ANIMAL REMAINS FROM LUMBINI (NEPAL)

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(With 1 Plate and 1 Table)

INTRODUCTION

This report deals with the collection of animal remains from Lumbini, the birth place of Lord Buddha in Nepal excavated during the field season of 1970-1971 by the Department of Archaeology, Government of Nepal.


In almost all cases the animal remains from Lumbini are very fragile and fragmentary in nature. The organic materials of the bones have disappeared to a great extent and they are impregnated with inorganic material. Even the long bones such as humerus, radius, femur, tibia and canal bones consist of fragments only and hence are unsuitable for measurement etc.

The majority of the remains are domestic animals, the most prominent being those of Zebu or domestic humped cattle of India. The limited number of remains of the Indian buffalo indicate that probably the then human inhabitants did not maintain these animals in such large herds as humped cattle. The remains of goat and sheep are very small in number and that of the domestic pig are fairly represented. Amongst the remains, the presence of a single 1st phalanx of true horse is of great significance, showing that the horse was very useful animal in the daily life of the then inhabitants.

Amongst the wild animals, only the spotted deer (*Axis axis*) is represented.

Of the reptilian remains recorded are those of the common Soft-shelled Box Turtle (*Lissemys punctata*), the Soft-shelled River Turtle (*Chitra indica*) and a single vertebra of a snake.
These Lumbini remains resemble in their species those of Mohenjodaro (Sewell & Guha, 1931), Harappa (Prashad, 1936), Hastinapura (Nath 1955), Maski (Nath, 1957), Saranath (Nath, 1958), Rangpur (Nath, 1963), Nagda (Nath, 1966), Rupar (Nath, 1968) and Brahmsgiri, (Nath, 1968).

**SYSTEMATIC ACCOUNT OF THE ANIMAL REMAINS**

**Class PISCES**

**Order TELEOSTEI**

**A Carp**

One dorsal spine and one abdominal vertebra of a fish. Locus: \(H_20\cdot H_21\cdot QD1;\) Stratum: (6); Depth: 6' 9"; Reg. No. 2; Date: 18-2-72.

The dorsal spine and the vertebra appear to belong to some species of Carp. Not identifiable even generically, as the distinctive features are not well marked.

**Class REPTILIA**

**Order CHELONIA**

**Family TRIONYCHIDAE**

**Lissemys punctata** (Bonnaterre)  
(Pl. I, Figs. 1 & 1A)  
(Common Soft-shelled Box Turtle)

One fragment of plastron, Locus: \(H_20\cdot J_20\); Stratum: (3); Depth: 1' 6"; Reg. No. 1; Date: 29-12-70.

In pattern and vermiculations this fragment corresponds to those of Harappa (Prashad, 1936, p. 14), Mohenjodaro (Sewell & Guha, 1931, p. 663), Hastinapura (Nath, 1955, p. 108) and a Sarnath (Nath, 1958, p. 168) and belong to adult individual.

**Chitra indica** (Gray) (Pl. I, Fig. 2)  
(Soft-shelled River Turtle)

One fragment of plastron. Locus: \(H_20\cdot J_20\cdot QD_4;\) Stratum: (7); 3' 2"; Date: 31-12-70.

The fragment of the plastron resembles in pattern and vermiculations those of Mohenjodaro (Sewell & Guha, 1931, p. 663), Harappa
NATH & BISWAS: Animal remains from Lumbini


Order OPHIDIA

An abdominal vertebra of a snake. Locus: T₁₅-T₁₄, QD₁; Depth: 7'; Stratum: (11); Reg. No. 4; Date: 2-2-71.

Not identifiable, as distinctive features are not well marked. The zygosphene, a wedge-like process on the anterior side of the neural arch, and the zygantrum, a depression on the posterior surface of the neural arch, are well marked in it.

Class MAMMALIA

Order ARTIODACTYLA

Family SUIDAE

Sus scrofa cristatus Wagner (Pl. 1, Figs. 3, 3A)

(Indian Domestic Pig)

1. Distal fragment of humerus without distal condyles having supinator ridge. Locus: H₀₂₀-QD₂; Stratum: (5); Depth: 2' 5"; Reg. No. 1; Date: 31-12-70.

2. Distal fragment of the left humerus without epiphysis. Locus: K₂₀-J₂₀, QD₂; Stratum: (6); Depth: 3' 6"; Reg. No. 1; Date: 17-1-71.

3. Fragment of the left horizontal ramus of lower mandible with 3rd premolar and 1st & and erupting molar of an young one. Locus: H₂₀-J₂₀, D₂; Stratum: (10); Depth: 6' 8"; Reg. No. 10; Date: 12-2-71.

