OCCURRENCE OF *SELLITHYRIS SELLA* (BRACHIOPODA) IN THE ROSABLANCA FORMATION, BOYACÁ-COLOMBIA

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ABSTRACT

The brachiopod shells discovered in the Rosablanca Formation from the Santa Sofia locality, NW of Villa de Leyva, Boyacá province, can be identified as *Sellithyris sella* (J. de C. Sowerby, 1823). The studied material shows characteristics features of this taxon including the loop wide, triangular with high-arched transverse band. This material was collected during a paleontological excursion with geology students. *Sellithyris* was previously reported from Zapatoca, Santander province by Dietrich (1938) and Karsten (1958).This new record documents its wide Late Valanginian-?Hauterivian distribution in Colombia (Uppermost Rosablanca Formation) and confirms the direct transatlantic connections with Western Europe.

Key words: *Sellithyris sella*, Rosablanca Formation, Late Valanginian - ? Hauterivian, Boyacá-Colombia.

REGISTRO DE *SELLITHYRIS SELLA* (BRACHIOPODA) EN LA FORMACIÓN ROSABLANCA, BOYACÁ-COLOMBIA

RESUMEN

Se describe la ocurrencia de *Sellithyris sella* (J. de C. Sowerby, 1823) en la Formación Rosablanca, proveniente del área de Santa Sofía, Departamento de Boyacá. El material estudiado comprende dos ejemplares completos y seis moldes internos colectados en una excursión con estudiantes de geología. El *brquidium* amplio, triangular y provisto de una banda transversa alta, preservado en uno de los moldes internos, es característico del taxón. *Sellithyris* ha sido registrado previamente en el área de Zapatoca, Departamento de Santander. Este nuevo registro indica su amplia distribución durante el Valanginiano Tardío-? Hauteriviano de Colombia y confirma las conexiones con Europa Occidental.

Palabras clave *Sellithyris sella*, Formación Rosablanca, Valanginiano Tardío -? Hauteriviano, Boyacá- Colombia.

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INTRODUCCIÓN

The Colombian Cretaceous brachiopods include the terebratulids: *Arenaciarcula beaumonti* (d`Archaic) and *Gemmarcula* cf. *menardi* (Lamarck) deposited in the d`Orbigny Collection, and *Sellithyris sella* (J. de C. Sowerby, 1823), reported as *Terebratula Haueri* Karsten (1958) and *Terebratula sella* Dietrich (1938) from Zapatoca, Santander Province. This study documents the occurrence of *Sellithyris sella* (J. de C. Sowerby, 1823) in a stratigraphic section with good outcrop exposure of the Upper Rosablanca Formation from Santa Sofia (FIGURE 1), near of the "la Fábrica" cave, Boyacá province. This genus is a low latitude Tethyan form (Sandy, 1997), and is present in Western Europe, North Africa, North America and Mexico (Sandy, 1997; Gaspard, 2005). Manceñido (2002) proposed that the occurrence of *Sellithyris* in Colombia and *Musculina* from northern? South America may suggest direct connections with Western Europe.

