



INTERNATIONAL UNION OF  
GEOLOGICAL SCIENCES  
COMMISSION ON STRATIGRAPHY

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SUBCOMMISSION ON DEVONIAN STRATIGRAPHY

*NEWSLETTER 20*



July 2004



**I. U. G. S Subcommittee on Devonian Stratigraphy**

*Newsletter No. 20, July 2004*

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The *Newsletter* appears annually following SDS meetings. Contributions may be sent to the Editor at any time during the year for inclusion in the next issue.

The printing of this issue is 120 copies with 92 mailed to titular and corresponding members, 8 to honorary members, Chairmen of the Carboniferous and Silurian Subcommissions, IUGS and ICS officers, friends of the Devonian, and libraries. Remaining copies are available from the Chairman, Secretary, or Editor. A portion of the cost of preparation, printing and postage for this issue of the *Newsletter* were shared equally by SDS and The Department of Geology, University of Texas at Arlington with the remaining costs supported through a grant from the Petroleum Research Fund of the American Chemical Society..

The *Newsletter* can also be viewed in electronic published format via the SDS World Wide Web site at URL <http://sds.uta.edu>.

## MESSAGE FROM THE CHAIRMAN

After the 32<sup>nd</sup> International Geological Congress in Florence (August 2004) SDS will have a new bureau (R.T. Becker, chairman; A. El Hassani, vice-chairman and J. Marshall, secretary).

A dozen titular members have withdrawn or will withdraw and new titular members have been elected.

I would like to thank the outgoing members and congratulate the new team for their engagement in SDS.

A changing bureau is the occasion to evaluate SDS activities over past years.

Our overall objectives were:

1. Establishment of an internationally agreed time framework, including definition of substages;
2. Correlation between scales based on different stratigraphic methods: biostratigraphy, magnetostratigraphy, chemo- and sequence stratigraphy ...
3. Correlation of pelagic, neritic and continental successions
4. Stimulate scientific research improving the understanding of Earth History during Devonian time
5. Dissimination of progress realized by SDS: SDS Newsletter

Documents and news from members published in the newsletters and active participation in international meetings and IGCP projects prove that SDS has been an active stratigraphic subcommission.

SDS participates in the General Symposium on Stratigraphy organized during the IGC in Florence with a special session on High-resolution stratigraphy for the subdivision of Devonian stages (program of oral presentations and posters: see General Symposium, session G-22.03: <http://www.32igc.org> )

The SDS substage program will be finalized during the business meeting that takes place the same day. Before the end of 2004 formal votes on the subdivision of the Emsian, Givetian, Frasnian and Famennian will be organized and the active members of each working group will prepare a manuscript to be published in *Episodes* or *Lethaia* (the official journal of the ICS). These papers should recommend the use of the proposed substages to the geological community.

Here below, the provisional results of our discussions concerning the subdivision of the Emsian, Givetian, Frasnian and Famennian are summarized:

### Subdivision of the Emsian

Formal vote in favour of a Lower and Upper Emsian substages. Preference is given to a boundary level at the base or close to the base of the *inversus* conodont zone and in connection with the Daleje Event. The dacryoconarid *Novakia cancellata* and the conodont *Polygnathus gilberti* may be good biostratigraphic markers.

### Subdivision of the Givetian

Proposal for the base of the *hermanni* conodont zone as the base of an Upper Givetian substage, corresponding to the Upper Taghanic Onlap (Geneseo Transgression) considered to be the most significant break in the New York succession.

Proposal for a Middle Givetian substage. Two possible boundary levels have been proposed. One at the base of the *timorensis* conodont zone and corresponding to a sea level rise and northward onlap in the Ardennes area. Another is at the base of the *varcus/rheñanus* conodont zone that also can be situated in a T-R cycle.

### Subdivisions of the Frasnian

Formal vote in favour of a Lower, Middle and Upper Frasnian substage. Preference is given to a Middle Frasnian boundary level at the base of the *punctata* conodont zone and to the base of the "*semichatovae* Transgression" for the base of the Upper Frasnian. The two levels can be correlated with the Frasnian T-R cycles of Johnson *et al.* (1985).

### Subdivisions of the Famennian

- \* Middle Famennian: base of the *marginifera* Zone.
- \* Upper Famennian: base of Uppermost *marginifera* Zone ? base of *styriacus* Zone or base of lower *expansa* Zone ?
- \* Uppermost Famennian: base of Upper *expansa* Zone, near base of Upper Devonian VI = *Woeklumeria* Stufe ?

Pierre Bultynck  
Outgoing Chairman

## EMSIAN WORKING GROUP

Note: 3 August 2004

Dear Colleagues

The past year certainly has been "down-time" for the Emsian Working Group. After the results of our straw vote were posted on our web page ([www.es.mq.edu.au/mucep](http://www.es.mq.edu.au/mucep) and click on the Emsian site), there has been a dearth of communication from the Group's members. Not that there has been a lack of activity amongst various small groups of members, but these have not been communicated to all members. I take the blame for this.

It seems that the Working Party must really begin its work from the beginning. There is no use whatsoever in trying to sort out a possible level for the division of the Emsian into two substages and to suggest names for possible substages until the conodont zones for the Emsian are stabilized. With the publication of:

Bardashev, I. A., Weddige, K., Ziegler, W. (2002): The polymorphogenesis of some Early Devonian platform conodonts. *Senckenbergiana lethaea*, 82: 375–451,

there is the need for the Emsian Working Group to consider the repercussions of this paper and how it may or may not affect the zonation of the Emsian.

John Talent and I have made preliminary comments regarding the Bardashev et al. paper in one we published in a volume put out by the Czech Geological Survey to honour our long-time friend, titular member of SDS and active member of the Emsian Working Party who, sadly, passed away recently, Ivo Chlupáč:

Mawson, Ruth & Talent John A., 2003. Conodont faunas from sequences on or marginal to the Anakie Inlier (Central Queensland, Australia) in relation to Devonian transgressions. *Bulletin of Geosciences*, 78: 335–358.

The paragraphs quoted below can be found under the discussion of the genus *Polygnathus*  
"Family Polygnathidae Bassler 1925

**Genus *Polygnathus* Hinde, 1879**Type species: *Polygnathus dubius* Hinde, 18791879 *Polygnathus* nov. gen. Hinde, p. 361.1925 *Hindeodella* n. gen. Bassler, p. 219.1957 *Ctenopolygnathus* n. gen. Müller and Müller, p. 1084.2002 *Eoectenopolygnathus* gen. nov. Bardashev et al., p. 398.2002 *Eocostapolygnathus* gen. nov. Bardashev et al., p. 401.2002 *Eolinguipolygnathus* gen. nov. Bardashev et al., p. 407.2002 *Ctenopolygnathus* Müller; Bardashev et al., p. 412.2002 *Costapolygnathus* gen. nov. Bardashev et al., p. 414 [= objective synonym of *Polygnathus* Hinde, 1879]2002 *Linguipolygnathus* gen. nov. Bardashev et al., p. 418.

