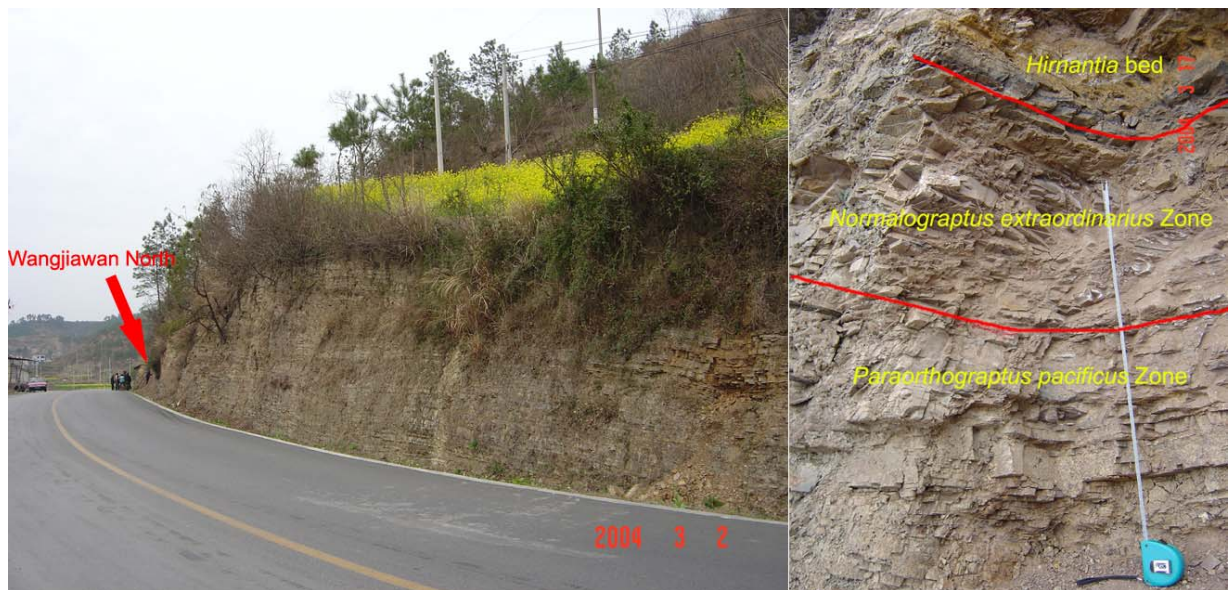
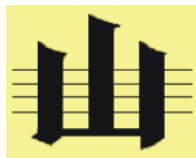


# ORDOVICIAN NEWS

SUBCOMMISSION ON ORDOVICIAN STRATIGRAPHY  
INTERNATIONAL COMMISSION ON STRATIGRAPHY



N° 22

2005

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**URL:** <http://www.ordovician.cn>, <http://seis.natsci.csulb.edu/ISOS>

**Cover:** The Wangjiawan GSSP for the base of the Hirnantian Stage, China.

## **NOTE FOR CONTRIBUTORS**

The continued health and survival of *Ordovician News* depends on YOU to send in items of Ordovician interest such as lists and reviews of recent publications, brief summaries of current research, notices of relevant local, national and international meetings, etc. As more geological software becomes available, details of this would also be welcomed by many of us. Also please ensure the SOS's Secretary (responsible editor) is notified of any changes in address, telephone or fax number and e-mail address.

## **EDITOR'S NOTE**

Welcome to the new issue of *Ordovician News* in hard and soft versions, the seventh one since I am serving as editor. Current number (22, 2005) is assembled as webpage for easier downloading of required information from the page of contents. We are still mailing a few hard copies; in particular, for those Ordovician friends who are not able to get into the network. Our previous electronic distributions were very successful, particularly by dramatically diminishing costs of printing and postage, as well as by allowing us to have the newsletter in the personal computer for permanent and easy access. In case members of the Ordovician community have any comment on this issue, the secretary would be pleased to hear from them. I would like to thank all of you for the many contributions for the current number.

Several important international meetings and field trips, particularly related to Ordovician stratigraphy and paleontology, are included. Recent advances on proposed stratotypes, and names for the global Ordovician subdivisions, are documented. Also you will find information on several new international projects, scientific reports and honorary notes. Present number incorporates the renewed list of titular members, after seven members of the SOS retired in August at 32° IGC, Florence, Italy. Finally, as always, your personal contributions on current research, publications, and updated addresses, are herein published.

I am particularly grateful for the technical support provided by Fan Juanxuan (Nanjing Institute of Geology and Palaeontology, China), who uploaded current issue of *Ordovician News* in its internet web site.

I appreciate very much your confidence in my service to the secretariat of the Subcommittee.

GUILLERMO L. ALBANESI

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## CHAIRMAN'S REPORT

From the 32nd International Geological Congress held in Florence in August of 2004, Juan Carlos, Guillermo and I took the opportunity to be the new executive officers of the Ordovician Subcommittee. We have had the first two business meetings in Florence and Erlangen with most of the retired voting members and new voting members. We have discussed the principal and new directions of the Subcommittee in the coming four years following the guidance of the International Commission on Stratigraphy.

In the coming four years, the Subcommittee will complete the last three GSSPs, the base of the Hirnantian Stage, the base of the second Stage of the Upper Ordovician, and the base of the Middle Ordovician. As you know, the Hirnantian Stage has been voted and passed by the voting members of the Subcommittee. A final report is preparing and will submit to the ICS. The voting members voted the second Stage of the Upper Ordovician very recently with a majority favor to the BKR section in Oklahoma. Further studies on the base of the Middle Ordovician were provided by Stouge and his colleagues for the Huanghuachang section, and Sweet and Albanesi for the Niquivil section, which have been posted on the Subcommittee website for further discussion. I have received a report from Albanesi that a new contribution will be posted on the Subcommittee website soon. I am pleased to see these contributions by colleagues from different countries working on the base of the Middle Ordovician and provide fruitful contributions to this boundary. It would be greatly appreciated if the voting members and corresponding members supported the Subcommittee and completed the voting stages within this year in the schedule that we proposed.

After the three GSSPs completed, the Subcommittee may concentrate on the Stage unit stratotype and named all the stages. It is also a big job with a high-resolution correlation of the Stage units internationally. So far, only three stages have formal names, the Tremadocian, Darriwilian, and Hirnantian. The Subcommittee would like to edit and publish an Ordovician Time Table after all stages and unit names erected.

As I reported in Florence and Erlangen, the Subcommittee would like to support the important research projects on Ordovician Earth System organized by Stan Finney and the IGCP project 503 on the Ordovician Palaeogeography and Palaeoclimate organized by Thomas Servais and his colleagues. The research of these two projects is coincided with a new direction proposed by ICS.

Finally, the Subcommittee would like to support the Ordovician-Silurian International Conference 2007 in China. A working group begins to prepare the conference in Nanjing, China.

The Ordovician Subcommittee is one of the most active Subcommittee with the International Commission on Stratigraphy. I sincerely hope that all voting and corresponding members as well as the Ordovician friends will work together in the coming years.

CHEN XU

## SOS ANNUAL REPORT FOR 2004

### 1. Name of constituent body:

Subcommittee on Ordovician Stratigraphy (SOS)

### 2. Overall objectives, and Fit within IUGS science policy:

The Subcommittee promotes international cooperation in Ordovician Stratigraphy. Specific objectives are:

- a. To delimit and subdivide the Ordovician System (and Period) as a part of the overall ICS mission to elaborate the standard global stratigraphic scale. This work aims to establish the boundaries (GSSPs), the correlation of the subdivisions (Stages and Series), and the nomenclature of the subdivisions.
- b. To promote regular international meetings on aspects of Ordovician geology, especially those devoted to clarifying stratigraphic procedures, nomenclature and methods for use in establishing a unified global time scale, and to prepare correlation charts with explanatory notes (this latter task is now completed).
- c. To encourage, promote, and support research on all aspects of Ordovician geology worldwide and to provide outlets, *Ordovician News*, international meetings, and a web page, for promoting discussions and reporting results of this research.
- d. To encourage, promote, and support interdisciplinary research on the Ordovician global Earth system, addressing topics that require high-resolution, global correlation.

The ultimate goal of the Subcommittee is to provide a high-resolution geological time scale that will be a critical foundation for interdisciplinary research on the global Earth system during the Ordovician Period. The work is broad based and must include specialists in paleontology, all subdisciplines of stratigraphy (bio-, litho-, chemo-, and magneto-), sedimentology, geochemistry, and tectonics. With active participants from more than 25 countries, the Subcommittee involves much of the global geological community.

### 3. Summary table of Ordovician subdivisions

Million years	SYSTEM	GLOBAL STAGES	GLOBAL STAGES	KEY GRAPTOLITE - CONODONT BIOHORIZONS
443	ORDOVICIAN	UPPER	.....	Parakidograptus acuminatus (GSSP - Dob's Linn)
				Normalograptus extraordinarius
				Diplacanthograptus caudatus
460		MIDDLE	DARRIWILIAN	Nemagraptus gracilis (GSSP - Fagelsang)
				Undulograptus austrodentatus (GSSP - Huangnitang)
472		LOWER	.....	Baltoniodus? triangularis
				Cooperignathus aranda
				Tetragraptus approximatus (GSSP - Diabasbrottet)
489			TREMADOCIAN	Iapetognathus fluctivagus (GSSP - Green Point)

#### 4. Organization:

a. Subcommittee Executive  
 Chairman, Chen Xu (P.R.China)  
 Vice Chairman Juan Carlos Gutiérrez-Marco  
 Secretary, G.L. Albanesi (Argentina)  
 16 other Voting Members  
 94 Corresponding Members  
 Subcommittee website: [www.ordovician.cn](http://www.ordovician.cn)  
<http://seis.natsci.csulb.edu/ISOS> (remains active for facilitating discussion of GSSP proposals).

b. GOES Program  
 Secretary, W.B.N. Berry (U.S.A.)  
 Research committee, C.R. Barnes, S.M. Bergström, S.C. Finney, and R.A. Astini

#### 5. Interfaces with other international projects

**IGCP Project 410:** The Great Ordovician Biodiversification Event. Project nearly completion with final meeting held in conjunction with the first International Palaeontological Congress, Sydney, Australia in July 2002 and with completion of book entitled "The Great Ordovician Biodiversification Event" that is in press with Columbia University Press.

**IGCP Project Proposal:** Impact of changing palaeogeography and palaeoclimate on major biotic changes through the Ordovician. Proposers are corresponding and nominated voting members of Ordovician Subcommittee. This is a successor to IGCP 410 and will support substantial research on Ordovician strata and fossils, including travel to meetings at which Subcommittee business will be

carried out. It will include activities stimulated by the GOES project of the Subcommittee.

#### 6. Chief accomplishments and products in 2004

a. GSSP proposals were submitted for the three boundaries remaining to be defined: the base of the Middle Ordovician Series and its lower stage (the 4<sup>th</sup> Stage, yet to be named); the base of the middle stage of the Upper Ordovician Series (the 6<sup>th</sup> Stage, yet to be named), and the base of the Hirnantian Stage, the uppermost stage of the Upper Ordovician Series. In addition, Subcommittee Chair Stan Finney and long-time Subcommittee member Stig Bergstrom visited China in March 2004 in order to inspect the Huanghuachang and Wangjiawan sections, which were proposed as global stratotype sections, respectively, for the base of the Middle Ordovician Series and the base of the Hirnantian Stage. Two GSSP proposals were submitted for the base of the Middle Ordovician Series: the level of the FAD of the conodont *B. ? triangularis* in the Huanghuachang section in China, and the level of the FAD of the conodont *C. aranda* in the Niquivil section in Argentina. A GSSP proposal was submitted for the Black Knob Ridge section in Oklahoma, USA for the base of the middle stage of the Upper Ordovician Series that is to be defined at the level of the FAD of the graptolite *D. caudatus*. British colleagues indicated that they would submit a proposal with the Hartfell Spa section, Scotland as the global stratotype for this boundary. Finally, a single GSSP proposal was submitted for the base of the Hirnantian Stage: the level of the FAD of the graptolite *N. extraordinarius* in the section at Wangjiawan, China.

b. A discussion page on the Subcommittee's website was further developed to allow for wide dissemination of the GSSP proposals and for extensive discussion of them.

c. In August 2004, the vote on the Wangjiawan GSSP for the base of the Hirnantian Stage was completed, and the GSSP was approved unanimously.

d. Deadlines were set for the submission of additional proposals for the base of the middle stage of the Upper Ordovician Series and for further work on and revisions to the GSSP proposals submitted for the base of the Middle Ordovician Series, with the goal of completing voting on them by mid 2005.

e. The Subcommittee sponsored the symposium session "Global Ordovician Earth System" at the 32<sup>nd</sup> International Geological Congress in Florence, Italy in August 2005.

f. Also at the 32<sup>nd</sup> IGC, a meeting of Subcommittee voting members was held to focus on progress in selection of GSSPs. The new executive committee took office; the terms of several long-term members of the Subcommittee ended, and several new Subcommittee members began their terms.

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Both a business meeting (voting members) and an open meeting (all participants) were held in Erlangen. New directions of the Subcommittee and three remaining GSSPs were discussed. The proposals of the second stage of the Upper Ordovician and the base of the Middle Ordovician will be voted within 2005.

g. *Ordovician News No. 21* was produced and posted on the Subcommittee web site in May 2004.

### 7. Chief problems encountered in 2003

Most subcommittee members requested that additional study and evaluation be given to the GSSPs for the base of the Middle Ordovician Series before proceeding to a formal ballot

As always, the lack of travel support limits the participation of Voting Members in field meetings to evaluate potential stratotype sections. Although the Subcommittee supports investigations of potential GSSPs, the amount available is so limited that most of these investigations must be supported by other sources.

### 8. Summary of expenditures in 2004 (anticipated through march 2005)

Contribution to Chair's travel expenses: \$ 200.

Chair's expenses to host Digby McLaren at IGC and to Produce certificates for ICS Prizes: \$ 50.

Contribution to Secretary's travel expenses: \$ 500.

Support for website, secretariat, and production of newsletter: \$ 500.

Support for additional conodont work to improve Niquivil GSSP Proposal: \$ 300.

Anticipated contribution to travel expenses of working group (Finney, Bergstrom, and Goldman) that will finalize issues related to accessibility and preservation of the Black Knob Ridge GSSP in December 2004: \$ 800.

Anticipated Carryover: \$ 150.

TOTAL: \$2500

### 9. Work plan, critical milestones, anticipated results and communications to be achieved next year

a. Development of new website based at Nanjing Institute of Geology and Palaeontology to support new executive of Subcommittee.

b. Submission of Wangjiawan GSSP proposal for base of Hirnantian Stage to ICS for approval.

c. Discussion and evaluation of Black Knob Ridge GSSP proposal for base of middle stage of Upper Ordovician Series and Hartfell Spa GSSP proposal, if it is submitted by December 2004 deadline. Ballot on GSSPs in early 2005 and submission of approved GSSP proposal to ICS.

d. Revisions of Huanghuachang and Niquivil GSSPs for base of Middle Ordovician Series, discussion, and ballot on proposals in mid 2005. Submission of approved GSSP to ICS in second half of 2005.

e. Selection of names for 2<sup>nd</sup>, 3<sup>th</sup>, 5<sup>th</sup> and 6<sup>th</sup> stages of the Ordovician System.

f. Production and internet distribution of *Ordovician News No. 22* in May 2005.

### 10. Budget and ics component for 2005

*Ordovician News No. 22* production costs: \$ 250.

Support for secretarial office: \$ 250.

Travel subsidies for executive members to attend GSSP dedication ceremonies: \$1500.

Plaques for GSSPs to be dedicated in 2005: \$ 500.

Contingency for inspection of Hartfell Spa section, if proposed as global stratotype: \$1000.

Carryover from 2004 : - \$150.

TOTAL 2005 BUDGET REQUEST: **\$3,350** (through Mar, 2006).

### Potential funding sources outside IUGS

Already in its first year, IGCP Project 503, Ordovician Palaeogeography and Palaeoclimate, funded a successful meeting in Erlangen, Germany in early September 2004. This project will provide travel support to a significant number of Ordovician specialists, including voting members of the Subcommittee, allowing for regular meetings at the annual workshops scheduled for the project.

The State Key Laboratory of Stratigraphy and Palaeobiology, Nanjing Institute of Geology and Palaeontology, Chinese of Academia of Sciences supports for the new Subcommittee website. The Subcommittee officers are also supported by their research project for parts of their activities.

### 11. Review chief accomplishments over last five years (2000-2004)

a. Approval, ratification, and dedication of the Green Point GSSP for the base of the Ordovician System.

b. Approval, ratification, and dedication of the Diabasbrottet and Fågelsång GSSPs for the bases of the upper stage of the Lower Ordovician Series and the Upper Ordovician Series, respectively.

c. Significant progress on definition of series and stages for the Ordovician System with only two GSSPs remaining to be selected and approved by the Subcommittee, following change in strategy for stages of Upper Ordovician Series in August 2003.

d. With publication in 2000 of *A Revised Correlation of Ordovician Rocks in the British Isles*, correlation charts have been completed for Ordovician rocks on all continents.

e. International Symposium on the Ordovician System in San Juan, Argentina, in August 2003, in conjunction with the 7th International Graptolite Conference and a Field Meeting of the Subcommittee on Silurian Stratigraphy and publication of 556 page proceedings, 130 participants represented 18 countries, 124 papers were presented in technical sessions.

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e. Publication of *Ordovician News* nos. 17-21 and their posting on the Subcommittee's web site.

f. Development of the web site "Ordovician Stratigraphy Discussion Group" to facilitate discussions on selection of the GSSPs. This site has evolved into the Subcommittee's web site and also includes postings of *Ordovician News*.

g. Sponsorship of a technical session and field excursion on the GSSP for the base of the Middle Ordovician Series at the Annual Meeting of the Geological Society of America in November 2000.

h. Sponsorship at the 31st International Geological Congress of the symposium "Paleontological, stratigraphical, and paleogeographical relations among South America, Laurentia, Avalonia, and Baltica during the Ordovician."

i. Sponsorship at the 32<sup>nd</sup> International Geological congress of the symposium "The global Ordovician Earth system."

j. Launched GOES (Global Ordovician Earth System) Program to stimulate integrated multi-disciplinary studies of global events (mass extinction, sea-level changes, greenhouse conditions, tectonics) during the Ordovician Period.

k. Sponsorship of special symposium on the Ordovician System at the Geological Society of America Annual Meeting in 2000, of WOGOGOB 2001 in Copenhagen, and of the meeting and field excursion "The Gondwanan Platform in Ordovician times: Climatic, eustatic and geodynamic evolution", in Morocco in February 2001.

### 12. Objectives and work plan for next 5 years (2004-2009)

Selection of GSSP for base of Middle Ordovician Series.

Selection of GSSP for base of middle stage of Upper Ordovician Series (6<sup>th</sup> stage of Ordovician System)

Selection of names for 2<sup>nd</sup>, 3<sup>rd</sup>, 5<sup>th</sup> and 6<sup>th</sup> stages of Ordovician System

Publication of papers presented at "The global Ordovician Earth system" symposium at the 32<sup>nd</sup> IGC. With completion of selection of GSSPs for all stages, refocusing of Subcommittee to address the global Ordovician Earth system.

Development of a new website with transfer of subcommittee executive to new chair.

10<sup>th</sup> International Symposium on the Ordovician System to be held in Nanjing, China in summer 2007.

CHEN XU

### INTERNATIONAL SYMPOSIA, CONFERENCES AND FIELD MEETINGS

#### 2005 GSA MEETINGS AND ASSOCIATED FIELDTRIPS

**Northeastern GSA** (March 14-15; Saratoga Springs, New York) two symposia dealing with Ordovician issues.

*Late Ordovician Taconic Orogenesis: Structural Evolution and Foreland Basin History* chaired by Gordon Baird (SUNY Fredonia), Jean Crespi (University of Connecticut), Art Goldstein (Colgate University), and Charles Mitchell (SUNY Buffalo).

and  
*Sequence Stratigraphic Approaches to Paleobiologic and Sedimentologic Investigations of Lower Paleozoic Strata of the Northern Appalachians* chaired by Alex Bartholomew (University of Cincinnati) and Sean Cornell (Juniata College).

Sean Cornell will also lead an associated pre-meeting fieldtrip on Sunday March 13 on the stratigraphy of the Middle and Upper Ordovician Black River and Trenton Groups in the Mohawk and Black River Valleys.

