Early Silurian trilete spores and cryptospores, Paraguay

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The Paraná Basin covers parts of Brazil, Paraguay, Argentina, and Uruguay. The Silurian succession in the Paraná Basin of Paraguay begins with fossiliferous basal shales formally named the Vargas Peña Shale, considered Aeronian in age at the type locality. The Vargas Peña Shale overlies the Eusebio Ayala Sandstone and is overlain by Cariy Sandstone; these three formations form the Itacurubí Group. The Vargas Peña Shale is partly contemporaneous with the Vila Maria and the Tianga Formations of Brazil.

Our investigation is based on a trilete spore and cryptospore study of 63 core samples of three wells drilled in eastern Paraguay. Chitinozoans studied previously by Y. Grahn suggest a Rhuddanian to Telychian age for the same strata. Though poorly preserved, it is possible to determine many cryptospore species typical of that period, including *Tetrahedraletes medinensis*, *Dyadospora murusdensa*, *Segestrespora laevigata*, *Segestrespora membranifera*, *Velatitetras laevigata*, *Velatitetras retimembrana*, *Imperfectotriletes vavrdovae*, *Imperfectotriletes chibrikovae*. Rare trilete spores were observed and two species are identified: *Ambitisporites avitus* and *Archaeozonotriletes chibrikovae*. These palynomorphs belong to the *Imperfectotriletes – divellomedium* Assemblage biozone and to the *chulus - nanus* Assemblage biozone, both Rhuddanian to Telychian in age. Our observations are therefore in accordance with the chitinozoan age data. The described miospore assemblage resembles that observed in the Vila Maria and Tianga Formations of Brazil.