Comments: Numerous supposedly new polygnathid conodont taxa have been proposed by long-time friends, Bardashev et al. (2002), based primarily on re-allocation of illustrations of Early Devonian species, most formerly referred to the genus *Polygnathus*. This major work, entailing an exhausting survey of publications globally, is illustrated by small but elegant drawings arranged in hypothesised lineages, but lacks photo-illustrations of any taxa, takes no account of intraspecific variation (documentation of large intergrading populations is pivotal for this) and, unhappily, the proposed genus *Costapolygnathus*, to which five new and four previously described species are referred, has, as designated type species, *Polygnathus dubia* Hinde, 1879, the type species of *Polygnathus* s. s. The complicated nomenclatorial history of *P. dubia* (including designation of a neotype) was carefully spelled out by Huddle (1970; see also Klapper in Ziegler, 1973, p. 353–4). *Costapolygnathus* is thus a junior objective synonym of *Polygnathus*! We are concerned that no account seems to have been taken of the variation displayed by large populations of Pa elements of polygnathids. Authors who have presented illustrations of a scatter of individuals from such populations may be dismayed to find that illustrated specimens they knew to be parts of a continuum have been allocated to a scatter of new species and different lineages – some with incongruous ages. We have reservations too regarding the weight accorded characters of the upper surface versus characters of the lower surface of the Pa elements of *Polygnathus*, and the hierarchical level accorded the hypothesised lineages (genera?, subgenera? or informal), but these are matters of personal opinion.

If uncritically accepted, the taxonomy presented by Bardashev et al. (2002) would signify a remarkably high level of provinciality for polygnathids globally during Early Devonian times, followed abruptly by decreased provinciality during the Eifelian and the remainder of the Devonian where no comparable exercise has been undertaken, though we understand that a similar exercise for the Frasnian was nearing completion several years ago (I. Bardashev, pers. comm. 1998), likewise involving a plethora of forms viewed as being new species. As far as we know, this monograph has yet to be published. If the taxonomic fragmentation proposed by Bardashev et al. (2002) is accepted, a similar exercise needs to be carried out on polygnathids for the remaining stages of the Devonian before meaningful numerical analysis can be undertaken. And per-

haps such an exercise should be extended to other Devonian conodont genera as well. As was stated in an earlier work (Talent et al. 2001, p. 3), "Without consistency of taxonomy, any attempt at numerical analysis would reflect only areas of intense taxonomic study (especially the work of taxonomic 'splitters'), and areas of neglect or dearth of data. Such patterns of apparent endemism and provincialism have little if anything to do with true patterns of provinciality."

Many of our colleagues display a penchant for taxonomic lumping, others for taxonomic splitting when confronted by an abundance of superbly preserved material. For the latter, it becomes a challenge! Others, with a more cautious approach to taxonomy are inclined to synonymise previously proposed genera and species. The trend to lumping, usually argued to be on the basis of "biological reality", may be exemplified by the work involving one of us (Talent et al. 2001) on the Early and Middle Devonian brachiopods of the Asia-Australia hemisphere. The opposite tendency to taxonomic splitting may be exemplified by the works of Gatinaud (1949, cf. Pitrat 1965, p. H699–H700), Sidyachenko (1962) and Lyashenko (especially 1973) on Late Devonian cyrtospiriferid brachiopods. Exemplification of taxonomic "de-fragmentation" with respect to the latter two works has been presented by Talent and Gratsianova (1986, 1988).

More serious is the dramatic increase in the number of zones proposed by Bardashev et al. (2002) for the Pragian and Emsian stages without indication of sequences in which the boundaries of the proposed zones might be specified and, if so desired, be available for further study. The Bardashev et al. zonal scheme needs to be tested by graphic analysis, globally. The elegant results of such an approach have already been presented for the Frasnian (Klapper 1989, 1997, Klapper et al. 1995, 1996, Gouwy and Bultynck 2000), the Eifelian (Belka et al. 1997) and, increasingly, for other major slices of the geologic record, e.g. Sweet (1995) for the Ordovician.

Examples of excessive taxonomic splitting and lumping are scattered across all phyla, plant and animal, but huge numbers of species accommodated with a single genus need not imply oversplitting. Witness the scleractinian genus *Acropora* with 100 or so living species (Veron and Wallace 1984, Wallace 1999), the orchid genus *Dendrobium* with at least 850 species (Lavarack et al. 2000), and, two Australian examples, the plant genera *Eucalyptus* (Chippendale 1988), and *Grevillea* (Makinson 2000) – the first with at least 513 species, and the second in excess of 452 species – have defied generic grouping despite many attempts to do so, mounted by the most knowledgeable workers on the respective groups.

Likewise at the generic-level. Witness the great morphological diversity in the echinoid family Clypeasteridae Agassiz, 1835. By the mid 1960s, 27 nominal genera, exclusive of objective synonyms, had been proposed; Durham (1966) placed all of them in synonymy of a single genus, the generally large and striking *Clypeaster* Lamarck, 1801. No one has insisted on undoing Durham's generic lumping. Taxonomic lumping and splitting may be referred to as taxonomic style.

Our views regarding the proposed slicing of new taxa from the genus *Polygnathus* are summarised in the generic synonymy above. The reality and/or relevance of these proposed taxa needs testing by shape analysis comparable to the exercises already undertaken by workers on Late Devonian and a selection of Early Devonian conodont taxa (Klapper and Foster 1986, 1993, Sloan 2003). Unfortunately these exercises have not included species referred to *Polygnathus*.

Some authors as they grow older become taxonomic splitters – exemplified by the great malacologist Paul Bartsch who, in old age, discriminated a whole galaxy of intertidal mollusc taxa which had "escaped notice" by 200 years of workers on east-coast USA intertidal communities – others, perhaps including ourselves (working mostly with brachiopods and conodonts) tend to be conservative. We hope that, taxonomic quibbles aside, we as well as our esteemed colleagues, Bardashev et al. (2002), may be proved to have retained balance as regards taxonomic style."

