

*Estudios Geológicos*, 67(2)  
julio-diciembre 2011, 419-421  
ISSN: 0367-0449  
doi:10.3989/egeol.40547.198

## Description of some rhinocerotidae teeth from the Lower Miocene from Estrepouy (France)

*Descripción de algunos dientes de rhinocerotidae del Mioceno Inferior de Estrepouy (Francia)*

O. Sanisidro<sup>1</sup>

### ABSTRACT

This paper included undescribed rhinoceros material from Estrepouy (France) stored in the Université Claude Bernard, Lyon that were previously identified by Antoine *et al* (2000). The rhinoceros record from Estrepouy is represented by three species: *Protaceratherium minutum*, '*Plesiaceratherium*' *platyodon* and *Diaceratherium aurelianense*.

**Keywords:** Rhinocerotidae, Estrepouy, Lower Miocene, France

### RESUMEN

En este trabajo se incluyen fósiles no descritos de Estrepouy (Francia) depositados en la Universidad Claude Bernard (Lyon, France), que previamente habían sido identificados por Antoine *et al.* (2000). El registro de rinocerontes de Estrepouy está representado por tres especies: *Protaceratherium minutum*, '*Plesiaceratherium*' *platyodon* y *Diaceratherium aurelianense*.

**Palabras clave:** Rhinocerotidae, Estrepouy, Mioceno inferior, Francia

### Introduction

Antoine *et al.* (2000) identified three species of Rhinocerotidae from the French locality of Estrepouy. Ginsburg, in an unfinished work about the large mammals of this locality now published in this volume, described some remains of two of these species. The objective of this paper is described other remains stored in the collections of the Université Claude Bernard (Lyon) not included in the Ginsburg manuscript.

### Systematic

Family Rhinocerotidae Gray, 1821  
Genus *Protaceratherium* Abel, 1910  
*Protaceratherium minutum* (Cuvier, 1822-24)  
1930 *Rhinoceros* sp. – Roman & Viret p. 588  
(figures 1A-F)

FSL3 2050 2C. Left upper DP2. Broadly rounded in occlusal view. Parastyle bilobulated and extending anteriorly. Protoloph curved, with a 'sickle-like' shape and a short antecrochet. Metaloph straight, with a antero-labially oriented short crochet. Sharp lingual side of the hypocone. Metastyle long, slightly curved and pointed. Anterior, labial and posterior cingula: connected, forming a continuous ridge and closing both anterior and posterior valleys. Smooth labial cingulum formed by two separated ridges.

FSL3 2041 3C. Right upper decidual teeth. Only the protoloph and the central valley are preserved. Anterior cingulum present.

FSL3 2041 3A. Right upper premolar with the lingual half preserved. The anterior, labial and posterior cingula are continuous. The protocone has a posterior pointed expansion and the hypocone a smoother anterior one. The medial valley is well marked and they do not overlap.

FSL3 2050 2A. Left upper M1. Protoloph not preserved. Hypocone rounded, metacone posteriorly displaced, high and sharp. Parastyle fold marked, dividing two developed lobes. Metaloph labially constricted. Posterior cingulum present, reaching only the posterior side of the hypocone and enclosing a subtriangular posterior valley. Labial cingulum weakly suggested by two ridges. Enamel softly crumpled.

<sup>1</sup> Museo Nacional de Ciencias Naturales de Madrid. Email: osanisidro@mncn.csic.es

