 244** - Card and Caskey list as V with some VII; Lindblom as VI (large bag).

*Sus*: 4 mandible fragments (3 1/1, 1 M2→, 4 R); *Ovis/Capra*: M2 (1/1), M3→(?); *Bos* mandible fragment (1/1, R); *E. caballus* ?M3 (worn, large) (Gejvall 1969, 36, 84, pl. XVI:5, as V+VII); *Testudo*: 2 carapace fragments; Ostrea, Arca, 2 Pinna, Murex.

**Trench F**

**First level below stone paving**: LH II to IIIA2-B1. Lots F 16-17, 21. Cards as LH III with some early Mycenaean,
Caskey list as all VII.


Gejvall (small bag):
Ovis/Capra: 2 mandible fragments (2 R, 1/1), metacarpus fragment; Sus: mandible fragment (1/1, L), tibia fragment; 2 Murex.

**Second level below stone paving:**
LH II with MH. Lots F 18-19. Cards as VI with LH I-I and latest MH but Caskey list and 1969 volume as VI.


Gejvall (1 small bag):
Ovis/Capra metacarpus fragment; Sus: skull fragment, tibia fragment; Canis mandible (C, P1-4 roots, M1, M2 broken posterior, exhibits oligodonty, L) (Gejvall 1969, 17, 65; in Stockholm); 2 Ostrea, 2 Arca, Tonna fragment.

**Third level below stone paving:**
mainly MH, some LH II (V-VI). Lot F 22.


Gejvall (small bag):
Capra horncore fragment; Sus mandible fragment (M3→, R); Bos: humerus fragment, 2 pelvis fragments; Ostrea, Cardium, Arca, Murex.

**Area DB**

**Pit Grave DB-1** (Lot DB-38) Card as V, Lindblom as VI (medium bag).
Sus: maxilla fragment (M1→, L), mandible fragment (M1→, L);
Ovis/Capra scapula fragment; Bos: P2 (1/1), M1: (worn down); Testudo: 3 carapace fragments; 2 Ostrea, Cardium, 4 Murex.

**Grave DB-3** (Lot DB-1 12) Card as V; Lindblom as VI (Blackburn 1970, 178) (small bag).
Sus: pelvis fragment, 2 metacarpus fragments (2 juvenile); Ostrea, Murex.

**Lot DB-9** Associated with Graves DB-1 and 3. Card as V with some VI and later, Lindblom as VI (large bag).
Sus: canine, scapula fragment; Capra: 3 horncore fragments, mandible fragment (1/1, L); Bos: horncore fragment (has small piece of skull, has large cut area [W 40], broken proximal end) (Gejvall 1969, 33, 79, pl. XIII:6, as DB1-9, V+VI, as castrate), horncore fragment (small piece, in Stockholm), radius fragment; Canis mandible fragment (R); Testudo carapace fragment; Arca, 2 Murex.

**Lot DB-26** Associated with Graves DB-1 and 3. Card as V+VI, Lindblom as VI (small bag).
Sus: canine fragment, scapula fragment, metacarpus, metatarsus; Ovis/Capra: M3→, tibia fragment; Bos: 2 metacarpus fragments; Ostrea, 2 Murex.

**Lot DB-27** Associated with Graves DB-1 and 3. Card as V+VI, Lindblom as VI (small bag).
Sus: maxilla fragment (C→, L), ulna fragment (juvenile); Ovis: skull fragment, mandible fragment (1/1, L); Testudo: 2 carapace fragments; 2 Murex, 2 Lunatia.
Area DE

Lot DE 433 - Card and Caskey list as Mixed; Lindblom as VI (small bag).
Bos humerus fragment; Testudo carapace fragment; Pinna, Murex, Cerithium, Tonna.

Lot DE 440 - Card as VII, Caskey list and Lindblom as VI (small bag).
Sus: 3 maxilla fragments (M1→, 2 L, 1 R), ulna fragment (juvenile); Ovis/Capra (2 MNI): 2 mandible fragments (M3→, R, L), metacarpus fragment (newborn); Bos: M3 (1/1), metapodial (adult); Cervus: antler fragment, mandible fragment (R); 2 Ostrea, Pinna, Murex.

Lot DE 443 - Card as VII, Caskey list and Lindblom as VI (medium bag).
Sus: humerus fragment, femur fragment (juvenile), astragalus fragment; Ovis/Capra: M3 (1/1), mandible fragment (M1 1/1, L); Bos: M2 or M3→; Cervus: antler fragment, mandible fragment (R); 3 Ostrea, Pinna, 2 Murex.

Lot DE 452 (Bothros DE-2) VI (2 large bags).
Sus: 2 maxilla fragments (1 1/1, L; 1 1/1?, R), 4 mandible fragments (M3→, 3 1/1, 2 L, 2 R), radius fragment (juvenile)
Ovis/Capra: horncore fragment, maxilla fragment (1/1, R), 2 mandible fragments (M1→, L; M3→, R); Bos: mandible fragment (R), tibia fragment, calcaneus, 2 phalanx 1, phalanx 3; Canis: mandible fragment (mainly alveoli, has P2 worn, R, medium or rather large) (Gejvall 1969, 17, 65), distal radius (F, adult, L) (1969:67, as senile) (both in Stockholm); Lepus proximal tibia fragment; 17 Ostrea, 3 Arca, 2 Pinna, 2 Murex.


Lot DE 453 - Card as maybe VII, Caskey list and Lindblom as VI (large bag).
Sus mandible fragment (M1 C1/1, R); Ovis/Capra mandible fragment (M3 1/1, R); Bos phalanx 1; Cervus: radius fragment, metatarsus fragment; Testudo carapace fragment; Homo tibia (fetus); 10 Ostrea, Cardium, 2 Murex.

Lot DE 455 - Card as VII, Caskey list as VI+later; Lindblom as VI (medium bag).
Sus humerus fragment (fetus or newborn); Bos: M3 (1/1), phalanx 3.

Lot DE 456 (Bothros DE-1) VI (2 large bags).
Sus: maxilla fragment (M1→, R), mandible fragment (1/1 worn down, R), ulna fragment; Ovis/Capra: 3 mandible fragments (M1→, L; 1 M3→, 1 1/1, 2 R), M3→, metacarpus fragment (juvenile); Bos: M2*, M3 (1/1), astragalus, phalanx 2; Canis mandible fragment (only alveoli, small, L) (Gejvall 1969, 17, 65, pl. II:11); E. caballus proximal metatarsus (adult, R) (1969, 35, 36, 86, pl. XVI:2); Cervus: antler point, radius fragment, tibia fragment; Lepus femur fragment; Testudo carapace fragment; 18 Ostrea, 2 Arca, 2 Pinna, 8 Murex, Cerithium.
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