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HPF-17 Trace fossils ? ichnological concepts and methods

Anthropology of trace fossils: Behaviours beyond myths

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Ichnology isn't just the study of biogenic structures. It must be understood that the weird morphology of certain trace fossils were perceived by cultures all around the world since millennia, that myths explaining their origin and form have quantifiable *anthropogeographic* importance and that culture transformations and science are able to induce acculturation of new conceptions with impacts in communities. All these fields of work are matters for a proposed new branch of ichnology called *ichnoanthropology*. During life, Man is conditioned by his biology, by the established relationships with society and by nature which is a source of fascination and interpretation as vital to most *"primeval"* societies as for 21st century scientists. Trace fossils are part of Nature and it is the intervention of Man upon nature and its mysteries, by means of interpretation or for changing, that defines culture. Trace fossils can be integrated in local culture as symbols of magic-religious affinities and became *ethnema*. Trace fossils became then cultural values for a society if transposing generations and are considered heritage. They can be considered *hierophanic* (symbols of divine) heritages with relevant importance as we find in the foundation papers of Martin Lockley, Jose Luis Sanz, Carlos Neto de Carvalho or Adrienne Mayor.

But all these authors present examples of *ichnomithology* (now considered a sub-discipline of *geomithology*) as mere folktales and try to find the biogenic interpretation for the traces and their producers not going much further. We should assume that the ichnological heritage and ichnology itself may be purposed by scientific reasons of relevance but the enculturation background (the way ichnologic findings and information were/are assimilated by community) is fundamental for surviving as a value across generations protected as tradition. The social importance of ichnology can be measured using anthropological methods for philosophical (Is ichnology important to the society?) and social (job opportunities in ichnology) to economic purposes (creating ichnoparks). Portugal is prolific in cases of trace fossils that became tradition. Cultural dynamics were very strong due to intermittent contact among different civilizations. So, *ichnomyths* like the dinosaur footprints from Cabo Espichel and Bicha Pintada trilobite burrow represent acculturation palimpsests of interpretations that were included in people's beliefs and widely dispersed by cultural osmoses throughout the country. Penha Garcia Cobras Pintadas' *Cruziana* cultural change is very recent. Community is absorbing the useful interpretation as fossils due to the fast growing of Geotourism and the income but cultural appropriation as behavioral traces of extinct marine animals is still to be done. It is being followed by ichnologists and anthropologists for the first time to measure the impact of *deculturation* in order to imperceptibly integrate trace fossils as what they really are.

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