

## I—INTRODUCTION

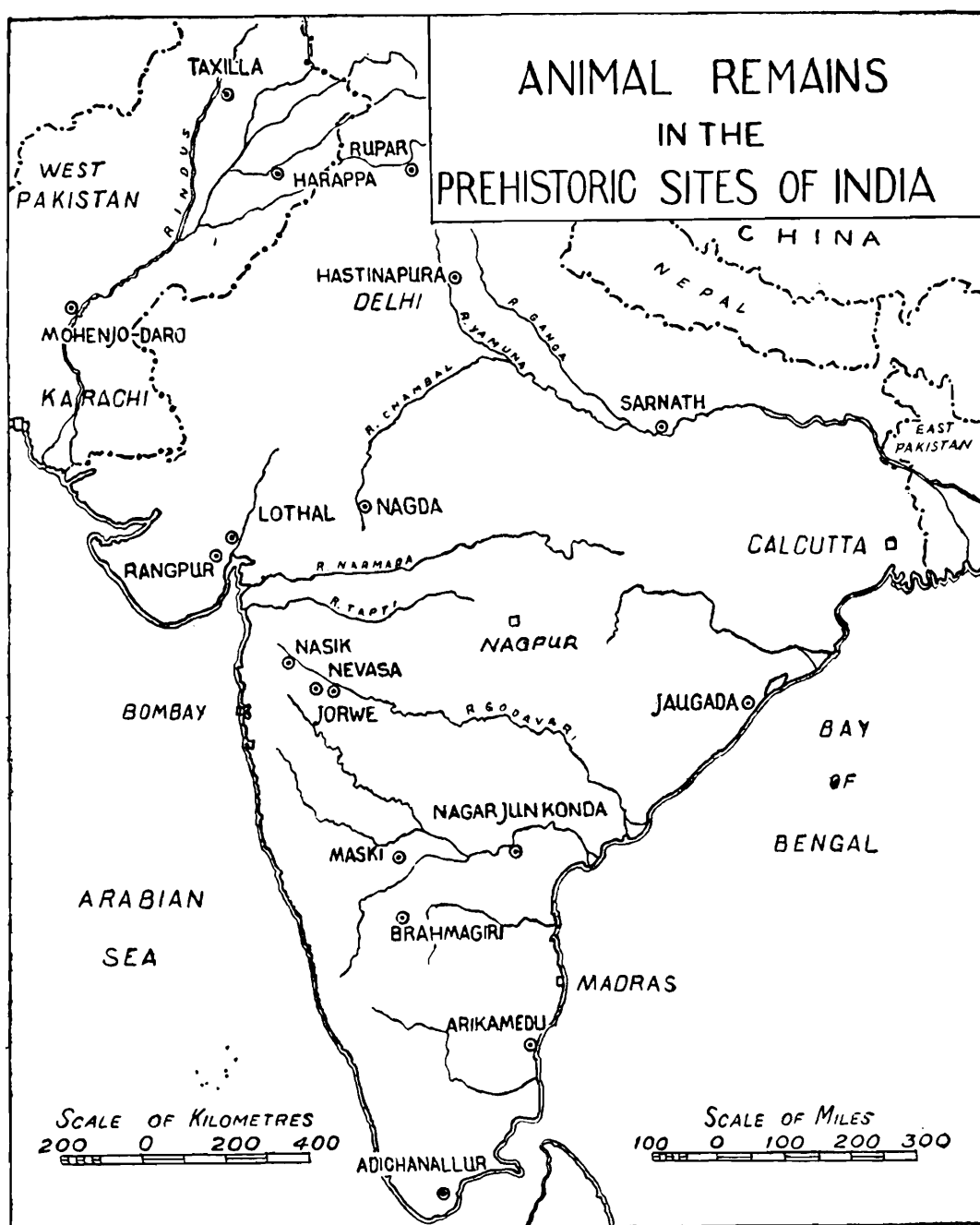
The history of the early appearances of human civilization is closely connected with the notion of food production which, in the real sense, implies an effective agriculture (including, in the Old World, animal husbandry) and a settled village type of existence. Civilization cannot make its appearance until effective food production based on farming of plants and animals had come into existence. Sometime around 8,000 years ago, in the Western Asia, traces of a new economic stage in food-production came into existence. In the reconstruction of prehistoric farming, both animal and plant remains have played an important role. The primary documentation for understanding of the beginnings of early culture and civilization, the archaeological excavations, through the media of the faunal and floral remains found along with other excavated materials, not only reveal to us the social and material culture of the people but also help us to know geographical, topographical and climatic conditions and other environmental complex together with economic aspects of the bygone periods. The history of the various types of animals, is revealed through the art and paintings of the prehistoric people and from actual bony remains found in the excavations. This paper deals with the animal skeletal remains excavated in the different ancient sites of India, and their affinities and correlations with those of the Western Asiatic countries, together with a brief account of the ancestry of the animals concerned. Below is given the names of the various excavated archaeological sites of India, mentioned in the text, in a chronological order.

- (1) 2,500 B. C.—1,500 B. C. *Mohenjodaro*—(In the Larkana district, Sind). Now in West Pakistan.
- (2) 2,500 B. C.—1,500 B.C. *Harappa*—(In the Montgomery district, Punjab). Now in West Pakistan.
- (3) 2,100 B. C.—1,500 B. C. *Rana Ghundai*. (In North Baluchistan, West Pakistan).
- (4) 2,000 B. C.—200 B. C. *Rupar*. (In Ambala district, Punjab).
- (5) 2,000 B. C.—800 B. C. *Rangpur*. (In Ahmedabad district, Gujarat).
- (6) 1,000 B. C.—3rd Century B. C. *Hastinapur*. (In Meerut district, Uttar Pradesh).
- (7) 1,000 B. C.—1st Century A. D. *Maski*. (In Raichur district, Mysore State).
- (8) Mid 1st Century B. C.—2nd Century A. D. *Taxilla*. (22 miles N. of Rawalpindi, N.W.F. Province. Now in West Pakistan).
- (9) 1,000 B. C.—1st Century A. D. *Brahmagiri*. (In Chitaldrug district, Mysore State).
- (10) 200 B. C.—300 A. D. *Nasik*. (In Nasik district, Maharashtra).
- (11) 20 A. D.—50 A. D. *Arikamedu* (Pondicherry, S. India).

Unfortunately, the sites which yielded animal remains are geologically not very old, hence we do not know much about the predomestic condition of these animals in India. The above mentioned sites show a

mature stage of civilization and domestication of animals, with the few exception of the wild species of Harappa, such as the rhinoceros and the tiger, etc. The earliest known culture of India is the Harappan culture or the Indus Valley Civilization. This culture is probably an offshoot of a larger culture which manifested itself along the Afro-Asian belt or Western Persia, Mesopotamia (Iraq) and Egypt in the calcolithic age. According to archaeologists (Wheeler 1953, p. 4) the dating of the Harappan civilization is established between 2,500 B.C. to 1,500 B.C. Recent excavations show the wide extension of the Harappan civilization up to Gujarat. This culture extended from the north-western part of old India, comprising Baluchistan, Makran and Sind, Punjab along the courses of the R. Indus and its tributaries eastward to Rupar (district Ambala, Punjab) and Bikaner (Rajasthan) and Bahawalpur (Punjab) and in the south of Sind up to Rangpur and Lothal in Gujarat.

The accompanying map (Text-fig. 1) gives the sites of the Indus Valley Civilization along with other Indian prehistoric sites.



TEXT-FIG. 1.—Map, showing sites of the Indus Valley Civilization and other pre-historic sites in India.

The excavations reveal that the people of the Indus Civilization had contact with the civilization of the Western Asia and Egypt. This civilization covers the largest area than any other pre-classical civilization of India.

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## II—DESCRIPTION OF THE ANIMAL REMAINS OBTAINED FROM THE VARIOUS PREHISTORIC SITES OF INDIA

### (1) Mohenjodaro (2,500 B.C.—1,500 B.C.)

The first report on the animal remains of the Indus Civilization was from Mohenjodaro and was studied by Sewell and Guha (1931) and it represented 38 species as follows :—

#### (a) Invertebrates

#### Phylum MOLLUSCA

1. *Lamellidens marginalis* (Lamarck)  
(A Freshwater Mussel)
2. *Arca granosa* Linn.  
(The Marine Ark Shell)
3. *Arabica arabica* (Linn.)—(Syn. *Cypraea arabica* Linn.)  
(A Cowry)
4. *Erosaria ocillata* (Linn.)—(Syn. *Cypraea ocillata* Linn.)  
(A Cowry)
5. *Babylonia spirata* (Linn.)—(Syn. *Eburna spirata* Lamarck)  
(A Marine Gastropod Shell)
6. *Fasciolaria (Pleuroploca) trapezium* (Linn.)—(Syn. *Fasciolaria trapezium* Linn.)  
(A Marine Gastropod Shell)
7. *Xancus pyrum* (Linn.) var. *acuta* Hornell—(Syn. *Turbinella pyrum* Linn.) and var. *fuscus* Sowerby.  
(The Shank Shell)
8. *Viviparus bengalensis* (Lamarck)  
(The Banded Pond Snail)

9. *Indoplanorbis exustus* (Deshayes)  
(A Freshwater Snail)
10. *Parreyssia favidens* (Benson)  
(A Bivalve Mollusc)

Phylum COELENTERATE

11. *Favia fabus* (Forskal)  
(A Coral)

(b) *Vertebrates*

Class PISCES (Fish)

- (1) *Rita rita* (Ham. Buch.)  
(A River Fish)
- (2) *Wallago* sp.  
(A River Fish)
- (3) *Arius* sp.  
(A Siluroid Fish)
- (4) A Carp Remains

Class REPTILIA

- (1) *Gavialis gangeticus* (Gmelin)  
(The Gharial)
- (2) *Trionyx gangeticus* Cuvier  
(A River Turtle)
- (3) *Chitra indica* (Gray)  
(A River Turtle)
- (4) *Lissemys punctata* (Bonnaterre)—(Syn. *Emyda granosa* Gray) (A River Turtle)
- (5) *Testudo elegans* Schoepff.  
(The Common Land Tortoise)
- (6) *Geoclemys hamiltoni* (Gray)—(Syn. *Damonia hamiltoni* Gray)  
(A Freshwater Tortoise)

