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The Late Quaternary Fauna of Inamgaon

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The archaeological sites at Inamgaon, situated about 80 km east of Poona, are located on both banks of the river Ghod, a tributary of the Bhima. On the right bank of the river, there is a very prolific locality which has yielded Upper Palaeolithic tools from riverine deposits in association with a Late Pleistocene fauna (Badam 1976), dated to about 20,000 B.P. by the C-14 method

(TF-1177, 19290 ± 360 B.P.; TF. 1003, 21725^{+630}_{-585} B.P.;

half-life of 5730 years). A large Chalcolithic site on the left bank opposite has produced rich material evidence of an early farming community dating from c. 1600 to 700 B.C. (Sankalia, *et al.* 1971, 1975; Dhavalikar, this volume).

The animal fossils excavated from the Late Pleistocene alluvial gravels of the Ghod include *Elephas maximus* L., 1758; *Equus namadicus* Falconer and Cautley, 1849 (Plate I); *Equus* sp.; *Canis* sp.; *Cervus unicolor* Kerr, 1792; *Bos namadicus* Falconer, 1859 (Plate II); *Bubalus* sp.; and *Hexaprotodon palaeindicus* Falconer and Cautley, 1836 (Plate III). Molluscan shells have been collected from sandy pebbly gravels in several sections and generally belong to two genera—*Unio* and *Turitella*. The organic dark brown silty clay bands at Inamgaon have yielded a few pollen grains of *Acacia* and *Eugenia*, and an abundance of *Holoptelea* (Vishnu-Mittre and Gupta 1976).

The discovery of *Hexaprotodon palaeindicus* at Inamgaon is the first from the terrain south of the upper Godavari (Badam and Kajale 1977 a; 1977 b). From a chronological and evolutionary point of view, this spec-

ies is younger than *Hexaprotodon namadicus* (the typical Middle Pleistocene Narmada species), and older, of course, than the modern African species (*Hippopotamus amphibius*). The morphological characters of the other fossils are in basic agreement with the C-14 dates of c. 20,000 B.P., so the fauna is thus dated satisfactorily to the Late Pleistocene.

The sedimentary formations themselves were deposited by a series of waterpools within a braid bar or point bar. This is shown by the occurrence in the pebble gravel of lenticular bands of silt and clay which indicate periodic flooding of the river. Such pools, probably with a tall grass cover, might have provided suitable habitats for water-loving species of animals, such as *Hexaprotodon*. In fact, the presence of *Hexaprotodon* has a considerable bearing on the palaeo-environmental conditions of the Ghod valley during the Late Pleistocene. This animal would normally have inhabited swampy plain areas where sluggish water predominated, although the contemporary presences of elephant, horse, buffalo, cattle, deer and carnivores indicate a tropical semi-arid monsoonal climate, with plateau and lowlands probably covered by dense grass and stunted trees (Kajale *et al.* 1976). However, it is still difficult to reconstruct the detailed palaeo-ecology of the valley because of the absence, so far, of precise chrono- and biostratigraphic data. Nevertheless, the presence of Upper Palaeolithic tools (scrapers, flakes and blades) in the same geological layers as the animal bones suggests that biotic factors played an important part in attracting Palaeolithic settlers to this location.

Recently, a microlithic site (c. 12000 B.P.) has been discovered near the Chalcolithic mound of Inamgaon (Rajaguru 1980). Detailed geo-archaeological investigations in the area may make it possible to build up a fairly continuous cultural sequence from the Late Pleistocene food-gatherers through to the mid-Holocene food-producers. However, the early Holocene at Inamgaon is represented by a pedocalic black soil developed on the Late Pleistocene alluvial terrace, which suggests a significant erosional disconformity. So far, a palaeontological record for this period is lacking.