4. Fragment of a proximal shaft of right tibia without proximal epiphysis of an young one. Locus: H₂₀-J₂₀, D₂; Stratum: (10); Depth: 6' 8"; Reg. No. 10; Date: 12-2-71.

5. Left upper 2nd molar. Locus: H₀₂₀-J₀₂₀; Stratum: (7); Depth: 5' 5"; Reg. No. 7; Date: 7-1-71.

6. Left upper 4th premolar. Locus: T₁₉-T₁₄, QD₁; Stratum: (5); Depth: 2' 3"; Reg. No. 9; Date: 11-2-71.

7. Fragment of the shaft of humerus without proximal and distal extremities. Locus: H₀₂₀-H₀₂₀, QD₁; Stratum: (6); Depth: 5' 1"; Reg. No. 1; Date: 17-2-71.

8. Distal fragment of humerus. Locus: H₂₁-Q₂, QD₂; Stratum: (5); Depth: 3'; Reg. No. 1; Date: 31-1-71.

9. Fragment of a shaft of femur. Locus: T₁₃-T₁₄, QD₁; Stratum: (11); Depth: 7' 3"; Reg. No. 7; Date: 5-2-71.

10. Fragment of the shaft of radius. Locus: H₀₂₀-J₀₂₀, QD₂; Stratum: (5); Reg. No. 15; Date: 19-1-71.

11. Upper canine tooth. Locus: T₁₅-T₁₃; Stratum: (7); Depth: 7' 10"; Date: 15-1-71.
These remains are mostly fragmentary in nature. It is difficult, therefore, to be certain about the size of this species. All bones are mostly of young individuals and thereby showing that the people practiced full-fledged domestication of this animal.

The remains of the domestic pig have been recorded from Harappa (Prashad, 1936, p. 54), Mohenjodaro (Sewell & Guha, 1931, pp. 660-661), Rupar (Nath, 1968, p. 103), Hastinapura (Nath, 1955, pp. 118—119), Rangpur (Nath, 1963, pp. 157—158) and Nagda (Nath, 1966, p. 183).

Family BovidAE

Bos indicus Linn. (Pl. 1, figs. 5, 5a, 5b)
(The Zebu or Domestic Humped cattle of India)

1. 1st phalanx of forefoot. Locus : K20·J20, QD8; Stratum : (6); Depth : 3' 6"; Date : 11-1-71.

2. One fragment of proximal part of 3rd and 4th metatarsal. Locus : T13-T14, QD1; Stratum : (11) Depth : 7'; Reg. No. 4; Date : 2-2-71.

3. Slightly broken distally left lower molar tooth. Locus : T13-T14, QD1; Stratum : (6); Depth : 4'3"; Reg. No. 10.

4. Distal fragment of 3rd & 4th metatarsal. Locus : T13-T14, QD1; Stratum : (4); Depth : 3'5"; Reg. No. 11; Date : 11-2-71.

5. Body of a vertebra. Locus : T13-T14, QD1; Stratum : (4); Depth : 3'5" Reg. No. 11; Date : 11-2-71.

6. Fragment of a blade of scapula. Locus : T12-T13, QD1; Stratum : (3); Depth : 1'8"; Reg. No. 10; Date : 6-1-71.

7. Fragments of horizontal ramus of lower mandible. Locus : H20·J20, QD1; Stratum : (10); Depth : 6'8"; Reg. No. 10; Date : 12-2-71.

8. Fragment of a rib. Locus : H20·J20, QD2; Stratum : (10); Depth : 6'8"; Reg. No. 10; Date : 12-2-71.

9. Fragmentary piece of a cervical vertebra. Locus : T12-T13, Q4; Stratum : unstratified; Depth : 7'7"; Reg. No. 9; Date : 28-1-71.

10. Proximal fragmentary portion of a scapula with a portion of glenoid cavity. Locus T12-T13; Q4; Stratum : unstratified; Depth : 7'7"; Reg. No. 9; Date : 28-1-71.

11. Fragmentary piece of a cervical vertebra with process of spine. Locus : T12-T13, QD4; Stratum : (5); Depth : 2' 8"; Reg. No. 4; Date : 4-1-71.