- (7) *Baragur baska* (Gray)  
(A River Turtle)

Class AVES (Birds)

- (1) *Gallus* sp.  
(The Fowl)

Class MAMMALIA

Order INSECTIVORA

1. *Suncus stoliczkanus* Anderson—(Syn. *Crocidura bidiana* Anderson).  
(The Anderson's Shrew)

Order CARNIVORA

1. *Herpestes auropunctatus* (Hodgson)  
(The Small Indian Mongoose)
2. *Canis familiaris* Linn.  
(The Domestic Dog)

Order PROBOSCIDEA

1. *Elephas maximus* Linn.  
(The Indian Elephant)

Order PERISSODACTYLA

- 1 *Equus caballus* Linn.  
(The Horse)

Order ARTIODACTYLA

1. *Bos indicus* Linn.  
(The Indian Humped Cattle)

2. *Bos bubalis* Linn.  
(The Indian Buffalo)
  
3. *Ovis* sp.  
(The Sheep)
  
4. *Rusa unicolor* (Kerr.)—(Syn. *Cervus unicolor* Kerr.)  
(The Sambar)
  
5. *Axis (Hyalaphus) porcinus* (Zimm.)—(Syn. *Cervus porcinus* Zimm.)  
(The Hog Deer)
  
6. *Cervus hanglu* (Wagner)—(Syn. *Cervus cashmerianus* Falconer)  
(The Kashmir Stag or Hangul)
  
7. *Axis axis* (Erxl.)—(Syn. *Cervus axis* Erxl.)  
(The Chital or Spotted Deer)
  
8. *Camelus dromedarius* Linn.  
(The One-humped Camel)
  
9. *Sus scrofa cristatus* Wagner  
(The Indian Pig)

#### Order RODENTIA

1. *Rattus rattus* (Linn.)—(Syn. *Mus rattus* Linn.)  
(The Common Indian Rat)

*General remarks.*—The above-mentioned animals can be classified into five categories as follows :—

(i) Amongst the remains as listed above the following animals were probably maintained in a state of domestication.

*Bos indicus* Linn. (The Indian Humped Cattle) ; *Bos bubalis* Linn. (The Indian Buffalo) ; *Ovis* sp. (The Sheep) ; *Canis familiaris* Linn.

(The Domestic Dog) ; *Sus cristatus* Wagner (The Indian Pig) ; *Camelus dromedarius* Linn. (The One-humped Camel) ; *Elephas maximus* Linn. (The Indian Elephant) ; and *Gallus* sp. (The fowl), and at a later period *Equus caballus* Linn. (The Horse).

The presence of a considerable number of bones belonging to young individuals of *Bos indicus* Linn. and *Sus cristatus* Wagner, show that the people practised a full-fledged domestication of these animals.

(ii) The animals which were probably not actually domesticated but which frequently lived in the vicinity of human habitation and semi-domesticated were as follows :—

*Herpestes auropunctatus* (Hodgson) (The Common Indian Little Mongoose) ; *Suncus stoliczkanus* Anderson (The Anderson's Shrew) ; *Rattus rattus* Linn. (The Common Rat).

(iii) Animals that were caught and utilized as food were as follows :—

*Gavialis gangeticus* (Gmelin) (The Gharial) ; *Trionyx gangeticus* Cuvier (A River Turtle) ; *Chitra indica* (Gray) (A River Turtle) ; *Lissemys punctata* (Bonnaterre) (A River Turtle) ; *Geoclemys hamiltoni* (Gray) (A Freshwater Tortoise) ; *Batagur baska* (Gray) (A River Turtle) ; *Rita rita* (Ham. Buch.) (A River Fish) ; *Wallago* sp. (A River Fish) ; The Carp ; *Arius* sp. (Sea and estuarine Fish).

With the exception of the carp (Family—Cyprinidae) all remains of fish belong to the family Siluridae ; of the 3 genera represented, two *viz.*, *Rita* and *Wallago* are at present the common inhabitants of the large rivers of India. In the case of *Arius* the distribution given by Day (*Fauna Brit. India, Pisces*, p. 70) is the seas and estuaries of tropical regions ascending to within tidal influence and even entering freshwater. All the three fishes, *viz.* *Rita rita* (Ham. Buch.), *Wallago* sp., and the carp bones with cut marks on them signify that they were used as food.

The presence of the remains of a number of other aquatic animals such as the gharial, and turtles, in burnt condition indicate that such animals in those early times were also used as food by the inhabitants.

(iv) The remains of shells imported for use as ornaments and for other purposes are follows :—

*Lamellidens marginalis* (Lamarck) (A Freshwater Mussel) ; *Arca granosa* Linn. (The Marine Ark Shell) ; *Arabica arabica* (Linn.) (A Cowry) ; *Babylonia spirata* (Linn.) (A Marine Gastropod mollusc) ; *Fasciolaria trapezium* Linn. (A Marine Gastropod mollusc) ; and *Xancus pyrum* var. *acuta* Hornell and var. *fuscus* Sowerby (The Shank Shell).

Apart from any food value it is certain that the shells were used for ornaments. Except *Lamellidens marginalis* (Lamarck), all other species without any doubt can be said to have been brought from the sea coast which indicates that a regular trade was carried on between Mohenjodaro and the sea coast by the people. As Hornell (1916, p. 71) pointed out “ at the present time, apart from the Gulf of Mannar and Palk Bay, the coast of Kathiawar is the only considerable source of shank shells ; in the early times shank shell cutting centres existed in the Southern Deccan in Kathiawar and Gujarat ” In addition to the bangles or fragments of bangles that have been excavated, the presence of a number of cores from which bangles have been sawn, shows clearly that in the time past Mohenjodaro was a centre of the bangle-making industry.

(v) The following deer species were imported for medical purposes according to Sewell and Guha (1931, p. 672).

*Cervus hanglu* (Wagner) The Kashmir Stag or Hangul ; *Rusa unicornis* (Kerr.) The Sambar ; *Axis axis* (Erxl.) The Chital or Spotted Deer ; and *Axis (Hyalaphus) porcinus* (Zimm.) The Hog Deer.

Among the remains of the four different species of deer only one, namely, *Axis (Hyalaphus) porcinus* (Zimm.) is at the present day an inhabitant of Sind. All are horns and no skeletal remains are found which makes Sewell (1931, p. 672) to think that they were imported from outside for medicinal purposes.

The find of a number of avian bones doubtfully referred to *Gallus* sp., excavated at Mohenjodaro, does not according to Sewell (1931, p. 662) give any idea whether any or all belong to domestic poultry or to wild birds. As regards size, they are considerably larger than the present-day fowl. It is, therefore, doubtful whether the inhabitants of Mohenjodaro were acquainted with the domestic fowl.

## (2) Harappa Site (2,500 B. C.—1,500 B. C.)

The animal remains of another important prehistoric site of the Indus Civilization is Harappa. This was worked out by Prashad (1936), and 30 species were represented in the collection. In general the bones excavated resemble those described by Sewell from Mohenjodaro (1931). Several of the species in the two collections are identical, while some like the shrew, *Suncus stoliczkanus* Anderson, and a number of stags and deer are not represented in the collection from Harappa. On the other hand, the monitor lizard (*Varanus* sp.), the cat (*Felis ocreata* Gmelin, race *domestica*), the jackal (*Canis aureus* Linn.), the wolf (*Canis lupus* Linn.), and the domestic ass (*Equus asinus* Linn.), the rhinoceros (*Rhinoceros unicornis* Linn.), the goat (*Capra hircus aegagrus* Erxl.), found at Harappa, were not represented in the Mohenjodaro collection.

The climatic conditions of Punjab at that time were different from that of the present time which is evidently proved by the presence of the rhinoceros (*Rhinoceros unicornis* Linn.), the water buffalo (*Bos bubalis* Linn.), the wolf (*Canis lupus* Linn.), which live in marshy land mixed with forests.

The presence of a number of other aquatic animals such as the gharial and some turtles, i.e., *Geoclemys hamiltoni* (Gray), *Kachuga tectum* Gray, *Lissemys punctata* (Bonnaterre), *Chitra indica* (Gray), *Trionyx gangeticus* Cuvier, which were also likewise recorded at Mohenjodaro (1931) indicate that they were probably an ingredient of the food of the inhabitants.

The remains of the jackal (*Canis aureus* Linn.), and the wolf (*Canis lupus* Linn.) were found not far from the edges of town ; rats (*Rattus* Linn.) and gerbills (*Tatera indica* Hardwicke), the mongoose (*Herpestes auropunctatus* (Hodgson), the lizards (*Varanus* sp.) and the tortoises must have been familiar in the streets and courtyards in Harappa. The river nearby supplied the carps and also *Rita rita* (Ham. Buch.), a freshwater fish, as food.

The farming economy is greatly responsible for the prosperity of Harappa which is evident from the various domestic animals such as *Bos indicus* Linn. (The Humped Cattle of India), *Bos bubalis* Linn.



(The Buffalo); *Capra hircus aegagrus* Erxl. (The Domestic Goat), *Ovis vignei* Blyth, race *domesticus* (The Domestic Sheep), and *Sus cristatus* Wagner race *domesticus* (The Domestic Pig).

The goats appear to belong to same group as those of Kashmir which produce the superb wool from which the famous shawls are made. Possibly the goat wool served the same purpose in Harappa. The long-legged and long-tailed sheep of Harappa, were probably domesticated from the wild Urial Stock (*Ovis vignei* Blyth) from which modern Indian sheep are believed to have been derived, which includes various wool producing forms.

The pig (*Sus cristatus* var. *domesticus*) at Harappa belongs to the lean brisk, bristly species known in India even today.

There is also evidence of the dog from the earliest days of the Harappan culture. The bony remains from Harappa show at least two types of domesticated dog : one akin to the modern pariah dog and the other to the mastiff type. The former (*Canis tenggeranus* Kohlb., race *harappensis* Prashad) comes close to the original ancestral type of dog derived from some of medium sized wolf in the oriental region in South-east Asia or Western Asia or Europe.