More information at: <http://www.geosociety.org/sectdiv/northe/05nemt.htm>

**Northcentral GSA Sectional Meeting (May 19-20; Minneapolis, Minnesota)** does not have any scheduled sessions dealing directly with Ordovician issues; however there will be two fieldtrips:

*Late Ordovician Stratigraphy and Paleontology of the Twin Cities Basin* (Wednesday May 18) leaders: Robert Sloan (University of Minnesota), Mike Middleton (University of Wisconsin-River Falls) and Gerry Webers (Macalester College)

*Late Ordovician Lithology and Biostratigraphy of the Southern Margin of the Twin Cities Basin* (Saturday May 21) leaders: Robert Sloan (University of Minnesota), Mike Middleton (University of Wisconsin-River Falls) and Gerry Webers (Macalester College)

More information at: <http://www.geosociety.org/sectdiv/Northc/05ncmtg.htm#ft>

**IGCP Project 503--Ordovician Palaeogeography and Palaeoclimate (June 15-18; Milwaukee, Wisconsin)** The second annual IGCP 503 meeting will feature three days of oral and poster presentations at the Milwaukee Public Museum focusing on evolutionary paleoecology and climatology during the Ordovician and Silurian, though workers from all fields of geology are encouraged to contribute papers in their area of specialization.

In addition to the oral and poster sessions, Carlton Brett, Steve Holland, and Patrick McLaughlin will lead a pre-meeting fieldtrip June 11-14 to Upper Ordovician exposures of the Cincinnati region and Toni Simo will lead a mid-meeting field trip (June 16) to the Upper Ordovician of east central Wisconsin.

More Information at: <http://www.mpm.edu/igcp503>



**SYMPOSIUM: "JAWS! FALSE TEETH AND GUMS - WHAT MAKES A VERTEBRATE A VERTEBRATE"**

From 19 to 26 June 2005 at the NAPC in Halifax, Nova Scotia, Sue Turner is organizing a symposium on the topic "Jaws! False teeth and Gums - what makes a vertebrate a vertebrate", which welcomes any Ordovician specialist who has interest in the vertebrate phylogeny debate (see details on NAPC website <http://www.ucmp.berkeley.edu/napc/2005/index.html>; and on David B. Scott's webpage <http://www.dal.ca/~es/napc/napc.htm>).

**"GEOLOGY OF REEFS"**

4-6 July at Syktyvkar will be held the International Symposium "Geology of reefs", with a field trip to the Subpolar Urals, where Ordovician reef will be shown.

ANNA ANTOSHKINA

**"V. V. LAMANSKY SESSION AND FIELD TRIP"**

In the year 2005 there will be 100 years since V.V. Lamansky monograph "Die ältesten silurischen Schichten Russlands (Etage 8). *Mémoires Comité Géologique. Nouvelle Série, Livr. 20, 1-223. St.Petersburg*" was published. The monograph made an epoch in the study of East Baltic Ordovician. To commemorate this event a special session dedicated to V.V. Lamansky will be organized during the 6<sup>th</sup> Baltic Stratigraphic Conference in St. Petersburg, August 22-25, 2005. After the Conference a special 7 days field trip along the Russian and Estonian parts of the Baltic-Ladoga Klint will be organized (August 26 – September 1, 2005). During the field trip all the main outcrops studied by V.V. Lamansky will be demonstrated and recent advances in stratigraphy, sedimentary environments and sea-level changes interpretations in the Varangu-Kunda stratigraphic interval will be discussed.

ANDREI DRONOV AND TÕNU MEIDLA

**CAMBRIAN SUBCOMMISSION**

I am beginning to organize the 2006 meeting of the Cambrian Subcommission. "Albany 2006," is planned for early August 2006. The accompanying field trip, while emphasizing Cambrian stratigraphy, will include unconformable terminal Cambrian–lowest Ordovician contacts in autochthonous and parautochthonous platform successions on the east New York Promontory in New York and Vermont and

conformable contacts in slope and rise successions in the Taconic overthrust belt.

ED LANDING

**WOGOGO**

The Eight Meeting of the Working Group on the Ordovician Geology of Baltoscandia was taken place in Estonia, in May 13-18. The meeting was organised by the Institute of Geology, Tartu University, by the Institute of Geology at Tallinn University of Technology (earlier name in English -Tallinn Technical University) and Geological Survey of Estonia. Altogether more than 60 people attended the meeting and some 40 talks were given on two-days scientific session in the Tartu University Library. During the pre- and post-conference geological excursion 12 geological objects, mainly quarries, were visited. Abstracts of the talks and the descriptions of the geological sections visited can be found by the address <http://www.gi.ee/WOGOGO/> By the same address you can find photos with the geological sections and friends of Ordovician in Estonia.

LINDA HINTS

**ANNOUNCING THE FALL 2005 GREAT LAKES SECTION SEPM (GLS-SEPM) FIELD CONFERENCE:**

Facets of the Ordovician Geology of the Upper Mississippi Valley Region Dates: September 23-25, 2005 Co-Leaders: Greg Ludvigson and Brian Witzke (Iowa Geological Survey and University of Iowa), Norlene Emerson (University of Wisconsin-Richland), and Jeff Dorale (University of Iowa) Conference Headquarters:

The Oaks Steakhouse 1101 Hwy 9 W, Decorah, IA.

Planning for the fall 2005 GLS-SEPM Field Conference on Ordovician geology of the Upper Mississippi Valley is well underway. The event will be headquartered in Decorah, Iowa, where we will be anchored by a small geoscience community centered around Luther College. We will visit a handful of well-exposed sections that display details of the Ordovician stratigraphic record, along with stops illustrating some salient features of the local karst hydrology and records of Quaternary paleoclimatology extracted from spelean carbonates. The field conference guidebook will contain a collection of short research papers by a community of scientists who have been actively researching various facets of the Ordovician geology of the Upper Mississippi Valley region in recent years. This will include exciting information on the newly-emerging record of Ordovician global change.

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For current information on this upcoming event, visit the GLS-SEPM website at: <http://www.isgs.uiuc.edu/gls-sepm/#TOP>

GREG LUDVIGSON

### **PALAEOZOIC ECOSYSTEMS EVOLUTION AND ITS RELEVANCE TO GEOGRAPHIC AND CLIMATIC CHANGES**

The Palaeontological Institute plans to hold in Moscow this international symposium in August, 2006. The symposium will be organized in the framework of the IGCP project 503 and Russian Academy of Sciences program #25 "Biosphere Origin and Evolution". The attention of the participants of the IGCP# 491 and 499 project (Devonian land-seas interaction) will be also attracted.

The symposium will make possible consider various problems of the development of the Palaeozoic terrestrial and marine ecosystems and communities during Palaeozoic.

The Post-conference international excursion to the Ordovician section of the Siberian platform will be organized by the Institute of Petroleum Geology of the Siberian Branch of the Russian Academy of Sciences (Dr. A. Kanygin). The participants will visit the best sections of the Siberian platform Ordovician: The Kulumbe River, the tributary of the Khantayka River (now Khantai water reserve)

The deposits of the Middle and Upper Cambrian, Ordovician, Silurian and Devonian occur in practically uninterrupted section at the Kulumbe River. All facies are carbonate. The Ordovician part of the section is about 6 km long. The fauna is rich and diverse. Bed-by-bed section description and major groups of fauna including Chitinozoa and Acritarcha may be found in the volume "The Ordovician of the Siberian platform. Key section on the Kulumbe River." (Academy of Sci. of the USSR, Siberian Branch, Institute of Geology and Geophysics. Transactions, vol. 506. Moscow, Nauka, 1982. 224 p.). It is possible to visit this section by helicopter from the town of Igarka. Optimal time for the excursion is August, 10-20 (good weather and absence of mosquitoes).

SERGEI V. ROHZNVO

### **ANNOUNCEMENT OF MILWAUKEE MEETING OF IGCP 503 (JUNE 15-18, 2005) AND ASSOCIATED FIELD TRIP IN THE CINCINNATI REGION (JUNE 11-14).**

We cordially invite you to join the Second International Symposium of IGCP project 503 "Ordovician Palaeogeography and Palaeoclimate")

from June 15 to 18, 2005. We will convene at the Milwaukee Public Museum in Milwaukee, Wisconsin. A premeeting field trip will be held in the Cincinnati region from June 11 to 14. <http://www.mpm.edu/igcp503>

IGCP503 is a followup to IGCP410 (The Great Ordovician Biodiversification Event). The project will develop a better understanding of the environmental changes that influenced the biodiversity trends in the Ordovician and Early Silurian. The major objective is to find the possible physical

and/or chemical causes (e.g., related to changes in climate, sea level, volcanism, plate movements, extraterrestrial influences, etc.) of the Ordovician biodiversification, the end-Ordovician extinction, and the Silurian radiation. Further information at: <http://www.pal.uni-erlangen.de/IGCP503>

The Milwaukee meeting is the second of this project, following a successful initial meeting held in Erlangen in September last year. The theme of the meeting will be evolutionary paleoecology and climatology during the Ordovician and Silurian, but workers from all fields of geology during this time interval are encouraged to contribute papers in their area of specialization.

The Cincinnati region field trip (June 11-14) will explore classic exposures of Middle and Upper Ordovician rocks. Space is limited so we encourage early registration.

A one day mid-meeting field trip will examine Ordovician exposures in eastern Wisconsin. Abstracts and registration are due by April 30. Please see the Milwaukee meeting web site at: <http://www.mpm.edu/igcp503>

PLEASE NOTE: International visitors requiring visas to enter the USA are encouraged to apply for the visas as early as possible.

Scheduled meetings of IGCP 503: September 2004, official opening meeting at Erlangen, Germany: ocean and climate modelling, and the development of stable C- and O-isotopes; field meeting S-Sweden (Fgelsng, land, Gotland); proceedings volume pdf files are at: <http://www.pal.uni-erlangen.de/IGCP503/page/proceedings.html> 2005, meeting at Milwaukee, Wisconsin, USA: evolutionary palaeoecology, onshore-offshore transects (<http://www.mpm.edu/igcp503>). 2006, meeting at Glasgow, Scotland, UK: changing palaeogeographical and palaeobiogeographical patterns. 2007, 10th International Symposium of the Ordovician System at Nanjing: geological events and the stratigraphical framework. 2008, closing meeting at Lille, France: reconstruction of sea-level fluctuations and final synthesis. Thanks very much,

PETER SHEEHAN

## PROJECTS

### **CORRELATION OF THE PALAEOZOIC TERRANES IN BULGARIA AND NW TURKEY: IMPLICATIONS FOR THE TECTONIC-PALAEOGEOGRAPHIC EVOLUTION OF NW GONDWANA**

A 2003-2004 project between TUBITAK and Bulgarian Academy of Science with leaders: Prof. Dr. M. Cemal Goncuoglu (Middle East Technical University, Department of Geological Engineering) and Prof. Dr. Slavcho Yanev (Bulgarian Academy of Sciences, Geological Institute).

VALERI SACHANSKI

## SCIENTIFIC REPORTS

### **THE ORDOVICIAN PHENOMENON OF EXPLOSIVE DIVERGENCE OF THE EARTH'S ORGANIC REALM: CAUSES AND EFFECTS ON THE BIOSPHERE EVOLUTION**

The evolution of biosphere could be presented as the following processes: (1) emergence of new ecologically specialized groups (guilds), providing a more efficient use, transfer, and transformation of matter and energy in ecosystems; (2) spatial expansion of life throughout the Earth (gradual transition of the biosphere from discrete to continual on exploration of new bionomic zones and biotopes; (3) complication of the trophic structure of ecosystems (from simple Archean autotrophic-heterotrophic procaryotic systems to the modern global ecosystem); (4) variations in the spatial and energetic indices of biogeochemical cycles. In this context, the Ordovician can be regarded as one of the greatest critical stages in the biosphere evolution. In the Ordovician, the emergence of new taxa (ecologic guilds) with better trophic adaptability in benthic associations and settling of pelagic zones in euphotic sea areas resulted in dramatic changes in marine ecosystems, which predetermined further evolution of marine biotas. The chief evolutionary strategy of Precambrian marine organisms was to improve adaptation to physicochemical environmental settings by complication of biological organization and separation of metabolic and reproductive functions within a body. In the Early Cambrian, main phyla of marine invertebrates emerged, and multistage trophic relationships between autotrophs and heterotrophs, with division of ecologic functions, began to form. Adaptation to the biotic environment became as evolutionarily important as adaptation to abiotic conditions. Starling in the Ordovician, the ecologic mechanisms of organism interaction became the key

factor of the evolutionary strategy in biota associations owing to the gradual stabilization of the abiotic indices in sea basins.

New edificator groups first appeared in abundance in the Ordovician and reached their acme in the Middle Ordovician: articulate brachiopods and sessile colonial (tabulates, tetracorals, heliolitoids, and stromatoporoids), aggregated (crinoids), and colonial-aggregated (bryozoans) filter-feeding organisms with carcass skeletons. This resulted in a breakdown of biotopes and complication and heterogeneity of food webs. The lowest trophic level was dominated by ostracodes, first small hydrobiontic universal eaters simultaneously belonging to several trophic levels and capable of a deeper transformation of organic matter. In the Ordovician, the pelagic zone became a constant rather than a facultative, as before, habitat for zooplanktonic and nektonic organisms: graptolites, radiolarians, conodontoforids, nautiloids, meroplankton (mainly larvae of colonial organisms and brachiopods), pelagic trilobites, ostracodes, and early primitive fishes. In the Ordovician, a spatial rearrangement of the lowest trophic level — major producers — took place. This had a dramatic effect on the stage and lateral structure of trophic chains. Until the early Middle Ordovician, bottom cyanobacterial associations, or meadows, were widespread in Late Precambrian and Early Paleozoic epicontinental seas and were main photosynthesizing producers. At the Early-Middle Ordovician boundary, the areas of these meadows decreased, and phytoplankton, became the main producer. The global ecologic event was accompanied by the greatest (in the Phanerozoic) burst of the diversity of Ordovician marine biotas followed by rapid stabilization. Later the stability was maintained by a phylogenetic succession of ecologically equivalent taxa supplemented by replacement of some ecologic guilds at critical borderlines.

Thus, in the Ordovician, marine ecosystems became multistage, their trophic structure became more complex, and a global closed biogeochemical cycle formed for the first time throughout the sea area. The Ordovician global, biotic events matched large-scale geologic events (abrupt climatic changes, maximum range of transgressions and regressions of epicontinental seas, changes in Mg and Ca balance in marine sediments, increase in the content of oxygen in the Earth's atmosphere and hydrosphere, and formation of the ozone screen). It is supposed that the appearance of the ozone screen and increase in the content of oxygen in sea water had a determining impact on the settling of the pelagic zone by heterotrophs and formation of coherent (ecologically complete) benthic ecosystems. At the initial metastable stage of development of the ozone screen, dramatic fluctuations of biodiversity in bottom and pelagic associations were determined by profound changes in spatial parameters of sea shelves, the main

habitat of life, which were caused by eustatic fluctuations of the World Ocean level. The Late Ordovician extinction of marine biotas resulted from an abrupt shrinkage of the shelf habitat caused by a lowering of the World Ocean, which, in turn, resulted from the fixation of great volumes of water in continental glaciers after the Ordovician transgression maximum.

A. V. KANYGIN

## HONORARY NOTES

### REUBEN ROSS, A 'GARRULOUS PERFECTIONIST'

No one laughed louder, cursed and grumbled with more gusto, built sailboats better, endeared himself so thoroughly to so many, or knew more about the Ordovician Period than Reuben J. Ross.

Which is why his death March 29 at the age of 86 was both the end of a life and a phenomenon.

A paleontologist of international renown, Mr. Ross was "a garrulous perfectionist, to whom nothing is more important than accuracy and clarity of thought and expression . . . a dogged, combative, imaginative and inordinately kind person."

At least that's how professor Noel P. James, a friend and colleague, described him on the occasion of Mr. Ross winning the Raymond C. Moore Medal for Excellence in Paleontology.

The award was largely a paean to Mr. Ross' mastery of the Ordovician Period, the time between 488 million and 444 million years ago when there was no life on land and western North America was covered by shallow seas that would eventually recede and lay bare the Great Basin, which stretches across Nevada and western Utah.

"Rube knew the Great Basin like the back of his hand - and he knew more than anyone else in the world about what went on in the world at that time; he was a font of information about the rocks and fossils of the Ordovician Period," said Kirk Johnson, the chief curator of the Department of Earth Sciences at the Denver Museum of Nature and Science, where Mr. Ross served as a research associate for 15 years.

It was his love of the outdoors that initially led Mr. Ross to the field of geology, and it was what kept him going well into his senior citizen years.

In 1992, when he was 74, he and Johnson went on an expedition to collect fossils in the Great Basin. Despite the intense heat of the Nevada summer, Johnson remembered how "Rube would be storming to the top of the mountains ahead of everybody. He was like a mountain goat, just really vigorous."

But it wasn't just the exhilaration of being outside that lay behind Mr. Ross' devotion to fossils.

"Rube wasn't a theorist," Johnson said. "What he said was based on the facts of the Earth. When he said something it was based on a huge well of data. He was someone who contributed a lot to the factual understanding of how we know how the world works."

But it wasn't just his scholarship that set Mr. Ross apart. To Johnson, his friend and mentor was a "character," a man with a "quick temper" who "never pulled his punches."

"He had a real strong personality, always cursing and storming around and making his opinions well-known. He was always complaining about something," said Johnson, laughing as he added, "Rube was a guy with a heart of gold, but it was covered with a really nice crusty surface."

Nobody knew the surface - or the bubbly core - better than family.

"He was a man of superlatives, of extremes," said Alison Hess, one of Mr. Ross' four children, at the funeral this month.

"He loved to laugh," said Hess, who recalled her father as someone who "delightedly would play tennis with me, taught us to sail, and never turned down a game of Parcheesi."

His other trademarks?

"He loved single malt Scotch whiskey. He loved the stories of Rudyard Kipling and would read them to us when we were sick. He loved traditions; for instance, every Christmas Eve he would read Dickens' A Christmas Carol," Hess said.

She also noted how her father was a "prolific builder of sailboats" and how he reveled in sailing them on Bowles Lake in Jefferson County.

Born in New York City of New England parents, Mr. Ross was educated at Princeton and Yale. After he returned from military duty in World War II, he joined the faculty of Wesleyan University before moving to Colorado to work for the U.S. Geological Survey.

In 1989, Mr. Ross suffered a heart attack and underwent successful bypass surgery. Undaunted, he persevered. Four years later, when his wife, Elizabeth Fabian Ross - who was known affectionately as "Jill" - died, Mr. Ross grieved, then moved on, eventually finding happiness with Ruth Grier.

By 1996, his health began to plummet. He suffered the first of what would be a series of small strokes. Although, Hess said, "he had a sharp mind long after the rest of his body had begun to fail," his physical health continued in a downward spiral. While the official cause of death was listed as heart disease, his family knew the real cause. "My father died of old age," Hess said. "His body basically gave out."

For those wishing to honor his memory, the family requests that contributions be made to the Denver Museum of Nature and Science, Paleontology Department. In addition to Grier, Mr. Ross is

survived by one son, Jamie Ross; three daughters, Betsy Wahlberg, Deedee Ross and Alison (Richard) Hess; and six grandchildren.

No doubt all would agree with Johnson who, with a laugh, called his friend, "A real gem, clearly a gem in the rough, but a real gem nevertheless."

After a pause, Johnson added, "It will take geologic time for me to process his passing."

Perhaps almost as long as the Ordovician Period.

JAMES B. MEADOW, ROCKY MOUNTAIN NEWS

APRIL 14, 2005

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## MISCELLANEA

### NEWS

The first occurrence of a class in the geologic record is a data point of interest. The living molluscan Class Scaphopoda has been reported to first occur in the Ordovician. In a 2004 publication, E. Yochelson refuted that view and suggested that the first authentic scaphopods occur in the Early Carboniferous.

## CURRENT RESEARCH

**AINSAAR, LEHO (Estonia).** I continue working on sedimentology and stable isotope geology and basin analysis of Lower Palaeozoic carbonates in Baltoscandia (with Tõnu Meidla, Andrei Dronov, Tõnu Martma and Oive Tinn). Together with Mark T. Harris, Peter Sheehan, Linda Hints, Jaak Nõlvak, Peep Männik and Madis Rubel we continue a comparative study on Baltoscandian and Great Basin Upper Ordovician-Silurian carbonate platform sequence stratigraphy.