12. Fragment of astragalus. Locus : H20·J20, QD2; Stratum : (3); Depth : 1' 6"; Reg. No. 1; Date : 29-12-70.

13. Body of a lumbar vertebra. Locus : H20·J20, QD4; Stratum : (5); Depth : 6' 7"; Date : 6-1-71.

14. Eroded left scaphocuboid bone. Locus : H20·J20, QD4; Stratum : (5); Depth : 6'7"; Date : 6-1-71.
15. Fragment of a bone. Locus: T_{13}-T_{14}, QD_4; Stratum: (11); Depth: 7'-3"; Date: 5-2-71.

16. 3rd phalanx of forelimb. Locus: H_{20}-H_{21}, QD_1; Stratum: (6); Depth: 5'-1"; Date: 17-2-71.

17. Proximal fragmentary bone of a radius. Locus: H_{20}-H_{21}, QD_1; Stratum: (6); Depth: 5'-1"; Date: 17-2-71.

18. Proximal eroded 1st phalanx. Locus: H_{20}-H_{20}, Q_4; Stratum: (7); Depth: 3'-2"; Reg. No. 2; Date: 31-12-70.

19. 1st phalanx (Broken proximally and distally) of fore-limb. Locus: H_{20}-SB; Stratum: (2); Reg. No. 3; Date: 29-12-70.

20. Distal fragmentary piece of the humerus (medial condyle). Locus: H_{21}-Q_5; Stratum: (5); Depth: 3"; Reg. No. 1; Date: 31-1-71.

21. Eroded 3rd phalanx of fore-foot. Locus: T_{13}-T_{14}, QD_1; Stratum: (11); Depth: 7'-8' 6"; Reg. No. 6; Date: 3-2-71.

22. A fragmentary rib. Locus: T_{13}-T_{14}, QD_4; Stratum: (11); Depth: 7'-8' 6"; Reg. No. 6; Date: 3-2-71.

23. Proximal fragment of tibia. Locus: T_{13}-T_{14}, QD_1; Stratum: (11); Depth: 7'-8' 6"; Reg. No. 6; Date: 3-2-71.

24. Fragment of horizontal ramus of lower jaw. Locus: T_{13}-T_{14}, QD_1; Stratum (11); Depth: 7'-8' 6"; Reg. No. 6; Date: 3-2-71.

25. Fragment of a rib. Locus: H_{20}-J_{20}, QD_2; Stratum: (5); Date: 19-1-71.

26. Fragmentary piece of humerus. Locus: T_{13}-T_{14}, QD_1; Stratum: (9); Depth: 6'-5"; Date: 28-1-71.

27. Fragment of a left astragalus. Locus: T_{13}-T_{14}, QD_1; Stratum: (3); Date: 12-2-71.

28. Fragment of a shaft of radius. Locus: H_{20}-J_{20}, QD_2; Stratum: (3); Depth: 1'-6"; Reg. No. 6; Date: 2-1-71.

29. Body of a lumber vertebra. Locus: H_{20}-J_{20}, QD_4; Stratum: (5); Depth: 6'-7"; Date: 6-1-71.

30. Eroded left scaphocuboid of tho pes. Locus: H_{20}-J_{20}, QD_4; Stratum: (5); Depth: 6'-7"; Date: 6-1-71.

31. 1st phalanx of right pes. Locus: T_{12}-T_{13}, Q_{14}; Stratum: (11); Depth: 5'-6"; Date: 13-1-71.

32. One piece of distal end fragment of 3rd & 4th metatarsal. Locus: T_{12}-T_{13} Q_{14}; Stratum: (11); Depth: 5'-6"; Date: 13-1-71.

33. Fragment of the vertical ramus of left mandible with broken coronoid process. Locus: T_{13}-T_{13}, Q_{14}; Stratum: (11); Depth: 5'-6"; Date: 13-1-71.

34. Fragment of a sacral bone. Locus: T_{13}-T_{13}, Q_{14}; Stratum: (11); Depth: 5'-6"; Date: 13-1-71.

35. Fragment of horizontal ramus of left mandible. Locus: H_{20}-J_{20}, QD_3; Stratum: (10); Depth: 6'; Reg. No. 12; Date: 11-2-71.

36. Rib (fragment). Locus: T_{13}-T_{13}, QD_4; Stratum: (8); Date: 11-1-71.
37. Horizontal ramus of mandible c tooth (fragment). Locus: T_{12}T_{13}, QD_{4}; Stratum: (8); Date: 11-1-71.

38. Two Ribs (fragments). Locus: T_{12}T_{13}, QD_{4}; Stratum: (9); Depth: 6'6"; Date: 19-1-71.

39. Five pieces of rib (fragments). Locus: H_{20}J_{20}, QD_{4}; Stratum: (5); Date: 6-1-71.

40. 3rd & 4th metacarpal (fragment). Locus: H_{20}QD_{4}; Stratum: (5); Depth: 2'5"; Date: 13-12-70.