It seems that at this stage, the immediate tasks that members of the Emsian Working Party should attack are:

1. Comment on the Bardashev et al. (2002) paper concentrating on data that you might have or know of that might support or otherwise their splitting of the genus *Polygnathus*,
2. Comment on the zonal schemes they propose, and
3. Comment on how we should proceed with the original tasks we were allotted.

All contributions forwarded to me ([rmawson@laurel.ocs.mq.edu.au](mailto:rmawson@laurel.ocs.mq.edu.au)) will be added to the Emsian Working Party Web Site.

My apologies for not being able to attend the SDS Meeting later in the month. Once again, teaching commitments prevent my attendance. I look forward to hearing the outcome of your discussions.

With best regards.

Ruth Mawson

**SDS – FRASNIAN SUBDIVISIONS**

Pending approval the Frasnian will be formally subdivided into three parts, lower, middle, and upper, where the base of the overlying substage defines the top of the underlying stage: Lower Frasnian, defined by the first occurrence of the conodont *Ancyrodella rotundiloba* (Bryant, 1921) "early morph," coinciding with the Middle-Upper Devonian boundary GSSP at Col du Puech de la Suque Section, base of Bed 42a; Middle Frasnian, defined by the first occurrence of the conodont *Palmatolepis punctata* (Hinde, 1879) which also defines the base of MN Zone 5 (*punctata* Zone), that is associated with a global rise in sea level – the Middlesex/Domanik events - and the start of the IIc T-R cycle; Upper Frasnian defined by the first occurrence of *Palmatolepis semichatovae* Ovnatanova, 1976 which has a wide spread first occurrence associated with deepening in North America, Belgium, Australia, and elsewhere near the start of MN Zone 11 (within *jamieae* Zone or lower Lower *rhenana* Zone) and the II d T-R; the end of the Upper Frasnian coincides with the Frasnian-Famennian boundary and GSSP at Upper Quarry at Coumiac, base of bed 31, defined by the appearance of abundant *Palmatolepis triangularis* Sannemann, 1955 in the absence of Frasnian taxa.

R.T. Becker and G. Racki have sent reference section information. I continue to work on Frasnian strata in eastern North America and the Alberta Platform with the goal of documenting the Frasnian strata in two portions of North America. Please send section diagrams and references for placement on the Frasnian web site. As noted previously there is no program to identify stratotype sections for the substage boundaries, but sections will be compiled as local and regional references.

Yours,

Jeff Over  
SUNY-Geneseo  
Geneseo, New York 14454

## Subcommission on Devonian Stratigraphy (SDS) Meeting - Rapid Global Change

mid-late July 2007 - central Nevada

Jeff Over and Jared Morrow propose the 2007 annual meeting of the SDS to take place in central Nevada. Tentative plans are for two days of meetings - business and a technical program - to focus on Devonian Global Change, compelling changes in the Devonian world, highlighting new findings in the terrestrial and marine biomes; fish, invertebrates, plants, terrestrial vertebrates, global warming, mass extinction, bolide strikes, and global correlation.

A seven to eight day pre-meeting field trip will depart from Las Vegas and finish in Eureka before the conference. Uppermost Silurian through lower Carboniferous strata, highlighting the carbonate and clastic Devonian rocks of the western North American basin to carbonate platform, are exposed in numerous mountain ranges of central Nevada.

The business and technical meeting is proposed to take place in Eureka, Nevada,

365 miles from Las Vegas, 305 miles from Salt Lake City, 110 miles from Elko on US Highway 50. Eureka is a small, historic mining town that has reasonable conference, housing, and dining facilities, albeit somewhat remote. Bus and train service reach Elko, Nevada, from which group transportation can be arranged. The conference will be held at the Eureka Opera House, a restored historic building built in 1880.

A very preliminary estimated cost is:

|  |         |
|--|---------|
| conference/registration (inclusive of meals and lodging):                    | US\$250 |
| pre-conference field trip (inclusive of meals, lodging, and transportation): | US\$900 |

Please indicate interest by completing the form below and mailing or sending by e-mail. Copies of the information circular distributed to colleagues would be most appreciated.

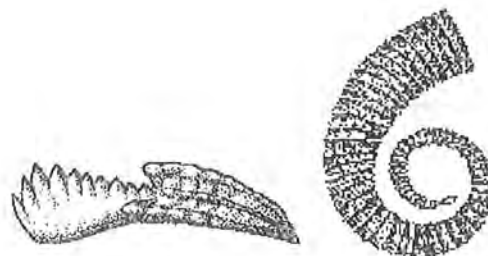
**Rapid Global Change in the Devonian  
SDS 2007 Annual Meeting  
Eureka, Nevada, July 2007**

S - D - S

**Information form**

Please complete and return to:

SDS Nevada, USA, July 2007  
c/o D. Jeffrey Over  
Department of Geological Sciences  
1 College Circle – SUNY Geneseo  
Geneseo, New York 14454  
USA  
[over@geneseo.edu](mailto:over@geneseo.edu)



Name: \_\_\_\_\_

Institution: \_\_\_\_\_

Address: \_\_\_\_\_

City: \_\_\_\_\_ State/Province: \_\_\_\_\_

Country: \_\_\_\_\_ Postal Code: \_\_\_\_\_

E-Mail: \_\_\_\_\_

Telephone: \_\_\_\_\_ Fax: \_\_\_\_\_

**Please indicate participation in conference:**

possibly                  probably                  almost certainly

**I will present:**

oral paper                  poster

**Pre-conference field trip:**

possibly                  probably                  almost certainly

**Official invitation needed:**                  yes                  no

**Proposals and suggestions:**

Date: \_\_\_\_\_



## NEW IGCP PROJECT 499: "DEVONIAN LAND-SEA INTERACTION: EVOLUTION OF ECOSYSTEMS AND CLIMATE" (DEVEC)

Leaders of the project

Dr. Peter Königshof (\*), Dr. Jurga Lazauskiene (\*\*), Dr. Eberhard Schindler (\*), PD Dr. Volker Wilde (\*) and Prof. Dr. M. Namik Yalçın (\*\*\*)

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\*\* Geological Survey of Lithuania, Department of Lithostratigraphy and Tectonics, Konarskio 35, LT-2009 Vilnius, Lithuania, Jurga.Lazauskiene@lgt.li (Phone: +370-2-332889, Fax: +370-2-336156)

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We have to announce a new IGCP project which was recently accepted by the UNESCO/IGCP scientific board. The outline of the project is given below:

The Devonian was a critical period with respect to the diversification of early terrestrial ecosystems. The geotectonic setting was characterized by the switch from the post-Caledonian to the pre-Variscan situation. Plant life on land evolved from tiny tracheophytes to trees of considerable size in combination with a global increase in terrestrial biomass, and vertebrates started to conquer the land. Extensive shallow marine areas and continental lowlands with a wide range of different habitats existed which are preserved in a large number of basins all around the world. Climate change finally led from greenhouse to icehouse conditions towards the end of the Devonian. Both, rapid evolution of terrestrial ecosystems and climate change had a pronounced influence on sedimentation and biodiversity not only in the terrestrial but also in the marine realm ("Devonian Change"). A major goal of the project will be to focus on controls and interactions of the respective facies parameters in different paleogeographic settings in order to refine the global picture by international co-operation in a number of case studies. Geoscientific co-operation will include a variety of disciplines, such as sedimentology, paleontology, stratigraphy, paleoclimatology, paleogeography, geochemistry, paleoceanography, and structural geology.

