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An exceptional *Dimetropus* pes imprint with scalation pattern from the lower Permian of Lodève and its broader implications for early synapsid palaeobiogeography and skin evolution

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Dimetropus is one of the most widespread tetrapod ichnogenera of the Permian, known from several Cisuralian units of Euramerica and North Africa. Generally attributed to pelycosaur-grade synapsid trackmakers, two ichnospecies are currently considered valid: *D. leisnerianus* and *D. osageorum* . A revision of a well-preserved *Dimetropus* pes footprint from the lower Permian (upper Artinskian) Rabéjac Formation of the Lodève Basin highlights the first definitive presence of *D. osageorum* from the Variscan Belt. A synapomorphy-based track–trackmaker correlation suggests ophiacodontids, such as *Ophiacodon*, as potential tracemakers of *D. osageorum*. Therefore, this potentially extends the palaeobiogeographic distribution of ophiacodontids in the upper Cisuralian in both North American and European basins. Moreover, the presence of well-preserved epidermal scale imprints on the *D. osageorum* pes of Lodève precises the evolution of epidermal scalation in pelycosaur-grade synapsids and suggests the presence of both dermal and epidermal scales in ophiacodontids. This occurrence is time-equivalent with the Artinskian Warming Event, strengthening the scenario of epidermal scale evolution in light of palaeoclimatic changes in the Variscan Belt, from everwet-adapted biotas to seasonal drought-adapted biotas.

Key words: Ophiacodontidae, *Dimetropus osageorum* , epidermal scales, track-trackmaker correlation, Artinskian Warming Event.

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