The remains of the cat were not recorded at Mohenjodaro but were found at Harappa. At Chano—daro a brick is found over which the characteristic foot-prints of a dog are identified (Piggot, 1950, p. 156 and Wheeler 1953, p. 63). The cat from Harappa (*Felis ocreata* Gmelin, race *domestica* Brisson) seems to have closely resembled the ordinary European domestic cat in appearance (Piggot *l.c.*).

Only a few camel bones of the Indian one-humped race (*Camelus dromedarius* Linn.) have been found at Mohenjodaro and Harappa. This species has not so far been discovered in a wild state and is known only in domesticated form. It is, according to Sclatter (1891, p. 192), found domesticated in India, Afghanistan, and Western Asia and also in Northern Africa.

Prashad (1936, p. 28) recorded the remains of Domestic Ass, *Equus asinus* Linn., at Harappa. The horse bone recorded at Mohenjodaro (1931, p. 653) by Sewell was not, however, known at Harappa uptill now. Nath (1954) recorded a fairly large collection of true horse remains from Harappa, which like Mohenjodaro, appeared at a late period from the upper layer of the turmoil region of area G, Harappa. The remains suggest comparison with the Indian "country bred" animal.

Finally, the elephant (*Elephas maximus* Linn.) should be included amongst those animals almost certainly domesticated by the Harappa people, and, as Piggot (1950, p. 157) says, it is possible that the representation on the seals show the two breeds recognised today in India, viz., (i) the Komooria Dhundia breed with its flat back, square head and stout legs, and (ii) the inferior Meergha breed which is less heavily built and has a sloping back.

A few bony fragments of the domestic fowl (*Gallus* sp.) have been obtained at Harappa which show close resemblance with the bones of domestic fowl found at present. Regarding the size they are slightly bigger in size than the present day race of fowl. The Mohenjodaro find of avian bones, however, far exceeds in size than those of Harappa and the modern species of the fowl.

(3) *Rupar Site (2,000 B.C.—200 B.C.)*

Another site of Harappan culture recently excavated is Rupar in the district of Ambala, East Punjab. The number of species of animals represented in this collection is 18 as follows :—

(a) *Invertebrates*

## Phylum MOLLUSCA

1. *Viviparus bengalensis* (Lamarck)  
(The Freshwater Mussel)

(b) *Vertebrates*

## Class REPTILIA

1. *Varanus flavescens* (Gray)  
(The Monitor Lizard)
2. *Chitra indica* (Gray)  
(A Soft-shelled River Turtle)
3. *Trionyx gangeticus* Cuvier  
(The Ganges Soft-shelled Turtle)

## Class AVES (Birds)

1. *Gallus* sp.  
(The Domestic Fowl)
2. *Francolinus francolinus* (Linn.)  
(The Black Partridge)

## Class MAMMALIA

## Order CARNIVORA

1. *Canis familiaris* Linn.  
(The Domestic Dog)

## Order RODENTIA

1. *Bandicota bengalensis* Gray and Hardw  
(The Indian Mole Rat)
2. *Rattus rattus* (Linn.)  
(The Common Rat)

## Order PROBOSCIDEA

1. *Elephas maximus* Linn.  
(The Indian Elephant)

## Order PERISSODACTYLA

1. *Equus asinus* Linn.  
(The Domestic Ass)

2. *Equus caballus* Linn.  
(The Horse)

## Order ARTIODACTYLA

1. *Bos indicus* Linn.  
(The Indian Humped Cattle)
2. *Bos (Bubalus) bubalis* Linn.  
(The Indian Buffalo)
3. *Capra hircus aegagrus* Erxl.  
(The Indian Domestic Goat)

4. *Ovis vignei* Blyth, race *domesticus*  
(The Domestic Sheep)
5. *Axis axis* (Erxl.)  
(The Chital or Spotted Deer)
6. *Sus scrofa cristatus* Wagner  
(The Domestic Pig)

All the species of animals, referred above, are identical with those of Harappa (1936) and Mohenjodaro (1931) with the exception of two viz, (i) *Francolinus francolinus* (Linn.)—the black partridge, and (ii) *Bandicota bengalensis* Gray & Hardw.—the Indian mole-rat, which were not recorded at Harappa and Mohenjodaro, are reported now from Rupar.

A few cut marks on the bones, particularly of *Bos indicus* Linn., *Bos (Bubalus) bubalis* Linn., *Ovis vignei* Blyth, *Capra hircus aegagrus* Erxl. and *Sus scrofa cristatus* Wagner, indicates the probable use of these animals as food.

The find of the black partridge, *Francolinus francolinus* (Linn.) besides that of the fowl (*Gallus* sp.) indicates that the inhabitants were well acquainted with these birds. The animal remains from Rupar closely resemble in their species with those of Mohenjodaro (1931) and Harappa (1936).

#### (4) Rangpur Site (2000 B.C.—800 B.C.)

The recent excavations of the sites of Rangpur and Lothal in Saurashtra, by the Department of Archaeology, has brought into light the large extension of the Harappan Culture. A large number of bones were excavated from Rangpur; Nath (1958) has recently worked out this collection and it represents 10 species as follows :—

- (a) *Invertebrates*  
Phylum MOLLUSCA
- (1) *Xancus pyrum* (Linn.)  
(The Shank Shell)
- (b) *Vertebrates*  
Class REPTILIA
- (1) *Chitra indica* (Gray)  
(A River Turtle)
- Class MAMMALIA  
Order CARNIVORA
- (1) *Canis familiaris* Linn.  
(The Domestic Dog)  
Order PERISSODACTYLA
- (1) *Equus asinus* Linn.  
(The Domestic Ass)  
Order ARTIODACTYLA
- (1) *Bos indicus* Linn.  
(The Indian Humped Cattle)
- (2) *Bos (Bubalus) bubalis* Linn.  
(The Indian Buffalo)

- (3) *Capra hircus aegagrus* Erxl.  
(The Domestic Goat)
- (4) *Ovis vignei* Blyth, race *domesticus*  
(The Domestic Sheep)
- (5) *Cervus duvauceli* Cuvier  
(The Barasingha)
- (6) *Sus scrofa cristatus* Wagner  
(The Domestic Pig)

All the remains are of the domestic animals, which resemble in their species with the other Harappan culture animal species.

(5) *Rana Ghundai Site (2,100 B.C.—1,500 B.C.)*

Another prehistoric site in Western India is Rana Ghundai, in N. Baluchistan, which is now in West Pakistan, and is more or less contemporary with Harappan culture. Piggot (1950, p. 121) described the animal remains of the following species from that site :—

*Equus asinus* Linn. (The Domestic Ass); *Equus caballus* Linn. (The Horse) ; *Bos indicus* Linn. (The Indian Humped Cattle) ; *Ovis vignei* Blyth (The Domestic Sheep).

Piggot (1950, p. 121) says “The Nomadic, horse-riding herdsmen used the site R G I as a camping ground” According to Piggot (1950, p. 157) horse, *Equus caballus* Linn., was already known to the first inhabitants of Rana Ghundai of North Baluchistan, while it appeared at a later period at Harappa (1954) and Mohenjodaro (1931).

(6) *Taxilla Site (Mid 1st Century B.C.—2nd Century A.D.)*

Excavations carried out in 1944-45 in the north-west India, at Taxilla, 22 miles north of Rawalpindi, brought into light a wealth of materials of historical and semi-historical associations. The date assigned to the finds of this site is from mid First Century B.C. to Second Century A.D. A small collection of animal remains excavated from this site, which Nath (1957) has recently worked out, show the following species represented in the collection of Taxilla :—

*Equus asinus* Linn. (The Domestic Ass) ; *Equus ? caballus* Linn. (The Horse) ; *Bos indicus* Linn. (The Indian Humped Cattle); *Bos (Bubalus) bubalis* Linn. (The Indian Domestic Buffalo) ; and *Sus scrofa cristatus* Wagner (Indian Domestic Pig).

The remains of the above-mentioned animals resemble with those of Harappa (1936) as well as Rupar (1958).

(7) *Hastinapura Site (1,000 B.C.—3rd Century B.C.)*

The most notable excavation carried out during the year 1954-1955 in the northern India was Hastinapura, in the district of Meerut, U.P., a site which is also mentioned in the earliest great Indian Epic Mahabharata. The date assigned to the animal remains of this site is from 1,000 B.C. to 3rd Century B.C. The animal remains from Hastinapura were worked out by Nath (1951, pp. 107-120). The number of species represented in the collection from Hastinapura is 12.

*Vertebrates*

## Class PISCES

- (i) Remains of Carp.

## Class REPTILIA

- (1) *Lissemys punctata* (Bonnat.)  
(A River Turtle)
- (2) *Chitra indica* (Gray)  
(A River Turtle)
- (3) *Trionyx gangeticus* Cuvier  
(The Ganges Soft-shelled Turtle)

## Class MAMMALIA

## Order PERISSODACTYLA

- (1) *Equus caballus* Linn.  
(The Horse)

## Order PROBOSCIDEA

- (1) *Elephas maximus* Linn.  
(The Indian Elephant)

## Order ARTIODACTYLA

- (1) *Bos indicus* Linn.  
(The Indian Humped Cattle)
- (2) *Bos (Bubalus) bubalis* Linn.  
(The Indian Buffalo)
- (3) *Ovis vignei* Blyth race *domesticus* Prashad  
(The Domestic Sheep)
- (4) *Capra hircus aegagrus* Erxl.  
(The Indian Domestic Goat)
- (5) *Sus cristatus* Wagner var. *domesticus* Rolleston
- (6) *Cervus duvaucelli* Cuvier  
(The Barasingha)

The Hastinapura collection of animal remains yielded a large number of bones which belong to young ones. A number of bones of *Bos indicus* Linn., *Bos (Bubalus) bubalis* Linn., *Ovis vignei* Blyth, and *Sus cristatus* Wagner have definite marks of cut by sharp instruments which indicate that the inhabitants probably used these animals for food.

