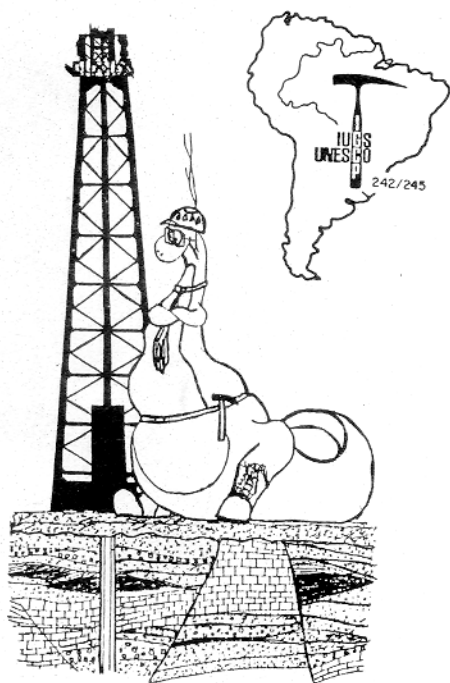


1º SIMPÓSIO SOBRE AS BACIAS CRETÁCIAS BRASILEIRAS

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**A TALE OF MYSTERY: THE CONTINENTAL CRETACEOUS
BIOGENIC STRUCTURES FROM BRAZIL**

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The continental cretaceous deposits are largely developed at the intracratonic and interior sedimentary basins of Brazil, whose fossils are sometimes restricted to thin strata of limited geographic distribution. Besides invertebrates, vertebrates and plant fossils, continental biogenic structures can also be present

In Antenor Navarro and Sousa formations (Sousa and Uiraúna-Brejo das Freiras basins, Paraíba State), there are several invertebrate ichnofossils whose taphonomical aspects only allow an ethological classification. Some of them were tentatively labelled as the ichnogenera ?Arenicolites, ?Lophoctenium and ?Taenidium, and others only as Fodinichnia, Repichnia and Cubichnia traces (Carvalho, *Icnocenosos continentais: Bacias de Sousa, Uiraúna-Brejo das Freiras e Mangabeira*. Tese de Mestrado, Instituto de Geociências/UFRJ, 167 p., 1989). Their producers could be annelids (Oligochaeta) and arthropods (insects and freshwater crustaceans). In the Antenor Navarro deposits of the Mangabeira Basin (southern Ceará State, ricoliths and some dwelling structures (Skolithos), probably made by insects, were recorded. Another ichnogenus, *Cochlichnus*, was recorded in the Sousa Formation at Sousa Basin (Muniz, In: *Coletânea de Trabalhos Paleontológicos*, sér. geol. 27,

seç. paleont./estrat. 2, p. 239-241, 1985), which was attributed to roundworms (Nematoda). In Quixoa Formation (Iguatu Basin, Ceará State), Leonardi & Muniz (CONGR. BRAS. PALEONT., 9, Fortaleza, 1985. Resumos... Fortaleza, SBP, p. 45, 1985) mentioned the ichnogenus *Muensteria*, but the producer was not cited.

The most abundant and remarkable trace fossils from the Brazilian Cretaceous basins belong to the numerous footprints and trackways left by a dinosaurian fauna (Sousa Formation). Attributed to Carnosauria, Coelurosauria, Iguanodontidae and Sauropoda, several trackways were described and four ichnospecies, *Caririchnium magnificum*, *Moraesichnium barberenae*, *Sousaichnium pricei* and *Staurichnium diogenis* were named (Leonardi, An. Acad. bras. Ci., 51 (3): 501-516, 1979; Leonardi, in Ligabue, G. ed., *Sulle orme dei dinossauri*, Venezia, Erizzo Editrice, p. 165-186, 1984).

Dinosaur (theropods and ornithopods), theromorphoid and probably mammalian trackways were identified and described in Botucatu Formation (Paraná Basin, São Paulo State). The last one was named *Brasilichnium elusivum* and tentatively interpreted as the tracks of an early mammal (Leonardi, An. Acad. bras. Ci., 53 (4): 793-805, 1981). Other traces, but of invertebrate origin, were attributed to *Taenidium satanassi* and *Taenidium serpentinum* (Fernandes et al., An. Acad. bras. Ci., 60 (4): 493, 1988) and assigned to worm activities. Some U-tubes and trackways also occur in this unit, probably resulting from arthropod activities (insects).

Also, at Parnaíba Basin (northern Brazil), dinosaur footprints and invertebrate ichnofossils (?*Thalassinoides*) are found in the Cretaceous sequences (Corda and Itapecuru formations). It was possible to recognize at Corda Formation a group of six ornithischian trackways (Leonardi, An. Acad. bras. Ci., 53 (2): 345-346, 1981).

Other evidences of physiological activities are the eggs of dinosaurs from Bauru Group (Minas Gerais State), some of them attributed to ornithischians, probably *Ceratopsia* (Price, DNPM/DGM, Not. Prel. Est., (3), 5 p., 1951; Campos & Bertini, CONGR. BRAS. PALEONT., 9, Fortaleza, 1985. Resumos... Fortaleza, SBP, p. 19, 1985).

In this way, the ichnofossils allow a partial knowledge of the fossil record of these lithostratigraphic units. These ichnocenoses are organized in the ichnofacies *Scoyenia* that represents all the ichnofossil associations of continental "red beds" and other similar deposits. The biogenic structures are the only evidence of a preterite life in many strata, having an important role to the paleoenvironmental reconstruction. However, the main problem is to recognize the true producer of the trace, since similar traces can be made by different animals, and one animal can produce many different traces depending on the nature of its activity.

In spite of the poor knowledge of the trace fossil record in these units, they can be a useful tool for the study of the Cretaceous strata. The diversity of producers is somewhat wide and their identification depends basically on the preservation of the traces, not always good. As in a tale of mystery, the producer will probably be the last to be discovered, but the trace will always add new information to the fossil record and to the interpretation of the depositional environment.