The rapid evolution of early life on land and its interaction with sedimentary processes, climate, and paleogeography, both on land and in marine settings, will be covered by studies in different terrestrial and marine facies. Increasing colonization of the land by plants in combination with soil-forming processes and changing runoff led to major changes of sediment input into the marine system. On the other hand, sediment input and climate are major controls for carbonate production and reef development. The study of responses and interactions thus needs detailed characterization of facies and high-resolution correlation which can only be provided by a refined stratigraphy including biostratigraphy, lithostratigraphy, chronostratigraphy, etc. Characterization of facies and correlation of stratigraphic units is especially difficult in marine-terrestrial transitions and will be an important focus of the project. Resolution of sea-level changes will be enhanced by recognition and exact correlation of their effects which may be hidden just in these transitions. On the background of the global geotectonic situation (paleogeography s.l.), this will be an important prerequisite for a better discrimination of eustatic, climatic, and biotic controls, both on regional and global scale.

The focus of the project concerns the interrelated evolution of terrestrial and marine paleoecosystems with respect to biotic and abiotic factors in space and time. Studies will include individual paleoecosystems and their components as well as their paleobiogeographic distribution. Biotic and abiotic factors of paleoecosystems are controlled by both, earthbound and extraterrestrial triggers causing either cyclicity and/or distinct events. Thus in turn, such studies may give a clue to underlying causes of global changes. The project will include sedimentologic and climatic controls of reef development and distribution as well as diversity, and paleoecology of reef building organisms throughout the Devonian, because the Middle to Late Devonian was a peak in reef development with reefs spreading into latitudes as high as 45-60 degrees. On the other hand, accommodation space for Early Devonian reefs was greatly reduced due to major input of sediment from the continents in combination with sea-level lowstand(s). A marked decline in reef development towards the end of the Devonian was probably caused by climatic deterioration.

The integrative kind of research which is needed for the success of the project can only be carried out by a worldwide network of research groups representing different disciplines. Such a network can now be based on core groups successfully participating in the recently terminated IGCP 421. Furthermore, the project will extend the results of the former IGCP 328.

It will actively interlink with IGCP 491 which is mainly centered around vertebrate research. IGCP 499, however, will concentrate on the correlation and interaction of different ecosystems in a more general way. Special attention will be paid to coupling effects between the terrestrial and marine realm. Co-operation will also put forward with the new IGCP Project 497 "The Rheic Ocean: its origin, evolution and correlatives". Furthermore, an active network is represented by the members of the "Subcommission on Devonian Stratigraphy" (SDS). These existing networks will be integrated and thus providing the necessary base for an improved understanding of the Devonian period. A number of the respective colleagues and working groups have already agreed to contribute to the proposed project (see list of participants on the website).

Further information can be obtained from the website: <http://www.senckenberg.de/igcp-499>. Colleagues interested in participation should contact one of the organizers in Frankfurt (addresses see above).

P. Königshof, J. Lazauskiene, E. Schindler, V. Wilde, N.M. Yalcin



BALTIC STRATIGRAPHIC ASSOCIATION  
**6<sup>TH</sup> BALTIC STRATIGRAPHIC CONFERENCE**  
 St. Petersburg, Russia, August 22-26, 2005

### FIRST CIRCULAR

The **Baltic Stratigraphic Association (BSA)** has regularly organising international conferences devoted to the issues of regional stratigraphy. The first meeting was held in Riga in 1990.

#### Venue and date

The 6<sup>th</sup> Baltic Stratigraphic Conference will be held in St. Petersburg, August 22-26, 2005 at the A.P.Karpinsky All-Russian Geological Research Institute (Sredniy prospect 74) and St. Petersburg University (Universitetskaya nab. 7/9 and 16 Liniya 29). The scientific sessions and workshops are planned on August 23-25. Pre-conference field trips (Lower Paleozoic and Carboniferous) would take part on August 19-21, post-conference field trip (Devonian) - on August 26-28.

Parallel with the scientific session business meeting of IGCP 491 Project "Middle Palaeozoic Vertebrate Biogeography, Palaeogeography" will be held.

#### Aims

The main issue of the Conference will be all kind problems of sedimentary basin stratigraphy of Baltic and neighbouring regions. The number of sessions and topics of symposia could be specified according to the preferences of registered participants.

The participants are invited to submit abstracts of both oral and poster presentations that will be published in a special issue. Abstracts should not exceed 4 pages, including figures, tables and references.

#### Language

The official language of the Conference is English.

#### Organizing committee

|                      |   |
|----------------------|---|
| Conference Chairman: | Dr. Tatyana Koren' (VSEGEI)                     |
| Vice-Chairmen:       | Dr. Oleg Petrov (VSEGEI)                        |
|                      | Dr. Igor Buldakov (St Petersburg University)    |
| Secretary:           | Dr. Andrey Zhuravlev (VSEGEI)                   |
| Members:             | Dr. Andrey Dronov (St Petersburg University)    |
|                      | Irina Evdokimova (VSEGEI)                       |
|                      | Dr. Alexander Ivanov (St Petersburg University) |
|                      | Dr. Olga Kossovaya (VSEGEI)                     |
|                      | Dr. Yuri Savitsky (St Petersburg University)    |
|                      | Dr. Tatyana Tolmacheva (VSEGEI)                 |

## Abstracts

Abstracts should be submitted before March 1st, 2005. The text in English should not exceed four A4 pages, including line drawing illustrations and references. Text should be written using 12p Times New Roman font, the margins should be 1.5 cm at top and bottom and 2.5 cm left and right, single-spaced and not justified. Abstracts should be sent by email as attachment files: text as RTF format, illustrations as TIFF or BMP format (preferably not exceeding 300 dpi). If you use special or national letters, please send a hard copy also.

