

ACKNOWLEDGEMENT

One of us (DKG) is grateful to the UGC, New Delhi, for a research fellowship.

1. Katz, B., *Proc. Roy. Soc.*, 1962, 155, 455.
2. Thesleff, S. and Quastel, O. M. J., *A. Rev. Pharmac.*, 1965, 5, 263.
3. Triggle, D. J., *Ibid.*, 1965.
4. Gaddum, J. H., *Nature, London*, 1963, 197, 741.
5. Iyatomi, K. and Kanehisa, K., *Jap. J. Appl. Ent. Zool.*, 1958, 2, 1.
6. Kanehisa, K., *Bull. No. 2, Laboratory Appl. Ent. Faculty of Agriculture, Nagoya University, Anyo, Japan*, 1961.
7. Smallman, B. N., *J. Physiol.*, 1956, 132, 343.
8. Metcalf, R. L., March, R. B. and Mexan, M. G., *Ann. Ent. Soc. Amer.*, 1955, 48, 222.
9. Grzelak, K., Lassota, Z. and Wronszhivska, A., *J. Insect Physiol.*, 1970, 16, 1405.
10. Hestrin, S., *J. Biol. Chem.*, 1949, 180, 249.
11. Metcalf, R. L., *J. Econ. Entowd.*, 1951, 44, 883.
12. Ellman, G. L., Courtney, K. D., Andres, V. and Featherstone, R. M., *Biochem. Pharmac.*, 1961, 7, 88.
13. Pant, Radha, Kumar, S. and Dubey Ratan, *Curr. Sci.*, 1978, 47 (13), 445.
14. Pant, R., Gupta, D. K. and Sharma, B., *Indian J. Exp. Biol.*, 1978, 16, 706.
15. Mehrotra, K. N., *J. Insect Physiol.*, 1961, 6, 215.

FOSSIL RHINOCEROS FROM TAMILNADU

S. C. JAYAKARAN

Regional Hydrogeologist, Water, P.O. Box 164, Morogoro, Tanzania, East Africa

ABSTRACT

Fossil rhinoceros is being reported from the most southern part of India. The fossil skull indicates that the geographic distribution of fossil rhinoceroses was wider than it was known earlier.

INTRODUCTION

THIS notes records the occurrence of a fossil rhinoceros from the district of Thirunelveli. The nearest living rhinoceroses are confined to Burma, Malaya, Sumatra, Java, Nepal and Assam in India. Fossil rhinoceroses have been documented from extra-peninsular India mainly from the Siwalik system and from peninsular India from the alluvium of Krishna valley and from the ossiferous caves of Karnool. Fossil rhinoceroses from the Pleistocene beds of Sri Lanka had earlier been recorded. This find, from the most southern part of India would contribute to the knowledge of their earlier distribution.

DESCRIPTION OF THE SITE

The fragmented skull of a fossil rhinoceros was found in a well cutting in Sathankulam—Lat. 8° 27' N—Long. 77° 55' E (Fig. 1). The site is about 21 m above the mean sea level and about 30 m south of the southern bank of Karamanyar river.

The fossiliferous layer was about 2 m thick and was composed of semi-consolidated sandy materials overlying a layer of calcareous sandstone. The calcareous sandstone in turn overlay the smoothly-

