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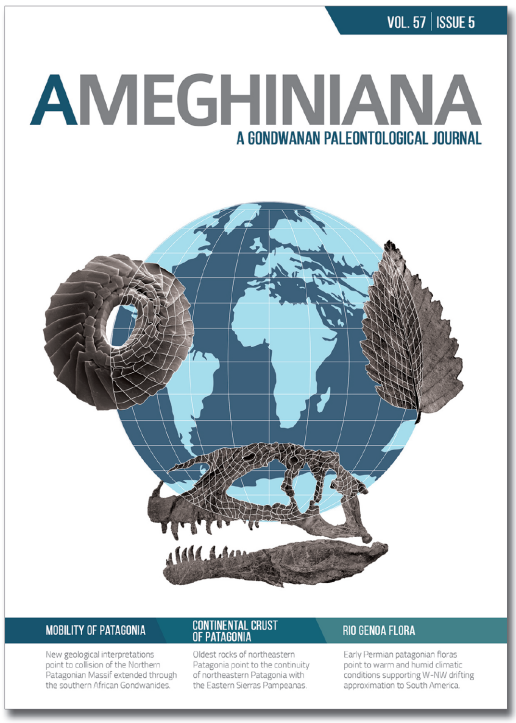

GONDWANAN PERSPECTIVES: THE ORIGINS OF PATAGONIA, A CHALLENGING GEOLOGICAL PUZZLE

DIEGO POL[1]
DARÍO G. LAZO[2]

[1] Museo Paleontológico Egidio Feruglio. Av. Fontana 140, U9100GYO Trelew, Chubut, Argentina.
[2] Instituto de Estudios Andinos "Don Pablo Groeber" (IDEAN), Universidad de Buenos Aires-Consejo Nacional de Investigaciones Científicas y Técnicas (CONICET). Intendente Güiraldes 2160, Ciudad Universitaria, Pabellón II, 1° piso, C1428EGA Ciudad Autónoma de Buenos Aires, Argentina.

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MOBILITY OF PATAGONIA

New geological interpretations point to collision of the Northern Patagonian Massif extended through the southern African Gondwanides.

CONTINENTAL CRUST OF PATAGONIA

Oldest rocks of northeastern Patagonia point to the continuity of northeastern Patagonia with the Eastern Sierras Pampeanas.

RIO GENOA FLORA

Early Permian patagonian floras point to warm and humid climatic conditions supporting W-NW drifting approximation to South America.

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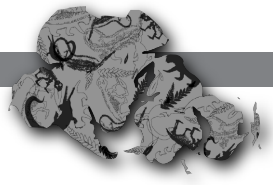

GONDWANAN PERSPECTIVES: THE ORIGINS OF PATAGONIA, A CHALLENGING GEOLOGICAL PUZZLE

DIEGO POL[1] AND DARÍO G. LAZO[2]

[1]Museo Paleontológico Egidio Feruglio. Av. Fontana 140, U9100GYO Trelew, Chubut, Argentina. *dpol@mef.org.ar*

[2]Instituto de Estudios Andinos "Don Pablo Groeber" (IDEAN), Universidad de Buenos Aires-Consejo Nacional de Investigaciones Científicas y Técnicas (CONICET). Intendente Güiraldes 2160, Ciudad Universitaria, Pabellón II, 1° piso, C1428EGA Ciudad Autónoma de Buenos Aires, Argentina. *dlazo@gl.fcen.uba.ar*

THE NATURAL HISTORY OF PATAGONIA has always attracted the attention of researchers and explorers and its deep geological and paleontological record has been the focus of intense research in the last two centuries. The origin of Patagonia and its recognition as a continent that was once separated from South America has become one the most debated ideas and arguably the most intriguing conundrum in the history of South American geology. Different competing hypotheses, including the now classic controversy of the mobility versus fixists ideas, are still under debate despite the many geological studies performed during the last decades. The discussion is well rooted in the history of the discipline as the first proposal to consider Patagonia as an independent continent of Gondwana was written in 1924. However, many discrepancies still exist regarding its tempo and mode of movement and collision, and even whether this event happened at all. At present, several lines of research have been adding new information to the picture, including dates, geochemical data, and new assessments of floral and faunal remains from the Paleozoic of Patagonia. This increasing amount of evidence is welcome but difficult to put together and thus presents itself as a big challenging geological puzzle where each small piece of evidence may change the fate of the continent.

In this issue of Gondwanan Perspectives we include three review articles that tackle on different aspects of this problem and provide an updated account of the evidence at hand relevant to this debate. Ramos *et al.* (this issue) include a brief historical review of the early recognition of Patagonia as a separate continent and the models developed in recent decades. This contribution discusses the evidence supporting alternative collision models with relevant information from Ventania, the Northern Patagonia and Deseado massifs as well as the development of syn-orogenic basins during the Paleozoic. Ramos *et al.* (this issue) review this evidence and its implications for the autochthonous or allochthonous models, supporting a continent-continent collision in the Northern Patagonian Massif that continues in the Gondwanides in southern Africa.

Rapela and Pankhurst (this issue) review provide new data on the continental crust of northeastern Patagonia, analyzing geochemical data, U-Pb geochronology, and isotope signature in Cambrian–Ordovician magmatic rocks. The interpretation of this evidence leads them to support an alternative scenario, in which the continental crust of northeastern Patagonia was continuous with that of the Pampean region by the early Cambrian.

Finally, Cúneo (this issue) presents a review of paleontological information relevant to this debate, focusing on the fossil flora of the Río Genoa Formation and its implications for the position of Patagonia during the Late Paleozoic. The early Permian flora of this unit is remarkably diverse and abundant, with over 100 species of different plant groups. Cúneo (this issue) reviews the thermophilic components of this flora (including lycophytes, sphenophylls, ferns, and gymnosperms) and suggests tropical/subtropical conditions for Patagonia during this time. Striking differences with other less diverse Permian floras from South America are interpreted as supporting an allochthonous origin for Patagonia, which is suggested to be derived from lower latitudes.

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These articles provide an updated account of current ideas and will undoubtedly contribute to the ongoing debate on the origin of Patagonia and its role on the assembly of Gondwana during the Paleozoic. Although disagreements still exist among researchers and are likely to continue in future years, integrative hypotheses able to explain all these new data will certainly require bringing together the diverse fields of paleontological and geological research.

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