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Tooth microstructure of the Early Permian aquatic predator *Stereosternum tumidum*

Flávio A. Pretto, Sérgio F. Cabreira, and Cesar L. Schultz
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A histological investigation of the feeding apparatus of a *Stereosternum* specimen revealed a great number of adaptations in the structure and insertion of teeth, to deal with breakage risks. The tooth wall is composed of different layers of dentine, varying in orientation and composition. This mixed arrangement may have increased tooth resistance to lateral tension. The tooth insertion also involves more than one mechanism. The teeth are located inside shallow tooth sockets and are held in place by a tripartite periodontium (composed of alveolar bone, cementum and possibly soft periodontal tissue) and accessory structures, here termed anchorage trabeculae (mainly composed of cementum). Fully grown teeth are ankylosed to the bottom of the tooth socket. The recognition of alveolar bone and cementum (and the possible presence of a soft periodontal ligament) reinforces the idea that these tissues were widespread among Amniota, not being exclusive to mammals and archosaurs. The adaptations identified here reinforce the hypothesis that *Stereosternum* was an active aquatic predator.

Key words: Amniota, Mesosauridae, *Stereosternum tumidum*, histology, tripartite periodontium, Permian.

Flávio A. Pretto [flavio_pretto@yahoo.com.br] and Cesar L. Schultz [cesar.schultz@ufrgs.br], Universidade Federal do Rio Grande do Sul, Instituto de Geociências, Setor de Paleovertebrados, Av. Bento Gonçalves, 9500 – Bloco J, Prédio 43127, Campus do Vale, Agronomia–Porto Alegre, Rio Grande do Sul, Brazil, CEP 91540-000; Sérgio F. Cabreira [sergio.cabreira@terra.com.br], Universidade Luterana do Brasil, Museu de Ciências Naturais, Av. Farroupilha 8001–Canoas, Rio Grande do Sul, Brazil, CEP 92425-900.


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