The lower Cambrian (Ovetian) Agraulidae from Spain and the oldest trilobite records

Eladio LIÑÁN¹, José Antonio GÁMEZ VINTANED¹ and Rodolfo GOZALO²
¹ Museo de Paleontología, Departamento de Ciencias de la Tierra, Instituto Universitario de Ciencias Ambientales (IUCA), Universidad de Zaragoza, Spain; linan@unizar.es; J.Antonio.Gamez@uv.es
² Departamento de Geología, Universitat de València, Spain; Rodolfo.Gozalo@uv.es

The type material of Agraulos antiquus [1] from the La Herrería Formation (Correcilla Unit, Cantabrian Zone; see [2]), is revised together with additional material, and included in a new genus.

The stratigraphical range of the cantabrian species - occurring below that of the trilobite species of Lunolenus, Metadoxides and Dolerolenus in the type locality of Los Barrios de Luna, in the province of León, northern Spain - and the accompanying ichnofossil assemblage demonstrate an Ovetian age (lower part of Cambrian Stage 3 currently being discussed by the ISCS) for this species.

Moreover, a new species belongs to the same genus is found in the Tamames Sandstone near the village of La Rinconada, in the province of Salamanca, central Spain. The biostratigraphical position of this new taxon and its accompanying ichnoassemblage are also analysed, concluding with an assignation to the lowermost Ovetian Stage. Thus this new genus is the oldest Agraulidae found in the fossil record. The comparison of its biostratigraphy with other coeval Spanish fossil assemblages allows us to propose its intercontinental correlation with the oldest records of currently known trilobites (see [3, 4]).


Problems with selecting a GSSP for the Stage 3 Series 5 Cambrian boundary

Linda MCCOLLUM
Department of Geology, Eastern Washington University, USA; lmccollum@ewu.edu

The Stage 3 Series 5 Boundary Working Group has been tasked with selecting a suitable candidate species and section for the location of a GSSP near the traditional Lower-Middle Cambrian boundary. The strongly negative Redlichid-Olenellid Extinction Carbon Isotope Excursion (ROECE) occurs within the traditional Lower-Middle Cambrian boundary interval in Eurasia and Laurentia, and coincides with a major extinction of the largely endemic trilobite faunas. No trilobite species lineages across the ROECE are evident in the candidate sections so far described. Therefore, candidate species for a GSSP will have to be selected from a lineage existing before the extinction or post-extinction, as outlined in the ICS guidelines.

The only trilobite family that is widespread enough in this time period to be potential markers for a GSSP is the Oryctocephalidae. Two oryctocephalid species are the leading contenders for the zone species, Oryctocephalus indicus and Ovatoryctocara granulata. O. indicus has been identified in India, South China, North Korea, Laurentia, Greenland, and possibly Siberia. Well-documented sections containing O. indicus are known from South China and the Great Basin of the southwestern United States. O. granulata has been reported from Siberia, Newfoundland, Greenland, and possibly South China, with the Molodo River section in Siberia being well documented.

The Kaili Formation, exposed in the Wuliu-Zengjiayan section of South China, consists of laminated claystones with a diverse trilobite fauna. Detailed quarrying of the 4.5 m of section centered around the FAD of O. indicus has demonstrated that the FAD of O. indicus overlies 10 cm of barren strata, and the LAD of Redlichia is 20 cm below O. indicus. There is an abrupt faunal turnover preceding the O. indicus level. O. indicus extends through 65-88m of the Kaili Formation.

At the Split Mountain section in the Great Basin, the basal 1.5 m of the Emigrant Formation contains the last olenellids. This is overlain by 13.5 m of hackly mudrock and shale that includes two Laurentian “Middle Cambrian” faunizones. The FAD of O. indicus occurs in the basal portion of 3 m of dark, laminated clayshale overlying a 15 cm thick, discontinuous
Stratigraphic overview of the Ediacaran and Cambrian from the Anti-Atlas, Morocco

Léa Devaere, Sébastien Clausen and J. Javier Álvaro (eds.)

ISBN: 978-2-9601543-1-3 (PDF)

Dépot Légal : 09/2014
Impresssion : Université Lille 1, 59655 Villeneuve d’Ascq, France, 09/2014.

This book has been freely provided to the participants of the international meeting held in Ouarzazate, Morocco, September 15-24th, 2014.

No commercial value.
Organizing Committee

J. Javier Álvaro, Centre of Astrobiology, Torrejón de Ardoz, Spain
Mohammed Benharref, CAP-Ressources, Casablanca, Morocco
Sébastien Clausen, University Lille 1, France
Léa Devaere, University Lille 1, France
Hassan Ezzouhairi, University Chouaib Doukkali, El Jadida, Morocco
Abderrahman Soulaimani, University Cadi-Ayyad, Marrakech, Morocco
Samuel Zamora, Geological Survey of Spain (IGME), Zaragoza, Spain

Sponsors

CAP Ressources, Morocco
Geological Survey of Spain (IGME)
International Subcomission on Cambrian Stratigraphy
International Subcomission on Ediacaran Stratigraphy
Managem, Morocco
University Lille 1, France