

given subsystemic rank internationally (MANGER 1988). It is regarded as a systemic boundary in North America where it separates Mississippian from Pennsylvanian. The middle/upper Carboniferous boundary has been entrusted to an SCCS working group (VILLA 1992; VILLA ET AL. 1994) but the importance of this boundary has been deemphasised in the most recent program of investigations of SCCS. In fact, the current program no longer seeks the integration of existing, historically recognisable classifications, but aims at establishing a new classification based on marine faunal changes (ENGEL 1989). This purely biostratigraphic approach has been criticised as conceptually limited and inapplicable to the areas of higher palaeolatitude (Gondwana, Angará) where climatic differentiation created different biostratigraphic conditions. It is proposed here to adopt a more flexible approach whereby climatically induced worldwide changes in floral and faunal diversity and distribution are used in conjunction with physical events for an overall worldwide stratigraphic framework into which regional chronostratigraphies can be fitted.

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## The Australian late Carboniferous magnetostratigraphic timescale

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A group consisting of NEIL OPDYKE, University of Florida, TED IRVING, recently retired from the Pacific Geoscience Centre at Sidney, British Columbia, Canada, JOHN ROBERTS and XIANG WANG (PhD student), University of New South Wales, Sydney NSW, and JON CLAOUÉ-LONG, Australian Geological Survey Organisation, Canberra, are attempting to better define and date the base of the Kiaman (Permian-Carboniferous Reversed Superchron) in its type area. In 1994, IRVING, OPDYKE, ROBERTS and CLAOUÉ-LONG collected approximately 500 samples from 103 sites in Viséan, Namurian and Westphalian sedimentary and igneous rocks in the Werrie and Rocky Creek Synclines. These samples have been processed in the paleomagnetic

laboratory at the University of Florida. Conglomerate tests on samples of Carboniferous ignimbrites from diamictites within the Late Carboniferous succession yield a very clear, high-temperature component which passes the conglomerate test. It is obvious that the Carboniferous rocks were magnetised at or soon after deposition or cooling. Sites with reverse magnetisation with steep inclinations characterise the Clifden, Rocky Creek and Lark Hill Formations of the Rocky Creek region. Normal directions of magnetisations are present in the Ermelo Dacite and rocks lower in the stratigraphic section. In the Werrie Syncline, the Currabubula Formation is reversely magnetised with the underlying Merlewood Formation having sites of both polarities.

Future work in 1995-96 will involve more detailed sampling for palaeomagnetic work, U-Pb SHRIMP dating of zircons from ignimbrites located at critical stratigraphic levels (JC-L and XW), the geochemical characterisation of ignimbrites (XW), field mapping to clarify the extent and continuity of individual ignimbrites within and between fault blocks (JR and XW), and the examination of possible source directions for ignimbrites using AMS data.

## Carboniferous of Brazil

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## Paleomagnetism of the Poti Formation (early Carboniferous), Parnaíba Basin, Northern Brazil

A re-evaluation of the paleomagnetic data available for the Poti Formation (early Carboniferous) in the Parnaíba Basin, northern Brazil, is being performed by ALENCAR *et al.* (submitted). Analysis revealed that dispersion shown by the direction of magnetisation of samples from the Poti Formation may be related

to post-depositional tectonism in the area during the Palaeozoic and Mesozoic.

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**Late Carboniferous invertebrates from the Piauí Formation (mid Pennsylvanian), Parnaíba Basin, northern Brazil**

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Marine invertebrates associated with the bivalve fauna of the Piauí Formation, Parnaíba Basin (Mid Pennsylvanian) (ANELLI 1994) is being described by ANELLI (in preparation). Preliminary identification of taxa include mostly inarticulate and articulate brachiopods (spiriferids, chonetids, strophomenids), archaeogastropods, orthocerathid cephalopods, fenestellid bryozoans and trilobites. Areal variation in faunal composition may be correlated with facies change in the shallow marine/lagoonal carbonate beds.

A new species of *Oriocrassatella* in the Piauí Formation represents the oldest known record of the genus. A phylogenetic analysis of the genus *Oriocrassatella* is being performed by ANELLI (in preparation).

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**Carboniferous of Paraná Basin, southeastern Brazil**

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The stratigraphic and facies analysis of the Aquidauana Group, cropping out in the western margin of the Paraná Basin was initiated by GESICKY (in preparation). The unit, palynologically dated as late Carboniferous (DAEMON & QUADROS 1970), is made up predominantly of sandstone with subsidiary mudstones and silty-clay diamictite. The stratigraphic relationship of the Aquidauana Formation with the Itararé Subgroup (containing glacial diamictites) in

the eastern margin of the Paraná Basin is also being investigated.

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