

1835985

PROGRAMME WITH ABSTRACTS XIV ICCP

DR. T. E. BERNARDES DE OLIVEIRA

INTERNATIONAL CONGRESS ON THE CARBONIFEROUS-PERMIAN

1999

AUGUST 17-21, 1999
Calgary, Alberta, Canada

UNIVERSITY OF CALGARY

EUSTASY IN CYCLOTHEMS OF THE CENTRAL APPALACHIAN BASIN, U.S.A., IS MASKED BY LOSS OF MARINE BIOFACIES WITH INCREASING PROXIMITY TO A DETRITAL SOURCE
BENNINGTON, J BRET, Dept. of Geology, 114 Hofstra University, Hempstead, NY 11549, geojbb@hofstra.edu

In midcontinent cyclothems in the central United States, eustatic changes in sea level are recorded in a distinctive pattern of changing marine biofacies developed through each transgressive-regressive cycle. Cyclothems of the Appalachian Basin have been found to contain a very limited variety of marine biofacies, and so this line of evidence has not been used to support glacial eustasy in the eastern basin. However, one eastern cyclothem, the Magoffin marine unit, does include a stratigraphic sequence of biofacies directly analogous to that seen in the midcontinent cyclothems. This sequence includes lower and upper limestones with open marine faunas above and below a core shale with faunas characteristic of dysaerobic and anoxic environments, suggesting that water depths in the Magoffin seaway were sufficient to develop a pycnocline during maximum transgression. This observation, combined with the development of a complete transgressive to regressive package of biofacies in the Magoffin over a thickness of less than two meters, indicates regression independent of sediment aggradation, which is characteristic of eustatic sea level fall.

The base of the Magoffin marine unit is a regionally persistent, condensed transgressive sequence. Moving across the axis of the Appalachian Basin toward the Alleghenian orogenic belt to the southeast, the Magoffin becomes increasingly dominated by a thick, coarsening-upward sequence, which begins progressively lower in the cyclothem as one approaches the source of detrital sediments. Only the initial transgressive fauna is present at all localities throughout the basin. The earlier arrival of abundant clastic material into southeastern region of the Magoffin seaway prevented the development of distinctive biofacies that otherwise would have developed through the T-R cycle. In other Appalachian basin cyclothems, for which water depths probably did not match those of the Magoffin, the spread of detrital sediments throughout the basin always occurred early in the cycle, allowing only transgressive faunas to be established, and masking the eustatic sea-level fall with thick coarsening-upward sequences of mud, silt, and sand.

REVISION OF UPPER PALEOZOIC PHYTOBIOSTRATIGRAPHY SCHEMES IN THE NORTHERN PORTION OF PARANÁ BASIN, BRAZIL*

BERNARDES DE OLIVEIRA, M.E. IGc/USP, P.B. 11348 CEP 05422-970 SP, maryeliz@spider.usp.br, **ROHN, R.** IGCE/UNESP, P.B. 178 CEP 13506-900 Rio Claro, SP, **SOUZA, P.A.** IG/SMA, P.B. 2972 CEP 01060-970 SP, **RICARDI-BRANCO, F.** IG/UNICAMP, P.B. 6152 CEP 13083-970 Campinas, SP, **RÖSLER, O.** Cenpaleo/Unc, P.B. 111 CEP 89300-000, Mafra, SC, **IANNUZZI, R.** IG/UFGRS, P.B. 15001 CEP 91501-970 Porto Alegre, RS, **ZAMPIROLI, A. P.** IGc/USP, Brazil.

The Neopaleozoic lithostratigraphical record (Tubarão and Passa Dois groups) of the Paraná Basin is characterised by lithologies deposited in marine and continental environments, under glacial and non-glacial climates, within a major transgressive-regressive cycle. In this sedimentary sequence, the phytossiliferous succession contains pre-glossopterids, proto-glossopterids and *Glossopteris* associations that are recorded in many parts of the basin but are discontinuous vertically and laterally. The available phytobiostratigraphical zonations for this basin were established in the 70's. These represent informal proposals. The inaccurate systematic treatment and the dubious chronostratigraphical establishment (which resulted from the absence of a standard chronostratigraphical column index fossils) have attributed an imprecise character to these zonations. The major problems are related to the Tubarão Group glacial and interglacial sequences, which have a complex stratigraphical relationship and a rare fossiliferous documentation, considering its thickness and wide geographical distribution. The northern area of the Paraná Basin (São Paulo State) requires special attention. In this area, in geographically distant localities, there are taphofloras with insufficient taxonomical and biostratigraphical knowledge. Preliminary studies suggest that six of them (Araçoiaba da Serra, Monte Mor, Buri, Itapeva, Itaporanga and Jundiá) are more suggestive of a late Carboniferous age, whereas only Cerquilha is surely of Early Permian age. However the age of the taphofloras found at the Capivari, Hortolândia, Salto and Cesário Lange localities remains unknown. All these taphofloras as well as new superficial and subsuperficial occurrences of the Tubarão Group, in this area, are the object of revisions.

Key Words: Upper Paleozoic, Paraná Basin, Phytobiostratigraphy.

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