The abstract volume will be available at the meeting.

Abstract example:

### Geodynamic evolution of the Baltic basin in Silurian– Early Devonian

Jurga Lazauskiene (1), Saulius Sliupa (2)

(1) Lithuanian Geological Survey, S.Konarskio 35, Vilnius, Lithuania; [jurga.lazauskiene@lgt.lt](mailto:jurga.lazauskiene@lgt.lt)

(2) Institute of Geology, Senckenkos 13, Vilnius, Lithuania; [sliupa@geologint.lt](mailto:sliupa@geologint.lt)

The Baltic basin is a Phanerozoic sedimentary basin, situated on the western margin of the East European Craton (EEC). The basin manifested the maximum subsidence during Silurian– Early Devonian relating to the flexural bending of the Baltica plate margin evoked by docking to Eastern Avalonian plate.

The tectonic-sedimentary evolution of the Baltic Silurian foreland basin (BSB), recorded by up to 3000 m thick carbonaceous-shaly succession, was analyzed quantitatively focusing on the interplay of the geodynamic and basin-infill processes along the EEC margin.

## References

1. Angevine C.L., Heller P.L. and Paola C., 1990. Quantitative Sedimentary Basin Modelling AAPG Continuing Education Course Note Series, 32, Tulsa, 133.
2. Baarli B., 1990. Peripheral bulge of a foreland basin in the Oslo Region during the early Silurian. *Plaeogeography, Paleoclimatology, Paleoecology*, 78, 149161.

## Accommodation

40 – 100 USD per person/per night in the hotels; the student hostel will be available also.

The medium cost of meals in St. Petersburg is ~ 510 USD/per day.

### Pre-conference field trip A:

#### Lower Paleozoic and Quaternary of Leningrad District

During the first and second days participants of the excursion will study a complete succession of the Cambrian and Ordovician rocks exposed in the region. Changes from cool water to tropical carbonates will be demonstrated and all aspects of paleontology, biostratigraphy, sequence stratigraphy, sedimentary environments and sea-level changes will be discussed in detail. All sections are located along the Baltic– Ladoga Glint, in 50 to 170km from St. Petersburg. On the third day the main features of the Quaternary history, climatic and sealevel changes of the eastern Baltics within 150 ka will be demonstrated in several sites of the Neva Lowland. Participants will stay all nights in St. Petersburg.

### Pre-conference field trip B:

#### Lower Carboniferous of the north-western part of the Moscow Syncline

Three-days geological excursion on the Carboniferous sections includes an examination of stratigraphy, sedimentology and paleontology in the key sections of the Visean and Serpukhovian marine shallow-water deposits containing abundant brachiopods, corals, ostracodes, forams, conodonts, vertebrates and plant remains. The sections to be visited are situated in 350–380 km to the south-east from St. Petersburg at the spurs of Valdai Hills. Also the Visean– Serpukhovian deposits will be shown

in the vicinity of Borovichi town and in the middle stream of the Msta River, Novgorod District; the Lower Carboniferous bauxite formation- in the vicinity of Boksitogorsk town. Participants will stay all nights in Borovochi town.

### **Post-conference field trip C:**

#### **Devonian of Leningrad and Pskov districts**

Participants of the three-days excursion will visit the Middle and Upper Devonian outcrops of southern part of the Leningrad District and western part of the Pskov District. The field trip sections are situated in central part of Main Devonian Field, East European Platform. The Middle Devonian and Lower Frasnian sections will be shown in the Oredezh River Basin in 80-100 km to the south from St. Petersburg. The sections of Arukula, Burtneiki, Gauja and Amata terrigenous deposits contain abundant vertebrate and rare plant remains. The Lower and Middle Frasnian sections will be demonstrated in the Velikaya River Basin and in some quarries near Izborsk town, 300 km from St. Petersburg. The Plavinas, Dubniki and Daugava carbonate and siliciclastic deposits yield diverse fossils, such as brachiopods, ostracodes, gastropods, conodonts, crinoids, as well vertebrates. Participants will stay the first night in Luga town, the second night- in Pskov city.

Detailed excursion schedules will be given in the second circular.

#### **Registration fee**

##### **Payments in Euros:**

|   |  |
|---|--|
| Early registration and field trip payment | February 10, 2005  |
| Late registration and field trip payment  | August 22, 2005  |
| Registration fee:                         | 110 € (before February 10, 2005) / 130 € (after February 10, 2005) |
| Field trip*:                              | 120 € (before February 10, 2005) / 150 € (after February 10, 2005) |

#### **Deadlines**

Registration (form included here)- October 1st, 2004.

Abstract submission-March 1st, 2005.

\* - Field trip cost will be specified in second circular depending on a number of participants.

**The Second circular** including a bank and hotel information will be sent in November, 2004 to those respondents who have registered.

#### **Please send correspondence to:**

##### **Secretary**

**Dr. Andrey Zhuravlev**

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or **Dr. Alexander Ivanov** (especially for IGCP 491 participants)

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### Registration form

BALTIC STRATIGRAPHIC ASSOCIATION  
6<sup>th</sup> Baltic Stratigraphical Conference  
St. Petersburg, Russia, August 22-26, 2005

First name: ..... Family Name: .....  
Title: ..... Sex: (M/F) .....  
Institution: .....  
Address (street): ..... City: .....  
Postal code: ..... Country: ..... State/Province .....  
Phone: ..... Fax: ..... E-mail: .....

**Please tick:**

**I shall attend the Conference**

possibly                      probably                      almost certainly

**Conference contribution:**

Oral

Author(s) and title(s): .....  
.....

Poster

Author(s) and title(s): .....  
.....

**I intend to field-trip:**

- the Cambrian – Ordovician    yes                      no
- the Devonian                      yes                      no
- the Carboniferous              yes                      no
- the Quaternary                  yes                      no

**I need an official invitation for visa issue:**

yes                      no

**I intend to be accompanied by**

yes                      no

Date

Signature

**RECENT AND CURRENT ACTIVITIES, JED DAY (C.M.)**

I am continuing long-term (1997-present) collaborative outcrop investigations of the late Givetian-Famennian of the Alberta-British Columbia Rocky Mountains and southern Northwest Territories. The focus of this major project is to develop a high resolution brachiopod-conodont biostratigraphy, near equatorial tropical shelly fossil records of late Givetian-Famennian bioevents at multiple sites featuring F-F boundary sections, providing temporal control for detailed Magnetic Susceptibility and sea level event records spanning the entire late Givetian-Early Famennian from western Laurussia. Thus far we have replicated the late Givetian-Famennian brachiopod sequence in the Rocky Mountain outcrop documented in earlier classic studies by workers including McLaren, Sartenaer, Raasch, Warren, and Warren and Stelck, now tied directly to the conodont sequence. I am also working on the biostratigraphy and systematics of middle Frasnian-early Famennian brachiopod sequence in the Hay River and Mckenzie River areas of the southern NWT. Our Alberta-BC team consists of myself (JD-C.M.), Michael Whalen (University of Alaska-Fairbanks), and Jeff Over (C.M. SUNY Geneseo). We anticipate completing field-based sampling this season in the Kakwa-Cecilia Lakes area featuring well developed late Givetian-Famennian continental shelf succession with well-developed offshore brachiopod and conodont sequences. We anticipate expanding work in western Canada to include developing biostratigraphic, bioevent, sea level, and climatic records through the entire Famennian and across the D-C boundary.