**ALBANESI, GUILLERMO L. (Argentina).** I continue working on diverse projects regarding Lower Paleozoic conodont faunas from northwest Argentine basins. An integrated conodont-graptolite biostratigraphic chart is being assembled for the Ordovician and Silurian Systems of Argentina. I am cooperating with colleagues from universities of Argentina, Spain, UK, USA, and Canada, on related topics of historical geology and paleontology from the Lower Paleozoic. Likewise, together with several co-authors, we are preparing a final proposal on a global stratotype for the base of the Middle Ordovician Series in the Argentine Precordillera. A new project on high resolution biostratigraphy, sequence stratigraphy, events, and paleothermometry on the Lower Paleozoic of the Eastern Cordillera, NW Argentina, is going to begin current year, participating colleagues from different universities, as well as graduate students.

**ALDRIDGE, RICHARD J. (U.K.).** My Ordovician activity continues to centre on the Soom Shale of South Africa. A paper on bromalites (coprolites and

similar items) from the Soom has been submitted (with Sarah Gabbott, Lucy Siveter and Hannes Theron), and a manuscript on a naked agnathan progresses. I expect to develop work on new conodont apparatuses from the Soom Shale over the next few months. I have also re-invigorated a study with Paul Smith of conodonts from a sample collected by Richard Fortey from the Hanadir Shale of Saudi Arabia.

**ANTOSHKINA, ANNA (Russia).** I am working on the palaeology, sedimentology and palaeogeography of the Palaeozoic reefs of the Urals and on the problem of the Ordovician-Silurian boundary of the Timan-northern Ural region.

**ARMSTRONG, HOWARD A. (U.K.).** I'm actively working on the origin and radiation of Panderodus a major pelagic zone euconodont clade, hopefully to be presented at IGCP 503, Milwaukee. Work has just started with Alan Owen, Tom Challands (graduate student) and the BGS on the tectonic and climatic controls on sedimentation and faunas in the Ordovician of eastern Avalonia.

**ASTINI, RICARDO A. (Argentina).** I continue to work on the Ordovician architecture and evolution of the sedimentary basins along the proto-Andean margin of Southern South America with particular interests in comparing patterns in the allochthonous Precordillera basin of western Argentina and the northern autochthonous Central Andean Basins. Emphasis has also been set in the understanding of the Famatina volcanic arc. In this topic I continue to collaborate with numerous biostratigraphers and structural geologists and have now various students in different lines of research within the Basins Analysis Laboratory at the Catedra de Estratigrafía y Geología Histórica at the Universidad Nacional de Córdoba. We are also leading a field trip through the Precordillera basin to show aspects, among others of Ordovician Geology, in the next 12 Gondwana meeting to be held in Mendoza, Argentina.

**BAGNOLI, GABRIELLA (Italy).** I am actively working in cooperation with R. Albani and C. Ribecai on taxonomy and palaeobiogeography of acritarchs, chitinozoans, and conodonts from the Ordovician successions of Spain and the island of Oeland (Sweden). Spain - Research continues on Cambrian and Ordovician successions of Laviana and Rioseco thrust sheets, Cantabrian Zone, northern Spain. Oeland - Taxonomical studies of acritarchs and chitinozoans across the Volkhov/Kunda boundary are in progress. The succession of palynomorphs species is compared with available data on conodont biostratigraphy and biofacies, and sea-level changes.

**BARNES, CHRIS (Canada).** Extensive field-based Lower Paleozoic stratigraphic and conodont studies in the Canadian Cordillera have produced a series of papers with Leanne Pyle, some in press. They involve four detailed platform to basin transects that have

been sampled in the southern, central and northern Rocky Mountains. Work with Shunxin Zhang is using my extensive conodont database to relate conodont biostratigraphy, biofacies and biogeography to the pattern of eustasy and tectonism that affected northern Laurentia in the early Paleozoic. Several joint papers have appeared recently with others in press which deal with Ordovician (and Silurian) conodont taxonomy, evolution, paleoecology, cladistic analyses and the response of the conodont communities to eustatic change. Other papers in press include one on Late Ordovician conodonts from the Mithaka Formation, Georgina Basin, Australia (with Tyler Kuhn) and one on Cambro-Ordovician conodonts from the Famatina Terrane, Argentina (with Guillermo Albanesi and Mario Hunicken). The geochemistry of conodonts is being pursued further in collaboration with Julie Trotter (Australian National University and CSIRO). Other work nearing completion includes: Ashgill-Wenlock conodonts from the Canadian Arctic with David Jowett, and Ashgill conodonts from the Whitland section, South Wales with Annalisa Ferretti.

**BENEDETTO, JUAN L. (Argentina).** A study of upper Cambrian and Tremadoc rhynchonelliform brachiopods from the northwestern Argentina basin has been completed and submitted for publication. The succession of taxa along the phylogenetic lineages recognized in this work is being investigated in order to refine the biostratigraphic schema of the early Ordovician succession of the Central Andean basin. I'm continuing work on the lower Llanvirn brachiopods from the top of the San Juan Formation, which include a varied open-shelf fauna dominated by plectambonitoids. With members of the 'Centro de Investigaciones Paleobiológicas -CIPAL' we are continuing the project on the study of the Ordovician radiation in the Gondwana basins in comparison with global trends (for more information see our CIPAL website [www.cipal-unc.com.ar](http://www.cipal-unc.com.ar)). Particular interest is being devoted to the early diversification and phylogeny of orthoids and plectorthoids, and their implications on the taxonomy of basal rhynchonelliformean brachiopods.

**BERESI, MATILDE SYLVIA (Argentina).** I am currently working on Ordovician biostratigraphy from Province of Mendoza (Argentina) with Susana Heredia (conodonts) in the Ponón Trehue area, San Rafael block, and in the olistostromic and siliciclastic sequences of San Isidro area, Precordillera of Mendoza. Also I am working on stratigraphy, microfacies, paleoenvironments and precise correlations of the Las Chacritas Formation (Middle Ordovician) and of the San Juan Formation (Lower Ordovician), Villicum Range, Precordillera of San Juan, with colleagues of the San Juan University. I go on working with B. Frey in the Ordovician nautiloid fauna from the Argentine Precordillera."

**BERGSTROM, STIG M. (USA).** 2004 was my first year in retirement and I enjoyed greatly being able to do research full-time. Most of my work has been on aspects of  $^{13}\text{C}$  chemostratigraphy but I have also been doing some research on conodonts, graptolites, and Cambrian to Silurian biostratigraphy in North America, northern Europe, and China. I had 10 papers and 11 abstracts published in 2004 so in terms of publications, it was a very good year. Several other studies are close to completion and five papers are in press. New projects have yielded some highly significant results so I expect to be busy for the foreseeable future.

**BLIECK, ALAIN (France).** I am presently involved in both the IGCP project 503 « Ordovician palaeogeography and palaeoclimate » [co-leaders : T. Servais (Lille, France), D.A.T. Harper (Copenhagen, Denmark), J. Li (Nanjing, China), A. Munnecke (Erlangen, Germany), A.W. Owen (Glasgow, UK) and P.M. Sheehan (Milwaukee, USA)], and the French national programme ECLIPSE II, project « Glaciations et Crises biologiques : exemple de l'épisode fini-ordovicien / Glaciations and biological crises : the case of the end-Ordovician event » [leader : J.-F. Ghienne, Univ. Strasbourg, France]. In both cases, I will contribute about vertebrates.

**BRETT, CARLTON (USA).** During 2003-2004 research on Ordovician sequence stratigraphy, supported by an ACS-PRF grant to myself and two PhD students, Patrick McLaughlin and Sean Cornell involved development of a comprehensive dataset of correlated cross-sections of Upper Ordovician (Mohawkian: ~460-450 My) successions in three regions of eastern North America. In total, over 3,000 m of core and ~2,500 m of outcrop section have been logged. Sections and cores have been documented photographically to serve as the basis of database on Ordovician outcrop and sub-crop sections in eastern Laurentia.

A number of significant findings have resulted from our research to date. Preliminary results are presented in papers by Brett et al. (2004) and McLaughlin et al. (2004); the salient conclusions are summarized below.

The Mohawkian interval of the Cincinnati Arch region is divisible into a total of six third-order composite depositional sequences and nearly 20 fourth-order sequences, all of which appear to have correlative sequences in the Trenton-Utica interval in the Appalachian Basin (Brett et al., 2004). Detailed similarities exist within the shallow shelf to ramp facies of these sequences in both areas suggesting widespread allocyclic processes, primarily eustasy, were involved in formation of these sequences. Fingerprinting of K-bentonite samples obtained from about ten levels in all areas is underway to test the correlations based on pattern matching and general biostratigraphy."

High resolution correlations enabled us to construct a series of cross sections that highlight regional patterns of basin dynamics. For example, in New York State we recognize a pattern of southeastward shift of depocenters and relative highs within the Black River to lower Trenton interval, followed by westward migration in the upper Trenton. This pattern appears to reflect foreland basin initiation followed by basin moveout during westward thrusting of the Taconic allochthonous slices (Cornell et al., 2003; Cornell and Brett, 2003).

Another PhD student, Brian Kirchner, and I are working on detailed studies of meter-scale cycles in the Upper Ordovician Kope Formation in northern Kentucky and southern Ohio. We have been able to correlate these cycles and a series of distinctive event beds and faunal epiboles into the subsurface and document regional patterns of change within very high-resolution time-slices. Faunal, taphonomic, and sedimentological evidence indicates, in contrast to earlier models, that the shell-rich limestones do not simply reflect episodes of storm wave winnowing, but rather are condensed deposits recording skeletal buildup during intervals of basin-wide sediment starvation of several thousand year durations.

Work with former masters student Russell Kohrs, in conjunction with Dr. Neal O'Brien (SUNY Potsdam) has been directed toward examining microstratigraphy and microfabrics of background and obrution mudstone beds (rapidly buried horizons with spectacular fossil preservation) in the Kope Formation. We have found two distinct types of microfabrics that appear to be associated with deposition of silty mud turbidites and of pure clay floccules from suspension, perhaps as density cascades from detached flows. We are exploring the consequences of these two distinct processes for fossil bed preservation and geographic extent.

We have also undertaken a new approach to correlation, utilizing high-resolution magnetic susceptibility and event stratigraphy (MSEC). In cooperation with Brooks Ellwood (Louisiana State University) we have begun a detailed and comprehensive program of sampling (at 10 cm intervals) of reference sections of the Upper Ordovician of the Cincinnati Arch region. Comparison of profiles developed for independently correlated sections separated by 15 km show that nearly identical patterns are produced in each case. Thus, this technique can be used for high-resolution correlations. Moreover, spectral analysis of MSEC profiles is being undertaken to test for patterns of high-order cyclicity in Mohawkian-Cincinnatian strata.

Finally, one further result of detailed analysis of these Upper Ordovician sequences is the development of a revised model of sequence stratigraphy in mixed siliciclastic-carbonate facies. Aspects of the late transgressive systems tract and the late highstand (regressive) systems tracts, and their bounding

surfaces, require revision and reinterpretation. We are presently preparing two reports outlining these revisions.

**BRUSSA, EDESEL (Argentina).** I am actively working on the Ordovician and Silurian graptolites from the Precordillera and Northwestern Argentina. I am also working with Chuck Mitchell and Jörg Maletz on the Ordovician graptolites from Bolivia and Peru. I have just finished with Blanca Toro the re-examination of the published specimens of the Rusconi collection of the Empozada Formation from the museum of Mendoza.

**BUATOIS, LUIS A. (Argentina).** At present, I am interested on paleoenvironmental and sequence stratigraphic aspects of lower Paleozoic clastic deposits of northwest Argentina. Emphasis is on the integration of sedimentologic and biostratigraphic data within a sequence stratigraphic framework in an attempt to provide a more accurate stratigraphic picture of Cambrian-Ordovician units in northwest Argentina. Additionally, I am collaborating Gabriela Mángano in her studies of lower Paleozoic ichnofaunas. Gabriela and I have recently moved to Canada to join the University of Saskatchewan where we are starting new projects on Ordovician topics.

**BUDIL, PETR (Czech Republic).** In 2004, I finished (with Jana Bruthansova) the analysis of the exuviation in Ordovician dalmanitids and acastids of the Prague Basin, which is now in print in *Geologica Acta* (Budil and Bruthansova 2005). I am also finally finishing works on the revised manuscript of revision of these two families (this revision I finished already in 2002 but in huge extent as Ph.D. thesis) and I would like to submit it into the *Transactions of the Royal Society of Edinburgh*. During 2004, I studied plenty of temporarily outcrops of the Ordovician rocks in the Prague, the description of some is prepared together with Petr Kraft and Pavel Rohlich. Short discussion of the changes in molting of trilobites during the ontogeny (including Ordovician forms) I presented during the Czech and Slovakian Palaeontological Conference in Bratislava. With Olda Fatka and Jana Bruthansova, we prepare the study of exuviations and taphonomy of the Bohemian Cambrian and Ordovician agnostid trilobites. With Olda Fatka and Jiri Fryda (as invited editors), we compiled the Volume 3-4/2004 of the *Journal of the Czech Geological Society*. I also participated more than two months on the geological mapping of the Mongolian Altai (including Ordovician, but metamorphosed rocks). However, my main scientific activities in 2004 were focused on systematic study of the Lower Devonian; odontochiliniid; trilobites of the Prague Basin. In 2004, I published also short description of the new phacopid trilobite from the Lower Devonian of the Barrandian area. An extensive; Virtual museum of the Czech Geological Survey; with on-line accessible palaeontological

collections databases and photos of the most important specimens I built at [www.geology.cz](http://www.geology.cz).

**CARRERA, MARCELO G. (Argentina).** I'm continuous working on the Ordovician sponges and bryozoans from Western Argentina. Global diversification of sponges was the most important project in the last three years and results have been published in the Columbia University Press volume related to the Ordovician Radiation. I'm also interested in the paleoecological aspects of the Ordovician biota from the Argentine Precordillera, including reef related organisms.

**CHEN, XU (China).** I am actively working on Ordovician-Silurian transition strata and graptolites. It includes the Hirnantian GSSP, latest Ordovician to earliest Silurian graptolite taxonomy and extinction-recovery-radiation events. From 2005, I am working on Darriwilian to "Caradocian" graptolites from Tarim, Western North China and Yangtze region. My co-workers include Zhang Yuandong, Fan Juanxian, Mike Melchin, Dan Goldman and Stan Finney. On the other hand, I am also working with Stig Bergstrom, Warren Huff, and M. Saltzman on Ordovician conodont bearing strata and isotope analysis. I have invited Stig for a short field work in Guizhou and Anhui in April, 2004.

Dan Goldman is invited to visit Nanjing and work with me on the Darriwilian-"Caradocian" graptolites from April to May, 2005. I am planning to participate the coming 503 Project conference in Milwaukee in June. Will work with Art Boucot to complete editing of our Climate Book in Corvallis as well. Will participate the ICS meeting in Belgium in September. I am also try to apply a traveling support for a short visit to Bohemia for the O-S sections and then visit Poland afterwards in September.

**CHOI, DUCK K. (Korea).** I have been mainly working on the Cambrian-Ordovician trilobites of Korea. During the last couple of years, we also have been deeply engaged in studying newly discovered stylophorans of Korea, which are frequently associated with trilobites in the interval across the Cambrian-Ordovician boundary. In addition, we are trying to expand our research area into North China which shows a close biogeographic link with Korean peninsula during the early Paleozoic times. Last year we made a couple of field trips to Shandong area for reconnaissance survey.

**CINGOLANI, CARLOS (Argentina).** Report of activities: I am actively working on the provenance and tectonic setting evolution of the Early Paleozoic siliciclastic sediments from Argentine Precordillera Terrane. New geochemical, isotopical and geochronological data were obtained. In collaboration with A. Rapalini we finished a work on the Late Ordovician paleomagnetic pole for the Pavón Formation (San Rafael Block). A PhD student were co-orientated on microprobe, SEM, CL, heavy minerals studies, and U-Pb and Sm-Nd

geochronological data on Ordovician sediments from several sections from the Argentine Precordillera Terrane. We start geochemical studies on detrital chromian-spinels of the Caradoc sediments as an important provenance indicator of mafic and ultramafic rocks.

**COCKS, L. ROBIN M. (U.K.).** The Natural History Museum, London. 2004 has been a busy year, finishing and submitting systematic papers, both now accepted on the strophomenid brachiopods of the mid-Ashgill Boda Limestone of Sweden, and (with Leonid Popov) on the late Caradoc brachiopods of the Dulankara Formation of the Chu-Ili terrane, Kazakhstan. Papers were also submitted (with Richard Fortey) and accepted on the mid-Ashgill Boda Global Warming Event and a small review of the European faunas which affected the Caledonide Orogeny, and (with Trond Torsvik) on the history and palaeogeography of Baltica as a separate terrane from the Precambrian until the Silurian. The Strophomenoidea and Plectambonitoidea Addenda, some 57 genera, mostly Ordovician, for the Treatise on Invertebrate Palaeontology brachiopod volumes were also submitted. Much time was spent on editing (with Dick Selley) The Encyclopedia of Geology, published in five volumes by Elsevier early in 2005. Work also started with Trond Torsvik on a Precambrian to Palaeozoic review of Siberia and with Cees Van Staal on the tectonics and faunas of the northern Appalachians from the Cambrian to the Devonian. Lectures, chiefly on palaeogeography, were given at the meetings at Uppsala, Tallinn, Erlangen and also in Britain.

**COOPER, ROGER (New Zealand).** Research underway with Pete Sadler on the Ordovician timescale (methodology and development) and its application in macroevolutionary studies, revision of the Cambrian timescale (with John Shergold) and Silurian (with Pete Sadler and Mike Melchin), as well as Ordovician (with Pete Sadler) for the new Cambridge U.P. book (Gradstein et al., due out in February). Revision of the New Zealand Geological Timescale (published December 2004).

**COPE, JOHN C.W. (UK).** I have several Jurassic projects to complete which are competing with time on Ordovician bivalves, but I am in the process of describing Ordovician bivalves from Iran and hope to start description of some early Arenig, monoplacophorans from Wales.

**DAHLQVIST, PETER (Sweden).** I am working on the Late Ordovician - Early Silurian sedimentary succession in Jämtland, central Sweden. The main focus is sedimentology but the study also incorporates work on biostratigraphy, correlation, biofacies, and provenance studies.

**DÍAZ-MARTÍNEZ, ENRIQUE (Spain).** I am currently working on the evidence for the Paleozoic glaciations in Spain and in the Central Andes (mostly Peru and Bolivia). The evidence we keep finding



in western Gondwana (South America) points to an Early Silurian (and not late Ordovician) glaciation of this area.

**DORNING, KEN J. (UK).** I'm continuing to work on Palaeozoic acritarchs, other phytoplankton, chitinozoans, palynology and stratigraphy, as a consultant trading as Pallab Research and academic research at the University of Sheffield, England. Current work includes investigations on the acritarch abundance within the late Cambrian to Tremadoc (Tremadocian) sections in Shropshire and Wiltshire, England, where exceptional abundances of up to 550,000 acritarchs per gram are recorded, with initial results presented to the phytoPal meeting in December 2004. The Ordovician acritarch and chitinozoan biozones together with biohorizons are being reviewed for the palynological reference sections in the Tremadoc, Arenig, Llanvirn, Llandeilo, Caradoc and Ashgill from the British Isles, with the aim to provide correlation with the proposed global standard stratotype sections. Identification and correlation of the base of the *Helosphaeridium citrinipeltatum* acritarch biozone in the late Hirnantian is important for recognising post late Ordovician glacial sedimentary sequences. I have spent some time pulling together data for the phytoPal project, funded by the Leverhulme Trust: a listing of Palaeozoic phytoplankton (acritarchs and prasinophycean algae) references compiled by Gary Mullins (Leicester) is now online. In my capacity as president of the Chitinozoan Subcommittee, the CIMP webpages have been updated <http://www.shef.ac.uk/~cidmdp/cimpsubc.html>, the Chitinozoan Newsletter edited with Gary Mullins: <http://www.shef.ac.uk/~cidmdp/archnews.html>

I have prepared a report on the activities of the Acritarch Classification Working Group for 2004 for the Acritarch Newsletter, including the latest acritarch classification groupings [www.shef.ac.uk/~cidmdp/cimpsuba.html](http://www.shef.ac.uk/~cidmdp/cimpsuba.html)

**FAN, JUNXUAN (China).** I am working on the following aspects: 1) the Late Ordovician graptolite extinction event and succeeding survival and recovery in South China which is financially supported by the Natural Science Foundation of China. Some new collections have been made from South China in 2004. My colleagues and I will finish do some additional field work in 2005 in South China. 2) cladistic study on the DDO and N fauna during the Ordovician and Silurian transition. 3) the palaeontological and stratigraphical database of South China which is supported by the Chinese Academy of China. I am also working with Dan Goldman on the biogeographical database for the third-edition graptolite treatise. 4) manage the new websites for the Ordovician Subcommittee (ISOS) and Silurian Subcommittee (ISSS).