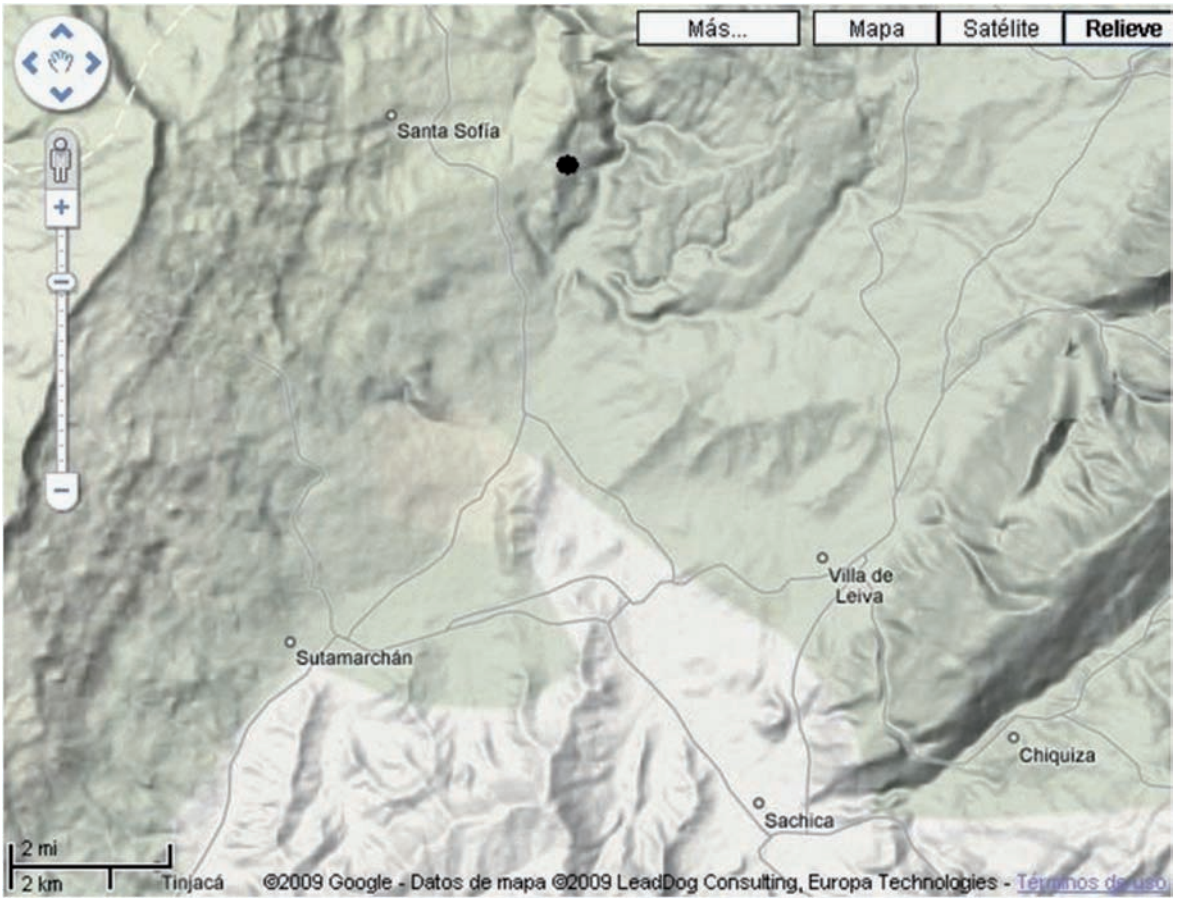

FIGURE 1. Localization of the studied area to the east of Santa Sofia, Boyacá-Colombia. Illustration from http://maps.google.com/maps?client=firefox-a&rls=org.mozilla:es

MATERIAL AND METHODS

The brachiopod shells were examined under a camera lucida and transverse serial sections were obtained by gridding one internal mold with 600 powder on glass plate. The dimensions (in mm): length dorsal valve (ldv), length (l), maximum width (mw), position of maximun width (pmw) and thicknes (t) were taken with a caliper. All material used for this report kept in the palaeontological collections in the Departamento de Geociencias, Universidad Nacional de Colombia, Bogotá.

SYSTEMATIC PALEONTOLOGY

Order Terebratulida WAAGEN, 1883
Suborder Terebratulidina WAAGEN, 1883
Superfamily Terebratuloidea GRAY, 1840
Family Sellithyrididae MUIR-WOOD, 1965
Subfamily Sellithyridinae MUIR-WOOD, 1965
Genus Sellithyris MIDDLEMISS, 1959

Sellithyris sella (J. de C. Sowerby, 1823)
(FIGURE 2)

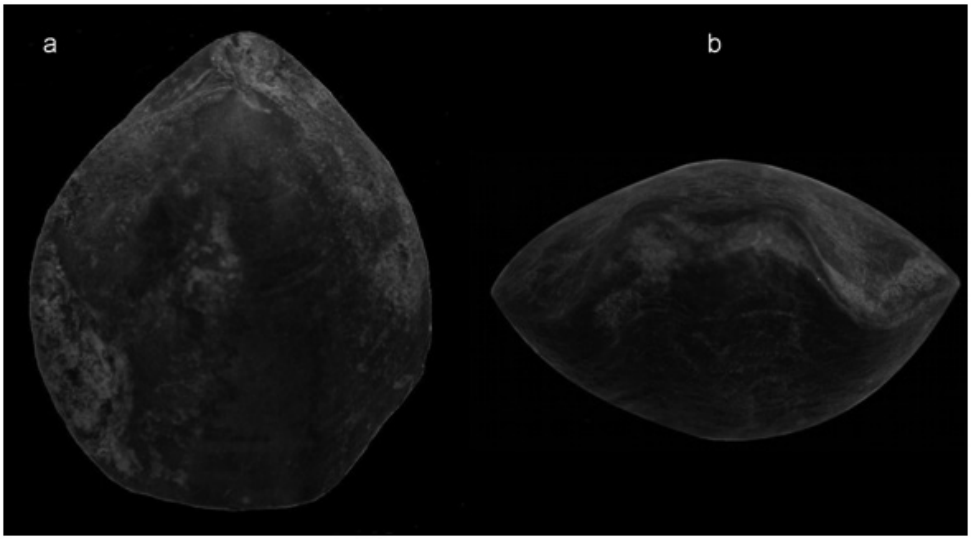

FIGURE 2. *Sellithyris sella* Rosablanca Formation, Santa Sofia, Boyacá Province. a. Dorsal view; b. Frontal view. UN-DG-BR-1002.

Description: Pentagonal shell, smooth, maximum wide slightly anterior mid line, anterior commissure episulcate, median sinus smaller and narrower than the lateral, umbo sub-erect. Loop wide and triangular with high-arched transverse band. Other internal features are not observed. Dimensions in the TABLE 1.

Material examined: Two complete specimen and six internal molds.

TABLE 1. Dimensions (in mm). Length Dorsal valve (LDV), length (L), Maximum width (MW), Position of maximun width (PMW) and Thicknes (T).