My German colleagues Michal Joachimski, Werner Buggisch and Robert Van Geldern and I have developed an oxygen isotope profiles from brachiopod calcites and conodont apatites, with most of the late Givetian-middle Frasnian data derived from sampling of the Iowa Basin Cedar Valley Group in the late 1990s. We are hoping to see this paper appear late this year.

**RECENT PUBLICATIONS OF INTEREST**

- Day, J. and Whalen, M.T., 2004-in press. Thornton Creek Member (new) of the Flume Formation and the initial Middle Devonian Onlap of the West Alberta Arch: Canadian Rocky Mountains. *Bulletins of American Paleontology*.
- Joachimski<sup>1</sup> M.M., van Geldern<sup>1</sup> R., Breisig<sup>1</sup> S., Buggisch<sup>1</sup> W., and Day<sup>2</sup> J. 2004-in press. Oxygen Isotope Evolution of Biogenic Calcite and Apatite during the Middle and Late Devonian.
- Ma, X., and J. Day. 2003. Revision of North American and Selected Eurasian Late Devonian (Frasnian) species of *Cyrtospirifer* and *Regelia* (Brachiopoda). *Journal of Paleontology*, v. 77, p. 267-292.
- Ma X., X. Chen Y. Jin and J. Day 2003. Revision of the Upper Devonian Cyrtospiriferid brachiopod *Sinospirifer* Grabau, 1931, from South China. *Acta Palaeontologica Sinica*, v. 42, 367-381.

Abstracts

- Day, J., and Whalen, M.T. 2003. Western Laurussian record of regional and global Middle-Late Devonian sea level changes and bioevents: Alberta Rocky Mountains. In *GSA Abstracts with Programs*, v. 34, no. 7, p. 208.

| SERIES         | STAGE                   | Substage              | CONODONT ZONE                                    | ALBERTA ROCKIES DEPOSITIONAL SEQUENCES | DEVONIAN T-R CYCLES |
|----------------|-------------------------|-----------------------|--|--|---------------------|
| UPPER DEVONIAN | FAM.                    | Low.                  | L./E. <i>triangularis</i>                        | 9<br>Exposure                          | Ile                 |
|                |                         | Upper                 | Upper <i>rhenana</i> 13                          | 8                                      | Ild-2               |
|                | Lower <i>rhenana</i> 12 |                       | 7  | Ild-1                                  |                     |
|                | 11                      |                       |  | Exposure                               |                     |
|                | Middle                  | Upper <i>hassi</i> 10 | 6  | Ilc-B                                  |                     |
|                |                         | 9                     |  | 5                                      |                     |
|                |                         | Lower <i>hassi</i> 8  | Ilc-A  |  |                     |
|                |                         | 7                     | 4  |  |                     |
|                |                         | 6                     |  | Ilb-3 proposed                         |                     |
|                | Lower                   | <i>punctata</i> 5     | 3  | Ilb-2                                  |                     |
|                |                         | <i>transiens</i> 4    |  | 2                                      |                     |
|                |                         | 3                     | Ilb-1  |  |                     |
|                |                         | <i>falsiovalis</i> 2  | 1  |  |                     |
| 1              |                         | Exposure              |  |  |                     |
| MIDDLE         | GIVETIAN                | Upper                 | <i>norrisi</i> Z. -<br><i>L. insita</i> F.       | 1                                      | Ila-2               |
|                |                         |                       | <i>U. subterminus</i><br><i>U. disparafis</i> Z. |  | Ila-1               |
|                |                         | L.                    | No Record  |  |                     |

Alignment of Frasnian zonation after Klapper & Becker (1998)

## CM ELGA MARK-KURIK (TALLINN, ESTONIA)

kurik@gi.ee

Some papers by E. M.-K. (or with coauthors), indicated in the previous SDS Newsletter (# 19) are now published (Mark-Kurik & Young, 2003; Mark-Kurik & Karatajute-Talimaa, 2004), the others are still in press. The very productive cooperation on the study of the psammosteid heterostracans from Canadian Arctic and NW of the East European Platform with D. K. Elliott (Flagstaff, Arizona) and E. B. Daeschler (Academy of Natural Sciences, Philadelphia) has resulted in a number of papers and conference abstracts (The Gross Symposium 2, Riga, Latvia, 2003; 10th International Symposium on Early Vertebrates/Lower Vertebrates, Gramado, Brazil, 2004). The information given in the above abstracts and/or papers concerns mostly paleontological aspects of the fossil material whereas the discussion of biostratigraphical and environmental problems will follow.

Last year a talk by E. M.-K. & J. Nemliher was presented on the Abava Beds (Middle Devonian) in the Baltic Area. This disputable unit that was for a long time situated at the Middle and Upper Devonian boundary is unpopular particularly among mapping geologists for its poor boundaries but valuable when used in the interregional correlation. Its specific fish assemblage shows that an "Abava time" still existed. Both in Estonia and Latvia the unit consists of two parts: the lower one is characterized by the placoderm *Watsonosteus* and the upper one by *Livosteus* (a large and related to *Watsonosteus* form). An English version of the paper on the Abava Beds will follow.

In April, 2004 E. M.-K. had a personal historical event: for the first time she could visit Berlin and to study famous fossil fish collections in the Museum für Naturkunde, the Humboldt University. Long ago, in 1959 she was invited to Berlin (then in DDR) by Prof. Walter Gross. But as an untrustworthy person she was not let out of the SSSR. And she never met Walter Gross personally, either, though had a very active correspondence with him (consisting of about 50 letters from Gross). Of the arthrodire specimens, described by Gross in 1933 and 1937 from Rhineland, of particular interest were those of *Heterostius rhenanus*. The type specimen belongs evidently to a young individual. In Berlin E. M.-K. met an excellent hospitality, especially from Prof. Hans-Peter Schultze. Last days of the visit in Germany were spent in Braunschweig. Prof. Peter Carls kindly took me by his car to Braunschweig and then back, to the Berlin-Tegel airport. The referees' remarks on our *Tityosteus* paper MS were discussed, and one more new gigantic arthrodire from Spain, partly prepared, was briefly observed. It is really surprising how very large arthrodires "happen" to be in conodont samples. Many thanks to German colleagues for their warm hospitality.

