IMPLICATIONS OF AN ANALYSIS OF DEEP PES TRACES AND MANUS IMPRESSIONS FOR THE SUPPOSED ATREIPUS-GRALLATOR ICHNOGENERIC PLEXUS: AN APOMORPHY-BASED APPROACH

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ABSTRACT

The apparently continuous evolution of the Triassic ichnogenus Atreipus and the Jurassic ichnogenus Grallator is refuted by the presence of track complexes intermediate between these track makers. We use an apomorphy-based approach to define ichnogenus species and define the level of trackmaker diversity that can be accommodated within track complexes intermediate among track makers. We conclude that the commonly observed intermediate complexes between Atreipus and Grallator are best interpreted as Grallator manus impressions superimposed upon Atreipus pes impressions. In general, the deep tracks are Grallator pes, and the more superficial tracks are Atreipus pes. These complexes are best explained as a result of the neotenic development of trackmakers in a non-dinosaurian tetrapod trackmaker complex. We conclude that their evolution does not follow an "ichnologic-evolutionary sequence" in the conventional sense, as described in the literature.

2 APOMORPHY-BASED APPROACH: It has been commonplace to identify tetrapod ichnotaxa by general resemblances often dominated by extra-morphological information. However, if the goal is to recognize entities that have phylogenetic or evolutionary significance, then an apomorphy-based approach is better suited to meaningful identifications as well as permitting parsimonious hypotheses of trackmaker assignment.