**KEY, MARCUS (USA).** I'm actively working on stable C and O isotopes in Ordovician bryozoans from

Estonia and Ireland to determine paleoenvironmental and diagenetic histories of the rocks. This work is with Patrick Wyse Jackson (Trinity College, Dublin, Ireland), William Patterson (University of Saskatchewan, Canada), Andrej Ernst (Kiel University, Germany), and Linda Hints (Tallin Technical University, Estonia). It is being funded by the Petroleum Research Fund.

**KRAFT, JAROSLAV (Czech Republic).** I continue studies on Ordovician graptolites and stratigraphy, especially in the Bohemian Ordovician. I participated in the project supported by Grant Agency of the Czech Republic on comprehensive study of the Klabava Formation (?Tremadocian-Arenigian).

**KRAFT, PETR (Czech Republic).** I continue in studies of Ordovician stratigraphy, graptolites and other fossils, especially from Bohemian Ordovician. In 2004 the project (Grant Agency of the Czech Republic) on comprehensive study of the Klabava Formation (?Tremadocian-Arenigian) was finished. Its results has brought new view to stratigraphy and development of the Prague Basin during Lower and Middle Ordovician. These research has been used in the subsequent studies on history of the Prague Basin (project of Czech Academy of Sciences) which is a part if the IGCP project no. 497. The study of *Sphenothallus* and similar forms is in stage of data summarizing (project of Grant Agency of the Czech Republic). I continued a study on palaeoscolecidans together with Oli Lehnert. New approach of classification of this group is tested.

**FINNEY, STAN (USA).** In August 2004 at the 23rd IGC in Florence, my two terms (8 years) as Subcommittee Chair ended. At first, I was nostalgic. I enjoyed leading the Subcommittee, and I missed the role very much. Now, however, I am very happy that Chen Xu has ably taken over the leadership. I have moved on to other projects, although I have been reviewing GSSP proposals (Wangjiawan North, and Black Knob Ridge). This makes more work for the authors of the proposals, but, I hope, the revisions will ensure that the proposals meet with minimal objection and full approve when submitted to votes by ICS.

I am organizing the 3rd ICS workshop on "Future Directions of ICS", which will take place in Leuven, Belgium in September 2005. Participants will be the chairs of all ICS subcommissions. ICS had a very strong presence at the 32nd IGC in Florence with many workshops and symposium sessions sponsored by the executive and the many subcommissions. Considerable progress is being made on selection of GSSPs for stages for all systems, and the new Geological Time Scale is nearing completion. I encourage you to visit the ICS website at [stratigraphy.com](http://stratigraphy.com) to view it yourself. With Chris Barnes and Bill Berry, I convened a symposium at IGC that was sponsored by the Ordovician Subcommittee. It was titled "Global Ordovician

Earth System". Many of the papers presented in the session and many others subsequently recruited are now being prepared for a Special Publication of the Geological Society of America.

I continue with my work on the provenance of siliciclastic sediments in the Cambro-Ordovician stratigraphic succession of the Argentine Precordillera in collaboration with Silvio Peralta in San Juan and with colleagues with special expertise in U-Pb geochronology, Nd-Pb isotope geochemistry, and sandstone petrography. A paper on Middle Cambrian sandstones is in press with *Acta Geologica* and will appear in 2005. Two other papers are in preparation.

As usual, I will be in north-central Nevada this summer, mapping the Vinini Formation and related rocks of the Roberts Mountains allochthon and starting a new project with Chuck Mitchell and many others on the Late Ordovician graptolite extinction. Of course, I have a backlog of many papers that need to be written. I hope to complete a few of them this coming year.

**FRISK, ÅSA (Sweden).** I am working on my PhD and the primary objective of my research is to identify faunal recovery patterns after bolide impacts in the Ordovician Baltoscandian epicontinental sea, with emphasis on successions in the Lockne and Tvären craters (Sweden). By recognizing how the abundance of species changed in relation to the varied environments we will be able to reconstruct how the pre-impact faunal groups recovered gradually as life returned onto the sterile seafloor. The project deals with taxonomy and biostratigraphy of the post-impact Dalby Limestone, reconstructing the Ordovician ecosystem in the crater as well as working with facies associated with deposition in the crater. This project is a collaboration with Lars Holmer (Uppsala University), Maurits Lindström (Stockholm University) and Jan Ove Ebbestad (Uppsala University). Further I am working on trilobites from Kazakhstan and The Bjørkåsholmen Formation, trilobites and stratigraphy (with Jan Ove Ebbestad and Lars Holmer).

**GANIS, G. ROBERT (USA).** Presently I am teaching adjunct at Millersville University, Pennsylvania and also continue consulting. Graptolite work has slowed, but I expect to continue activity in the Martinsburg Formation of Pennsylvania this summer. I have several publications accepted for 2005; details next volume.

**GHOBADI POUR, MANSOUREH (Iran).** I am actively working on the Lower to Middle Ordovician trilobites and biostratigraphy of Iran. Extensive new collections from the Lashkarak Formation, eastern Alborz Mountains and from the Shirgesht Formation, eastern Central Iran form the basis for the taxonomic relationships, stratigraphical distribution and characters of faunal replacement through the Ordovician sequences in various part of Iran, biofacies

and biostratigraphical analysis, long range correlations of Iranian Lower to Middle Ordovician sequences and paleobiogeographical affinities of Early to Middle Ordovician trilobites of Iran. 33 species from 24 genera of Ordovician trilobites are identified and documented from the studied sections. Stratigraphical and geographical variations in taxonomic compositions of the assemblages used for reconstruction of the sequence of depth related biofacies characteristic of the shelf of the Alborz and Central Iran terranes. Numerous occurrences of conodonts recovered for the first time from the upper Tremadocian to lower Darriwilian part of the Lashkarak Formation provide a good biostratigraphical framework for an accurate dating of the observed faunal and environmental changes. It was confirmed that the base of Ordovician in the eastern Alborz Mountains situated closely to the base of the Lashkarak Formation below the first appearance of *Asaphellus-Dactylocephalus* Association. The position of the Cambrian-Ordovician boundary in the Shirgesht section is less well constrained but it must be within the lower part of the formation. In general Early to Middle Ordovician trilobite faunas of Iran show closest similarity to the contemporaneous faunas of South China and Turkey and in less extent to the faunas of West peri-Gondwana (Avalonia, Armorica and Saudi Arabia). There is no distinct similarity between trilobite faunas of Iran and Baltica, by contrast conodonts and linguliform brachiopod assemblages contains many taxa common with Baltica.

**GONCUOGLU, M. CEMAL (Turkey).** I am working with a group of Turkish and Bulgarian colleagues on the Palaeozoic of NW Turkey, which includes Ordovician successions, not yet documented in detail.

**HARPER, DAVID A. T. (Denmark).** Research continues on Ordovician stratigraphy and faunas in Scotland (with Yves Candela, Euan Clarkson and Alan Owen), Ireland (with Matthew Parkes, George Sevastopulo and Svend Stouge), Greenland (with Svend Stouge, Jørgen Christiansen, Doug Boyce and Ian Knight), western Russia (with Christian MacØrum and Arne Thorshøj Nielsen) and the greater Himalayan region (with Nigel Hughes and Lars Holmer). Work continues with Rong Jia-yu, Chen Xu and Zhan Ren-bin on refining events during the late Ordovician and early Silurian in South China, a critical area for the understanding of the Hirnantian Substage. Joint manuscripts are in press on Darriwilian brachiopod faunas and early Silurian brachiopod assemblages from South China. Further additions to PAST have continued to enhance the popularity of this free software package for palaeontologists and a book based on techniques in the package will be published by Blackwell later this year. (*PAST - PAleontological STatistics Software. Version 1.32* is available at

<http://folk.uio.no/ohammer/past>). Anders Tychsen (together with David Harper) has established a substantial database for orthide brachiopods, which includes much Ordovician data; two publications are in review on the history of this important Ordovician clade.

A new Ordovician IGCP (503) was successfully launched in Erlangen and the first newsletter is now available (<http://sarv.gi.ee/igcp503/>). Within the frame of the project Harper is currently assembling a group of specialists to investigate the relationships between sea-level change, biofacies and bioevents. All are welcome to join.

**HARRIS, MARK (USA).** I am currently working with Peter Sheehan (Milwaukee Public Museum), Leho Anisaar and Madis Rubel (University of Tartu), Linda Hints, Peep Männik, and Jaak Nõlvak (Institute of Geology, Tallinn) on a project to compare sedimentary facies, stratigraphic sequences and community structures of the Upper Ordovician and Lower Silurian sections of Estonia and the Great Basin (USA). Results were presented at the Eighth Meeting of the Working Group on the Ordovician Geology of Baltoscandia, and short course on carbonate sequence stratigraphy was presented at the University of Tartu.

**HINTS, LINDA (Estonia).** I am continuing studies of the Upper Ordovician sections and brachiopods. The study on the stratigraphy, sequences and faunas of the Pirgu Stage in the East Baltic will be continued with colleagues in Estonia and USA. Together with Mike Bassett we have planned to revise the genus *Cyrtonotella*, which is a beautiful and well known brachiopod genus in Estonia, but needs for revision. Hopefully I and David Harper will finish a manuscript on Ordovician plectambonitacean (*Alwynewlla* / *Grorudia*), which are common for the uppermost Middle Ordovician/lowermost Upper Ordovician in Central East Baltic and Scandinavia.

**HINTS, OLLE (Estonia).** I'm continuing studies on Ordovician-Silurian jawed polychaetes (scolecodonts) and other organic-walled microfossils. A recently started project is related with dynamics of different microfossil groups in the Baltic Ordovician and Silurian (primarily chitinozoans, scolecodonts and conodonts; several colleagues from Tallinn are involved). The main objectives are to see if the frequency patterns of different groups correlate with each other and/or with properties of the sediment, and test response of selected groups to some biotic and environmental events (first results expected in 2005). Together with Mats Eriksson (Lund, Sweden) we have compiled an updated and extended review on the palaeobiogeography and diversification history of Ordovician jaw-bearing polychaetes (paper submitted). Together with Jaak Nõlvak we finished a small project on a find of Tremadocian scolecodonts and diverse chitinozoans from North Estonia (paper submitted), but we are certainly looking for additional

Early Ordovician material. I am concerned about the Ordovician stratigraphy, especially what is related to the Baltic region. In addition, I am also developing collections management database at the Institute of Geology at TUT, which holds data on a great deal of Ordovician fossils and Estonian geological sites as well (accessible at <http://sarv.gi.ee>).

**KANYGIN, ALEXANDER V. (Russia).** The area of my interests includes: paleontology (ostracodes), stratigraphy, paleoecology, paleobiogeography, ecosystem evolution.

**KERSHAW, STEVE (UK).** Continues to work on Ordovician sequences and reefs with Yue Li (Nanjing). Our focus is the Late Ordovician extinction sequence in the Yangtze platform. Below are listed two recent papers, and further work is in preparation.

**KIPLI, TARMO (Estonia).** I am actively working on the correlation of volcanogenic interbeds in Ordovician and Silurian sections. We have introduced method for correlation of bentonites on the base of sanidine composition. Sanidine is a magmatic phenocryst in volcanic rocks having specific for particular eruption Na/K ratio, which can be used for identification of the same volcanic bed in different sections. Method is very effective in Telychian and Ashgillian of Estonia, but can be used with some difficulties also in Caradocian and Wenlockian sections.

**LANDING, ED (USA).** My present Ordovician work focuses on sequence stratigraphy of the Ordovician part of the Beekmantown Group, eastern New York and western Vermont. A recently submitted manuscript (with S.R. Westrop, Oklahoma Museum of Natural History) illustrates conodonts, trilobites, and chitinozoans from the Beekmantown, NY, area succession, and emphasizes the extreme stratigraphic incompleteness of the Beekmantown by comparison with the Ibex area—successive formations represent eustatic maxima in the late Skullrockian, middle Stairsian, late Blackhillsian, and middle Whiterockian. The Whiterockian on the New York Promontory has been identified in the typically restrictive marine facies of the Providence Island Formation at the top of the Beekmantown Group (colleagues include S.R. Westrop and Bosiljka Glumac of Smith College, Northampton, MA [stable isotope stratigraphy]). Two projects nearing final write-up include: A) examination of depositional environments, sequence stratigraphy, and conodont and macrofossil (particularly *Rhabdinoporas*) biostratigraphy of the terminal Cambrian–earliest Ordovician Tiñu Formation, Oaxaca, Mexico, (with Duncan Keppie, Autonomous University of Mexico) and B) the first conodonts and chitinozoans from the Tremadocian–Arenigian boundary on the Avalon continent (from Cape Breton Island, Nova Scotia).

**LEFEBVRE, BERTRAND (France).** I keep working on stylophorans and other "bizarre" Cambro-Ordovician

echinoderms. In 2004, Seung-Bae Lee, Duck Choi, and myself completed a comprehensive study of new faunas of Cambro-Ordovician stylophoran echinoderms from Korea (one paper published, one in press, and one submitted). In collaboration with Mansooreh Ghobadipour and my PhD student, Elise Nardin, I have also investigated and described new and diverse "cystoid" assemblages from the Middle Ordovician of Iran (one paper in press). In 2004, I made some more field work in the Lower Ordovician of Anti-Atlas, Morocco, accumulating a large collection of echinoderms, and especially of new stylophorans (cornutes, mitrates), that I have just begun to describe, and will represent my main focus for 2005. In June 2004, one of my research students, David Ware, has been awarded his DSER dedicated to a morphometric analysis of the cornute genus *Phyllocystis* (based on material from Montagne Noire), and a description of new specimens from Morocco.

**LEGRAND, PHILIPPE (France).** I continue to work on Lower Ordovician graptolites of Algerian Sahara, Caradocian fauna of Algerian Sahara with Algerian colleague and the biostratigraphy of the Late Ordovician glacial episode.

**LEHNERT, OLIVER (Germany).** During the last 2 years and my stays at the Charles University/Prag and the University of Lille in N° France I have been involved in several projects on topics like stable isotopes, early evolution of the Prague Basin, hydrothermal vents (Lower Ordovician), neptunian dykes (Devonian) and a few other regional Barrandean questions, but now I want to concentrate a bit more on conodonts again. I started working on some interesting Ordovician conodont faunas from Iran, Saudi-Arabia, Czech Republic and with several colleagues from different countries and I am still continuing to describe conodonts and associated microfossils from previously investigated areas. After a short stay in Prague with a Humboldt grant (until end of March 2005), I want to continue with Michael Joachimski and Werner Buggisch in a long planned project on oxygen isotopes from Cambrian through Silurian conodonts (from different paleogeographic areas) to calculate sea-water temperatures. Goal is to get a good dataset with respect to paleoclimatic changes and connected extinction events. First data from the Silurian of the Prague Basin are quite promising and we started also the analysis of some Ordovician material from different areas.

**LENZ, ALFRED (Canada) and JACKSON, DENNIS (UK).** We are commencing a study of upper Lancefieldian to Yapeenian (~Arenig) graptolites of northern Yukon, Canada. This study—like our recently published studies of Tremadoc graptolites of the same region—will be taxonomically and biostratigraphically centred. The faunas are of high diversity, typical of the "Pacific graptolite faunas"

and, as such, bear very close resemblances to those of Newfoundland, and to Australasia, in general. At present, we recognize the *Tetragraptus approximatus*, *Tetragraptus fruticosus*, *Didymograptellus protobifidus-bifidus*, and possibly the *Isograptus v. victoriae* and *Isograptus v. maximus* biozones. Unfortunately, the lower Castlemainian is not recognizable. We hope to complete the study in 2005.

**LI, JUN (China).** I continue working on Ordovician acritarchs from China. In July, I went to Granada, Spain for XI IPC, participating in the Lower Palaeozoic palynology/CIMP symposium where I gave a talk. I then spent one month in Lille, France, working with Thomas Servais on Ordovician acritarchs from South China. From September 1-12, I participated in the opening meeting of IGCP 503 (Early Palaeozoic Palaeogeography and Palaeoclimate) in Erlangen, Germany, and gave a talk. This was followed by the post-conference field trip in Oland and Gotland, Sweden. From September 20 to December 14, I am at Central Michigan University, Mount Pleasant, USA working with Reed Wicander on Upper Ordovician acritarchs from Tarim, China. Gary Mullins joins us in the 2-10<sup>th</sup>/Nov. to discuss the Phytopal project. In June my MSc student YAN Kui submitted his master thesis: *Biostratigraphy and biodiversity of Ordovician acritarchs from Meitan Formation of Tongzi County, Guizhou Province, South China*. In September, 2004, YAN Kui received a PhD grant to continue working on acritarchs for the next three years in Nanjing.

**LÖFGREN, ANITA (Sweden).** I am about to publish a paper with Viive Viira and Kaisa Mens (Tallinn) on a biostratigraphical and sedimentological study from Estonia. I am also currently working with Tatiana Tolmacheva (St Petersburg) on a monograph of *Microzarkodina*, with Sven Laufeld and Yngve Grahn on early Palaeozoic rocks of the Bothnian Sea, and with Stig M. Bergström (Columbus, Ohio) on biostratigraphical correlation at the base of the Middle Ordovician in Sweden.

**LUBNINA, NATALIA (Russia).** I am continuing the paleomagnetic studies of the Ordovician rocks of Baltic-Ladoga Glint with my colleagues S. Shipunov, P. Fedorov, T. Tolmacheva, A. Zaitsev, V. Ershova. Currently I am working on magnetostratigraphy of the Early-Middle Ordovician and correlation paleomagnetic data obtained on Ordovician rocks of Baltic-Ladoga Glint and sequences of Uralian margin of Baltica. In 2003-2004 I've got new paleomagnetic data which are evidence of low-latitudinal position (20-30<sup>th</sup> S latitudes) of Baltica during Early-Middle Paleozoic time.

**LUDVIGSON, GREG (USA).** I am actively working on developing a refined record of the carbon isotope chemostratigraphy of the mid-Caradoc in the Upper Mississippi Valley region, in collaboration with Brian Witzke and other colleagues.

**MALETZ, JÖRG (Germany).** I am currently working with Dan Goldman (Dayton, Ohio, USA) and Sven Egenhoff (TU Bergakademie Freiberg, Germany) on Middle to Upper Ordovician biostratigraphy and graptolite faunas of southern Scandinavia. A revision of the Castlemainian to early Darriwilian isograptid biostratigraphy is in progress, based on the successions in southern Scandinavia (Tøyen Shale) and western Newfoundland (Cow Head Group). Work on Chewtonian to Castlemainian graptolite biogeography from the Basin and Ranges Province (Utah, Nevada, USA) is planned.

I am also working together with David Bruton (PMO Oslo) on taxonomy and biostratigraphy of early to Middle Ordovician (Chewtonian to Darriwilian) radiolarian faunas from western Newfoundland and Spitsbergen. The faunas are well preserved and diverse and give important clues to their early evolution. Their age is closely constrained by associated graptolite faunas in the samples.

**MÁNGANO, M. GABRIELA (Argentina).** I am particularly interested on the evolutionary implications of Cambrian-Ordovician ichnofaunas in the context of lower Paleozoic faunal changes and evolutionary radiations. A brief review on this topic coauthored with Mary Droser was published in the recent book on The Great Ordovician Biodiversification Event, where we attempted to summarize ichnologic evidence from different environmental settings in various paleocontinents, with extensive reference to Gondwana. Also, I am studying a number of lower Paleozoic ichnofaunas from NW Argentina trying to articulate trace fossil and facies analyses with paleoecology and biostratigraphy, in a sequence stratigraphic framework (in collaboration with a long list of Argentinian colleagues!). Our attempt is to record detailed case studies that can provide a solid ground for macroevolutionary studies and a better understanding of the Lower Palaeozoic of western Gondwana. Part of my research is focused on trilobite trace fossils and is developed in cooperation with trilobite specialist Beatriz Waisfeld. PhD students Marcos Jimenez and Pamela Such are working on their dissertations in ichnology, sedimentology and stratigraphy of lower Paleozoic siliciclastic and volcanoclastic rocks of NW Argentina. Our recent move to Canada is offering us a new exciting perspective of Laurentian geology and new possibilities for interaction and cooperation.

