

RECORD OF A BIRD HUMERUS FROM UPPER PLEISTOCENE NARMADA VALLEY SEDIMENTS

RAJEEV PATNAIK and ASHOK SAHNI

CENTER OF ADVANCED STUDY IN GEOLOGY, PANJAB UNIVERSITY,
CHANDIGARH - 160014.

ABSTRACT

A humerus of ? Scops Owl (Strigidae) has been recovered from a microvertebrate-bearing conglomeratic layer exposed near the village Devakachar (Dist. Narsinghpur, M.P.). This find supports the earlier view of scatalogical origin for the micromammal accumulation.

INTRODUCTION

In spite of the fact that a great variety of birds are found today in India, there is hardly any data available on fossil bird skeletal remains. The only find of fossilised bones (includes phalanges, tibia, fibula and vertebrae) is of *Struthio asiaticus* (ostrich) collected from unspecified Siwalik (Dhok Pathan) localities (Lydekker, 1884). Besides these bones, eggshell fragments are also known from Siwaliks. These eggshell fragments, collected and tentatively referred to *Struthio* by Aiengar 1935, have been assigned to *Aepyornis* by Sauer (1972). In recent years, numerous ostrich eggshells have been collected from several Upper Palaeolithic sites in the Peninsula (Kumar *et al.*, 1988, Mohabey, 1989, Sahni *et al.*, 1989 and Sahni *et al.*, 1990).

The present specimen comes from a mollusc rich conglomeratic layer which has recently yielded a diverse assemblage of micromammals, fish, amphibian and reptiles (Patnaik *et al.*, 1994) near the village Devakachar (23° 23'N: 79° 07'E) (Fig. 1a & b). Based on various studies i.e. radiocarbon dating of the molluscun shells (31, 750, +1820, - 1625, BP-TF 867, Agarwal & Kusumgar, 1974); flourine/phosphate correlation (Joshi & Kshirsagar, 1986); palaeomagnetic studies (Agarwal *et al.*, 1988) and large mammal biostratigraphic correlation (Badam *et al.* 1986), these sediments have been assigned an Upper Pleistocene age.

COMPARISONS AND DISCUSSION

The right humerus (VPL/RP-B1) falls in the size range of that of scops Owl rather than in that of large-sized Fish Owl or Barn Owl. The proximal end of the humerus in palmar view (Plate 1a), possessing moderately developed bicapital surface, subtriangular deltoid crest extending down (distally) the shaft and a small bicapital furrow, resembles that of a Scops Owl, *Otus* (see Olson and Hilgartner, 1982). The distal part is broken and condyles are not preserved in the

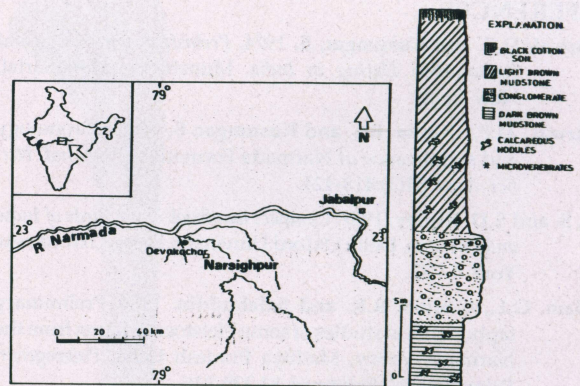


Fig. 1. Locality map and the lithocolumn at Devakachar.

present specimen. Due to incompleteness of the specimen and lack of sufficient number of specimens to study variation, at the moment it is not possible to taxonomically classify the specimen with total confidence.

Palaeoecological studies based on various fossil finds suggest presence of open grasslands with high subsoil moisture content (Badam *et al.*, 1986 and Patnaik *et al.*, 1994); wooded grasslands interspersed with perennial rivers and swamps (Badam *et al.*, 1986); sandy plains and interdunal areas with heavy shrubs and rocky terrains (Patnaik *et al.*, 1994). It was observed that the clay layers above and below the microvertebrate bearing conglomeratic horizon do not show sharp bedding planes; at places they contain calcareous concretions or nodules and bioturbation products. The above mentioned observations suggest that these overbank floodplain deposits have undergone pedogenic modifications.

