existence of a possibly tundra-like vegetal covering, consisting of bryophytes, lycophytes, sphenophytes and gymnosperms (probable pteridospermaleans and coniferaleans). The bryophytes may have occupied coastal rocks; the lycophytes, coastal plains; the sphenophytes, river banks; and the pteridospermaleans and coniferaleans, higher continental areas.

As for the depositional environment, we can infer its proximity to the continent, based on the abundance of megaspores; on the similarity of pollen grain and spore frequencies, including preserved tetrads; and on the delicate leafy caulidium of the bryophytes.

These strata belong to the *Ahrensisporites cristatus* Interval Zone, which is considered as Westphalian in age (Souza PA.2000, unpublished Doctoral Thesis, IGc/USP), of the lower portion of the Itararé Subgroup. — (*December 8, 2000*) .

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HEAVY METALS OF THE ANTA STREAM S. J. RIO PRETO – SP

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Presented by Antonio C. Rocha-Campos

Diverse anthropic activities have produced meaningful quantities of residues, in which metallic elements can be found with differential forms of retention and mobility with the environment. Therefore, it is of great importance that their fixation and mobilization be studied in different environmental settings.

This study attempt to quantify metal ion pollutants from a variety of sources and their dispersion in soils, sediments, surface waters, and groundwater. Risks upon fish will also be evaluated, as fish have several physiological systems similar to those in homeothermic animals and commonly make up part of the human food chain. Such ions will be used as biomonitors, in order to establish co-relationship among the following systems: polluted environments, fish and aquatic plants.

The study site comprehends a portion of the Anta Stream northeast of São José do Rio Preto, São Paulo, which drains into the Rio Preto within the Turvo/Grande watershed. At the study site there occur several recent urban nuclei, a sanitary landfill (Construfert) with compost facility provided with capture and treatment of leachates, and a bone flour and tallow factory (Sebo-Sol).

The behavior of such ions with the biota will be determined by monitoring their harmful effects on the environment through biomonitors, systematic collection of water, and sequential extractions of soils, sediments, etc. — (*December 8, 2000*) .

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HIGH-FREQUENCY/LOW AMPLITUDE EUSTATIC PARASEQUENCES IN NEOPROTEROZOIC ALTO PARAGUAI BASIN (MATO GROSSO, BRAZIL)*

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Stratigraphic analysis of terrigenous and carbonate deposits of the Alto Paraguai basin revealed two third-order sequences (1-10 m.y.), consisting of glacial, platform, tidal-, wave- and storm-dominated shoreline, fluvial and deltaic depositional systems. Each sequence begins as a lowstand system tract followed by transgressive and highstand periods. Carbonate parasequences of Sequence 1, analyzed in outcrops in the Cáceres region, Mato Grosso, attributable to the Araras and, in part, the Raizama formations, were deposited in a warm peritidal setting made up of: association (1) subtidal deposits of dolomicrite, intradolomicrite, oosparrudite, low-angle to planar cross-stratified sandstone and siltstones; and association (2) inter- to supratidal facies consisting of dolomicrite, intradolomicrite and wavy- to megaripple-bedded intraclastic sandstone. Other features in the association (2) are hemispheroidal, planar and brain-like stromatolites, fenestral and birdseye laminations, desiccation cracks, rip-up clasts, curled mud flakes, pseudomorphs of nodular gypsum, and stromaclast/tepee breccia. The stacking patterns of meter-scale shallowing/brining-up parasequences form