Uptill now, we dealt with the animal remains obtained from the various prehistoric sites of the Northern India. Now I will deal with the animal remains excavated from the prehistoric sites of South India. The animal remains excavated at the South Indian prehistoric sites are reported from Maski (1957), Brahmagiri (1958) and Arikamedu (1946).

(8) *Maski Site (1,000 B.C.—100 A.D.)*

The prehistoric site of Maski is in the Raichur district of the present Mysore State, about 75 miles from the Raichur town. The dating of this culture is 1,000 B.C. to First Century A.D. The excavation made here during the field season of 1954 yielded a good collection of animal

remains which has been worked out by Nath (1957, pp.121-129). The following species of animals are represented in the collection from Maski :—

(a) *Invertebrates*

Phylum MOLLUSCA

- (1) *Viviparus bengalensis* (Lamarck)  
(The Banded Pond-Snail)
- (2) *Parreyssia* sp.  
(A Freshwater-Mussel)

(b) *Vertebrates*

Class MAMMALIA

Order RODENTIA

- (1) *Rattus rattus* Linn.  
(The Common Rat)  
Order PERISSODACTYLA
- (1) *Equus asinus* Linn.  
(The Domestic Ass)  
Order ARTIODACTYLA

- (1) *Bos indicus* Linn.  
(The Indian Humped Cattle)
- (2) *Bos (Bubalus) bubalis* Linn.  
(The Indian Domestic Buffalo)
- (3) *Ovis vignei* Blyth, race *domesticus*  
(The Domestic Sheep)
- (4) *Capra hircus aegagrus* Erxl.  
(The Domestic Goat)

The animal remains from Maski resemble closely those of Harappa (1936) and Hastinapura (1955).

The animal remains excavated from the sites at Brahmagiri, Sanur and Arikamedu are mostly those of Megalithic Culture which is dated from 200 B.C. to the first century A.D.

(9) *Brahmagiri Site (1,000 B.C.—100 A.D.)*

The prehistoric site of Brahmagiri is situated in the Chitaldrug district of Mysore State, which was excavated during the field season of 1947. A large number of animal remains was excavated from this site. Recently Nath (unpublished report) has worked out the collection of animal remains from Brahmagiri. The animal remains of the prehistoric site of Brahmagiri belong to the three different cultural periods as follows :—

I. *Brahmagiri Stone Axe Culture* : Early first millennium B.C. to the beginning of 2nd century B.C., which has been subdivided into two sub-cultures, e.g., 1A (Early Stone Axe Culture) and 1B (Late Stone Axe Culture).

II. *Megalithic Culture* : After Ca 200 B.C. to the middle of the first century A.D. overlapping the Andhra Culture.

III. *Andhra Culture* : About the middle of the 1st century A.D. to the third century.

The following species are represented in the Sub-phase 1A (Earlier) of Brahmagiri Stone Axe Culture : *Equus* sp. (Wild Ass) ; *Lepus nigricollis* Cuvier (The Indian Hare) , *Bos indicus* (The Indian Domestic Humped Cattle); and *Ovis vignei* Blyth, race *domesticus* (The Domestic Sheep).

The following species are represented in the Sub-phase 1B (Later) of the Brahmagiri Stone Axe Culture : *Canis familiaris* Linn. (The Domestic Dog) , *Equus asinus* Linn. (The Domestic Ass) , *Bos indicus* Linn. (The Indian Domestic Humped Cattle) ; *Bos (Bubalus) bubalis* Linn. (The Indian Domestic Buffalo) ; *Ovis vignei* Blyth race *domesticus* (The Domestic Sheep) ; *Capra hircus aegagrus* Erxl. (The Domestic Goat) ; *Axis axis* Erxl. (The Spotted Deer or Chital) ; and *Sus scrofa cristatus* Wagner (The Indian Pig).

The following species are represented in the Brahmagiri Megalithic Culture : *Bos indicus* Linn. (The Indian Domestic Humped Cattle) ; *Capra hircus aegagrus* Erxl. (The Domestic Goat) ; *Axis axis* Erxl. (The Chital or Spotted Deer) ; and *Gallus* sp.(The Domestic Fowl).

The following species are represented in the Brahmagiri Añdhra Culture : *Bos indicus* Linn. (The Indian Domestic Humped Cattle) ; *Bos (Bubalus) bubalis* Linn. (The Indian Domestic Buffalo) ; *Ovis vignei* Blyth, race *domesticus* (The Domestic Sheep) ; *Capra hircus aegagrus* Erxl. (The Domestic Goat) ; *Lepus nigricollis* Cuvier (The Indian Hare) ; and *Pila globosa* (Swainson) (The Freshwater Apple-snail).

Except *Axis axis* Erxl., all the remains are those of domesticated animals maintained by the inhabitants of the above mentioned Brahmagiri cultural periods.

(10) *Arikamedu Site (20 A.D.—50 A.D.)*

The excavation of the site of Arikamedu dating 20 A.D.—50 A.D., near Pondicherry, Madras made during the field season of 1945, yielded the following species of animals :—

*Vertebrates*

Class REPTILIA

- (1) *Lissemys punctata* (Bonnaterre)  
(A River Turtle)

Class AVES (birds)

- (1) *Gallus* sp.  
(The Domestic Fowl)

Class MAMMALIA

Order ARTIODACTYLA

- (1) *Bos indicus* Linn.  
(The Indian Humped Cattle)
- (2) *Sus cristatus* Wagner  
(The Indian Domestic Pig)

(11) *Nasik Site (200 B.C.—300 A.D.)*

Recently the identification of animal remains, excavated at Nasik (Bombay Province) in 1950-51, by George (1955, pp.142-43) have brought into light the following species of animals from Nasik :—

*Trionyx* sp. (River Turtle) ; *Bos indicus* Linn. (Ox) ; *Bos bubalis* Linn. (Buffalo) ; *Ovis* sp. (Sheep) ; *Capra* sp. (Goat) ; *Sus cristatus* Wagner (Domestic Pig) ; *Boselaphus tragocamelus* Pall. (Nilgai) ; *Cervus unicolor* Kerr. (Sambar) , *Axis axis* (Erxl.) (Chital or Spotted Deer) ; *Tetraceros quadricornis* (Blainv.) (Four-horned Antelope) ; *Rattus rattus* (Linn.) (The Common Rat) ; and *Semnopithecus* sp. (Common Langur).

The presence of the remains of deers *viz.*, *Cervus unicolor* (Kerr.) and *Axis axis* (Erxl.), as well as of the four-horned Antelope, *Tetraceros quadricornis* (Blainv.), and the Nilgai, *Boselaphus tragocamelus* Pall., at the prehistoric site of Nasik, shows that in its proximity there might have been undulating jungle area covered with grass. The presence of the bony remains of a primate *viz.*, *Semnopithecus* (The Common Langur) is also noteworthy as the skeletal remains of this animal have not been so far recorded from any prehistoric sites of India.

### III. AFFINITIES AND CORRELATIONS OF THE PREHISTORIC DOMESTIC ANIMALS OF INDIA WITH THOSE OF THE WESTERN ASIATIC COUNTRIES

#### (1) *General*

Having dealt with the animals of the prehistoric India, now I shall attempt to correlate these animals with those of the Western Asiatic countries. There is much confusion regarding the term 'Near' and 'Middle' East owing of the variety of classificatory, administrative and military reasons. Therefore, in this paper the term Western Asiatic countries has been used in place of 'Near' and 'Middle' East, and is applied to the area that stretches from Aegean to Indus river and from north flank of Cacasus to the Sudan. This is an area of great extremes of climate and topography, having high mountains grassy uplands, fertile valley, dry alluvial plains, scorching deserts and lush coastal stripes. Fortunately we have got the accounts of the prehistoric animals from Mesopotamia, Persia, Syria and Egypt, and therefore it has become possible to correlate the prehistoric animal remains of India with the above mentioned Western Asiatic countries. Pumpelly excavation at Anau (1908) in Turkestan, Hilzheimer's report on the animals of Mesopotamia (1941), Paton's report on the animals of ancient Egypt (1925), and Gejvall (1938-1939) report on the fauna of successive settlements of Troy, and the reports of the animal remains from the excavations at Alishar Huyuk (Van der Osten 1937), Shah Tepe (Amschler 1939) and that of Sialk (Ghirshman 1938-39), have brought into light a great variety of the prehistoric animals which show close relationship with those of the animals of the Prehistoric India. The animal groups which show resemblance between the Prehistoric India and Western Asiatic countries are : *Bos* (Cattle) ; *Ovis* (Sheep) ; *Capra* (Goat) ; *Sus* (Pig) ; *Equus* (Ass and Horse) ; *Camelus* (Camels) ; *Canis* (Dog) ; *Felis* (Cat) , and *Gallus* (Fowl).

#### (2) *Bos* (The oxen)

(Plate 26, Figs. 1, 2 ; Plate 30, Figs. 1-6)

The bovids of the genus *Bos* consist of two types of cattles, one arger massive form and long-horned and the other small form with short



horns. The earlier naturalists divided the domestic cattles into two main divisions : the humped type or Zebu inhabiting the tropical countries and to which the name *Bos indicus* was given by Linnaeus (1758, pp. 71-72) ; and the non-humped cattle for which he proposed *Bos taurus*.

Long-horned cattle, which descended from the European Urus, *Bos primigenius* Boj., and its Asiatic relative, *Bos namadicus* Falc. which is virtually indistinguishable according to some authors (Dyson 1953 and Duerst 1908), are the most widespread of cattle in earliest times from Egypt to Indus and from Neolithic to modern times. Duerst (1908, p. 359) recorded from Anau, remains of *Bos namadicus* Falc., of which he considered *B. macroceros* Duerst, to be synonym, and recorded further remains of domestic cattle under the name *Bos taurus macroceros* (1908, p. 364). This domestic race according to Duerst (1908, p. 369) had originated from the wild *B. namadicus* Falc., and "is absolutely the same ox that was possessed by Egyptians" Duerst (1908, p. 359) describes that long-horned form cattle, *Bos primigenius* Boj., was already present in the time of ancient Babylonian civilization about 4000 to 5000 B.C. in Mesopotamia, as appears on a cylinder seal of those times. Long-horned cattle, *B. primigenius* Boj., is reported in the Halaf period at Tell Aswad in Syria (Mallowan 1946, p. 124). At Sialk (Ghirshman 1938, p. 197) also the long-horned ox, *Bos taurus* Linn. has been reported and at Shah Tepe (Amschler 1939, p. 95) it has been recorded under the name *Bos taurus brachyceros* Amschler. It is now known that smaller forms also existed in Europe (Reynolds 1939, p. 28) and North Africa (Roamer 1928, p. 111 ; 1938, pp. 170-171, 183) side by side with huge beast of *primigenius* race. Thus two types of cattles of long-horned forms and short-horned forms are reported to be found in prehistoric sites of Europe and North Africa.