41. Body of lumber vertebra. Locus: T_{12}T_{13}; Stratum: (7); Depth: 7'10"; Date: 15-1-71.

42. Third broken phalanx. Locus: K_{20}L_{20}, QD_{3}; Stratum: (6); Depth: 3'6"; Date: 11-1-71.

The remains of humped cattle of India, listed above, including the long bones are very fragmentary. The great frequency with which the remains of *Bos indicus* have been met with indicates that the inhabitants probably used to maintain large herds of this animal. In a number of cases the remains are those of the young ones which indicate that the people practised full-fledged domestication of the humped cattle of India.

The few teeth available resemble closely those from Harappa, Mohenjodaro, Hastinapura, Maski, Rupar and Brahmagiri and also the recent specimens of *Bos indicus* in the collection of the Zoological Survey of India.


From the structural resemblance between the skeletal remains excavated at Lumbini and those of the modern domestic humped cattle of India present in the collection of the Zoological Survey of India, it is evidently clear that Lumbini remains are alike those of the domesticated cattle now found in India.

*Bubalus bubalis* Linn. (Pl. 1, Figs. 6, 6A)

(The Domestic Buffalo)

1. Fragment of the shaft of humerus. Locus: H_{20}J_{20}, QD_{4}; Stratum: (7); Depth: 5'5"; Reg. No. 7; Date: 7-1-71.

2. Fragment of the distal part of right humerus. Locus: H_{20}J_{20}; Stratum: (7); Depth: 5'5"; Reg. No. 7; Date: 7-1-71.
3. Fragment of a rib of thoracic region. Locus: H_{20}H_{21}; Stratum: (6); Depth: 7'; Date: 5-3-71.
4. Fragment of a rib of lumber region. Locus: H_{20}H_{21}; Stratum: (6); Depth: 7'; Date: 5-3-71.
5. 1st phalanx of right manus. Locus: H_{20}J_{20}; Stratum: (7); Depth: 3'2"; Date: 31-12-70.
6. 2nd broken phalanx of fore-foot. Locus: K_{20}L_{20}; QD_{3}; Stratum: (6); Depth: 3'6"; Date: 11-1-71.
7. A broken talus. Locus: H_{20}J_{20}, QD_{4}; Stratum: (7); Depth: 3'2"; Date: 31-12-70.

The find of a smaller number of fragments of the bones of *Bubalus bubalis* indicates that the inhabitants probably did not maintain large herds of this animal as compared with the *Bos indicus* Linn.

These remains show very close structural resemblance with those of the specimens of modern domestic buffaloes present in the collection of the Zoological Survey of India. Thus the remains of the domestic buffalo are closely akin to the modern domesticated race of buffalo. They are similar to those of Mohenjodaro (Sewell & Guha, 1931, p. 659), Harappa (Prasad, 1936, pp. 32-37), Hastinapura (Nath, 1955, p. 115) and Rupar (Nath, 1968, pp. 97-98).

**Subfamily CAPRINAE**

**Capra hircus aegagrus Gmelin**

(The Domestic Goat)

1. One fragment of the shaft of femur. Locus: H_{20}J_{20}, QD_{2}; Stratum: (10); Depth: 6'8"; Date: 12-2-72.
2. One fragment of radius. Locus: T_{12}T_{13}, QD_{2}; Stratum: (5); Depth: 2'8"; Date: 9-1-71.
3. Fragment of the body of lumber vertebra. Locus: T_{12}T_{13}, QD_{4}; Stratum: (6); Date: 10-2-71.
4. Fragmentary piece of femur. Locus: T_{13}T_{14}, QD_{1}; Stratum: (9); Depth: 6'3"; Reg. No. 5; Date: 2-2-71.
5. Right lower second molar. Locus: T_{13}T_{14}, QD_{1}; Stratum: (5); Depth: 2'3"; Reg. No. 9; Date: 11-2-71.
6. Fragmentary shaft of femur of an young one. Locus: T_{13}T_{14}, QD_{2}; Stratum: (5); Depth: 2'3"; Reg. No. 9; Date: 11-2-71.
7. Fragment of a pelvic bone with acetabulum. Locus: T_{13}T_{14}; Stratum: (5); Reg. No. 3; Date: 31-1-71.
8. A fragment of the horn-core. Locus: T_{13}T_{14}, QD_{1}; Stratum: (11); Depth: 7'; Reg. No. 4; Date: 2-2-71.
9. Fragment of a body of lumber vertebra. Locus: T_{19}T_{19}, QD_{4}; Stratum: (6); Date: 10-2-71.
10. Fragment of a skull. Locus: H\textsubscript{20}-J\textsubscript{20}, QD\textsubscript{2}; Stratum: (5); Depth: 2'10"; Date: 18-1-71.