**MÄNNIK, PEEP (Estonia).** I continue to work on the evolution, ecology and taxonomy of Ordovician and Silurian conodonts from Baltic, Arctic regions and Siberia, and on conodont-based high-resolution stratigraphy.

**MCCRACKEN, SANDY A.D. (Canada).** I continue to work on Middle to Upper Ordovician, Silurian, and Devonian conodonts from various locations in Canada. Much of my time is now assigned to outreach and paleontological databases.

**MCLAUGHLIN, PATRICK (USA).** I am currently participating in an ACS supported detailed regional stratigraphic analysis of the Upper Ordovician (Trenton equivalent; Chatfieldian) of eastern North America (Kentucky, Ohio, Pennsylvania, New York, and Ontario) along with fellow doctoral candidate Sean Cornell and our advisor at the University of Cincinnati Dr. Carlton Brett. My focus in this project has been to recognize (if present) and investigate regularly repeating (vertically) facies successions and event horizons, such as prominent erosion surfaces and hardgrounds, in order to refine sequence stratigraphic models and establish their applicability to cratonic mixed carbonate-siliciclastic successions. The results of this analysis suggest that there are at least three scales of cyclicity present in Upper Ordovician strata in eastern North America, which seem fractal in their relationships. That is, each has roughly the same overall motif, simply increasing in internal complexity with increasing duration. In this respect they are similar to the relationship between parasequences, systems tracts, and depositional sequences in classic sequence stratigraphic models. However, the general motif of these cycles is much more similar to Pennsylvanian cyclothems, containing a shaly or micritic lowstand systems tract, a transgressive systems tract composed of skeletal grainstone and rudstone, shaly or shaly wackepackstone (often very rhythmic) highstand systems tract, and a calcarenite or silt-sandstone dominated falling stage systems tract. The primary difference between Ordovician and Pennsylvanian cyclothems is the magnitude of facies offset/dislocation (indicative of tens rather than hundreds of meters of sea level fluctuation) at sequence stratigraphic surfaces such as maximum starvation/flooding surfaces and sequence boundaries. In fact, Upper Ordovician cycles are most similar to Cretaceous cycles of the Western Interior Seaway in Colorado and western Kansas, as well as Silurian and Devonian cycles of the Appalachian Basin. These and many other observations are detailed in recent publications by our working group at the University of Cincinnati (listed below) and several additional papers in progress to be submitted in the upcoming months. One of these "work(s) in progress" will be included in an upcoming special issue of *Palaios* featuring papers on faunal response to sea level fluctuation. This paper details aspects of the Point Pleasant Formation, a skeletal grainstone/rudstone interval widely exposed in northern and central Kentucky, which displays a very well developed deepening upward signature, expressed as a systematic change in faunal composition, taphonomic condition of those fossils, and sedimentary structures. Thick skeletal limestone successions such as the Point Pleasant have largely been overlooked because of their massive nature, simply regarded as "shallow water deposits" or indication of shallowing. Results from analysis of the

Point Pleasant and many other Upper Ordovician "massive" limestones indicates that these units did form in shallow water conditions initially, but deposition continued in increasingly deeper water (sea level rise). Their clean nature is only partially due to winnowing (with the degree of winnowing decreasing upward through the unit) and largely the signature of siliciclastic sediment starvation.

The Upper Ordovician strata of eastern North America, because of their widespread nature, excellent preservation, wide range of facies, and faunal richness, have yielded insights into the origin of mixed carbonate-siliciclastic stratigraphic patterns recognizable throughout much of the Phanerozoic. It is our hope that Upper Ordovician strata in eastern North America (Kentucky in particular) will become a new field reference for teaching cratonic sequence stratigraphy.

**MERGL, MICHAL (Czech Republic).** I am actively working on three palaeontological subjects; trilobites, „cystoids“ (in cooperation with R. J. Prokop) and isolated sponge spicules, all of the Upper Tremadocian in Bohemia.

**MIKULÁŠ, RADEK (Czech Republic).** I'm working on ichnofabrics and trace fossils from the Ordovician of the Baltic area, especially the St Petersburg Region (with Andrei Dronov).

**MODZALEVSKAYA, TATIANA L. (Russia).** I'm actively working on data of Ordovician Regional stages of western slope of Urals, Novaya Zemlya and northeastern of East-European Platform needed for filling in base of Russia Stratigraphical Nomenclature. The project of Late Ordovician-Silurian hypostratotypes will be prepared till the end of the next year. I have not been working on Ordovician brachiopods, but the manuscript on the earliest terebratulids was prepared for Palaeontology.

The paper: Atlas on Paleozoic Fauna of Taimyr Peninsula. 2003. Authors: A.F. Abushik, T.L. Modzalevskaya, T.Yu. Tolmacheva, L.M. Mel'nikova, N.N. Sobolev, R.F. Sobolevskaya, where are presented the monographic descriptions of Ordovician, Silurian, Devonian brachiopods, ostracods and conodonts, was given the second Hans Raussing purse.

**MOREAU, JULIEN (France).** I'm currently doing my PhD on Architecture and Characterisation of The Late Ordovician Glacial Deposits of the Murzuq Basin (Libya). I'm actively working on proglacial and postglacial sedimentation, stratigraphy and corresponding depositional/ice process interactions. Ordovician Ice-sheet dynamic is also a major item of my study. This topic tends to link internal glaciated shelf records to ice-distal ones.

**MUNNECKE, AXEL (Germany).** My research topics are 1) climate reconstructions in the Palaeozoic (especially Silurian) by means of stable carbon and oxygen isotopes, 2) Palaeozoic calcareous micro- and nanofossils, and 3) origin and diagenesis of

limestone-marl alternations. I am co-leader of the IGCP project no 503 "Orovician Palaeogeography and Palaeoclimate".

**NARDIN, ELISE (France).** I work on the radiation of primitive Paleozoic echinoderms, especially blastozoans, with diversity, disparity and phylogeny studies. During the early Paleozoic, blastozoan echinoderms include 12 classes, which are various morphologies. I am currently working on the description of homologies – notably based on the Extraxial-Axial Theory, to construct a consistent phylogenetic hypothesis. I am particularly interested in the cystoids and eocrinoid classes, the last being the essential group to understand relationships between blastozoan classes. Both early and middle Cambrian eocrinoids already have many of the characteristic features of the subphylum of blastozoans.

At the same time, I am interested in the blastozoan morphological disparity (traditional and geometric morphometrics) – especially on cystoids, to model the dynamics of the echinoderm organisation plan through evolutionary time.

**NOWLAN, GODFREY (Canada).** As noted in earlier newsletters, my work on conodonts has been severely curtailed for the last two years. I continue to work slowly on a few projects: 1. Conodont biostratigraphy and paleoecology of the Ordovician and Silurian rocky shoreline exposed on the shore of Hudson Bay near Churchill, Manitoba. Several cores were drilled in 2003 and these were recently sampled in detail. Work is joint with Graham Young (Manitoba Museum) and Bob Elias (University of Manitoba).

2. The Nd isotope ratios and Sm/Nd ratio and conodont paleoecology of late Ordovician strata in the subsurface of Saskatchewan. Work is joint with Chris Holmden (University of Saskatchewan) and Fran Haidl (Saskatchewan Industry and Research).

3. Early Cambrian embryos and small shelly fossils from the Wernecke Mountains, Yukon. Joint work with Leanne Pyle (University of Victoria) and Guy Narbonne (Queens University). 4. Service reports for clients of the Paleontology Laboratory at the Geological Survey of Canada.

**ORTEGA, GLADYS (Argentina).** I am working on Early Ordovician graptolite faunas from Eastern Cordillera and the Famatina System of NW Argentina. I have recently finished three papers about Tremadocian graptolites in those geological provinces. Besides, I continue studying Middle and Late Ordovician graptolites from the Argentine Precordillera. Last year, I began to prepare a paper about the Upper Ordovician *Diplacanthograptus caudatus* Zone at La Invernada Range, Central-Western Precordillera co-authored by A.L. Banchig, G.L. Albanesi and G. Peralta.

**OWEN, ALAN (UK).** I am continuing work on trilobite

biodiversity change, especially in Avalonia, in the context of IGCP 503 ('Ordovician Palaeogeography and Palaeoclimate') for which I am one of the co-leaders. Work also continues, albeit slowly, on the Ordovician palaeobiogeography and terrane evolution of the Caledonides of Britain and Ireland. As for my research students: Kathy Keefe has obtained her MSc on aspects of the taxonomy and palaeogeographical origins of the Ashgill trilobites from the Girvan district, Sarah Stewart is about to submit PhD thesis on a wide range of obscure and neglected components in the Ordovician faunas of the Girvan and I am co-supervisor of a new student, Tom Challands, along with Howard Armstrong and staff at the British Geological Survey. Tom is based at Durham and is looking at upper Ordovician successions in Wales to investigate biosphere and geosphere dynamics during late Ordovician climate change.

**OWENS, ROBERT M. (UK).** I am currently working on the following: 1) Taxonomy and phylogeny of Ordovician proetid trilobites. 2) (with Richard Fortey): a silicified trilobite fauna of early Caradoc age from Pai-khoy, Russia, dominated by *Lasarchopyge*, and including remopleuridids and asaphids. 3) A new latest Rawtheyan/early Hirnantian fauna from the Llangadog area, Carmarthenshire, Wales, UK, with *Mucronaspis mucronata*, *Brongniartella* sp. nov., and abundant bivalves and gastropods. 4) (with Thomas Servais): palaeobiogeography of Llanvirn trilobites from the Huy formation, Condroz Ridge inlier, Belgium. 5) (with Phil Lane): The type and other species of the cheirurid trilobite *Placoparina* from the Llanvirn of the Welsh Basin, UK.

**PARIS, FLORENTINE (France).** My work on the Ordovician System focuses on three main aspects: Biodiversity of Ordovician chitinozoans and the possible causes of the fluctuating biodiversity. Late Ordovician glacial events and their impact on the faunas and plankton. Sea-level variations during the Ordovician in northern Gondwana regions.

The first topic is the continuation of the investigations I carried out during IGCP 410. This will be a contribution to IGCP 503, and includes collaborations with other chitinozoan experts over the world.

The second project is developed within the ECLIPSE program, granted by the French CNRS. It includes joint investigations by sedimentologists, palaeontologists, geochemists... on Upper Ordovician sections in the Anti-Atlas, Morocco (January 2005), Algeria (2004 and 2005), Libya, Turkey. The main goal is to depict the timing and the effects of the glaciation close to the Late Ordovician southern pole.

The third project is part of a larger program, which ultimate goal is to document the Early Palaeozoic eustatic curve.

**PERCIVAL, IAN (Australia).** I had a difficult year dealing with impending relocation of his work office

to Londonderry, an outlying suburb of Sydney (for details of my new address and other contacts, see below). During the first half of the year, the entire Palaeontology Collection of the Geological Survey of NSW was packed and moved to its new location at the Londonderry Core Library. This involved unpacking all specimens from wooden drawers in the old compactus, doing a stocktake by checking their numbers with the catalogue, and then rewrapping the specimens and rehousing these in plastic tubs to fit in the new compactus storage. The upside of the collection relocation was that funding was provided both for the physical process of moving, and transfer of the macrofossil and microfossil collection registers to computer databases. Much previously uncatalogued material was curated into the collection for the first time. The next phase of the relocation involves the library, office, conodont processing lab, and rock-cutting and slide preparation facilities. By April 2005, the move will have been completed.

The volume of paperwork and administrative load associated with supervision of the collection relocation and preparation of the new office and lab space at Londonderry did not leave a lot of time for research during 2004, and it is surprising what was achieved. Most papers published during the year were co-operative projects with Yong-yi Zhen (Australian Museum) and Barry Webby (Macquarie University), principally on Early and Middle Ordovician conodont faunas from New South Wales. A major achievement was publication in March of the Columbia University Press book on the Great Ordovician Biodiversification Event. A paper (with Dick Glen and Ian Stewart) on the deep-water Narooma Terrane of the NSW South Coast is about to be published (early 2005) in the Australian Journal of Earth Sciences; in this I document Early and Middle Ordovician conodonts in cherts in colour. Finally, I returned to research on trimerellide brachiopods, writing a paper with Tony Wright (Wollongong University) describing an Early Silurian species of *Trimerella* (to appear in Proceedings of the Linnean Society of NSW, also in February 2005). The latter paper will also figure in an assessment of the Late Ordovician to Silurian record of trimerellide brachiopods in Eastern Australia, which I am presently working on for presentation at the 5th International Brachiopod Congress later in the year.

**PODHALAŃSKA, TERESA (Poland).** I am actively working on biostratigraphy, graptolites, trace fossils, facies, microfacies and chemostratigraphy related to eustatic changes and paleogeography in the Late Ordovician and Early Silurian in Poland. Recently I deal with the interpretation of the oxygen and carbon isotope data from the Ordovician/Silurian boundary in Poland.

**POPOV, LEONID (UK).** Currently I continue my work on the Upper Ordovician brachiopods and

biostratigraphy of Kazakhstan and Uzbekistan, Lower to Middle Ordovician brachiopods of Iran.

**REPETSKI, JOHN E. (USA).** I am working chiefly on biostratigraphy, CAI, biogeography, and systematics of Ordovician and Cambrian conodont faunas, with some work on other phosphatic problematica and some faunas of other ages. In the eastern U.S., I am preparing Ordovician and Devonian thermal maturation (CAI and %Ro) maps for several oil- and gas-producing states (with various good colleagues); studying Late Cambrian through Ibexian shelf to slope faunas across the central Appalachians (with J. Taylor, and D. Brezinski); trying to unravel the history of the Hamburg “klippe” terrane in E. Penna. (w/Bob Ganis and J. Taylor); and age-dating metamorphosed sedimentary units in Vermont and in the Great Smoky Mountains (Tennessee) to support mapping projects there. I am still working on Cambrian-Ordovician faunas in western US (w/J. Taylor, J. Loch, R. Ethington, R. Ripperdan, and P. Myrow), Sonora, Mexico, and southwestern US (w/A. Harris), and Alaska (w/several colleagues). I continue providing age-dating support for projects in the U.S. Midcontinent, Alaska, and elsewhere. Finally, I am working on several taxonomic projects, mostly on Upper Cambrian to Middle Ordovician conodonts, but also on some [other] fish, larval arthropods, and some phosphatized embryos, mostly with various colleagues.

**ROHR, DAVID M. (USA).** I am currently working with Ordovician and Silurian gastropods from Alaska. Recently published studies are on Ordovician gastropods from Newfoundland and a summary of the Class co-authored with Jiri Fryda for IGCP Project No. 410.

**RONG, JIAYU (China).** I am working on 1) Three Palaeozoic mass extinctions and their subsequent recoveries based on the evidences from South China; 2) Brachiopod survival from the Latest Ordovician mass extinction; 3) The Early-Middle Ordovician brachiopod radiation.

**ROZHN OV, SERGEI V. (Russia).** I’m actively working on different aspects of the Early Paleozoic echinoderms including evolutionary biogeography. The main topic is the Ordovician echinoderms of the Baltic region.

**SACHANSKI, VALERI (Bulgaria).** I continue to work on Ordovician, but mainly Silurian and Devonian graptolites from various locations in Bulgaria and Turkey.

**SALTZMAN, M. R. (USA).** I’m currently working on the timing and rate of change of a large drop in Sr isotopes in the Late Ordovician with PhD student Seth Young and Ken Foland at Ohio State. We have documented this event, which is one of the largest in the Phanerozoic in terms of magnitude, in a Whiterockian-Mohawkian section of the Antelope Valley Limestone-Copenhagen Formations in central

Nevada. The shift precedes the well known Guttenberg carbon isotope excursion that we have found higher up in the Copenhagen Formation (just beneath the Eureka Quartzite - Saltzman and Young, 2005). Work underway will seek to carry the shift into the Appalachian Basin and compare it with the evidence for the timing of Taconic tectonism. Other links will be explored with Ordovician superplume events and sea level changes during this time period.

I also remain involved in several projects having to do with carbon isotope chemostratigraphy in several parts of the Ordovician column. With Bill Ausich and Seth Young, we are looking at organic matter carbon isotopes in the Ellis Bay Formation on Anticosti Island to test the ‘weathering’ versus ‘productivity’ models for the well-known large positive excursion in the Hirnantian (La Framboise reef member). With Stig Bergstrom, investigation of the Hirnantian excursion in Missouri is proceeding well, and with student Seth Young we continue to study the paleoceanographic and chemostratigraphic significance of the Guttenberg (Chatfieldian) carbon isotope excursion in carbonates and organic matter in the Appalachian Basin and Oklahoma (collaboration with Steve Leslie, Dan Goldman).

**SÁNCHEZ, TERESA M. (Argentina).** I continue my work on Ordovician bivalves and rostroconchs from western Argentina. With J.L. Benedetto, N. Cech, B. Waisfeld, M. Carrera and other researchers and doctoral/postdoctoral students of the CIPAL, Centro de Investigaciones Paleobiológicas (Cordoba University) we are continuing the study of Ordovician radiation in the clastic shelves of western Gondwana, in particular the northwestern basin of Argentina and Bolivia (for information regarding CIPAL activities, publications, projects etc., see our website [www.cipal-unc.com.ar](http://www.cipal-unc.com.ar)). Currently I am involved in organization of the ‘Palaeozoic biota: biogeography and diversity patterns’ symposium, part of the 12<sup>th</sup> Gondwana Congress, Mendoza, November 6-11, 2005.

**SENNIKOV, NIKOLAY V. (Russia).** I’m actively working on Ordovician lithology, stratigraphy (graptolite zonal stratigraphy, conodont zonal stratigraphy, chitinozoans zonal stratigraphy), palaeontology (graptolites, ichnofossils), paleogeography, regional geology (Altai Mountains, Salair, Kuznetsk Alatau, Tuva and others).

**SERPAGLI, ENRICO AND FERRETTI, ANNALISA (Italy).** The activity of the working group of Modena University is mostly related to conodonts. An extraordinary abundant fauna from the Early Ordovician (Tremadocian) of Montagne Noire is currently under investigation with Spanish colleagues. It is the most diversified conodont fauna so far recorded from the Early Ordovician of the entire North Gondwana margin. Preliminary results have provided quite unexpected data. The fauna, in fact,



clearly indicates faunistic interchange with other palaeocontinents and suggests checking the position of Montagne Noire in classic palaeogeographic maps.

Either Ashgill pre-Hirnantian or Hirnantian conodont faunas from France (with French colleagues) and from the Carnic Alps (both Italian and Austrian sides) are under investigation. As regards the Carnic Alps, the work will be completed with the study of pre-Hirnantian Ashgill faunas, recovered either on the Italian side (e.g. Valbertad Section, in cooperation with G. Bagnoli), or other ones on the Austrian side (with H.P. Schonlaub). In addition, the classic fauna illustrated in the monographic paper by Serpagli (1967) will be enriched by data coming from a recent re-sampling of the type-sections.

Preliminary collecting of one section in Bohemia has recently been made and field work (jointly with colleagues from Prague) in search of new sections is also scheduled.

**SERVAIS, THOMAS (France).** I continue research focused on Ordovician acritarchs, with some excursions to the Cambrian and Silurian (but also the Permian), and some excursions to other fossil groups (such as carbonate microfossils). Elena Raevskaya (St. Petersburg, Russia) spent ten months in our department at Lille (October 2003 to August 2004), and we worked together on the Tremadoc/Arenig boundary (with S. Molyneux, BGS, UK) and on some Late Cambrian diacrodian acritarchs, such as *V. dumontii* and related forms. A MSc student (Mathilde Blanchon) worked on a complete revision of the genus *Vulcanisphaera*, a work that should be prepared for publication in the next year. The IGCP 410 (The Great Ordovician Biodiversification) book was published, but there is still a lot of work to do before we understand the biodiversification of the microphytoplankton. This can now be done with Marco Vecoli (who is now at Lille too) within the PhytoPal working group. The special issue in the Review of Palaeobotany and Palynology, serving as proceedings volume of the CIMP meeting of September 2002, was published, and the next special issue (based on papers presented at the IPC) is now in progress (I am guest-editing this together with Marco). 2004 was an (extremely) busy year with the organisation of a series of conferences. Scheduling the CIMP session on Lower Palaeozoic at the IPC at Granada (early July) took some time. The organisation of the new IGCP n° 503 (Ordovician Palaeogeography and Palaeoclimate) and its official opening meeting at Erlangen, Germany (early September) much more (<http://www.pal.uni-erlangen.de/IGCP503/>). Finally, the last part of the year was a disaster period with the organisation of the 48th Annual Meeting of the Palaeontological Association (mid December), and the associated PhytoPal workshop (with Gary Mullins). All these events were highly successful but took a lot of time for administration (and less work on the

microscope). Thus, 2005 could be a good year to return to some basic scientific work.