According to Rutimeyer (1862, pp. 149 and 222) the humped cattle—*Bos indicus* Linn., inhabiting the tropical countries, is a very distinct species. From very ancient times it is almost the sole type of domestic cattle of Asia and Africa and has undergone much less structural modification than the European forms. It is unknown in a wild or fossil state and was believed by Blyth (1931, p. 658) and Friederichs (1933) to have originated outside India. It has been identified at Harappa (Prashad 1936, pp. 8 & 34), Mohenjodaro (Marshall 1931, p. 28, 29, 654), Hastinapur (Nath 1955, pp. 110-114), Maski (Nath 1957, pp. 123-125), Rupar (Nath 1957) and at Rangpur (Nath 1958) and all other prehistoric sites of India. Van Buren (1939, pp. 74-76) states that a humped bull with spreading horns are frequently found in figurines and other arts of Halaf and Ubaid Periods of southern Iraq. Humped cattle are known in Egypt by the XVIII Dynasty (16th Century B.C.) but the time of their introduction is unknown (Dyson 1953, p. 664).

The presence of short-horned cattle also presents a problem. Prashad (1936, p.37) has also distinguished two distinct forms of humped cattle, *Bos indicus* Linn., from Harappa : (i) A large massive form probably of the type of long-horned humped cattle. (ii) A small form with short-horns which probably represents the humpless variety. Such distinctions of two forms *i.e.*, the long-horned cattle and the short-horned cattle have also been found as mentioned above, from the prehistoric sites of Europe and North Africa. Duerst (1908, p. 364) and Prashad (1936,

pp. 8, 9 and 32) agree that *Bos namadicus* Falc. cannot be the ancestral form, because the osteological differences between it and the domestic short-horn are too great. Both agree that short-horned variety originated as a result of "decline of cattle-breeding" and does not represent a distinct species. Amschler (1945, pp. 325-326) identifies a wild short-horn *Bos brachyceros arnei* Amsch., from Shah Tepe III D & E in Iran as progenitor of the domestic type present in the level dating to the end of 4th millennium. Other short-horns are reported of the same date at Alishar Huyuk (Von der Osten 1937, p. 294) and somewhat later at Mohenjodaro (1931) and Harappa (1936). Van Buren (1939, pp. 69-74) notes that the more primitive type had short horns but there was also a long-horned type at an early date in Mesopotamia.

The general evidence does not commend any definite conclusion, except to the effect that large and small, humped and humpless, long and short horned individuals are all known in the Fertile Crescent area, Western Asia, during the Neolithic period.

### (3) *Bos (Bubalus) bubalis* Linn.

(The Indian Domestic Buffalo)

(Plate 26, Fig. 3 ; Plate 30, Figs. 7-9)

The Indian buffalo—*Bos (Bubalus) bubalis* Linn., the remains of which have been identified at Harappa (Prashad 1936, pp. 43-46), Mohenjodaro (Sewell 1931, p. 659), Hastinapura (Nath 1955, p. 115), Maski (Nath 1957, p. 126) and recently Nath has identified the remains of similar animal at Rangpur, Rupar, Taxilla, which show clearly its presence at the prehistoric sites of India. Though the skeletal remains of this animal are not found in the Prehistoric Period of the Western Asiatic countries, Hilzheimer (1920, p. 312) believes that the Indian buffalo, which is confined to the Oriental Region, had a much more extensive range in the West about the beginning of our era. This view, according to author, is supported by the skeletal remains of the buffalo which have been found in some parts of Europe. Its representation in the Old Mesopotamian relief and in Egypt shows clearly that the animal was known to those places. According to Duerst (1908, p. 361-362), its best representation is found "on the cylinder seal of Surgon, King of Accad, who reigned B.C. 3800 to 3750"

It is also represented on a vessel spout from Hittite level Alishar Huyuk (Van der Osten 1937, p. 295).

### (4) *Ovis* (The Sheep)

(Plate 26, Figs. 4, 5 ; Plate 31, Figs. 6-13)

The other important animal of prehistoric period was sheep. It is now generally accepted that the three species of wild sheep exist in Asia, viz., (I) *Ovis musimon* Pallas, which inhabits the high lands of Hither Asia from Anatolia to the Elburz and the Zagros and is also found north of Mediterranean in Corsica and Sardinia, (II) *Ovis vignei* Blyth, (the Asiatic Urial) the home of which is the northern slope of Elburz, Turkestan, Afghanistan, Baluchistan and Punjab, and (III) the Argal, *O. ammon* Linn., living to the east of the Ural, all of which have given rise to breeds of domestic sheep. The remains of Asiatic Urial (*Ovis vignei* Blyth) have been identified at Harappa Prashad 1936, pp. 49-51). Rana Ghundai (Piggot 1950, p. 121), Hastinapur (Nath 1955, p. 116) and Maski (Nath 1957, p. 127). Recently Nath has also reported it

from Rupar, Rangpur, and Brahmagiri sites of India. Remains of sheep were also recorded from Mohenjodaro (Sewell 1931, p. 659), but no specific name was given there. In Western Asia we find exactly the same species at Shah Tepe III D & E (Arne 1945, p. 325), Sialk I (Ghirshman 1938, p. 196) in Iran, and at Anau I (where *O. vignei* Blyth comprises 22 per cent of the bones in Period I, and *O. A. palustris* Rutim. 25 per cent of II ; (Pumpelly 1908, pp. 341-342). In identifying the Anau sheep Duerst (Pumpelly 1908, p. 374) pointed out the presence of intermediate forms linking the turbarly sheep, *O. aries palustris* Rutim., with the osteologically wild *O. vignei* Blyth, of Period Ia. On this he proved the derivation of *O. aries palustris* Rutim, from *O. vignei* Blyth. Pilgrim (1947) on the other hand expresses the opinion that the turbarly sheep was probably descended from *O. orientalis* Brandt & Ratzeburg, and also remarks that there is reason to believe that some of the prehistoric sheep of Turkestan has originated from *Ovis vignei* Blyth. Childe states (1952, p. 26) that the oldest domesticated sheep found in the Swiss Lake-dwelling and other deposits in Central and Western Europe, *Ovis palustris* Rutim., is the domesticated descendant of the Asiatic Urial (*Ovis vignei*), a long-tailed sheep. Hilzheimer (1931, p. 195) and Keimer (1936, p. 297) agree that the oldest Egyptian sheep, *Ovis longipes* Wagner belongs to the same Urial stock. It is thus evident that the Asiatic Urial (*Ovis vignei* Blyth) was introduced into Africa and Europe from East. The earliest widely bred sheep in the Near East appear to be a primitive hairy type found in Mesopotamia and Egypt (Hilzheimer 1936, p. 195 ; Mond 1937, p. 256). Dyson (1953, p. 665) states that the art of the late fourth Millennium (Jamdet—Nasr Period) in southern Iraq reveals both woolly and fat-tailed sheep. The former reaching Egypt during the New Kingdom and the latter imported in Negro Africa. It is thus quite evident that the earliest domestic sheep appears to be of West Asiatic origin.

### (5) *Capra* (The Goat)

(Plate 26, Fig. 6 ; Plate 31, Figs. 1-5)

Next to sheep the other most basically important animal to the development of culture in the Prehistoric Period of the Old World was goat. The selection of a name for the Domestic Indian Goat has been a matter of difficulty. Goats have been identified at Harappa (Prashad 1936, pp. 47-49) as *Capra aegagrus* Gmelin, race *indicus*. Nath (1955, p. 177) however, designated *Capra hircus aegagrus* Erxl. to the similar remains of goat from Hastinapura and proposed to redesignate all the Indian Domestic Goats as *Capra hircus aegagrus* Erxl. Prashad (1936, p. 48) as well as Blanford (1891, p. 503) regard *Capra aegagrus* Gmelin, as parent form from which all the domestic races of goats are derived. Linnaeus (1758, p. 68) however, used the name *Capra hircus* Linn., for the domestic goat and regarded it as principal species from which domestic races were derived. Pocock (1946, p. 681) also referred to *Capra hircus* Linn. as the parent species of domestic races of goat. Coon (1950, p. 130) is also of opinion that the parent of domestic goat is the so called bezoar—goat, *Capra hircus* Linn. of Turkestan and Afghanistan. Both Lyddeckar (1913, pp. 156-57) as well as Blanford (Prashad 1936, p. 48) adopted the name *Capra hircus aegagrus* for the Persian Wild Goat, implies that *C. aegagrus* Gmelin is derived

from *C. hircus* Linn. However, Blanford (1891) in the *Fauna of British India : Mammalia* gave *aegagrus* Gmelin the status of a full species and considered that all the Indian Domestic Goats were derived from *Capra aegagrus* Gmelin, and Prashad (1936, p. 48) followed him. However, as regards the authorship of the *aegagrus*, it may be pointed out that the name of Gmelin 1788, as the author of *aegagrus*, referred above, has wrongly been used by Blanford (1891, p. 502) as also by Prashad (1936, p. 47) and other workers, since there is no reference of it by Gmelin (1788) on p. 193 in the *Systema Naturae*, Vol. 1. The original real author of *aegagrus* is Erxleben (1777, p. 260) and not Gmelin, and the name of the same author has also recently been referred to *aegagrus* by Ellerman & Morrison-Scott (1952, p. 404). Recently Ellerman and Morrison-Scott (loc. cit.) instead of considering the *aegagrus* as a full species regarded *aegagrus* Erxl., as a race of *Capra hircus* Linn., whose distribution in wild form occurs at the present time in Greek Islands, Caucasus, Southern Turkmania in Russia, Turkestan, Asia Minor, Persia to Baluchistan and Western India, and introduced the name *Capra hircus aegagrus* Erxl. for all the wild and domestic goats including even the domestic goats of India.

