

lopments by primary and secondary allotrophs, widespread eutrophy (anoxic black shales in pelagic and continental shelf areas), decrease of pelagic cherts and of shelf- or ridge-derived turbidites, decline of bioturbation of pelagic sediments, and an increase of PO_4 , As, U, V, and Cu in organogenic sediments. Epicratonic sites of Dictyonema Shales prevail over oceanic ones. Disconformities at their base and other criteria document a marine onlap of these black shales over extensive new terranes. Contemporaneous carbonates are restricted to low paleolatitudes and, across the presumed boundary interval, present evidence for distinct shoaling and subsequent deepening of depocenters during the earliest Tremadoc. The shoaling is indicated by, i.al., oolitic and mud-pebble limestones, domed stromatolites and thrombolites, high energy ichnocommunities and, occasionally, by subaerial early diagenetic features. The subsequent transgression during the earliest Ibexan (Canadian) is documented by increased micrite production and other diagnostic criteria which only affected the lowlatitude epicratonic depocenters of North America, Siberia, North and Central China, Australia, south-central Argentina and Antarctica.

FAHRAEUS, LARS, E., Memorial University of Newfoundland, St. John's, Newfoundland, Canada

PROCESSES OF SPECIATION, SEDIMENTARY RATES AND PALEOECOLOGICAL CONSTRAINTS -- SPECTRES OF BIOSTRATIGRAPHIC RESOLUTION

The degree of accuracy of a time correlation based on fossils is the result of the compounded effects of several factors, the chief ones being: (1) number of fossil taxa in common and their lowest identified taxonomic rank; (2) degree of time averaging of samples; (3) degree of similarity of paleoecological conditions for sample sites; and (4) processes of speciation, i.e. phyletic replacement or para- and allopatric speciation with surviving parent species. Factor (1) can be determined with absolute accuracy, the influence of each of the remaining factors is estimated with varying degree of probability; probabilities which are generally, except for factor (4), inversely proportional to the absolute age of the sought time horizon. Since factor (1) is partly a direct function of the remaining factors the degree of accuracy is also directly proportional to the known influence of factors (2) to (4). 'Accuracy' is here used to mean both actual time resolution embodied in sample and 'repeatability of experiment', i.e. transfer of a time horizon from one locality to another. The influence of factors (1) to (3) on this accuracy is illustrated by the use of an heuristic model equation generating a resolution coefficient and the potential fallacy of ignoring factor (4) is discussed and illustrated.

FAIRCHILD, THOMAS R., Univ. São Paulo, Inst. Geociências, São Paulo, Brasil

CAUTION: AN "EDIACARAN" OR EARLY CAIMBRIAN AGE FOR THE CORUMBÁ AND JACADIGO GROUPS (SW BRAZIL) STILL REQUIRES DEFINITIVE PROOF

The Corumbá Group and apparently laterally equivalent Jacadigo Group, near the Bolivian border in SW Brazil, have yielded oncolites; simple

columnar stromatolites; poorly preserved, organic-walled, vase-shaped tests ($<120\text{ }\mu\text{m}$ in length); flattened, carbonaceous sphaeromorphs (*Bambuities* sp., $<500\text{ }\mu\text{m}$ in diameter); hematite-replaced tubular microfossils ($\leq 12\text{ }\mu\text{m}$ in diameter); molds and carbonaceous films of members of a supposedly new scyphozoan Subclass (*Corumbella veneri*); *Cloudina*-like shelly fossils; and, apparently, *Bavlinella faveolata*. These fossils, especially the last two, have been cited as evidence for a possible latest Proterozoic ("Ediacara") or early Cambrian age for these sequences, a conclusion consistent with preliminary radiochronological findings and the glacial origins (Infra-Cambrian?) attributed to conglomeratic units within the Corumbá and Jacadigo Groups. However, in the light of current knowledge of these two groups, none of these bits of paleontologic (or geologic) evidence, taken individually, can really be considered as comprising proof for such an age assignment. Caution should therefore be exercised pending further research, as a more recent Paleozoic age, perhaps as young as Silurian, is still a possibility.

FEDOROVA V.A., GRYAZEVA A.S., LYUBOMIROVA K.A., STANICHNIKOVA M.S.,
All-Union Petroleum Geological Research Institute (VNIGRI),
Leningrad, USSR

USE OF ANASTROPHIC AND TRANSITIONAL MICROPHYTOFOSSILS FOR PALYNOSTRATIGRAPHY OF PHANEROZOIC SEDIMENTS

Microphytofossils (organic-walled unicellular planktonic algae, spores and pollen) found in Phanerozoic sediments represent, directly or indirectly, the inadequate rates of evolution of various floral groups. The authors made an analysis of chronologica distribution of microphytoplankton and miospores, belonging to taxa of different rank, which allows to distinguish anastrophic and transitional microphytofossils within the Late Paleozoic-Mesozoic interval of geochronological scale. The typical anastrophic microphytofossils are pollen of Vittatina, Cardaitina, Striatosaccites, some archaic Mesozoic conifers spores of Aratrisporites, early schizacean ferns, pollen of Normapolles, Aquieapollenites, some dinoflagellates etc. They have definite stratigraphic range, wide occurrence at all stages of flora evolution (first appearance, highest degree of taxonomic differentiation, total disappearance) and, thanks to the fact that they are found together with orthofauna, may serve as reliable chronological indicators. The transitional microphytofossils (some acritarchs, spores of Bryopsida, Pteropsida, pollen of ginkgoaceous plants, cycadophytes, cautionals, cheirolepidiaceae, conifers etc.) combined with anastrophic microphytofossils allow to reconstruct most completely the irreversible succession of algae - and palynofloras changes in the geological history of the Earth which provide a necessary basis for detailed palynostratigraphy. The monographic study and biostratigraphic analysis of some of the abovementioned palynotaxa in regional Permian