Scops Owl are known to be widely distributed in the Peninsular India (Ali and Ripley, 1987). They usually feed on small mammals and insects. Recently,

preliminary taphonomic studies were carried out on the micromammals recovered from the same layer and it was noted that the nature and extent of breakage, wearing and abrasion on the skeletal parts indicate a scatalogical origin (Patnaik *et al.*, 1994). Such characteristic features have been observed in several Pleistocene micromammal accumulations, primarily derived from owl scats (Mellet, 1974; Korth, 1979; Dodson and Waxler, 1979).

ACKNOWLEDGEMENTS

We thank Prof. T. Cerling and Ravi Kohli (University of Utah, U.S.A) for their help in the field. Financial support to Rajeev Patnaik by DST, New Delhi is thankfully acknowledged.

REFERENCES

- Agarwal, D.P. and Kusumgar, S. 1974, *Prehistoric chronology and Radiocarbon Dating in India*. Munshiram Manoharlal, New Delhi.
- Agarwal, D.P., Kotlia B.S. and Kusumgar, S. 1988. Chronology and significance of Narmada Formation. *Proc. Ind. Ntr. Sci. Acad.* 54(3):418-424.
- Ali, S. and S.D. Ripley, 1987. *Compact handbook of the Birds of India and Pakistan*. Delhi Oxford University Press, Oxford new York. 1-737.
- Badam, G.L., Ganjoo, R.K. and Salahuddin. 1986. Preliminary taphonomical studies of some Pleistocene fauna from the Narmada Valley, Madhya Pradesh India. *Palaeogeogr. Palaeoclimatol. Palaeoecol.* 53:335-348.
- Dodson, P. and Wexlar, D. 1979. Taphonomic investigations of owl pellets. *Palaeobiology.* 5(3): 275-284.
- Joshi, R.U. and Kshirsagar, A. 1986. *Chemical Studies of Archaeological Bones from India: Flourine & Fossilisatin Process*. Deccan College, PGRI, Pune.
- Korth, W., 1979. Tabhonomy of Microvertebrate fossil assemblage. *Ann. Carnegie Mus.* 48: 235-285.
- Kumar, G., Narvare, G. and Pancholi, R. 1988. Engraved ostrich eggshell objects-New evidence of Upper Palaeolithic art in India. *Rock Art Research*, 5(1):43-53.
- Lydekker, R. 1984, Siwalik Birds. *Mem. Geol. Surv. India.* 10(3):136-202.
- Mellet, J. 1974. Scatological origin of microvertebrate fossil accumulation. *Science*, 185:349-350.
- Mohabey, D.M. 1989. Avian eggshells from Pleistocene of Kutch. *Jour. Geol. Soc. India*, 33:477-481.
- Olson, S.L. and Hilgartner, W.B., 1982. Fossil and subfossil Birds from the Bahamas. *Smith. Contr. Palaeobio.* 48:22-56.
- Patnaik, R., Badam, G.L. and Sathe, V. Discovery of microvertebrates from the Pleistocene deposits of Central narmadaValley, India. *Curr. Sci.* (in press).
- Sahni, A., G., Kumar, S., Bajpai and Srinivasan, S. 1989. Ultrastructure and Taxonomy of ostrich eggshells from Upper Palaeolithic sites of India. *Jour. Pal. Soc. India*, 34:91-98.
- Sahni, A., G. Kumar, Bajpai, S. and Srinivasan, S. 1990. A review of Late Pleistocene ostriches (*Struthio* sp.) in India. *Man and Environment*, 15 (1):41-47.
- Sauer, E.G.F. 1972. Ratite eggshells and phylogenetic questions. *Bonn. Zool. Beitr.* 23:3-48.

Plate I

- 1a & b. Palmar and Anconal views of the right humerus of a ? Scops Owl. Bar represents 1 cm.

