COMPARISON OF CARBONATE TYPES FROM THE LOWER/MIDDLE DEVONIAN BOUNDARY BEDS OF THE SOUTHERN EIFEL HILLS AND THE DINANT SYNCLINE

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Detailed studies on carbonate microfacies of the Lower/Middle Devonian boundary beds in the Western Rheinisches Schiefergebirge (Utescher, in prep.) showed, that there is a good correspondence of facies development of the southern Dinant syncline (section Eau Noire, section Halma 2, Bultynck & Godefroid, 1974) and sections in the Ahrdorf, Hillesheim and Gerolstein syncline (Eifel Hills).

Bioclastic grain-packstones occur mainly in the lower part of the section Eau Noire (Co 1a, beds 5-6), where they form a minor fining upward cycle : Rounded calcarenites grade into skeletal calcarenites with successively higher contents of small *Girvanella*-aggregates. Cycles of the same type are also general at the base of Heisdorf-Formation in most of the section in the southern Eifel Hills. An increased thickness of rounded calcarenites can be observed in the section Halma 2 (Co 1a, beds 21-33); there they contain also hematitic bioclasts. These components are more common in Heisdorf- and Lauch-Formation of the Eifel Hills, where they were concentrated in shelf sand bodies.

Micrites are common in the unit Co 1b-c of the section Eau Noire (Eau Noire-Formation) he middle and upper part of the Heisdorf-Formation in the southern Eifel Hills. They occur in limestone-marl cycles (dilution cycles). The carbonates are algae- and cortoid-rich bioturbated biogenic wackestones containing a very diverse, mainly parautochthonous fauna.

In the microfacies-subtype, dominating in the Eau Noire-Formation, dasycladaceae (probably belonging to Aciculleleae) are more abundant (5-20 %), Girvanellids and cortoids are commonly sparse; the carbonates are rich in organic matter and intensively bioturbated.

In the southern Eifel Hills a microfacies-subtype with higher contents of *Girvanella*-aggregates (algal mats, broken by bioturbation, 5-25 %) and cortoids is common; dasycladaceae are occasionally present. These carbonates show an higher terrigenous influx.

Both microfacies-subtypes represent muds of shallow (in case of high contents of dasycladaceae less than 30 m) and relatively quiet water below the wave base, which accumulated in sheltered bays or back bank areas.

At the Lower-/Middle Devonian boundary the facies differentiates :
In the section Eau Noire, the sedimentation of Algae-rich wackestones persits till the upper part of the Eau Noire Formation (Co1b-c). In the southern Eifel Hills carbonate sand bars develop, followed by the deposition of biogenic wackestones without indicators of shallow water.

BULTYNCK, P. & GODEFROID, T., 1974. Excursion G. *In :* Bouckaert, J. & Streel, M. (eds.): Guidebook, *Intern. symp. Belgian micropal. limits, Namur,* 42 pp.

THE DEVONIAN-CARBONIFEROUS BOUNDARY ON THE DINANT PLATFORM AN APPROACH BY SEQUENCE STRATIGRAPHY

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For the Dinant Platform area (northern edge of the Cornwall-Rhenish Basin) sequence stratigraphy - based on the analysis and relationship of sedimentary facies - is applied for understanding the biostratigraphic problems near the Devonian-Carboniferous Boundary and the stratigraphic pattern in general.

Towards the end of the Devonian, highstand sedimentation (Highstand Systems Tract) - with a rich Devonian-type fauna - ceased as a consequence of a relative sea-level fall. This is reflected by nondeposition and a biostratigraphic gap on the Dinant Platform. This surface of nondeposition on top of the Highstand System Tract is recognised as a Sequence Boundary. After some time, as a result of relative sea-level rise, sedimentation resumed, but in the much shallower setting of the Shelf Margin Systems Tract. these deposits lack the deeper-water guide fauna necessary to biostratigraphically determine the position of the Devonian-Carboniferous (D/C) Boundary in these areas. Later, in the overlying Transgressive Systemps Tract, a high faunal diversity was reestablished, allowing biostratigraphic control.

This sequence stratigraphy approach with the definition of the Sequence Boundary, can be considered to be the best approximation of the Devonian-Carboniferous Boundary in areas without relevant biostratigraphic control.

DEFORMATION-ANALYSIS AND BALANCED CROSS-SECTIONS OF THE WESTERN PART OF THE RHENISH MASSIF : A NEW APPROACH BASED ON STRAIN ANALYSIS

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Geodynamic models concerning the Ardenne and Eifel and the Eastern Rhenish Massif show significant differences. Distinctions in geological evolution and tectonic style prohibit the simple transfer of models from one region to the other.

It is the aim of new quantitative structural investigations in a section from the Nordeifel to the southern border of the Hunsrück to approximate the amount of shortening. Beside external, geometrical measurable deformation the internal deformation will be included by strain-measurements. Especially the last will provide the basis for the balancing of profiles and palinspastic interpretations.

Special focus will be laid on the thin-skinned tectonic of the Nordeifel and the development to a successive deeper reaching crustal imbrication towards the south.

As a result of these investigations it is intended to show up the evolution of the western Rhenish Massif (Nordeifel-Hunsrück) from the basin development through orogenic compression to the postkinematic extension.