In addition to extensive cultural material, the main Chalcolithic mound at Inamgaon has yielded well-preserved faunal remains which include both domestic and wild animals (Badam 1977). The animals presumed to have been domesticated include the dog, pig, sheep, goat, horse, buffalo, Indian humped cattle, and the Indian elephant. The wild species are represented by *Rhinoceros unicornis* L., 1758 (one-horned rhinoceros); *Axis axis* Erxleben, 1777 (blackbuck); *Cervus unicolor* Kerr, 1792 (sambar deer); *Cervus duvauceli* Cuvier, 1823 (barasingha); *Tetracerus quadricornis* Blainville, 1816 (four-horned antelope); and *Boselaphus tragocamelus* Pallas, 1766 (nilgai). The presence of both wild and domesticated animals at Inamgaon shows that the inhabitants practised both hunting and stock-raising. In fact, presumed hunting tools such as microliths and stone balls have been recovered from the Malwa through to the Late Jorwe periods.

Most of the long bones from Chalcolithic Inamgaon are characterised by cutting and chopping marks, and charring on some indicates that they were roasted in fires. The assemblage as a whole suggests a relatively open vegetation cover with grass, bushes and dry thorny scrub forests. There were probably some swamps, but no dense forests.

It is difficult at present to draw any far-reaching conclusions about possible changes in the composition of the domesticated fauna in the different periods. Bones of Indian humped cattle account for up to 70 per cent of the total collection, indicating that cattle breeding was one of the principal occupations of the people of Inamgaon. Cattle were not only eaten (generally the young were slaughtered), but they were also used as draft animals, as indicated by an incised depiction of an ox-drawn cart. The species is characterised by a broad, flat and cleft spina dorsalis of the thoracic vertebrae, and a flattening of the median condyle of the trochlea of the humerus. The horn-cores collected point upwards, as in modern domesticated breeds. The origins of *Bos*

indicus remain problematic. Its ancestor may have been the Pleistocene *Bos namadicus*, and theories tracing its origin to an African wild race of *Bos* or the wild cattle of Southeast Asia remain unsubstantiated [1].

After cattle, sheep and goat were the most important species bred and slaughtered in Inamgaon. The number of unworn teeth and unfused epiphyses of these animals suggests that the bulk were butchered between the ages of two and three years, probably for meat. Some ewes were possibly kept alive longer for breeding and milk. The most notable skeletal changes in sheep as a result of domestication are a convexity in the nasals (possibly associated with a shortening of the jaws), a decrease in horn size, and an increase in the degree of wrinkling of the horns. It is believed that Indian domestic sheep are essentially derived from the urial—*Ovis orientalis*—found wild in the region between Iran and northwest India.

Bone measurements for the goats indicate that they were larger than modern breeds. Whenever goats and sheep can be unmistakably identified, their ratios are generally of the order of one goat to two sheep, although in some earlier levels goat bones predominate. It is not yet established whether goats were domesticated before sheep in this region, although goats are reported earlier than sheep in some Chalcolithic sites (e.g. Apegaon and Inamgaon). This circumstance may relate to an actual chronological sequence of domestication, or it may simply be due to ecological conditions. *Capra aegagrus*, still found wild in Baluchistan and Sind, is probably the main ancestor for the several breeds of Indian domestic goat.

The pig was bred for meat and fat, but sheep and goat rearing reduced its importance in the Late Jorwe period. A characteristic feature of domestication in the pig is a notable reduction in length of the third upper and lower molars, and to a lesser degree of the second molars. Little is known of the actual history of pig domestication in Asia, and the theory that it was independently domesticated in India remains unsubstantiated.

Only small herds of buffalo were kept and bred at Inamgaon. The measurements for buffalo metacarpals are the same as those for wild buffalo, and the domestic buffalo has changed so little that it may be regarded as only semi-domesticated; it continues to interbreed with wild populations. It is generally agreed that the domesticated buffalo is a direct descendant of the *Bubalus palaeindicus* found in the Siwaliks, and that it was domesticated within the Indian subcontinent.