Specimen	LDV	L	MW	PMW	T
UN-DG-BR-1002	12,4	16,0	14,1	9,3	8,0

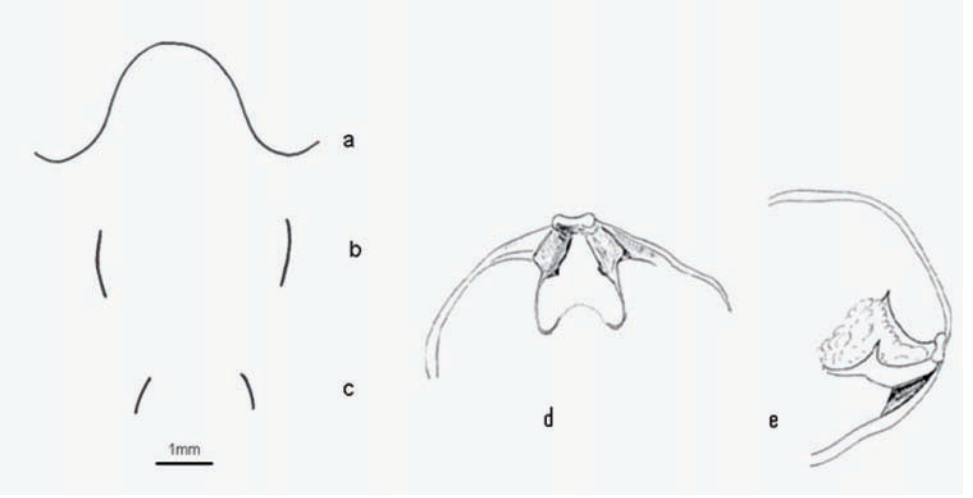

FIGURE 3. Selected transverse serial sections illustrating the development of the loop of *Sellithyris sella*, a-c Rosablanca Formation, Santa Sofia, Boyacá Province. The sections were obtained by gridding the internal mold with 600 powder on glass plate. The distances were measured in mm from the posterior end of the internal mold. a, high-arched transverse band; b and c, descending lamellae; d-e loop reconstruction of *S. sella* modified from Middlemiss (1959). .

IMPLICATIONS

The occurrence of *Sellithyris sella* in the Rosablanca Formation from Zapatoca, Santander Province, and Santa Sofia, Boyacá province suggest that it was widely distributed during Late Valanginian–?Hauterivian in Colombia and confirms the direct transatlantic connections with Western Europe.

Recently, Gaspard (2005) observed shape variations in *Sellithysis cenomanensis* from Sarthe, Charente-maritime, Indre et Loire, Maine et Loire, Vendée and S.E. France, associated to the position during the Cenomanian boreal and mesogean provinces. Gaspard (2005) suggested that the brachiopods react quickly to the environmental modification to explain the observed variations. Then, the extensive morphological study of *Sellithyris* could to improve the understanding of the relationship between Andean and Tethyan realms.

REFERENCIAS

Dietrich, W. 1938. Lamelibranquios cretácicos de la Cordillera Oriental. En. Scheibe, R.: *Estudios geológicos y paleontológicos sobre la Cordillera Oriental de Colombia.* Minist. Ind. y Petrol,. (2), 7-80 Parte tercera, pp. 81-108, pl. 2. Bogotá.

Gaspard, D. 2005. Shape variation in Cretaceous biplicate terebratulid brachiopods. Impact environnemental sur la dynamique des populations au Crétacé. Réunions thématiques du Groupe Français du Crétacé. Paris. 24. p.

Grádinaru, E.; Bárbulescu, A.; Owen, E. 2006. Latest Albian (Vraconian) brachiopod fauna North Dobrogea (Romania): Taxonomy, palaeoecology and palaeobiogeography. Acta Geologica Polonica, 56 (1): 67-88.

Karsten, H. 1858. Über die geognostischen Verhältnisse des westlischen Columbien, der heutigen Republiken Neu-Granada und Equador. Amtl. Ber. über die 32 Versammlg. d. Deutsch. Naturforsch. in Wien 1856, Viena.

Manceñido, M. O. 2002. Paleobiogeography of Mesozoic brachiopod faunas from Andean-Patagonian areas in a global context. Geobios, 35 (17):176-192.

Middlemiss, F. A. 1959. English Aptian Terebratulidae. Paleontology, 2(1): 94-142.

Muir-Wood, H. M. 1965. Mesozoic. and Cenozoic Terebratulidina. In Moore, R. C. (ed.): Treatise on Invertebrate Paleontology, part H (Brachiopoda). Geological Society of America and Kansas University Press, Lawrence, Kansas, pp. 762-816.

Sandy, M. R. 1990. Biogeographic affinities of some Jurassic-Cretaceous brachiopod faunas from the Americas and their relation to tectonic and paleoceanographic event. In: MacKinnon , D.I., Lee, D.E., Campbell, J. D. (Eds.), Brachiopods through Time. A.A. Balkema, Rotterdam, pp. 415-422.

Sandy, M. R. 1997. Mesozoic brachiopods of Mexico- A review and some comments on their paleobiogeographic affinities and paleoecology. Revista Mexicana de Ciencias Geológicas, 14 (2): 219-224.

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