From the above discussion it is evident to classify the domestic goat by the name *Capra hircus aegagrus* Erxl., and accordingly Nath (1955, p. 117) proposed to redesignate all the Indian domestic goats under the same name. Pilgrim (1947, p. 286) has further suggested that the Persian wild goat—*Capra aegagrus* Erxl., the Central Asiatic goat *Capra falconeri* Wagn., and the Pleistocene goat, *C. prisca* Adam. and Niez., are all ancestral to the domestic goat, *Capra hircus* Linn. Acceptance of the monospecific origin of goat from *C. aegagrus* Erxl. resulted in the classification of the latter as a subspecies of *hircus* Linn.

Goats have been recorded at Harappa (Prashad 1936, p. 47), Hastinapura (Nath 1955, p. 117), and Maski (Nath 1957, p. 129). Nath has also recorded them from Rupar, Rangpur, and Brahmagiri sites of India. In Western Asia we find the same species of goat (*Capra hircus* Linn.) at Shah Tepe (Amschler 1939, pp. 39 & 89), Sialk (Ghirshman 1938, p. 196) in Iran, and at Anau II under the name *Capra hircus rutimayeri* Duerst (Pumpelly 1938, p. 380), and at Alishar Huyuk (Van der Osten 1937, p. 298). Bones of the goat have been reported from Hassuna (Childe 1952, p. 105) in Assyria, West of Tigris, which presumably belong to domestic stock. At Jermo in Iraq, the bones of domesticable goats have also been found (Childe 1952, p. 104).

In the Late Uruk Period of Mesopotamia Childe (1952, p. 129) reported goats (*Capra hircus* Linn.). At Jericho, along Yamuq river in North Palestine, the actual finds of goats and sheep attest their breeding (Childe 1952, p. 127). According to Dyson (1953) the early Mamber goat possibly present at Tell Mefesh (Mallowan 1946, p. 128) in the Halaf Period, in Mesopotamia, is thought to have originated in Syria. It also reported from Egyptian Predynastic at Foukh (Guy 1938, p. 21). Thus we find that the so called bezoar goat—*Capra hircus* Linn. of Turkestan and Afghanistan was widely spread in the prehistoric periods of the Old World.

(6) *Sus* (The Pig)

(Plate 26, Fig. 7)

Pig constituted one of the most important animal to the development of Culture in the Prehistoric Period of the Old World. Pig remains, have been identified from India, at Harappa (Prashad 1936, pp. 54-57), Mohenjodaro (Sewell 1931, pp. 660-61) and Hastinapura (Nath 1955, pp. 118-119). Nath (1958, Unpublished reports) has also recorded it from Rupar, Rangpur, Taxilla and Brahmagiri sites of India. The nomenclature of the pigs is very confused due to the difficulty in differentiating the North Eurasian *Sus scrofa* Linn., from the Asiatic variety, the Indian type commonly identified as *Sus cristatus* Wagner, and various other types in South-east Asia which are sometimes grouped as *Sus vittatus* Mull. & Schleg. The relationship between the three is not clear. Kloss (1931) makes *cristatus* Wagner a subspecies of *scrofa* Linn., and considered the Indian pigs as belonging to the Eurasian species *scrofa* Linn. Earlier De Blainville (1864, p. 129) and Gray (1852, p. 130) also confirmed this view in so far as the osteology of the two forms, viz., *scrofa* Linn., and *cristatus* Wagner are concerned where they could not find any difference of morphological importance between the two. But Chasen (1940) and others group *cristatus* Wagner with *vittatus* Mull. & Schleg. or regard it a race of the latter. Recently Elerman and Morrison-Scott (1952, p. 404) have treated all the wild pigs of the Palaearctic and Indian regions as belonging to a single species *Sus scrofa* Linn., which has a wide range of distribution. Accordingly the Indian pigs are now classed as *Sus scrofa*, making *cristatus* as the subspecies or race of *scrofa* (thus *Sus scrofa cristatus* Wagner) and the same name is now used for all the domestic pigs of India.

In the Western Asiatic countries the only available statistical data of pigs are from Iraq, where preliminary field count indicated 1 per cent of bone at Karim Shahr, and 10 per cent at Jarmo (Braidwood, 1952, pp. 26 and 30) were pigs. At Anau (Pumpelly 1908, pp. 355-358) the pig was nearly absent in Period I, but made up 12 per cent to 15 per cent of the bones from Period II & III. The type of pig at Anau was designated as *Sus scrofa palustris* Rutim. The Mesopotamian data are of interest in the light of Hilzheimer's (1941) conclusion that sheep and swine were two most important Sumerian animals. Interesting also is the large quantity of pigs found at Merimde (Mond 1937, p. 258), and at Maadi (Menghin 1932, p. 52) in lower Egypt in the Pre-dynastic period, in contrast to their rarity in later times when the pig was considered unclean (Dyson 1953, p. 665). According to Paton (1925, pp. 17 & 29) pigs were still in use during Dynasty III & IV in Egypt, probably in association with God Set, and their subsequent disuse possibly may be associated with the ascendancy of God Horus over Set.

Pig bones (of *scrofa* type) have been identified at Alishar Huyuk (Von der Osten 1937, pp. 302-308), while at Shah Tepe Amschler (1939, pp. 36, 45, 66, 73) identifies two forms of pigs, viz., *Sus scrofa attila* Thomas and *Sus scrofa palustris* Rutim. At Sialk (Ghirshman 1939, p. 198) pig bones were also identified but no specific name was given to them. All of the early eastern pigs including India also, as mentioned above, are now classed as *Sus scrofa* Linn. Thus, it is evident that the

Indian pigs are closely associated Western Asiatic pigs, and their affinity and distribution with them are very close and interesting.

The most basic important four animals (Cattle/sheep, goat/pig) to the development of Culture in the Prehistoric Period of the Old World were often accompanied by an equid of the onager group (donkey). In Prehistoric times this animal facilitated transportation.

(7) *Equus* (The Ass, Donkey, Horse, etc.)

(i) *Equus asinus* Linn.

(The Domestic Ass)

(Plate 26, Fig. 8 ; Plate 32, Figs. 7-11)

In early Bronze age transportation was facilitated by the domestication of donkey and the invention of wheeled-vehicles (Coon 1953, p. 227). In the Egyptian civilization of the early Bronze age ploughing required oxen, while threshing and burden carrying needed donkeys. The earliest wheeled-vehicles found are four-wheeled carts and a two-wheeled chariot that Sir Leonard Woolley found in 1927 in the royal Tomb of Ur, dating from the earliest sumerian times, between 3000 & 2700 B. C. The animals that pulled the wheeled-vehicles of the late Uruk and Jamdet Nasr Periods was the Onager (Falkenstein 1936, p. 56 ; Frankfort 1939, p. 22 ; Speiser 1935, pp. 73-74) in Mesopotamia. In the Aegean area the ass appears in Troy IV and the true horse not until Troy VI (Gejvall 1938, 1939). Childe (1952, p. 65) states that in north Africa in the Nile proper, people were dependent on the use of ass for transport and bones of these beasts were found intact in the settlement near Armant. In Pharaoh's time Childe (1952, p. 87) states that even the provincial magnates were accompanied in death by a few humans together with asses. Amschler (1939, p. 63) have reported the occurrence of ass—*Equus asinus* Linn., from Shah Tepe in Iran. In Western India the people of Rana Ghundai (Piggot 1950, p. 121) bred asses and probably even horse. Asses have been identified from Harappa (Prashad 1936, p. 28) and Maski (Nath 1957, p. 122), and Nath (1958) has recorded them from Rupar, Rangpur, Brahmagiri and Taxilla sites of India. The appearance of ass is late in the Harappa civilization. According to Coon (1952, p. 231) the asses are available for transport by the end of Bronze-age. During the Palaeolithic & Mesolithic of Palestine at least one large onager, *Equus hemionus* Pallas, is present at Shukbah cave (Bate 1928, p. 20), Wadi Dhobai (Bate 1938, pp. 293-94), Qumm Qatafa (Nellville 1931, p. 256) and Mugharet el Kebarah (Bate 1932, pp. 277-78). The Recent equids in this area (Harper 1945) have included the African Ass, *Equus asinus* Linn., the Syrian onager, *Equus hemionus hemippus* Geoffroy, and the large true onager of Iran and further east, *E. hemionus hemionus* Pallas. Equids have been identified from Harappa (1936, pp. 8 and 28), Mohenjodaro (Marshall 1931, pp. 654, 666), Rana Ghundai (Piggot 1950, p. 121), Maski (1957, p. 122), Anau I (Pumpelly 1908, pp. 38, 42, 341-42), Shah Tepe III (Arne 1945, p. 325), Sialk II (Ghirshman 1938, p. 195), Belt cave Level (Coon 1951, p. 44), Jarmo (Braidwood 1952, Fig. 14) ; Tell Mafesh (Mallowan 1946, p. 128) in the Ubaid Period of Iraq, Megiddo (Guy and Engburg 1938, p. 210) in the Chalcolithic Palestine, and at Maadi (Mond 1937, p. 255) in the Pre-dynastic Egypt. The taxonomy used by most of the workers being

inconsistent, most of the Equids are identified now as asses or onager and not true horse. Lundholm (1949) and recently Nath (1954) reviewing these remains identified as true horse, *Equus caballus* Linn., at Anau, Sialk and Shah Tepe, show conclusively that they belong to the onager group and not to the true horse. Lundholm (1949), Hilzheimer (1935), Van Buren (1939), Friederichs (1933) and Slawkowsky (1940) all agree that there is no evidence for the true horse in the Western Asiatic countries before 2000 B.C. Consequently it was onager and not the horse in Mesopotamia which pulled the wheeled vehicles. In Egypt the true horse is not found until the 15th Century B.C. (Chard 1937, p. 317), although war chariots were known between 1580 and 1557 B.C. (Clark 1941, p. 57) one or two generations after the Hykos invasion. Accordingly Dobson (1953, p. 667) states that onager/ass were in use by the late 4th millennium, while the true horse, *Equus caballus* Linn., was introduced later on in the early 2nd millennium B.C.