**SHEEHAN, PETER M. (USA).** I am currently working with Mark Harris on comparison of the upper Ordovician and Silurian sequence stratigraphy between the western United States and Baltica (see discussion by Mark Harris). I am also examining the relative ecological effects among the major extinction events in the Phanerozoic, especially the end Ordovician extinction.

**SHERWIN, LAWRENCE (Australia).** Geological Survey of New South Wales. I am continuing with detailed mapping of Ordovician and Silurian sediments in the Taralga – Goulburn district of New South Wales. The Ordovician graptolite faunas range from Gisbornian, possibly even late Darriwilian, to early Bolindian. Conodont faunas in associated cherts are being studied by Ian Percival. This work will be a contribution to Late Ordovician – Early Silurian tectonics and sedimentation in the Lachlan Fold Belt. The mapping is being compiled at 1:25 000 scale although publication is intended at 1:100 000 and 1:250 000. Joint projects with Tatiana Koren' on Late Ordovician graptolites from central west New South Wales are proceeding more slowly. Some administrative disruption has resulted from the incorporation of the Geological Survey into a new mega organisation, the Department of Primary Industries. Otherwise the work of mapping the Lachlan Fold Belt is unlikely to be affected.

**SUTTNER, THOMAS J. (Austria).** I'm actively working on Late Ordovician Conodonts. The sampled section is located in the Himalayas of Northern India (Spiti area). In addition to the Conodont fauna, several different fossil taxa are going to be studied. The new data will be published together with some other friends of the Ordovician System hopefully within the next two years. (Other research activities: Silurian/ Devonian Conodont biostratigraphy in the Carnic Alps).

**SWEET, WALTER C. (USA).** I am completing a graphic correlation of several Argentine Middle Ordovician sections with my much more extensive North American Composite Standard section. Argentine data have been supplied by Albanesi. Preliminary results indicate close correlation is possible. Two major papers are in press -- both should appear in 2005, but don't hold your breath!

**TIMOKHIN, ALEXANDER (Russia).** The area of my interests includes: paleontology (trilobites), stratigraphy Siberian Platform.

**TOLMACHEVA, TATIANA (Russia).** I continue my stratigraphical and taxonomical studies on the Lower and Middle Ordovician conodonts from the East Baltic (some of them with Anita Lofgren) and Kazakhstan. This year my studies were mainly focused on the Lower Ordovician cold seep faunal assemblages from Central Kazakhstan in conjunction with Lars Holmer, Jan-Ove Ebbestad and Asa Frisk

and my colleagues from Kazakhstan and Moscow geological institutes (Olga Nikitina, Aleksei Ryazanthev and Kirill Degtyarev). Some small joint studies on the Ordovician stratigraphy and conodonts of Siberia, Severnaya Zemlia and Svalbard (with colleagues from Uppsala, Moscow and St. Petersburg) are also going on.

**TROTTER, JULIE (Australia).** My PhD research at RSES will draw to a close within the year. The aims were to better characterise the geochemistry of conodont apatite, with a particular focus on in-situ techniques including laser ablation ICPMS (elemental ratios) and MC-ICPMS (Sr isotopes), and ion microprobe analysis using SHRIMP II (oxygen isotopes). Negative TIMS investigations into the potential for oxygen isotope analysis of PO<sub>3</sub> are also being pursued. TEM analyses in particular have provided new information on the porosity and ultrastructure of conodont tissues. Collectively, these data are providing new insights into the composition, physical structure, and integrity of conodont apatite and consequently their potential as geochemical tracers for palaeoenvironmental studies. This research has primarily focused on Ordovician and Early Silurian conodont faunas. Several publications covering the initial laser and TEM work are currently in preparation.

**VANDENBROUCKE, THIJS (Belgium).** During the last year, I have been working on the chitinozoan assemblages from the new GSSP for the base of the Hirnantian in Wangjiawan, China (short note in collaboration with Chen Xu and Jacques Verniers on the results is available online through the ISOS discussion forum, and in press as well) and on those from the Scottish GSSP candidate for the base of the second stage of the Upper Ordovician Series, Hartfell Score (proposal by Zalasiewicz *et al.*, also online on the above mentioned site). I also kept studying the chitinozoans from several Upper Ordovician key sections in the UK, amongst others resulting in good data from the Cardigan-Fishguard area (Wales) and the Cross Fell Inlier (type Pugsillian in Northern England). This will be continued during the coming year (work in progress on e.g. the British Whitland, Rhayadar area, Dob's Linn, Cwm Hirnant and Onny Valley/type Caradoc sections), which should be the fourth and final year of my PhD project.

**VANMEIRHAEGHE, JAN (Belgium).** I am continuing the study of the Ordovician chitinozoans from the Condroz Inlier and the Brabant Massif in Belgium. This year, I have studied in the central part of the Condroz Inlier the lithostratigraphy and chitinozoans of the middle Ordovician at Dave and the Caradoc and pre-Hirnantian Ashgill at Faulx-les Tombes. I am also continuing the work on the Hirnantian (?) deposits (with two conglomeratic levels) of the western part of the Condroz Inlier, at Sart-Eustache, in collaboration with Johan Yans (isotopes, FtPMons), Alain Pr at

(sedimentology, UIB), Alain Herbosch (sedimentology, UIB), Oliver Lehnert (conodonts and isotopes, Lille) and Jacques Verniers (UGent). Furthermore, chitinozoan study of the Upper Ordovician of the Fauquez area (Brabant Massif, Belgium) allowed accurate dating by correlation with the U.K. sections (work of Thijs Vandembroucke). Marco Vecoli (Italy). My research activity is centered on Palaeozoic palynology (acritarchs, chitinozoans, and miospores). Applications range from stratigraphy, palaeogeographical and geodynamical reconstructions to palaeoenvironmental and palaeoecological analyses, studies of global changes, and evolution of life.

In October, 2004 I have been appointed "Charg e de Recherche" at the French CNRS, so I am finally enjoying a permanent position in a research institution.

The job-searching job during 2004 took most of my time, but I was nonetheless able to dedicate some "spare time" between one interview and the other, to research as well as some consulting jobs.

I have been studying an interesting palynological assemblage from the Saudi Arabian Llanvirn, which comprises acritarchs, chitinozoans, and cryptospores. This work was done in collaboration with Alain Le H eriss e (CNRS Brest) and Monsour Al-Ruwaili (Saudi Aramco, Dahrhan); we presented a talk at the International Palynological Congress in Granada, Spain, and a first publication is in progress about that. During the first part of 2004 I also collaborated with Alain Le H eriss e for a consulting job committed by the company: Gas de France for the biostratigraphic dating of Palaeozoic clastic sequences in Algeria.

From March to August 2004 I was postdoc in Lille, France; as I said, I used most of this time for job-applications, but I also worked together with Oliver Lehnert (Univ. of Erlangen, Germany) on the problem of the causes of the "Great Ordovician Biodiversification Event". We approached this study mostly in relation with the question of the significance and interpretation of the record of acritarch diversity and abundance in terms of oceanic primary production. A paper on the subject (also in collaboration with Thomas Servais, CNRS Lille) is currently in progress, and we will present a talk at the next meeting of the European Geoscience Union in Vienna next April.

Currently, I am working on the revision of palynological material from the Sud Alpine basement, Italian Alps in order to try to elucidate the depositional age of the metamorphic basement in the Eastern Alps. This work is done in collaboration with Prof. Iginio Dieni and Prof. Francesco Sassi of the University of Padova, Italy.

Since October, I have been occupied with the setting up of a renovated palynological laboratory in Lille, since the existing laboratories were not operational anymore. Now all the necessary works have been

completed and brand new equipment is in place; the lab is fully operational and we expect a good flux of palynological preparations to go through.

For the next future, I am going to start a new project based chiefly on cryptospores and miospores, aiming at the study of the process of the invasion of emerged lands by the earliest plants during Ordovician through Devonian times (“terrestrialization”), and the associated global changes. An integrated palynological – sedimentological – geochemical approach will be utilized. During the last part of 2004 I have been working on gathering suitable material for this project. I have come into possession of about 300 samples from several subsurface sections in North Africa; in this, I was helped by Florentin Paris (CNRS Rennes) and Dominique Massa (former geologist at Total; Paris). At the moment, I am slowly starting the study of a couple of late Silurian – early Devonian sections in Algeria, in collaboration with Florentin Paris. Field work and further core-sample collecting from North American sections is being organized with Paul Strother (Weston observatory, Boston, U.S.A.). Together with Enrique Diaz-Martinez (principal Investigator; Univ. of Madrid, Spain), we have submitted, to the evaluation of the European Commission in the framework of the 6<sup>th</sup> framework programme, a research proposal entitled: Sedimentary record of climate changes in the Palaeozoic of the Central Andes.

I am also a partner in two large projects focused on the late Ordovician glaciation: the ECLIPSE project, funded by the French CNRS (project leader Jean François Ghienne, CNRS Strasbourg, France), and a further project led by Enrique Villas and Javier Alvaro (both from the University of Zaragoza, Spain).

Last but not least, all my palynological activities are relevant and contribute to the “Phytopal project”, aiming at investigating the relationships between acritarch evolution and diversity, and palaeoclimate during the Palaeozoic (see at <http://www.le.ac.uk/geology/glm2/phytopal.html>).

I participated to the following conferences :

5<sup>ème</sup> Seminaire de Geologie Petroliere, 18-20 January 2004, Centre de recherche et Développement, Avenue du Premier Novembre – 35000, Boumerdès Algérie.

11<sup>th</sup> International Palynological Congress, 4-9 July 2004, Granada, Spain.

IGCP N° 503 meeting: International Symposium on Early Palaeozoic Palaeogeography and Palaeoclimate; Erlangen, Germany; September 1-3.

Second PhytoPal meeting and workshop; Universite Lille 1, Villeneuve d'Ascq, 15-17 December 2004.

48<sup>th</sup> Palaeontological Association Annual Meeting. Villeneuve d'Ascq Campus, University of Lille1, France; December 17-20.

**VERNIERS, JACQUES (Belgium).** I'm actively working on the Chitinozoans around the Ordovician-Silurian boundary in Dob's Linn and Lonstorp (Sweden).

**VIIRA, VIIVE (Estonia).** I am actively working with Lower and Middle Ordovician conodonts from several sections of Estonia.

**VINN, OLEV (Estonia).** My major research interest is the structure and affinities of Ordovician tubicolous problematic fossils, especially cornulitids and tentaculitids. I have cooperation with Dr. Harry Mutvei from Naturhistoriska Riksmuseet in Stockholm for studying the shell microstructures of cornulitids and early annelids. I also continue my studies of ontogeny and evolution of clitambonitidine brachiopods. In addition I have examined the 'worm' borings in the brachiopod shells of Middle Ordovician age from the Baltic region. The earliest borings in the brachiopod shells are discovered from the Arenig (Volkhov Stage) of Baltica.

**VYHLASOVÁ, ZDEŇKA (BRABCOVÁ) (Czech Rep.).** I continue working on the macro-morphological and micromorphological analysis of the Palaeozoic conulariids. The main subject of my study are conulariids from the Barrandian area (Czech Republic) with stratigraphical range from Arenigian to Pragian and from the Upper Silesian Basin with the stratigraphical range Viséan to Namurian (project of Grant Agency of Czech Republic). I also succeeded to compare Bohemian and Moroccan Ordovician conulariid faunas, studying material collected by Peter Van Roy in Morocco. 5 identical species (*Pseudoconularia grandissima*, *Exoconularia consobrina*, *Conularia (Archaeoconularia) insignis*, *Metaconularia imperialis*, *Anaconularia anomala*) were identified, indicating the close palaeogeographical position of North Gondwana (Morocco) and Perunica (Bohemia). I struggle to evaluate macro- and micro- characteristics of conulariids exoskeletons and use them better for the systematics of this group. I also correlate some taxons with their equivalents from Palaeozoic of France, Belgium and Sweden.

**WANG, XIOAFENG (China).** I am continuing our joint research on the Lower/ Middle Ordovician boundary with Svend Stouge, B.-D. Erdtmann and other colleagues. Based on detailed study of the Huanghuachang section, Chenjiahe section and other relevant sections the Huanghuachang section near Yichang, Hubei, China, was proposed as GSSP for the base of the Middle Ordovician Series. The proposal is submitted to the ISOS and posted on the web site for discussion. Another project I am dealing with is the Tremadocian graptolites. I visited the Technical University of Berlin for two months under the support of the DAAD and studied all graptolite specimens collected by B.-D.Erdtmann. A paper on the reclassification and evolution of rhabdinopoids will be completed next year.

**WEBBY, BARRY (Australia).** Completed two large stints of editing work over the past twelve months. First, there was the task as the lead editor and contributor to six chapters of the 494-page book,

entitled “*The Great Ordovician Biodiversification Event*” that was finally published by Columbia University Press (New York) in March 2004. The book included 35 chapters contributed by 96 authors from all parts of the world. Most of the contributors were members of the original IGCP 410 global clade-team work programme that had continued to compile Ordovician biodiversity data since 1998. Also, a final report (with Florentin Paris and Mary Droser) of the IGCP 410 project (1997-2002), has been prepared that outlines the major achievements, and published in *Episodes* in September 2004. Overall IGCP 410 workers contributed over 1,000 publications and these are now, thanks to Peter Cockle, listed (and available for download in pdf format) on the website: <http://www.es.mq.edu.au/mucep/igcp410.htm>.

In the second editing job (with David Bruton, Gabriella Mangano, Luis Buatois and Michael Englebretsen) ten of the papers read in session 18 (Trace Fossils) of the First International Palaeontological Congress at Macquarie University in 2002 were reviewed and assembled in a volume entitled “Trace fossils in evolutionary palaeoecology” of *Fossils and Strata* (no. 51). This publication has now been published. A description of the Middle Cambrian trace fossils of the Ord Basin, Western Australia was also been published in 2004. This is part of a joint work with John Laurie (trilobites) and Pierre Kruse (other body fossils), and comprises a *Memoir of the Australasian Association of Palaeontologists*.

In addition, work is continuing on a number of other projects, in particular a synthesis of the Cambro-Ordovician geological development of western New South Wales with Ian Percival, Kingsley Mills, Tim Sharpe, Zhen Yongyi and Pierre Kruse, and the assembly of a paper describing additional Late Ordovician trilobites from central New South Wales (with Greg Edgecombe). The other major project involves contributions to, and coordinating work, on the revision of the *Treatise on Invertebrate Paleontology, Part E, Porifera* revised volume 4 (hypercalcified sponges). Work on this *Treatise* project is now advancing rapidly, and hopefully in the next year or two, with the active support of leading stromatoporoid, archaeocyath, chaetetid, and sphinctozoan/inozoan workers, we will be able to assemble and get this volume published as the last in the series of *Treatise* volumes devoted to all the groups of fossil sponges.

**WICANDER, REED (USA).** I am continuing research on Ordovician acritarchs, presently from North America and Australia. Geoffrey Playford and I submitted a manuscript on the microphytoplankton of the Upper Ordovician Sylvan Shale, Oklahoma, U.S.A. Li Jun and I submitted a manuscript on Upper Ordovician acritarchs from the Tarim Basin, China.

**WHEELY, JAMES R. (UK).** I am in the final year of my PhD with Lesley Cherns and Paul Wright (Cardiff University) researching the taphonomy, diagenesis,

sedimentology and trace fossils of the Ordovician limestones of Sweden. We completed further fieldwork in Jämtland and Öland during summer 2004. L.C. and I attended the Early Palaeozoic Palaeogeography and Palaeoclimate Symposium and IGCP 503 Opening Meeting in Erlangen in September 2004. I gave an oral presentation on Middle Ordovician *Thalassinoides* from Jämtland at the 48th Annual Meeting of The Palaeontological Association in Lille in December 2004.

**WILSON, MARK A. (USA).** I continue to work on Ordovician bioerosion, concentrating especially on the remarkable rise in the diversity of borings during this period. Tim Palmer and I have referred to this event as the “Ordovician Bioerosion Revolution”. I maintain a bibliography of bioerosion at: <http://www.wooster.edu/geology/Bioerosion/Bioerosion.html>. Tim Palmer, Paul Taylor and I also continue our work on Ordovician encrusters, hardgrounds and other aspects of Calcite Sea conditions. We are interested in comparing our observations of these Ordovician phenomena to those of the Jurassic, which was also a Calcite Sea time.

I am also the Program Coordinator for the Paleontological Society. I would love to help organize any topical sessions for the annual GSA meetings which are based on Ordovician paleontology or biostratigraphy.

**WITZKE, BRIAN J. (USA).** The complex Upper Ordovician stratigraphy in the Iowa area is currently under study. The succession is punctuated by widespread submarine sediment-starved surfaces (many seem as pyritic and phosphatic impregnated hardgrounds). These surfaces likely relate to episodic circulatory changes in the oceanic-epiiric sea systems. Recent Ordovician discoveries include additional localities with abundant conodonts in the St. Peter Sandstone, notably near Elk Point, South Dakota, and Decorah, Iowa.

The September 23-25, 2005, Field Trip Conference of the Great Lakes Section of the SEPM (Sedimentary Geology) will be held in Decorah, Iowa. A primary focus of the trip will be Upper Ordovician stratigraphy and sedimentation in the classic Upper Mississippi Valley (UMV) area. I will assist the organizer, Greg Ludvigson (Iowa Geol. Survey), for this trip. A guidebook is planned, and we encourage additional submissions. Please contact me if you would like to submit something on the Ordovician geology of the UMV area.

**YOCHELSON, ELLIS L. (USA).** Partially retired from retirement of 20 years ago is doing little on the Ordovician, but still interested in gastropods of that age.

**YOUNG, GRAHAM (Canada).** I’m continuing to work on Paleozoic paleoecology, and on coral diversity and distribution before and after the Late Ordovician extinction event. Collaborations with Bob Elias examine diversity, community structure,

and morphology of coral faunas. A large field project with Bob, Dave Rudkin, Godfrey Nowlan, and others assesses paleoenvironments around a unique Late Ordovician-Early Silurian archipelago in the Churchill area, northern Manitoba. Field research in this area is nearly complete; current laboratory research is concentrating on some of the important taxonomic groups (corals, trilobites, and conodonts). Successful 2004 fieldwork on unusual Ordovician-Silurian sections in central Manitoba is now being followed up in an M.Sc. student project by Brandy Chapman, who will be considering stratigraphy, paleoenvironments, and paleoecology.

**ZHAN, RENBIN (China).** I am currently working on Ordovician brachiopods of South China. Several Early to Mid Ordovician brachiopod faunas from different localities on Yangtze Platform (South China Paleoplate) are being studied systematically and synecologically. My major interest is the brachiopod biodiversification of South China during Ordovician including the Ordovician radiation and its related problems. I am trying to discuss in detail the macroevolution of Early to Mid Ordovician brachiopod  $\alpha$ -diversity,  $\beta$ -diversity and  $\gamma$ -diversity of South China. Besides, a bilateral collaboration between Prof. Jisuo Jin at University of Western Ontario (Canada) and me are being conducted on the "Comparative study of Ordovician brachiopod diversity trends between South China and North America and their paleoenvironmental and paleobiogeographic significance". Several joint papers are to be published in 2005.