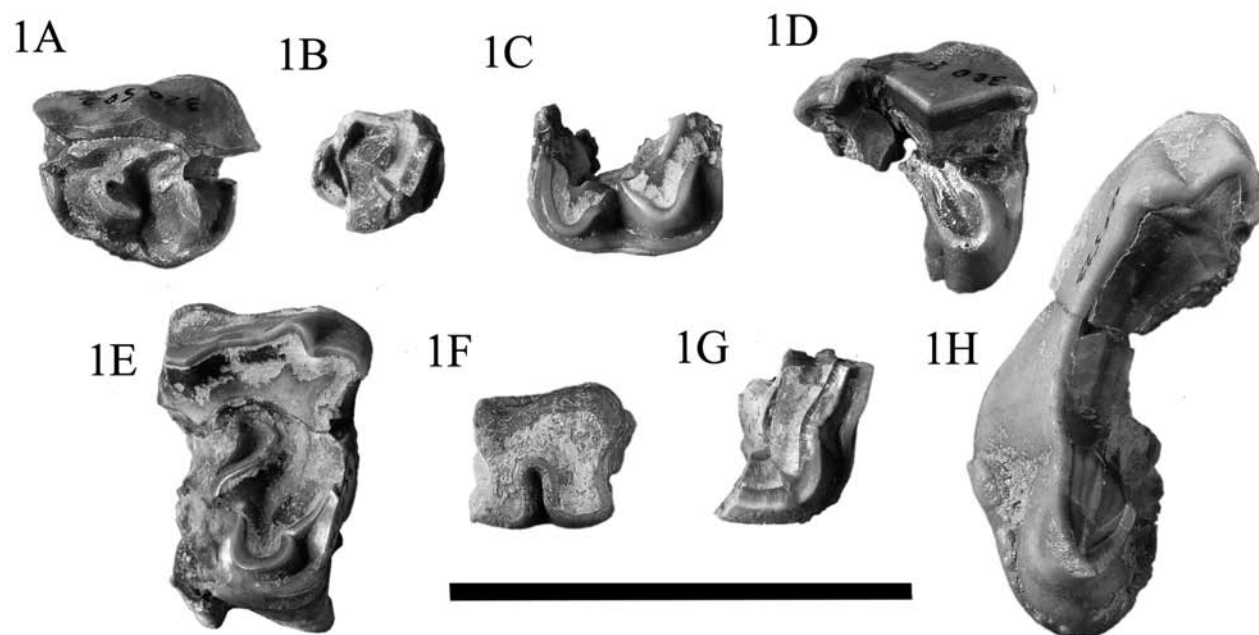


Fig. 1.—A-F: *Protaceratherium minutum* from the Lower Miocene of Estrepeouy (France). 1A, Upper left DP2 (FSL3 2050 2C); 1B, upper right decidual teeth (FSL3 2041 3C); 1C, upper right premolar (FSL3 2041 3A); 1D, upper left P3 (FSL3 2050 2A); 1E, upper right molar (FSL3 2041 3B); 1F, lower right p4 (FSL3 2050 2B). G-H: '*Plesiaceratherium platyodon*'. 1G, upper right molar (FSL 3 2041 3D); 1H, upper right M3 (FSL3 2052 3). Scale bar: 5 cm.

FSL3 2041 3B. Right upper molar. Protocone constricted with a posterior expansion of the protoloph. Parastyle rounded with a marked parastylic fold. Anterior and lingual cingula present. Labial cingulum present and restricted to the posterior half of the piece.

FSL3 2050 2B. Lower right p4 (fragmented). Labial cingulum present, but reduced to the ectolophid groove. Lingual cingulum absent. Posterior valley opened lingually with a 'V'-shape and metaconid not constricted. Ectolophid groove developed. Although damaged, ectolophid enamel is smooth.

Genus *Plesiaceratherium* Young, 1937  
'*Plesiaceratherium*' *platyodon* (Mermier, 1895)  
(figures 1G-H)

FSL3 2052 3. Right upper M3 (ectoloph). Parastylic groove present. Unconstricted protocone. Posterior cingulum reduced to a high granulated ridge on its lingual side. Enamel soft and slightly wrinkled.

FSL3 2041 3D. A piece of a right upper molar metaloph with anterior cingulum present and no lingual cingulum. Thick enamel walls with an outer wrinkled appearance.

## Discussion

L. Ginsburg previously identified *P. minutum* from a single first upper decidual and *Diaceratherium* cf. *aurelianense* on the basis of a left scapula. Newly described material confirms the presence of

*P. minutum* and reveals the presence of a third species, '*P. platyodon*'.

Although fragmentary, some of the remains matches with that of *P. minutum*, due to their overall size and morphology. In *P. minutum*, enamel secondary folding in upper deciduals is well developed and lacks any medial wall between protocone and hypocone. The presence of a well developed continuous lingual cingulum on the premolars and the lack of it in the molars are other typical characteristics of the species.

'*P. platyodon*' is morphologically similar to *P. minutum*, but greater in size and has thicker enamel. Yan & Heissig (1986) originally placed the species '*P. platyodon*' in the genus *Plesiaceratherium*, although their resemblance lead several authors to include them on the same genus (Cerdeño, 1989, 1992; Iñigo, 1994).

## ACKNOWLEDGMENTS

We are greatly indebted to Abel Prieur (Université Claude Bernard, Lyon) for enabling our access to the paleontological collections. O. S. is funded by a FPU fellowship from the Spanish Ministerio de Educación. This work has been made possible thanks to the research projects CGL 2008-05813-CO2-01.

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Recibido el 4 de enero de 2011  
Aceptado el 25 de agosto de 2011