(ii) **Equus caballus** Linn.

(The Horse)

( Plate 26, Fig. 9 ; Plate 27, Fig. 1)

According to Piggot (1950, p. 267) the horse appears to have been domesticated in South Russia by middle Kuban times (between 2000 to 1500 B.C.) and representations of Przewalski's horse appear on a silver bowl from earlier Maikop tomb. Horse remains again appear in Baluchistan at Rana Ghundai I (Piggot 1950, p. 121), Mohenjodaro (Sewell 1931, p. 653) and Harappa, where Nath (1962) has recently identified the remains of True horse, *Equus caballus* Linn., from the turmoil area G, probably at the end of Harappa civilization. Recently Nath recorded it from Hastinapura (1955, p. 109) and Rupar (1957). Horse was the characteristic domesticated animal of the Aryans (Piggot 1950, p. 266) who used it with light two-wheeled chariot for sport or warfare. Military cavalry was known to the Assyrians and Achae-menids in 800 B.C., and the invention of stirrup (Piggot 1950, p. 266) must be an ancient oriental contribution to horsemanship. In Bronze Age chariot-horses were really ponies (Coon 1953, p. 272). Large, saddle-sized horse like the one we ride was first bred (Coon 1953, p. 272) by the Medes of the Western Iran, near Hamadan. From there was exported the famous Nisean horse of antiquity. According to Coon (1953, p. 272) in later times horse was used for postal services by Persians and Romans.

It is thus clear that horse appeared much later than the ass or onager and came into light later in the matured phase of prehistoric human civilization of the Old World.

(8) **Camelus** (The Camel)

(Plate 27, Figs. 2, 3 , Plate 32, Figs. 1-4)

Camel, popularly known as ship of desert, was an animal in Prehistoric Periods which facilitated transportation. It appeared later than ass but earlier than the horse in the prehistoric times.

Its early history of domestication is curiously obscure. It was extensively used by the Assyrians from the 9th Century B. C. onwards

(Piggot 1950, p. 156). To-day no wild variety exists. Both one-humped and two-humped species are being domesticated at the present day.

There is remarkable lack of early representation (Piggot 1950, p. 157) of this animal in the Ancient East. However, a few camel bones of the Indian one-humped species (*Camelus dromedarius* Linn.) were found at Mohenjodaro (Sewell 1931, p. 660) and at Harappa (Prashad 1936, pp. 58-59), and they have also been found at Anau (Duerst 1908, p. 383) in Turkestan. The bony remains found in the neolithic Tripolye Culture of South Russia (Piggot 1950, p. 157) are likely to be approximately contemporary with Harappan Culture (Piggot, 1950, p. 157). Piggot (loc. cit.) states that one of the rarest representation of a camel in prehistoric Western Asia comes from a site probably of the second millennium B. C. just over the border of Baluchistan in Persian Makran, at Khurab, where it is modelled in relief on a bronze object. Camels have also been identified at Shah Tepe (Amschler 1939, p. 77) where the species reported belongs to the two-humped race, *Camelus bacterianus* Erxl. The earliest representation of the two-humped camel, *Camelus bacterianus* Erxl. are those on monuments of Achaemenian Age in Iran, dating from 5th Century B.C. (Coon 1955, p. 334). *Camelus dromedarius* Linn. is now reported from Palestine in the Pleistocene (Yeivin 1952, p. 41 ; Neuville 1951, p. 214), and in the Neolithic at Sha 'a ha Golan (Stekelis 1951, pp. 5 & 17) and at Warka in Southern Iraq where Hiltzheimer identifies it amongst the figurines of the Ubaid Period (Van Buren 1939, p. 36). This animal has also been reported from the Palaeolithic sites of North Africa (Roamer, 1928, 1938). According to Free (1944, p. 191), *Camelus dromedarius* Linn. may have been domesticated in the Near East quite early for carrying the loads, if not ridden by people before the late second millennium B. C.

The introduction of the camel at the beginning of the iron age in 5th Century B. C. by Persians (Coon 1955, p. 270) in Egypt, permitted merchants to cross previously impassable deserts with large caravans. The caravans stimulated international trade between regions separated by deserts.

### (9) *Elephas* (The Elephant)

(Plate 27, Fig. 4)

For transportation and haulage of heavy material the elephant played a great part in the prehistoric times. Besides, elephant ivory was used fairly in prehistoric times, and, as at present, ivory trade was a significant feature in those days. In Egypt ivory was in great use and we find carved ladles, ivory combs, ivory base and harpoons of Amaratian 4000 B.C. and spoon of Gerzean cultures at Nile (Childe 1952, p. 56). In North Africa pictures of elephants, engraved, pecked or painted on rocks show that the people were well acquainted with this animal.

The skeletal remains of the elephants are however, well represented in the prehistoric sites of India. Only the tusk of *Elephas maximus* Linn., has been recorded from Mohenjodaro and it makes Sewell (1931, p. 653) think that probably the people did not have the animal but imported ivory from other places. Prashad (1936) did not record the remains of Indian Elephant, *Elephas maximus* Linn., at Harappa. Nath (1954) has however identified the bony remains of Indian elephant from Harappa



which also corroborate with the representation of Elephants on the seals obtained at Harappa. Thus, we can say that the knowledge of domestication of this animal was known to people of Harappa.

Skeletal remains of Indian elephant, *Elephas maximus* Linn., has also been recorded from Hastinapur (Nath 1955, p. 109) and Rupar (1957). The find of an Indian elephant tusk at Lothal has recently been identified by Nath (1958).

#### (10) *Canis* (The Dog)

(Plate 27, Figs. 5-7; Plate 29, Figs. 6, 6a, 6b, 7, 8, 8a, 8b)

The earliest known animal was dog. It is evidently proved that this animal was first domesticated in stone age. This animal was domesticated in Europe for hunting in post glacial mesolithic times (8000 B.C. or so). The domestic species, *Canis familiaris* Linn., first appeared during the Neolithic Period (Zittel 1925, p. 67).

From the old records supplied by Chaldaean and Egyptian monuments, it is manifested that several distinct varieties, which resembled modern breeds, have been developed 4000 to 5000 years ago. Slender dog of Greyhound type and a short-legged breed like a smooth Aberdeen are depicted in Egypt. The Assyrians had mastiff like hounds near about 600 B.C. The actual remains of dog have been recorded from Jermo (Childe 1952, p. 104) in Iraq. The Nile dwellers in the Nile Valley as Childe (1952, p. 54) states forced the dog to accompany his master in death and buried with him in the tomb. The dogs in the Pharaoh's time (Childe 1952, p. 79) are unlike older Egyptian greyhound and resemble rather Mesopotamian hounds. Thus a new breed of dog appeared in that time. The Anau dog recorded by Duerst (1908, p. 348) was designated as *Canis familiaris matris optima* Jeitteles, which shows strong resemblance and affinity with the Dingo and Pariah dogs of the East. The remains of domestic dog, *C. familiaris* Linn., have been recorded from Sialk (Ghirshman 1938, p. 196) as well as from Shah Tepe (Amschler 1939, pp. 36 & 53) in Iran. The domestic dogs have also been identified at Alishar Huyuk (Von der Osten 1937, p. 293) where both the varieties of marsh dogs of Swiss Lake-dwellers, viz., the *palustris lodogensis* type and *ino tranzewi* type are represented. In India the domestic dogs have been recorded from Mohenjodaro (Sewell 1931, p. 650) where they show strong resemblance with the Dingo and the Indian Pariah and have been designated as *C. familiaris* var. *dingo* Blum. But Indian Pariah is not conspecific with Dingo as Sewell (1931, p. 652) surmised and evidently Mohenjodaro dog does not represent with Australian Dingo, *C. dingo* Blum. The Mohenjodaro dog also shows strong affinity with the Anau dog. At Harappa (Prashad 1936, pp. 8 & 22) there is evidence of the domestication of dog from the earliest days of their culture. The evidence of bones and representations from Harappa show at least two types of dog, one akin to the modern pariah and the other a mastiff type. The Harappa dog resembling with the former comes near to the original ancestral type of dog found in the Oriental Region in diluvial times and has been designated by Prashad (1936, pp. 8 & 22) as *Canis tenggeranus* race *harappensis* Prashad. This dog also shows close resemblance and affinity with Anau dog—*C. familiaris matris optima* Jeitteles and the shepherd dog.

The greyhound as shown from ancient Egyptian monuments existed several thousand years B. C. and has come down to us with very little structural change. From ancient Babylonian monuments it is evident that the mastiff type is a very old breed and continuing up to the present time without any change (Pocock 1932, *Encyclopedia Britannica*, 7, pp. 495-496).

Nath has recorded the remains of the domestic dog, *C. familiaris* Linn., from Rupar (1957), Rangpur and Brahmagiri (Nath, Unpublished reports) which show strong resemblance with the modern pariah.

From the above discussion, it is thus evident that the domestic dogs, *C. familiaris* Linn., obtained from Prehistoric sites of India show strong resemblance and affinity with those of the Near-East.

#### (11) *Felis* (The Cat)

(Plate 27, Fig. 8 ; Plate 28, Figs. 1, 1a, 2, 2a)

The cat, a member of the Family Felidae, was domesticated in prehistoric periods. It is well known that ancient Egyptians domesticated the Egyptian race of African wild cat, *Felis ocreata maniculata* Cretzschmar. These Egyptian cats are generally believed to have had a large share in the parentage of the domesticated cats of Europe and the Western Asia, by their crossing with the indigenous wild species.