**ZHANG, YUANDONG (China).** I am working on the following aspects: (1) the Ordovician Bioradiation—response of graptolites in South China. This work has started since 2000, and in 2004 the work is concentrated on the evolution of graptolite diversity. My colleagues and I tried to identify the presumably different patterns of graptolites during the Ordovician Radiation in shallow-water Yangtze Platform and relatively deep-water Jiangnan Slope, and have obtained the primary result that is expected to be published as a section in the special volume edited by Rong Jiayu et al. 2005; We are also comparing the different response of planktic graptolite and benthic brachiopods and trilobites in Early-Middle Ordovician, and the work is still in progress. In 2004, my colleagues and I collected in details the Miaopo Formation (Uppermost Darriwilian-Caradoc) in Yichang area of South China, which yields rather diverse 3-dim pyritic graptolites and abundant brachiopods, trilobites, echinoderms and bryozoans etc. By this work, we are able to identify precisely the Mid/Upper Ordovician boundary in Yangtze Platform and thus make available the complete early-Middle Ordovician graptolite succession that can be referred by those specialists working on shelly clades as a left-hand standard. Another field excursion to Wuning of Jiangxi in June, where Dr. Ni Yunan and the flock

from Nanjing University found the diverse early to middle Ordovician graptolite fauna in 1980s turned out to be in vain, as the sections have been covered by dense jungles that grew up in recent years. (2) Cladistic study on the origins of the three major groups of Ordovician and Silurian graptolites: dichograptids, diplograptids and monograptids, based mainly on data from South China (with Prof. Chen Xu, Feng Hongzhen, Dr. Fan Juanxuan and Prof. R.A. Fortey etc.). The study on the origin and early evolution of biserial graptolites has already produced a paper for "Palaeontology". At moment, Prof. Chen Xu, Dr. Fan Junxuan and I are identifying and coding the characters for the analysis of early monograptids. We hope to run the PAUP analysis in the summer of 2005. The cladistic study on the origin of dichograptids will be collaborated with Prof. Feng Hongzhen of Nanjing University who has recently discovered in Hunan Province of China an important section yielding well-preserved late Tremadocian graptolites. These works are supported by a grant from the Natural Science Foundation of China. (3) I am supposed to be responsible for the pre-Conference field trip of 2007 Nanjing Conference on Ordovician and Silurian Systems, and the concerned work is in progress.

**ZHEN, YONG YI (Australia).** I am working on the Ordovician conodonts from NSW and China in 2004 in association with Dr. Ian Percival from The Geological Survey of New South Wales and Dr. Jianbo Liu from Peking University. Two manuscripts describing the Early Ordovician Honghuayuan faunas from Guizhou are currently in press or under reviews. A third manuscript is also nearly ready for submission.

**ZUYKOV, MICHAEL (Russia).** I continue to work on Upper Ordovician brachiopods of Baltoscandia with colleagues from Estonia, Denmark, Sweden and United Kingdom.

## RECENT ORDOVICIAN PUBLICATIONS

**Achab, A., Paris, F., Nölvak, J. and Asselin, E. 2004.** Patterns and Driving Factors of the Chitinozoan Diversification During the Ordovician. International Symposium on Early Palaeozoic Palaeogeography and Palaeoclimate, Erlangen, Germany. Abstracts and Field Guides, Erlanger Geol. Abh. Sonderband 5: 17.

**Adrain, J.M., Lee, D.C., S.R. Westrop, S.R., Chatterton, B.D.E., and Landing, E. 2003.** Classification of the trilobite subfamilies Hystricurinae and Hintzeturinae subfam. nov., with new genera from the Lower Ordovician (Ibexian) of Idaho and Utah. *Memoirs of the Queensland Museum*, 41: 55–105.

**Adrain, J.M., Edgecombe, G.D., Fortey, R.A., Hammer, Ø., Laurie, J.R. McCormick, T., Owen, A.W., Waisfeld, B., Webby, B.D., Westrop, S. R. and Zhou Zhi-Yi. 2004.** Trilobites. pp. 231-254, In:

- Webby, B. D., Droser, M. L. and Paris, F. (eds) The Great Ordovician Biodiversification Event. Columbia University Press, New York. 484 pp.
- Ainsaar, L., Meidla, T. and Martma, T. 2004.** The Middle Caradoc Facies and Faunal Turnover in the Late Ordovician Baltoscandian palaeobasin. *Palaeogeography, Palaeoclimatology, Palaeoecology*, 210: 119-133.
- Albanesi, G.L. and Bergström, S.M. 2004.** Conodonts: Lower to Middle Ordovician record. In: B.D. Webby, F. Paris, M.L. Droser and I.G. Percival (eds.). The Great Ordovician Biodiversification Event. Columbia University Press. New York: 312-336, tabs. 1-3, figs. 1-4.
- Albanesi, G.L. and Bergström, S.M. 2004.** The Early Ordovician paleobiogeographical position of the Argentine Precordillera as suggested by conodont faunas. 32<sup>nd</sup> International Geological Congress, Florence, Italy. Abstracts, part 2: 213-7.
- Albanesi, G.L., Carrera, M.G., Cañas, F.L. and Saltzman, M. 2004.** Definition of a global boundary stratotype section and point (GSSP) for the base of the Middle Ordovician Series: The Niquivil section, Precordillera of San Juan, Argentina. Informe de la International Subcommission on Ordovician Stratigraphy (ICS-IUGS), publicación electrónica: <http://seis.natsci.csulb.edu/ordstrat1>.
- Albanesi, G.L., Monaldi, C.R. and Ortega, G. 2004.** La fauna de conodontes de la Formación Capillas, Ordovícico de la sierra de Zapla, provincia de Jujuy, Argentina. Reunión anual de comunicaciones de la Asociación Paleontológica Argentina, Diamante. *Ameghiniana* 41 (4): 5.
- Albanesi, G.L. and Voldman, G.G. 2004.** Ordovician Paleothermometry of the Argentine Precordillera based on Conodont Color Alteration Index. International Symposium on Early Palaeozoic Palaeogeography and Paleoclimate, Erlanger Geologische Abhandlungen, Erlangen, Germany. Abstract: 18.
- Al-Ruwaili, M., Vecoli, M., and Le Hérisse, A., 2004.** New record of primitive vegetation in the middle Ordovician of Saudi Arabia, and originality of the associated marine microphytoplankton. Abstracts, XI International Palynological Congress, Granada, Spain. *Polen* 14, 163.
- Antoshkina, A.I. 2003.** Late Ordovician succession in the Subpolar Urals. In: G.L. Albanesi, M.S. Beresi and S.M. Peralta (eds.) Ordovician from the Andes, Proceedings of the 9<sup>th</sup> International Symposium on the Ordovician System. Serie Correlaciyn Geologica 17, INSUGEO, Tucumán: 353-355.
- Antoshkina, A.I. 2003.** Reef building in the Palaeozoic (as an example of the northern part of the Urals and adjacent areas). *Ekaterinburg, Nauka*: 303 p. [in Russian].
- Antoshkina, A.I. 2004.** Upper Ordovician in the Chernyshev Swell, Timan-northern Ural region. In: O. Hints and L. Ainsaar (eds.) WOGOGOB-2004 8th Meeting on the Working Group on the Ordovician Geology of Baltoscandia May 13-18, 2004, Tallinn and Tartu, Estonia: 13-14.
- Antoshkina, A.I. and Beznosova, T. 2004.** New data on the Ordovician/Silurian boundary deposits of the southern part of the Chernyshev Swell. In: N.P. Yushkin (Ed.) Proceedings of the XIV Geological Symposium of the Komi Republik. Vol. III. Syktyvkar, Geoprint: 215-218 [in Russian].
- Armstrong, H.A. 2004.** Euconodont histology, modularity and the development of complexity. Palaeontological Association Annual Meeting, University of Lille.
- Armstrong, H.A. (in press).** Modes of growth in the euconodont oral skeleton: implications for bias and completeness in the fossil record. In: Purnell, M. A. and Donoghue, P. C. J. (eds) 2005: Conodont biology and phylogeny - interpreting the fossil record. Special Papers in Palaeontology 73.
- Armstrong, H.A. and Brasier, M.D. 2004.** Microfossils, 2nd edition. Blackwell Scientific Publications.
- Armstrong, H.A., Turner, B. R. and Makhlof, I. M. 2003.** Hirnantian glaciation: a high latitude perspective from Palaeo-Tethys. Programme with Abstracts, EGS-AGU-EUG Joint Assembly 2003.
- Armstrong, H.A., Turner, B. R. and Makhlof, I.M. 2004.** Hirnantian glaciation: a high latitude perspective from Palaeo-Tethys. Programme with Abstracts, IGCP Project 503, Erlangen.
- Armstrong, H. A., Turner, B. R., Makhlof, I. M., Weedon, G. P., Williams, M., Al Smadi, A. and Abu Salah, A. (in press).** Origin, sequence stratigraphy and depositional environment of an Upper Ordovician (Hirnantian) deglacial black shale, Jordan. *Palaeogeography, Palaeoclimatology, Palaeoecology*. Abstracts
- Armstrong, H. A., Turner, B. R., Makhlof, I. M., Williams, M., Al Smadi, A. and Abu Salah, A. 2004.** Sequence stratigraphy and depositional environment of an Upper Ordovician (Hirnantian), peri-glacial petroleum source rock. Jordanian Geologists Association International Conference, Amman, Jordan.
- Asselin, E., Achab, A. and Soufiane, A. 2004.** Stratigraphic Significance of Lower Paleozoic Assemblages from Eastern Canada. *Canadian Journal of Earth Sciences* 41: 489-505.
- Astini, R.A. 2003.** The Ordovician Proto-Andean basins. En: Benedetto, J.L. (ed.), Ordovician fossils of Argentina. Secretaría de Ciencias y Tecnología, Universidad Nacional de Córdoba. 1-74.
- Astini, R.A. and Dávila, F.M. 2004.** Ordovician retroarc foreland and Ocolytic thrust belt development on the western Gondwana margin as a response to the Precordillera terrane accretion. *Tectonics*, 23(4), TC4008, 10.1029/2003TC001620.

- Astini, R.A. and Rapalini, A.E. 2003.** "Proterozoic–Early Paleozoic evolution in western South America—a discussion". Discussion. Tectonophysics, 366: 143-148.
- Astini, R.A., Thomas, W.A. and Yochelson, E.L. 2004.** Salterella in the Argentine Precordillera: an Early Cambrian palaeobiogeographic indicator of Laurentian affinity Palaeogeography, Palaeoclimatology, Palaeoecology, 213 (1-2): 125-132. Elsevier.
- Astini, R.A., Waisfeld, B.G., Toro, B.A. and Benedetto, J.L. 2004.** El Paleozoico Inferior y medio de la región de Los Colorados, borde occidental de la Cordillera Oriental (provincia de Jujuy), Argentina. Revista de la Asociación Geológica Argentina, 243-260.
- Bagnoli, G., Ribecai, C. and Albani, R. 2004.** Changes in some acritarch genera across the Volkhov/Kunda boundary on Oeland (Sweden). In: Munnecke A., Servais T. and Schulbert C. (eds) International Symposium on Early Palaeozoic Palaeogeography and Palaeoclimate. Erlanger geol. Abh., Sonderband 5: 20-21 (abs.).
- Barnes, C.R. 2004.** Was there an Ordovician superplume event? p. 77-80. In: The Great Ordovician Biodiversification Event. B.D. Webby, F. Paris, M.L. Droser, and I.G. Percival (eds.), Columbia University Press, New York, 484p.
- Barnes, C.R. 2004.** Ordovician oceans and climate. p. 72-76 In: The Great Ordovician Biodiversification Event. B.E. Webby, F. Paris, M.L. Droser, and I.G. Percival (eds.), Columbia University Press, New York, 484p.
- Barnes, C.R. 2004.** Ordovician paleoceanography. 32<sup>nd</sup> International Geological Congress, Florence, Italy. Program with Abstracts CD.
- Barnes, C.R., Zhang, S., and Pyle, L.J. 2004.** Interpreting Laurentian-wide Early Ordovician sea level and tectonic events using the pattern of conodont communities. Joint annual meeting of the Geological Association of Canada and Mineralogical Association of Canada, Program with Abstracts CD.
- Bassett, M.G., Cope, J.C.W., Hancock, J.M. and Holland, C.H. 2004.** Simplifying the stratigraphy of time: Comment. Geology: Online Forum, p. e60.
- Bassett, M.G., Dastanpour, M., Ghobadi Pour, M. and Popov, P.E. 2004.** Early Ordovician faunas from the Tabas and Damghan regions, Iran and their biogeographical significance. The Eighth Meeting of the Working Group on the Ordovician Stratigraphy of Baltoscandia (WOGOGOB), Tallinn and Tartu, Estonia, 13<sup>th</sup> -18<sup>th</sup> May 2004, Abstracts: 16-17.
- Bassett, M.G., Dastanpour, M., Ghobadi Pour, M. and Popov, L. E. 2004.** Biogeographical assessment of the Early to Mid Ordovician benthic faunas of north-central Iran. Erlangen Geologische Abhandlungen, Sonderband 5, International Symposium on Early Palaeozoic palaeogeography and Palaeoclimate, Erlangen, September 1-3, 2004. Abstracts and field guides: 21.
- Benedetto, J.L., 2004.** The allochthony of the Precordillera ten years later (1993-2003): A new paleobiogeographic test of the microcontinental model. Gondwana Research, 7 (4): 1027-1039.
- Bergström, S.M. and Ahlberg, P. 2004.** Guide to some classical Ordovician and Cambrian localities in the Fagelsang area, Scania, southern Sweden. Erlanger geologische Abhandlungen Sonderband 5: 81-89.
- Bergström, S.M., Huff, W.D., Saltzman, M.R., Kolata, D.R. and Leslie, S. A. 2004.** The greatest volcanic ash falls in the Phanerozoic: Trans-Atlantic relations of the Ordovician Millbrig and Kinnekulle K-bentonites. The Sedimentary Record, 2(4):4-8.
- Bergström, S. M., Löfgren, A. and Grahn, Y. 2004.** The stratigraphy of the Upper Ordovician carbonate mounds in the subsurface of Gotland. GFF, 126: 289-296.
- Bergström S.M., Löfgren, A. and Maletz, J. 2004.** The GSSP of the Second (Upper) Stage of the Lower Ordovician Series: Diabasbrottet at Hunneberg, Province of Vastergotland, southwestern Sweden. Episodes, 27(4):265-272.
- Beznosova, T. M., Majdl', T. V., Männik, P., Martma, T., Lukin, Yu. V. and Pashnin, A. I. 2004.** Ordovician and Silurian boundary in Subpolar Urals: new developments and problems. In Yushkin, N. P. (ed.) Geology and mineral resources of the European north-east of Russia: Materials of the XIV Geological Congress of Komi Republic. Vol. IV. Geoprint, Syktyvkar: 224-227. [In Russian]
- Bourahrouh, A., Paris, F. and Elaouad-Debbaj, Z. 2004.** Biostratigraphy, biodiversity and palaeoenvironments of the chitinozoans and associated palynomorphs from the Upper ordovician of the Anti-Atlas, Morocco. Review of Palaeobotany Palynology , 130: 17-40.
- Boucot, A.J., Chen Xu and Scotese, C.R., 2004.** Phanerozoic Climatic Zones and Paleogeography with a Consideration of Atmospheric CO2 Levels. Paleontological Journal, 2004(2): 3-11. (In Russian with English abstract).
- Brett, C.E., Algeo, T.A. and McLaughlin, P.I. 2003.** Use of event beds and sedimentary cycles in high-resolution stratigraphic correlation of lithologically repetitive successions: the Upper Ordovician Kope Formation of northern Kentucky and southern Ohio. In Harries, P., Geary, D. (eds.), High-resolution stratigraphic approaches to paleobiology, Kluwer Academic/Plenum Press.
- Brett, C.E. and McLaughlin, P.I. 2004.** EO-Ulrichian to Neo-Ulrichian views: the renaissance of "layer-cake stratigraphy". Abstracts with programs, Geological Society of America national meeting 2004.
- Brett, C.E., McLaughlin, P.M., Baird, G.C., and Cornell, S.R. 2004.** Comparative sequence

stratigraphy of the Upper Ordovician (Turinian-Edenian) of the Trenton shelf (New York-Ontario) and Lexington Platform (Kentucky-Ohio) successions: implications for eustasy and local tectonism in eastern Laurentia. *Palaeogeography, Paleoclimatology, Palaeoecology*, v. 210, p. 295-329.

**Brezinski, D.K., Repetski, J.E., and Cecil, C.B. 2004.** Stops 9, 10, 12, and 13, p. 110-112 and 116-123. In, Cecil, C.B., Brezinski, D.K., and Dulong F. (trip leaders), with stop contributions by Blake, B., Eble, C., Fedorko, N., Grady, W., Repetski, J., Skema, V., and Stamm, R.: The Paleozoic record of changes in global climate and sea level: central Appalachian basin. In, *Geology of the National Capital Region – Field Trip Guidebook*, Southworth, Scott, and Burton, William (Eds.). U.S. Geological Survey, Circular 1264, 1-298.

**Brussa, E.D. and Toro, B.A. 2004.** Las familias Glossograptidae, Dicranograptidae y Orthograptidae (Graptolithina) en el Ordovícico Superior de la Formación Empozada, provincia de Mendoza, Argentina. *Ameghiniana*, 41 (2): 129-142.

**Buatois, L.A. and Mángano, M.G. 2003.** Sedimentary facies and depositional evolution of the Upper Cambrian to Lower Ordovician Santa Rosita Formation in northwest Argentina. *Journal of South American Earth Sciences* 16: 343-363.

**Buatois, L.A., Moya, M.C., Mángano, M.G. and Malanca, S. 2003.** Paleoenvironmental and sequence stratigraphic framework of the Cambrian-Ordovician transition in the Angosto del Moreno area, northwest Argentina. *Proceedings of the 9th International Symposium on the Ordovician System*, San Juan: 397-401.

**Budil, P. 2004.** Pravdepodobne najstarsi dochovany popsany exemplar trilobita z uzemi Ceske republiky (Probably the oldest described trilobite specimen from the territory of the Czech Republic, in Czech); *Cesky kras*, 30: 63.

**Budil, P. and Bruthansová, J. 2004.** Zmeny ve způsobu exuviace trilobitu behem ontogeneze (in Czech). - 5. paleontologická konference, Zborník abstraktov, Bratislava, 20-21.

**Budil, P. and Bruthansová, J. 2005.** Moulting in Ordovician Dalmanitacean and Acastacean trilobites of the Prague Basin. Preliminary observations; *Geologica Acta*, (in print).

**Budil, P. and Fortey, R. 2004.** Rediscovery of probably the oldest described trilobite specimen from the Barrandian area (Czech Republic); *Trilobite Papers* 16: 24-26. 2004.

**Budil, P. and Kolář, P. 2004.** Phacops (Paciphacops) chlupaci sp. n. from the Lower Devonian (Zlichovian Stage) of the Prague Basin. and#8211; *Jour. Czech. Geol. Soc.* 49: 3-4.

**Calner, M., Jeppsson, L. and Munnecke, A. 2004.** The Silurian of Gotland - Part I: Review of the stratigraphic framework, event stratigraphy, and stable carbon and oxygen isotope development. *Erlanger*

*geologische Abhandlungen, Sonderband 5: 113-131.* (<http://www.pal.uni-erlangen.de/IGCP503/page/Gotland-I.pdf>)

**Calner, M., Jeppsson, L. and Munnecke, A. 2004.** The Silurian of Gotland - Part II: Guide to the IGCP 503 field meeting 2004. *Erlanger geologische Abhandlungen, Sonderband 5: 133-151.* (<http://www.pal.uni-erlangen.de/IGCP503/page/Gotland-II.pdf>)

**Carmona, N.B., Buatois, L.A. and Mángano, M.G. 2004.** The trace fossil record of burrowing decapod crustaceans: evaluating evolutionary radiations and behavioural convergence. In: Webby, B.D., Mángano, M.G. and Buatois, L.A. (Eds.), *Trace Fossils in evolutionary palaeoecology. Fossils and Strata*, 51: 141-153.

**Carrera, M.G. and Cech, N. 2003.** Taxonomic turnover and community replacement in the Early Ordovician limestones of the Argentine Precordillera. En: Albanesi G., Beresi M. y Peralta, S. (eds.) 9th. *International Symposium on the Ordovician System. Ordovician from the Andean, INSUGEO, serie de Correlación Geológica*, 17: 279-283.

**Carrera, M.G. and Rigby, J.K. 2004.** Sponges. "The Great Ordovician Biodiversification Event" Edited By Barry D. Webby, Mary L. Droser, Florentin Paris And Ian G. Percival. Columbia University Press. Pp. 102-111.

**Chen Xu, Rong Jia-yu, Fan Juan-xuan, Zhan Renbin, Mitchell, C.E., Harper, D.A.T., Melchin, M.J. and Wang Xiao-feng. 2004.** A final report on the GSSP candidate of the Hirnantian Stage, 23 s. *International Subcommission on Ordovician Stratigraphy*, [www.ordovician.cn](http://www.ordovician.cn).

**Chen Xu, Rong Jia-yu, Li Yue and Boucot, A.J. 2004.** Facies patterns and geography of the Yangtze region, South China, through the Ordovician and Silurian transition. *Palaeogeography, Palaeoclimatology, Palaeoecology*, 204(2004): 353-372.