### References:

- Mark-Kurik, E. & Young, G.C. (2003). A new buchanoosteid arthrodire (placoderm fish) from the Early Devonian of the Ural Mountains. *Journal of Vertebrate Paleontology*, 23(1): 13-27.
- Mark-Kurik, E. & Nemliher, J. (2003). Veel kord Keskk-Devoni Abava kihtidest [Once more about the Middle Devonian Abava Beds]. In: Plado, J. & Puura, I. (eds.) *The 4<sup>th</sup> World Meeting of Estonian Geologists. Estonian Geology in the Beginning of the New Century. Conference Materials and Excursion Guide*. Tartu: 38-41 (in Estonian).
- Elliott, D. K., Mark-Kurik, E. & Daeschler, E. (2003). A revision of the obrucheviids (Agnatha, Heterostraci) from the Late Devonian of Arctic Canada and Russia. *The Gross Symposium 2. Advances in Paleichthyology. Ichthyolith Issues. Special Publication 7*: 21-22.
- Elliott, D. K., Mark-Kurik, E., Daeschler, T., Shubin, N., Jenkins, F. A. (2003). Psammosteids (Agnatha, Heterostraci) from the Late Devonian of Arctic Canada. *Journal of Vertebrate Paleontology* 23(3, supplement), 16A.
- Mark-Kurik, E. (2003). Tori outcrop. In: *The Gross Symposium 2. Advances in Paleichthyology. Field Trip Guidebook*. Riga: 29-30.
- Mark-Kurik, E. & Karatajute-Talimaa, V. (2004). Chondrichthyan remains from the Middle and Late Devonian of the Baltic Area. *Archiv für Geschichte der Naturwissenschaften*, 3 (8/12) [Schallreuter-Festschrift]: 1-6.
- Elliott, D. K. & Mark-Kurik, E. (2004). Sensory line system in psammosteid heterostracans: a review. In: *10th International Symposium on Early Vertebrates/Lower Vertebrates, Gramado, Brazil, 2004. Abstract volume*. Universidade Federal do Rio Grande do Sul, Gramado, Brazil.
- Mark-Kurik, E. (in press). Buchanoosteids (Placodermi, Arthrodira) from Central Asia. In: Aratia, G. (ed.). *Honoring Hans-Peter Schultze in his 65 birthday. Book 2*.
- Mark-Kurik, E. & Carls, P. (in press). *Tityosteus* Gross, 1960, a pelagic fish (Arthrodira, Homostiidae) from the Emsian of Aragón, Spain, and its distribution. *Revista Española de Paleontología*.
- Elliott, D. K., Mark-Kurik, E. & Daeschler, E. B. (in press). A revision of *Obruchevia* (Psammosteida: Heterostraci) and a description of a new obrucheviid from the Late Devonian of the Canadian Arctic. *Acta Universitatis Latviensis. Earth and Environmental Sciences*.
- Elliott, D. K. & Mark-Kurik, E. (in press). A review of the lateral line sensory system in psammosteid heterostracans. *Revista Brasileira de Paleontologia*.



## CM Eberhard SCHINDLER (Frankfurt, Germany)

During the year 2003 and the first months of 2004 different activities have to be reported. Together with Peter KÖNIGSHOF the edition of the proceedings volume of the joint IGCP 421/SDS Meeting held as 15<sup>th</sup> International Senckenberg Conference in May 2001 has been completed in spring 2003 (see reference below).

Work continued on the siliciclastic Lower Devonian of the Rhein/Mosel/Lahn area of the Rheinisches Schiefergebirge, on the material of Lower to Middle Devonian trenches in the Eifel Hills area, and on samples from Southern Moroccan reefs (manuscripts submitted and/or presentation of results at different meetings). The inner-Emsian boundary section at Cisarska rokle in the Barrandian has been presented at the annual meeting of the Palaeontologische Gesellschaft in Mainz, including own dacryoconarid and sedimentological results and results of other members of our working group.

With respect to better understand sedimentological features in ancient (e.g., Lower Devonian) rocks studies have been carried out together with Achim Wehrmann (Senckenberg am Meer, Wilhelmshaven) at the Recent high-energy coast of Brittany in order to compare modern processes of sediment transport and accumulation of plant material with our Lower Devonian case studies (e.g., in the Rheinisches Schiefergebirge).

Together with CM D.J. Over a presentation on small-scale event stratigraphy of the Lower Kellwasser Horizon from Mrirt (Moroccan Meseta), Steinbruch Schmidt (Kellerwald area of the Rheinisches Schiefergebirge), and the Kahlleite section (Thüringisches Schiefergebirge) was given at the GSA Meeting in Seattle.

At the SDS Meeting in Rabat/Anti Atlas (Morocco) in early March 2004 contributions have been made to oral and poster presentations (see references below). Together with my Senckenberg colleagues different sections in the Lower to Middle Devonian of the Dra Valley were shown to the participants of the meeting's field trip. At the meeting I participated in the business meeting of SDS and was nominated for election as TM at the International Geological Congress (IGC) to be held in Florence (Italy) in August 2004. Until the end of my second term (end of 2003) I chaired the German SDS, now succeeded by CM Uli Jansen.

Last but not least the successful application (together with the other co-leaders) for a new IGCP project (in some way succeeding IGCP 421) have to be mentioned. The project (No. 499) is entitled "Devonian land-sea interaction: Evolution of ecosystems and climate" (DEVEC) – leaders are: Peter Königshof (Frankfurt, Germany), Jurga Lazauskiene (Vilnius, Lithuania), Volker Wilde (Frankfurt, Germany), M. Namik Yalcin (Istanbul, Turkey), and myself. The scope of the project has been chosen rather "broad" – so everyone of the "Devonian community" will be able to fit in her/his field of interest. There is a separate announcement of IGCP 499 in this newsletter – further information can be obtained from the website: <http://www.senckenberg.de/igcp-499>.

