

Determination of some stages for the restoration of the ancient connections
of the South American continent

[letter to Dr. H.V. J. Ihering]

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1891

In my preceding letter, I told you that both Americas were in communication during the Oligocene, based on the existence of edentates probably of that epoch from North America (*Moropus* Marsh). But since *Moropus* Marsh has been included with the Chalicotheriidae the previous supposition is unfounded.

During the Oligocene of Panama two ungulates existed. I thought one (*Hippaphus*) next to the horses, the other (*Ribodon*) next to the tapirs, but now with the more complete knowledge I possess of the characteristics of the original (ancestral) ungulates of SA, it seems to me that these new data cannot be sustained without more complete material. *Hippaphus* may be a relative of the horses [but very remotely and maybe Litopterna separates it completely from the European and North American ungulates for _____?], but *Ribodon*, known only by scattered teeth (molars), may have completely different affinities from those I previously supposed. Eliminating these types still imperfectly known, then my results on one hand are similar to yours, for just recently we have moved the interbreeding of faunas starting with the last part of Miocene

* Original citation: Ameghino, F. 1891. Determinación de algunos jalones para la restauracion de las antiguas conexiones del continente Sud-Americano. *Revista Argentina de Historia Natural* 1:282-288. QH758 R4 V.1. Only pp. 286-287 (usable parts of latter page) translated. Transferred to electronic copy and edited by Mark Uhen and Michell Kwon, Smithsonian Institution, 2007.

Epoch, that proves without a doubt the imperfection of both Americas. During the rest of the Miocene, during all of the Oligocene, and during the Eocene, the SA fauna remains completely isolated, looking separately and without much interbreeding with any NA form change that during the long duration of these epochs there existed no communication between the North and the South, and here also I find myself agreeing with you.