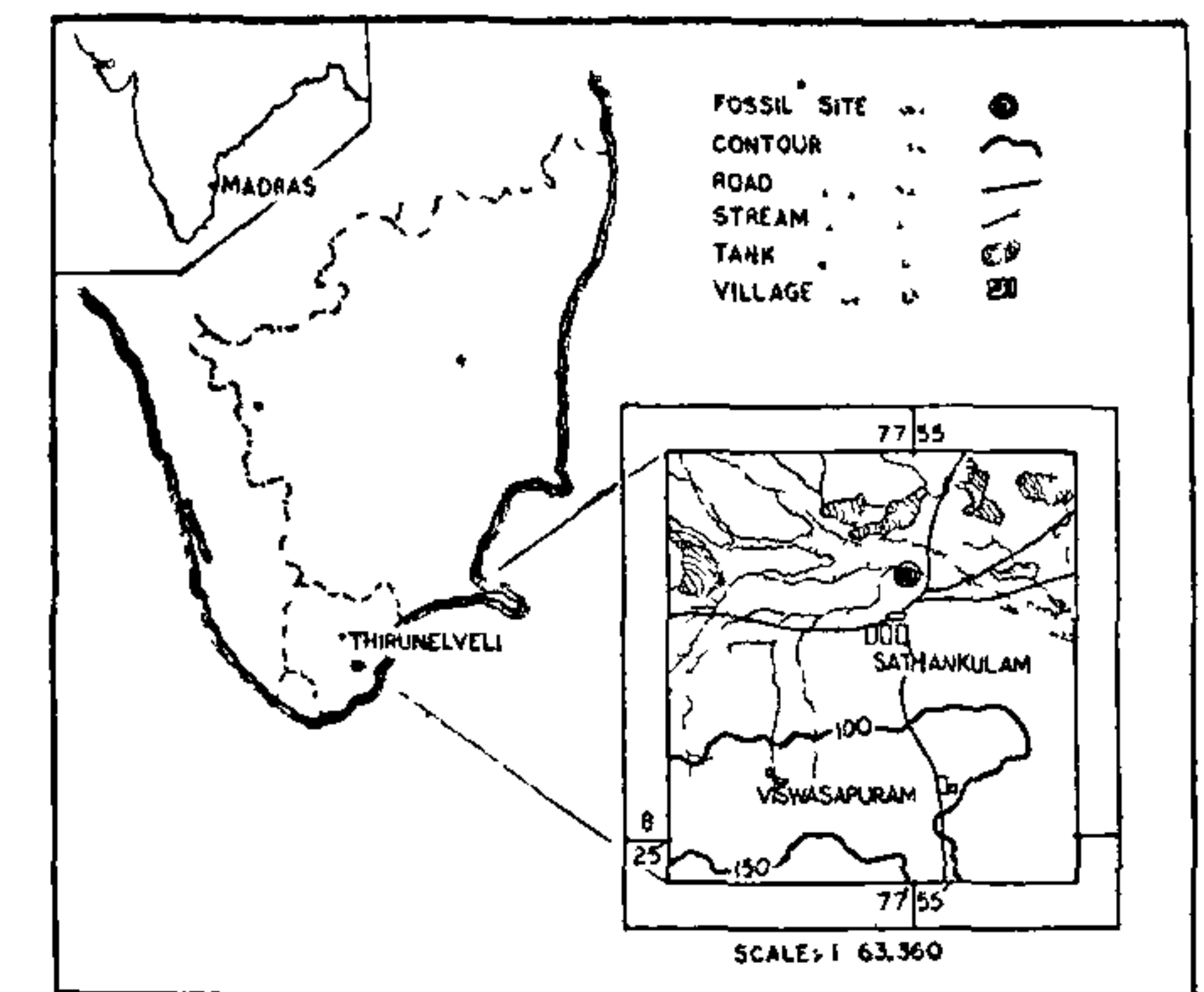


FIG. 1

eroded pre-cambrians at a depth of about 8.5 m below ground level. Over the fossiliferous layer was a tuffaceous calcareous formation of five metres thickness. The fossiliferous layer could only be traced to a limited extent of about twenty acres south of the river and west of the road as could be observed in the nearby well cuttings,

DESCRIPTION OF THE FOSSIL

The finding consists of a fragmented rhinoceros skull with parts of both maxillary bones with three molars on the right and two on the left. The fossil had not been affected by petrification although the dipole cavities had been filled with fine clayey material. The naso-maxillary complex is about 50 cm long (Fig. 2) with the diagnostic nasal hornboss, which was roughened. The teeth were damaged but isolated fragmented cusps were preserved (Fig. 3). Unfortunately it has not been possible to assemble them into individual teeth with any certainty. Morphologically they resemble molars. Dr. Hooijer had opined that the teeth associated with the fossil rhinoceros skull show medisinus or ectoloph and it seemed that a crista was not developed and that the teeth were rather high crowned.



FIG. 2. Lateral view of the naso-maxillary complex



FIG. 3. Fragments of teeth—cusps

DISCUSSION

Numerous fossil rhinoceroses from the extra-peninsular India mainly from the Siwalik system

had earlier been documented. From Peninsular India *R. deccanensis* from the Pleistocene alluvium of Krishna valley and *R. karnuliensis* from the ossiferous caves of Karnool had been recorded⁶. In Sri Lanka, two fossil rhinoceroses *R. sinhalensis* and *R. kagavena* had earlier been reported³ from the Pleistocene Ratnapura beds. It had been observed that they are related to *R. silvalensis* from the upper Siwaliks. In Sri Lanka, which is closer to the location of the present find, than other occurrences, the extinct vertebrates in general had a parallel evolutionary tendency as that displayed by the Indian stock.

Although the fossil skull was not complete the characteristic nasal hornboss is diagnostic of a rhinoceros. The roughened portion on the swelling clearly indicated the attachment of a nasal horn. The skull when compared with that of the modern black rhinoceros, *Diceros bicornis*, indicated that the overall fossil skull was 150 cm long suggesting that the fossil skull was about one and a half times as large as that of the modern black rhinoceros.

The fossiliferous bed is probably a Pleistocene deposit. This has been inferred from the order of super-position compared with that of the nearby areas worked out by earlier workers⁷; however this needs confirmation.

1. Beddard, F. E., *Mammalia—Chapter X—The Cambridge Natural History*, Vol. X, Macmillan and Co., London, 1902, p. 258.
2. Berry, E. W., *Palaeontology*, McGraw-Hill Book Co., 1929, p. 328.
3. Deraniyagala, P. E. P., *The Pleistocene of Ceylon*, Ceylon National Museum Publications, Ceylon Natural History Series, 1958, pp. 31, 32, 33 and 41.
4. Hooijer, D. A., *Rijksmuseum Van Natuurlijke Historie, Leiden*, The Netherlands, Personal Communications.
5. Pascoe, E. H., *A Manual of the Geology of India and Burma*, Vol. 3, Government of India Publications, 1962, pp. 1736, 1879 and 1890.
6. Prasad, K. N. and Daniel, J. A., *Curr. Sci.*, 1968, 37, 516.
7. Tripathi, C., *Records of the Geological Survey of India*, 1964, pp. 93 and 257.
8. Zittel, Karl Van, *Text Book of Palaeontology*, Vol. 3, Macmillan and Co. Ltd., 1925, p. 141.