## REFERENCES 2003 TO FIRST MONTHS OF 2004 (CHRONOLOGICAL ORDER)

- KÖNIGSHOF, P. & SCHINDLER, E. (eds.) (2003): Mid-Palaeozoic Bio- and Geodynamics. – Courier Forschungsinstitut Senckenberg, 242: 348 pp., 101 figs., 10 tabs., 28 pls.; Frankfurt/M.
- KÖNIGSHOF, P., BENSALD, M., BIRENHEIDE, R., EL HASSANI, A., JANSEN, U., PLODOWSKI, G., RJIMATI, E., SCHINDLER, E. & WEHRMANN, A. (2003): The Middle Devonian (Givetian) Gor-al-Hessen reef-mound (Western Sahara). – *Terra Nostra*, 03/3: 43-44, 1 fig.; Berlin.
- WILDE, V., WEHRMANN, A., SCHULTKA, S., SCHINDLER, E., KÖNIGSHOF, P., JANSEN, U. & BROCKE, R. (2003): Clastic microfacies of Lower Devonian plant accumulations in a marine-terrestrial transition. – *Terra Nostra*, 03/3: 72-73, 1 fig.; Berlin.
- SCHINDLER, E., BROCKE, R., HERTWECK, G., JANSEN, U., KÖNIGSHOF, P., PLODOWSKI, G., SCHULTKA, S., WEHRMANN, A. & WILDE, V. (2003): A Lower Devonian land-sea transition: Palaeoenvironment in a coastal setting of the Mosel area (Rheinisches Schiefergebirge, Germany). – *Terra Nostra*, 03/3: 139, 1 fig.; Berlin.
- OVER, D.J. & SCHINDLER, E. (2003): Depositional similarities in selected Late Devonian Kellwasser Horizons: Germany, Morocco, and Eastern United States. – *Geological Society of America, Abstracts with Programs*, 35 (6): 59905; Boulder.
- SCHINDLER, E., BROCKE, R., FATKA, O., JANSEN, U. & WEDDIGE, K. (2003): Paläontologie. Biostratigraphie und Fazieswechsel im Grenzbereich Unter-/Ober-Emsium – das Referenzprofil Cisarská rokle im Prager Becken (Unter-Devon, Barrandium, Tschechische Republik). – *Terra Nostra*, 5/2003: 141; Berlin.
- KÖNIGSHOF, P., WEHRMANN, A., SCHINDLER, E., JANSEN, U. & PLODOWSKI, G. (2003): Geologische Expedition in die westliche Sahara. – *Natur und Museum*, 133 (10): 302-310, 10 Abb.; Frankfurt/M.
- JANSEN, U., PLODOWSKI, G., SCHINDLER, E. & WEDDIGE, K. (2004): Stratigraphy and facies of the Lower Devonian in the Dra Valley (Moroccan Pre-Sahara). – *International Meeting on Stratigraphy, Annual Meeting of the Subcommission on Devonian Stratigraphy (SDS), Abstracts*: 24; Rabat.
- KÖNIGSHOF, P., BENSALD, M., BIRENHEIDE, R., EL HASSANI, A., JANSEN, U., PLODOWSKI, G., RJIMATI, E., SCHINDLER, E. & WEHRMANN, A. (2004): Middle Devonian carbonate buildups – examples from the Western Sahara. – *International Meeting on Stratigraphy, Annual Meeting of the Subcommission on Devonian Stratigraphy (SDS), Abstracts*: 28-29; Rabat.
- ELLWOOD, B.B., BENOIST, S.L., EL HASSANI, A., FEIST, R. & SCHINDLER, E. (2004): High Resolution Correlation Using Graphic Correlation of Biostratigraphic and Magnetostratigraphic or Chemostratigraphic Data Sets: Illustrating the Method by Defining the Middle Devonian Magnetostratigraphic Susceptibility for Sections from France and Mo-

- rocco. – International Meeting on Stratigraphy, Annual Meeting of the Subcommission on Devonian Stratigraphy (SDS), Abstracts: 62; Rabat.
- SCHINDLER, E. (2004): Devonische Gesteine in den nordöstlichen Vereinigten Staaten und in Zentraleuropa. – *Natur und Museum*, **134** (4): 113-122, 11 Abb.; Frankfurt/M.
- SCHINDLER, E. & WEDDIGE, K. (2004): Tag der offenen Tür am "Wetteldorfer Richtschnitt". – *Natur und Museum*, **134** (5): 155-158, 3 Abb.; Frankfurt/M.
- BECKER, R.T., JANSEN, U., PLODOWSKI, G., SCHINDLER, E., ABOUSSALAM, Z.S. & WEDDIGE, K. (2004): Devonian litho- and biostratigraphy of the Dra Valley area: An overview. – In: EL HASSANI, A. (Ed.): Devonian neritic-pelagic correlation and events in the Dra Valley (Western Anti-Atlas, Morocco). International Meeting on Stratigraphy, Rabat, March 1-10, 2004. – *Documents de l'Institut Scientifique*, **19**: 3-20; Rabat. (Preprint)
- JANSEN, U., BECKER, G., PLODOWSKI, G., SCHINDLER, E., VOGEL, O., & WEDDIGE, K. (2004): The Emsian to Eifelian near Foum Zguid ( NE Dra Valley, Morocco). – In: EL HASSANI, A. (Ed.): Devonian neritic-pelagic correlation and events in the Dra Valley (Western Anti-Atlas, Morocco). International Meeting on Stratigraphy, Rabat, March 1-10, 2004. – *Documents de l'Institut Scientifique*, **19**: 21-35; Rabat. (Preprint)
- JANSEN, U., PLODOWSKI, G., SCHINDLER, E. & WEDDIGE, K. (2004): The Pragian at Assa (SW Dra Valley, Morocco). – In: EL HASSANI, A. (Ed.): Devonian neritic-pelagic correlation and events in the Dra Valley (Western Anti-Atlas, Morocco). International Meeting on Stratigraphy, Rabat, March 1-10, 2004. – *Documents de l'Institut Scientifique*, **19**: 85-91; Rabat. (Preprint)
- JANSEN, U., BECKER, G., PLODOWSKI, G., SCHINDLER, E., VOGEL, O. & WEDDIGE, K. (2004): Pragian and Emsian near Aouinet Torkoz (SW Dra Valley, Morocco). – In: EL HASSANI, A. (Ed.): Devonian neritic-pelagic correlation and events in the Dra Valley (Western Anti-Atlas, Morocco). International Meeting on Stratigraphy, Rabat, March 1-10, 2004. – *Documents de l'Institut Scientifique*, **19**: 101-115; Rabat. (Preprint)

The four preprint versions at the end will be published slightly elaborated in the given journal in 2004.