These remains are very fragmentary. The few available teeth do not show any specialized features and generally resemble those of the recent domestic goat.


**Ovis aries dolichura** Duerst

(The Domestic Sheep)

1. Left upper 1st molar. Locus: T\textsubscript{13}-T\textsubscript{14}, QD\textsubscript{1}; Stratum: (11); Depth: 7'8" 6"; Reg. No. 6; Date: 3-2-71.

2. Fragment of the shaft of radius. Locus: T\textsubscript{13}-T\textsubscript{14}, QD; Stratum: (11); Depth: 7'-8' 6"; Reg. No. 6; Date: 3-2-71.

The two fragments generally resemble those of the recent specimens of domestic sheep in the collection of the Zoological Survey of India. These fragments from the Lumbini excavations resemble those of the remains of the domestic sheep from Harappa, Hastinapura, Maski and Rupar.

**Family Cervidae**

**Axis axis** Erxleben (Pl. 1, Fig. 4)

(The Chital or Spotted Deer)

1. One proximal fragment of 3rd & 4th metatarsal. Locus: K\textsubscript{20}-J\textsubscript{20}, QD; Stratum: (6); Depth: 3'6"; Reg. No. 1; Date: 17-1-71.

This solitary find shows the presence of chital at Lumbini. Remains of chital have also been recorded from Prabhas (Nath, 1967, p. 66) and from Brahmagiri (Nath, 1968, p. 75).

**Order Perissodactyla**

**Family Equidae**

**Equus caballus** Linn. (Pl. 1, Figs. 7, 7A)

1. One 1st phalanx of the fore-foot proximally broken. Locus: H\textsubscript{20}-J\textsubscript{20}, QD\textsubscript{2}; Stratum: (6); Depth: 2'10"; Reg. No. 8; Date: 9-1-71.

This solitary find shows that the inhabitants were acquainted with the horse at Lumbini. It resembles in size and shape the modern horse, *Equus caballus* of India (See Table 1).
Table 1.—Measurements (in mm.) of the 1st phalanx of fore-foot of the horse.

<table>
<thead>
<tr>
<th>1st phalanx of the fore-foot</th>
<th>Lumbini</th>
<th>Rupar (RPR 2-7)</th>
<th>Harappa</th>
<th>Modern specimen (in the Zoological Survey of India)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Sagittal length</td>
<td>86</td>
<td>87</td>
<td>79</td>
<td>81</td>
</tr>
<tr>
<td>2. Greatest breadth of the proximal end</td>
<td>—</td>
<td>56</td>
<td>52</td>
<td>52</td>
</tr>
<tr>
<td>3. Minimum breadth of diaphysis</td>
<td>33</td>
<td>32</td>
<td>33</td>
<td>32</td>
</tr>
<tr>
<td>4. Greatest distal breadth of bone</td>
<td>46</td>
<td>48</td>
<td>45</td>
<td>44</td>
</tr>
<tr>
<td>5. Greatest breadth of distal articular surface</td>
<td>43</td>
<td>45</td>
<td>42</td>
<td>42</td>
</tr>
</tbody>
</table>

Remains of the horse Equus caballus have been recorded from Mohenjodaro (Sewell & Guha, 1931, p. 653), Harappa (Nath, 1962, pp. 1-14), Hastinapura (Nath, 1955, p. 109) and Rupar (Nath, 1968, p. 80).

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SUMMARY

This report is based on the collection of animal remains excavated by the Department of Archaeology, Government of Nepal during the field season of 1970-1971 from Lumbini, Nepal. Altogether eleven species is represented. Amongst them, the domesticated animals are as follows:—Bos indicus Linn., Bubalus bubalis Linn., Capra hircus aegagrus Erx., Ovis aries dolichura Duerst, Equus cabalus Linn. and Sus scrofa cristatus Wagner.

Amongst the wild animals, only the spotted deer, Axis axis Erx. is represented. The reptilian fauna is represented by Lissemys punctata (Bonnaterre), Chitra indica (Gray) and snake.

A few bones of Bos Indicus Linn. bear definite chopping marks thereby showing that the inhabitants probably used this animal as food.
REFERENCES