Tame cats from Egypt were probably imported at an early date, 609, B.C. into Etruria by the Phoenician traders ; there is decisive evidence that they were established in Italy long before the Christian era. There is very interesting evidence of domesticated cat bones from Harappa (1936, p. 15) and Chanuhudaro (Piggot 1950, p. 156). The cat bones from Harappa are the only finds representing the Domestic Cat. According to Piggot (1950, p. 156) the Harappa cat, *Felis ocreata* race *domestica*, seems to have resemblance with the ordinary European domestic cat in appearance.

#### (12) *Gallus* sp.

(The Domestic Fowl)

In addition to these animals, a chicken, *Gallus* sp., has been reported at Harappa (Prashad 1936, p. 15). The identification of fowl at Mohenjodaro (Sewell 1931, p. 662) is questioned. This has now been identified at Rupar (Nath 1958). Coon (1950, p. 90) identified it at Belt cave of Iran where one spur from Neolithic is said to be of *Gallus*. The etymology of the akkadian word for this bird indicates that it was known in Mesopotamia before the second millennium B. C. (Carter 1923, pp. 2-3). Childe (1952, p. 76) thinks that the fowls were domesticated at Harappa.

#### (13) *Rhinoceros unicornis* Linn.

(The One-horned Indian Rhinoceros)

(Plate 27, Fig. 9 ; Plate 32, Figs. 5, 6)

The remains of a one-horned rhinoceros, *Rhinoceros unicornis* Linn., from Harappa (1936, p. 30) are rather very interesting as this animal is no longer found there to-day. Formerly this animal was extensively

distributed in the Indian Peninsula. It was common in the Punjab as far as Peshawar in the time of Emperor Babus (Prashad 1936, p. 30). The fossilized bone of this animal has recently been reported to be associated with microlith in Gujrat (Sankalia & Karve 1949, p. 28).

From the above discussion, it is thus evident that the finds of the various species of animals from the Prehistoric sites of India resemble and compare well with those of the Western Asiatic countries and thereby show close affinities with each other.

#### IV—A BRIEF ACCOUNT OF THE ANCESTRY OF THE DOMESTICATED ANIMALS OF INDIA

With reference to the origin of the various Indian domestic animals, I agree with Prashad (1936, p. 6) that several of them are descendants of the very rich mammalian Siwalik Fauna of the Indian Tertiaries. The Indian buffalo, the camel and elephant are so closely allied to Siwalik forms that their ancestry cannot be doubted. It is generally agreed by all that the Indian Humped cattle are to be derived from the Siwalik Nerbuddah ox, *Bos namadicus* Falc.

*Cat.*—There is general concensus of opinion that the ancestor of the Domestic Cat was the African *Felis ocreata* Gmelin ; Indian Domestic Cat is also derived from this ancestral form.

*Ass.*—In view of the close relationship of the Indian ass with the African species, *Equus asinus* Linn., it is considered that this animal was imported to India from Africa, probably along Jacobi Arabian and Persian Region of dispersal (Prashad 1936, p. 7).

*Ox.*—Both the types *viz.*, the large-horned humped cattle and small-horned, humpless cattle are represented from Harappa and Mohenjodaro. Duerst (1908) and Prashad (1936) agree that short-horned type originated as a result of the "decline of cattle breeding" and is not to be considered as a new race. This long-horned humped cattle is considered to be the descendant of the Siwalik Nerbuddah ox—*Bos namadicus* Falconer.

*Goat.*—The so called bezoar-goat, *Capra hircus* Linn., of Turkestan and Afghanistan whose remains have been recorded from all over the Near East is the likeliest candidate for the title of parenthood of the Indian Goat.—*Capra hircus aegagrus* Erxl.

*Sheep.*—It is now generally accepted that three wild sheep exist in Asia, *viz.*, (I) *Ovis musimon* Pallas, which inhabits the highlands of Hither Asia from Anatolia to Elburz and the Zagros and also found North of Mediterranean in Corsica and Sardinia, (II) *Ovis vignei* Blyth, (the Asiatic Urial) the home of which is the northern slope of Elburz, Turkestan, Afghanistan, Baluchistan and the Punjab, and (III) the Argal, *O. ammon* Linn., living to the East of Ural, all of which have given rise to breeds of domestic sheep. The Urial sheep, *Ovis vignei* Blyth, the range of which extends to the Indus Valley is now, acknowledged the ancestor of Indian Domestic Sheep.

*Pig.*—According to most recent authorities (Kloss 1931 ; Ellerman and Morrison-Scott (1952, p. 404) there is no specific difference of morphological importance between *cristatus* Wagner (Indian pig) and *scrofa* Linn. (European pig) and accordingly Indian pig is classed as

*Sus scrofa* Linn. with a wide range of distribution in the Palaeartic and Indian regions. The Indian domestic pig is the domesticated form of the wild *Sus scrofa* Linn.

*Camel*.—I agree with Prashad (1936, p. 9) that the Indian one-humped camel is undoubtedly the descendant of the Siwalik form, *C. sivalensis* Falc. & Cautley, and its domestication was first brought about in India probably in the Indus Valley.

*Dog*.—Two distinct types of dogs domesticated in India are recognisable by the representations of bony finds from Harappa and Mohenjodaro : (I) a type akin to Pariah, and (II) a mastiff type. I agree with Prashad (1936, pp. 8, 25-26) that Indian domesticated dogs have descended from *Canis tenggeranus* Kohlbrugge of the Oriental Region in the South-east Asia in the Diluvial times and from it were derived the Pariah, the Greyhound and the Tibet Dog. This ancestral form, *C. tenggeranus* Könlb., according to Prashad (1936, p. 26) after migration into Australia with aborigines was transformed into the True Dingo—*C. dingo* Blum.

*Buffalo*.—There is general concensus of opinion that Indian Buffalo is the direct lineal descendant of the gigantic *Bubalus palaeindicus* Falconer of Siwalik hills.

*Elephant*.—Indian Elephants are considered to be descendants of *Stegodon ganessa* Falc. & Cautley of the Siwalik hills.

*Horse*.—The true horse is the descendant of the domesticated form of the wild horses of the Central Asia or Eastern Europe.

#### V—SUMMARY

1. This paper reviews the skeletal animal remains obtained from the various prehistoric sites of India, such as Mohenjodaro (2500 B.C.—1500 B.C.), Harappa (2500 B.C.—1500 B.C.), Rana Ghundai (2100 B.C.—1500 B.C.), Rupar (2000 B.C.—200 B.C.), Rangpur (2000 B.C.—800 B.C.), Hastinapura (2000 B.C.—3rd Century B.C.), Maski (1000 B.C.—1st century A.D.), Taxilla (mid 1st century B.C.—to 2nd century A.D.), Brahmagiri (200 B.C.—1st century A.D.), Nasik (200 B.C.—300 A.D.), Arikamedu (20 A.D.—50 A.D.). These remains have been classified into six categories as follows :—

(a) The remains of animals probably maintained in a state of domestication in the prehistoric times are as follows.—*Bos indicus* Linn. ; *Bos (Bubalus) bubalis* Linn. ; *Ovis vignei* Blyth, race *domesticus* ; *Capra hircus aegagrus* Erxl. ; *Canis familiaris* Linn. ; *Canis tenggeranus* Kohlbr., race *harappensis* Prashad ; *Sus scrofa cristatus* Wagner ; *Camelus dromedarius* Linn. ; *Elephas maximus* Linn. ; *Gallus* sp. ; *Francolinus francolinus* (Linn.)—The Black Partridge ; *Equus asinus* Linn. ; and at a later date *Equus caballus* Linn.

(b) The remains of animals which lived in the vicinity of human habitation and probably semi-domesticated in the prehistoric times are as follows.—*Herpestes auropunctatus* (Hodgson) ; *Suncus stoliczkanus* Anderson ; *Rattus rattus* Linn. ; *Tatera indica* (Hardwicke).

(c) The remains of animals probably utilized as food were as follows.—*Gavialis gangeticus* (Gmelin) ; *Trionyx gangeticus* Cuvier ; *Chitra indica*

(Gray) ; *Lissemys punctata* (Bonnaterre) ; *Geoclemys hamiltoni* (Gray) ; *Batagur baska* (Gray) ; *Rita rita* (Ham. Buch.)—A river fish ; *Wallago* sp. (A river fish) , and The Carp *Arius* sp. (Sea and Estuarine fish).

(d) The remains of deer species which were obtained from the prehistoric sites are as follows.—*Cervus hanglu* (Wagner) ; *Rusa unicolor* (Kerr.) , *Axis axis* (Erxl.) ; *Axis (Hyelaphus) porcinus* (Zimm.) ; and *Tetraceros quadricornis* (Blainv.).

(e) The skeletal remains of the wild animals which were obtained not far away from the prehistoric sites are as follows.—*Canis aureus* Linn. ; *Canis lupus* Linn. ; *Rhinoceros unicornis* Linn. ; and *Bos bubalis* Linn.

(f) The remains of molluscan shells imported for use as ornaments and other purposes are as follows.—*Lamellidens marginalis* (Lamarck) ; *Arca granosa* (Linn.) ; *Arabica arabica* (Linn.) ; *Babylonia spirata* (Linn.) ; and *Xancus pyrum* var. *acuta* Hornell and var. *fuscus* Sowerby.

2. The significant role played by various species of animals, obtained from the prehistoric sites of India, in the cultural life of people is discussed.

3. An attempt has been made to correlate and compare the prehistoric finds of various domestic animal groups of India, such as *Bos* (oxen & buffalo) ; *Ovis* (sheep) ; *Capra* (goat) ; *Sus* (pig) ; *Equus* (Ass, horse, etc.) ; *Camelus* (camels) , *Elephas* (elephant) ; *Canis* (dogs) ; *Felis* (cats) ; *Gallus* sp. (fowl), etc., with those of the prehistoric animal remains of the Western Asiatic countries such as Mesopotamia (Iraq), Syria, Persia (Iran), Palestine and North Africa. The study reveals that the prehistoric domestic animals of India had strong affinities and resemblances with those of the Western Asiatic countries.

4. Brief account is given of the ancestral forms from which the various domesticated animals such as cat, ass, ox, goat, sheep, pig, camel, dog, buffalo, elephant and horse were derived.

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