**Cherns, L., Rohr, D.M. and Fryda, J. 2004.** Ordovician symmetrical univalved molluscs (Tryblidiida and Bellerophonitida), 179-183. In: *The Great Ordovician Biodiversification Event*, B. D. Webby, F. Paris, M. L. Droser, and I. G. Percival (eds), Columbia University Press, New York, 408 pp.

**Cherns, L., Wheeley, J.R. and Karis, L. 2004.** Tunnelling trilobites in Middle Ordovician Thalassinoides. *The Palaeontological Association Newsletter*, 57, 116.

**Choi, D.K., Chough, S.K., Fitches, W.R., Kwon, Y.K., Lee, S.-B., Kang, I., Woo, J., Shinn, Y.J., Lee, H.S. and Sohn, J.W. 2004.** Filed Trip Guide for Ninth International Conference of the Cambrian Stage Subdivision Working Group. *Cambrian in the Land of Morning Calm. The Paleontological Society of Korea, Special Publication 8: 1-75.*

**Choi, D.K., Chough, S.K., Kwon, I.K., Lee, S.-B., Woo, J., Kang, I., Lee, H.S., Lee, S.M., Sohn, J.W., Shinn Y.J. and Lee, D.J. 2004.** Taebaek Group



- (Cambrian-Ordovician) in the Seokgaejae section, Taebaeksan Basin: a refined lower Paleozoic stratigraphy in Korea. *Geosciences Journal*, 8: 125-151.
- Cocks, L.R.M. and Cooper, R.A. 2004.** Late Ordovician (Hirnantian) shelly fossils from New Zealand and their significance. *New Zealand Journal of Geology and Geophysics* 47: 71-80.
- Cocks, L.R.M. and Torsvik, T.H. 2004.** Major terranes in the Ordovician. Pp. 61-67 in Webby, B.D., et al. (eds) *The Great Ordovician Biodiversification event*. Columbia University Press, New York.
- Cooper, R.A. 2004.** Measures of diversity. Pp 52-57. In Webby, B.D., Droser, M.L., and Paris, F. (eds) *The Great Ordovician Biodiversification event*. Columbia University Press, 484 pp.
- Cooper, R.A. (ed.). 2004.** *The New Zealand Geological Timescale*. Institute of Geological and Nuclear Sciences Monograph 22, 284 pp.
- Cooper, R.A., Maletz, J., Taylor, L. and Zalasiewicz, J.A. 2004.** Estimates of Ordovician mean standing diversity in low, middle and high paleolatitudes. Pp 281-293 In Webby, B.D., Droser, M.L., and Paris, F. (eds.) *The Great Ordovician Biodiversification event*. Columbia University Press, 484 pp.
- Cope, J.C.W. 2004.** Bivalve and rostroconch molluscs. 196-208 In: Webby, B. D., Paris, F., Droser, M. L. and Percival, I. G. (eds). *The Great Ordovician Biodiversification event*. Columbia University Press, New York.
- Cornell, S.R., and Brett, C.E. 2004.** Comparative sequence stratigraphy of the Black River to lower Trenton Group Interval (Upper Ordovician): Implications for climatic, and associated faunal changes. *American Association of Petroleum Geologists Eastern Section Meeting*, (Columbus, OH), AAPG Bulletin Vol. TBA.
- Dahlqvist, P. 2004.** Late Ordovician (Hirnantian) depositional pattern and sea-level change in shallow marine to shoreface cycles in central Sweden. *Geological Magazine* 141, 605-16.
- Dahlqvist, P. and Calner, M. 2004.** Late Ordovician palaeoceanographic changes as reflected in the Hirnantian - early Llandovery succession of Jämtland, Sweden. In M.C. Pope and M.T. Harris (eds.): *New Insights into Late Ordovician Climate, Oceanography, and Tectonics*, 149-164. *Palaeogeography, Palaeoclimatology, Palaeoecology* 210.
- Díaz Martínez, E. and Grahn, Y. 2004.** Ordovician-Silurian boundary near La Paz (Bolivia): stratigraphy, sedimentology, chitinozoan biostratigraphy and regional palaeogeographic implications. In: A. Munnecke, T. Servais y C. Schulbert (eds.), "International Symposium on Early Palaeozoic Palaeogeography and Palaeoclimate (IGCP Project 503)", Erlangen. *Erlanger geologische Abhandlungen*, vol. 5, p. 31.
- Dobretsov, N.L., Shumny, V.K. and Kanygin, A.V. 2001.** The problems of origin and evolution of life // *Vestnik of All-Union Society of genetics and selectors*, no. 17, August pp. 2-6 (in Russian).
- Dong, Xiping, Repetski, J.E., and Bergström, S.M. 2004.** Conodont biostratigraphy of the Middle Cambrian through Lowermost Ordovician in Hunan, South China. *Acta Geologica Sinica*, 78(6), 1185-1206.
- Dorning, K.J. 2004.** Acritarch and chitinozoan evidence of Palaeozoic marine productivity. Abstracts, XI International Palynological Congress, Granada, Spain. *Polen*, 14: 137-138. ISSN: 1135-8408.
- Dorning, K.J. 2004.** Acritarchs. In: Selley, R.C., Cocks, L.R.M. and Plimer, I.R. (eds.) *Encyclopedia of Geology*, Elsevier, Oxford, vol. 3: 418-427. ISBN: 0126363803
- Egenhoff, S.O., Maletz, J. and Erdtmann, B.-D. 2004.** Lower Ordovician graptolite biozonation and lithofacies of southern Bolivia: relevance for palaeogeographic interpretations. *Geological Magazine*, 141: 287-299.
- Ellwood, B., Tomkin, J., Brett, C.E. and McDonald, W.D. 2004.** A test of the magnetostratigraphic susceptibility: Upper Ordovician (Edenian) Kope Formation, Kentucky and development of floating point time scales. *Geological Society of America Abstracts with Programs* 36 (6).
- Eriksson, M. and Hints, O. 2004.** Diversity trends of Ordovician jawed polychaetes. In: Hints, O. and Ainsaar, L. (eds.). *WOGOGOB-2004: Conference Materials. Abstracts and Field Guide Book*. Tartu University Press, Tartu: 29-30. Hints, O. and Ainsaar, L. (eds.). 2004. *WOGOGOB-2004 Conference Materials*. Tartu University Press, Tartu: 1-140.
- Ernst, A. and Suttner, T. 2004.** Bryozoa from the Pin Formation (Upper Ordovician - Lower Silurian) in the Tethyan Zone of the Indian Himalayas. *Early Palaeozoic Palaeogeography and Palaeoclimate*, IGCP 503, *Erlanger Geologische Abhandlungen*, Sb. 5, Erlangen: 33.
- Fang, Z.-J. and Cope, J.C.W. 2004.** Early Ordovician bivalves from Dali, West Yunnan, China. *Palaeontology*, 47: 1121-1158.
- Fernández-Martínez, E., Carrera, M.G. and Rodríguez, S., 2004.** Corales tabulados del Ordovícico (Caradoc) de la Precordillera Argentina. *Revista Española de Paleontología* 19 (1): 47-59.
- Frey, R.C., Beresi, S.M., Evans, D.H., King, A.H. and Percival, I.G. 2004.** Nautiloid cephalopods. In Webby, B.D., Paris, F., Droser, M.L. and Percival, I.G. (eds.), *The Great Ordovician Biodiversification Event*. Columbia University Press, New York: 209-213.
- Fryda, J., and Rohr, D.M. 2004.** Gastropoda, 184-195. In: *The Great Ordovician Biodiversification Event*, B. D. Webby, F. Paris, M. L. Droser, and I. G.

- Percival (eds), Columbia University Press, New York, 408 pp.
- Ghobadi Pour, M., Popov, L.E., Lehnert, O., Hairapetian, V. and Hosseini, M. 2004.** Emergence of the Palaeozoic Evolutionary Fauna in the early Ordovician of the Alborz Range, northeastern Iran. Erlangen Geologische Abhandlungen, Sonderband 5, International Symposium on Early Palaeozoic palaeogeography and Palaeoclimate, Erlangen, September 1-3, 2004. Abstracts and field guides: 38.
- Harper, D.A.T. 2004.** Palaeontological collections at the Geological Museum, University of Copenhagen: from cabinet of curiosities to databases. Scripta Geologica Special Issue 4, 118-126.
- Harper, D.A.T. 2004.** Brachiopods, 301-310. In Selley, R.C., Cocks, L.R.M. and Plimer, I.R. (eds) Encyclopedia of Geology. Elsevier, Amsterdam.
- Harper, D.A.T., Cocks, L.R.M., Sheehan, P.M., Bassett, M.G., Copper, P., Holmer, L.E., Jin Jisuo and Rong Jia-yu 2004.** Ordovician brachiopod diversity, 157-178. In Webby, B.D., Droser, M.L., Paris, F. and Percival, I.G. (eds) The Great Ordovician Biodiversification Event. Columbia University Press.
- Harper, D.A.T., Villas, E. and Ortega, G. 2004.** Lipanorthis Benedetto from the Tremadocian of NW Argentinian reidentified as a dalmanellidine: Significance for the origin and early radiation of the punctuate orthide brachiopods. Lethaia 37, 271-279.
- Harris, M.T, Sheehan, P., Ainsaar, L., Hints, L., Männik, P., Nõlvak, J. and Rubel, M. 2004.** Upper Ordovician sequences of western Estonia. Palaeogeography, Palaeoclimatology, Palaeoecology, 210: 135-148.
- Harris, M.T., Schultz, T., Sheehan, P.M., Ainsaar, L., Nõlvak, J., Hints, L., Männik, P. and Rubel, M. 2004.** The Upper Ordovician of Estonia: facies, sequences, and basin evolution. In: Hints, O., Ainsaar, L. (eds.) WOGOGOB-2004 8th Meeting of the Working Group on the Ordovician Geology of Baltoscandia. May 13-18, 2004, Tallinn and Tartu, Estonia. Conference Materials. Abstracts and Field Guidebook. Tartu. 37-38.
- Heredia, S.E. and Beresi, M.S. 2004.** La Formación Empozada y su relación con la Formación Estancia San Martín (Nov. nom.), Ordovícico de la Precordillera de Mendoza, Argentina. Revista Asociación Geológica Argentina, vol. 59 (2):178-192. Buenos Aires.
- Hints, L. 2004.** Maximizing diductor adhesion: An unusual cardinal process in Late Ordovician brachiopods from Estonia. Acta Palaeontologica Polonica, 49 (4); 635-638.
- Hints, O. and Ainsaar, L. (eds.). 2004.** WOGOGOB-2004 Conference Materials. Tartu University Press, Tartu: 1-141.
- Hints, O., Eriksson, M., Högström, A.E.S., Kraft, P. and Lehnert, O. 2004.** Chapter 23. Worms, Worm like and Sclerite-Bearing Taxa. In: Webby, B.D., Paris, F., Droser, M.L., Percival, I.G. (eds.). The Great Ordovician Biodiversification Event. Columbia University Press, New-York: 223-230.
- Hints, L. and Müdel, A. 2004.** Late Ordovician ripple marks in Vasalemma quarry, NW Estonia. In: Hints, O., Ainsaar, L. (eds.) WOGOGOB-2004 8th Meeting of the Working Group on the Ordovician Geology of Baltoscandia. May 13-18, 2004, Tallinn and Tartu, Estonia. Conference Materials. Abstracts and Field Guidebook. Tartu. 39-40.
- Hints, L., Männik, P. and Pärnaste, H. 2004.** Stop 3. Vasalemma quarry. In: Hints, O. and Ainsaar, L. (eds.). WOGOGOB-2004 Conference Materials. Tartu University Press, Tartu: 121-124.
- Hints, O., Nõlvak, J., Mens, K. and Viira, V. 2004.** New palaeontological finds from the Tremadocian of Kadriorg, Tallinn, North Estonia. In: Hints, O. and Ainsaar, L. (eds.). WOGOGOB-2004: Conference Materials. Abstracts and Field Guide Book. Tartu University Press, Tartu: 43-44.
- Hints, L., Oraspõld, A. and Nõlvak, J. 2004.** Pirgu Stage in the East Baltic: lithotypes, biozonation and problems of correlation. In: Hints, O., Ainsaar, L. (eds.) WOGOGOB-2004 8th Meeting of the Working Group on the Ordovician Geology of Baltoscandia. May 13-18, 2004, Tallinn and Tartu, Estonia. Conference Materials. Abstracts and Field Guidebook. Tartu. 41-42.
- Iwata K., Buslov M.M., Sennikov N.V., Ermikov V.D., Obut O.T., Izokh N.G. and Khlebnikova T.V. 2004.** Late Cambrian-Early Ordovician accretion complex and Early-Middle Paleozoic (?) volcanic-siliceous terrigenous sequence in the Charysh-Terekta strike-slip zone of the North Altai Mountains, Russia. International Symposium on Growth and Deformation of Asian Continent. Extended Abstracts. The Hokkaido University Museum Press: 11-14.
- Johnson, M. E., Rong Jiayu and Su Wen-bo. 2004.** Paleogeographic orientation of the Sino-Korean Plate based on evidence for a prevailing Silurian wind field. The Journal of Geology, 112: 671-684.
- Kaljo, D., Hints, L., Martma, T., Nõlvak, J. and Oraspõld, A. 2004.** Late Ordovician carbon isotope trend in Estonia, its significance in stratigraphy and environmental analysis. Palaeogeography, Palaeoclimatology, Palaeoecology, 210; 165-185.
- Kanygin, A.V. 2001.** The Ordovician phenomenon of explosive divergence in the Earth's organic kingdom: ecological revolution in marine ecosystems // Biodivergence in the Earth history. Abstracts for XLVII Session of Paleontological Society, St.-Petersburg, pp. 37-40 (in Russian).
- Kanygin, A.V. 2001.** The Ordovician phenomenon of explosive divergence of the Earth's organic realm: causes and effects of the biosphere evolution. //Russian Geology and Geophysics. Vol. 42, no. 4, p. 631-667.
- Kanygin, A.V. 2001.** Actual and retrospective models for biosphere: the ways to overcome

conceptual differences // Fundamental problems in geology and tectonics of North Eurasia. Abstracts for the 90-th A.L. Yanshin anniversary Conference. Novosibirsk, SB RAS Publishing House, pp. 99-101 (in Russian).

**Kanygin, A.V. 2001.** Ozone hypothesis of the Ordovician phenomenon of explosive divergence and spatial expansion of the marine biotas. //International geological correlation program IGCP 410/421 Joint meeting, Novosibirsk, 4-21 August, 2001, pp. 100-102.

**Kanygin, A.V. 2002.** Biostratigraphy in the context of new evolutionary paradigm (“universal evolutionism”) //Biochronological problems in paleontology and geology. Abstracts for XLIII Session of Paleontological Society in RAS (8-12 April 2002), St.-Petersburg, 2002, pp. 43-47 (in Russian).

**Kanygin, A.V. 2002.** Revolutionary innovations in the history of early biosphere (Archean-Ordovician) and their relation to global geological events. //Geology, geochemistry and geophysics at the turn from the XX-th to XXI-st century. Russian Foundation for Basic Research (RFBR) in Asiatic region. Abstracts for “RFBR 10-th anniversary” Conference. Irkutsk, pp. 51-53 (in Russian).

**Kanygin, A.V. 2002.** Ecological revolution within Ordovician marine ecosystems: start of coherent evolution of the Biosphere. In: First International Paleontological Congress (IPC 2002). Geological Society of Australia, Abstracts. No. 68. 6-10 July, 2002, Macquarie University, N.S.W., Australia, pp. 87-88.

**Kanygin, A.V. 2002.** Two ways of life development on the Earth: evolutionary potential of exogenic (photospheric) and endogenic (hydrothermal) ecosystems. In: First International Paleontological Congress (IPC 2002), Geological Society of Australia, Abstracts. No. 68. 6-10 July, 2002, Macquarie University, N.S.W., Australia, pp. 34-35.

**Kanygin A.V. 2004.** Eulogy on catastrophes. //First-hand science. No. 1, pp. 28-39.

**Kanygin, A.V. 2004.** Geological conditions of life evolution. //Present-day problems of science. Materials of scientific session, 25-26 November 2004. Origin and evolution of life on the Earth. Novosibirsk, pp. 23-38.

**Kanygin, A.V. 2004.** Geoaromorphoses determine the main way of biosphere evolution. //Biosphere processes: paleontology and stratigraphy. Abstract for the 50-th Session of All-Union Paleontological Society, St.-Petersburg, pp. 56-59.

**Kanygin, A.V. 2004.** Speciation in the context of ecosystem reconstructions (for example Ordovician explosion of biodiversity). //Abstracts for the Conference “Species and speciation problem”, Tomsk, October 2004, 4 p. (in Russian).

**Kanygin, A.V. 2004.** The unique Ordovician explosion of biodiversity in retrospect of early evolution of biosphere: geological and biological

interpretation. 32-nd International Geological Congress. Florencia, Italy, August 20-28, 2004. Scientific Sessions: abstracts (part 2) Session 213/G22.02 – The global Ordovician Earth system, pp. 989-990.

**Kanygin, A.V., Yadrenkina A.G., Timokhin A.V., Moskalenko T.A., Sychev O.V. and Abaimova G.P. 2005.** Stratigraphy of oil and gas Basins of Siberia. Ordovician of Siberian Platform. Novosibirsk, Publishing House of SB RAS, Department «Geo» (in press).

**Kanygin, A.V., Yadrenkina, A.G., Timokhin, A.V. and Sychev, O.V. 2002.** Evolution chorology of benthic communities in the Ordovician seas of Siberia. In: First International Paleontological Congress (IPC 2002), Geological Society of Australia, Abstracts. No. 68. 6-10 July, 2002, Macquarie University, N.S.W., Australia, pp. 35-36.

**Katzung, G., Maletz, J. and Feldrappe, H. 2004.** Altpaläozoikum. pp. 51-69. In Katzung, G. Geologie von Mecklenburg-Vorpommern. Schweizerbart'sche Verlagsbuchhandlung.

**Kim, D.H., Lee, J.G. and Choi, D.K. 2004.** A proposal for regional stages for the Cambrian-Ordovician in Korea. Newsletters on Stratigraphy, 40: 11-37.

**Kiipli, T. and Kallaste, T. 2001.** Volcanogenic interbed. In: A. Põldvere (Ed.) Estonian Geological Sections, Valga (10) drillcore. Geological Survey of Estonia, Bulletin 3: 16 – 17.

**Kiipli, T. and Kallaste, T. 2002.** Characteristics of volcanism, Soovälja (K-1) drill core, Geological Survey of Estonia, Bull. 4: 17 – 21.

**Kiipli, T. and Kallaste, T. 2003.** Altered volcanic ash beds. In: A. Põldvere (Ed.) Estonian geological sections, Ruhnu (500) drillcore. Geological Survey of Estonia, Bull. 5: 31 – 33.

**Kiipli, E., Kallaste, T. and Kiipli, T. 2004.** Metabentonites of the Pirgu Stage (Ashgill, Upper Ordovician) of the East Baltic. In: Hints O. and Ainsaar L. (Eds) WOGOGO-2004, Conference Materials. Tallinn-Tartu, Estonia, 53-54.

**Kiipli, T., Kallaste, T. and Kiipli, E. 2004.** Areal variations in the composition of the Kinnekulle altered volcanic ash bed (Caradoc) - relations to sedimentary facies. In: Hints O. and Ainsaar L. (Eds) WOGOGO-2004, Conference Materials. Tallinn-Tartu, Estonia, 55-56.

**Koren, T., Gorshenina, V. and Tolmacheva, T. 2004.** Volkhov graptolites from the Lower-Middle Ordovician boundary beds of the St. Petersburg region Russia. Paläontologische Zeitschrift, 78(1): 195-215.

**Kraft, P. and Kraft, J. 2004.** Boundary intervals of graptolite biozones in the Klabava Formation (Ordovician, Prague Basin). Geoscience Research Reports for 2003, Czech Geological Survey: 25-27. [In Czech.]

- Kraft, P. and Lehnert, O. 2004.** Palaeoscolecidans and Chaetognaths. In: Hints, O., Eriksson, M., Högstöm, A. E. S., Kraft, P. and Lehnert, O.: Chapter 23. Worms, Wormlike and Sclerite-Bearing Taxa. In: Webby, B. D., Paris, F., Droser, M. L. and Percival, I. (eds.): The Great Ordovician Biodiversification Event. Columbia University Press, New York: 228-230.
- Kraft, P. and Linnemann, U. (eds.). 2004.** Traces of the Rheic Ocean in Central Europe. Excursion II, Post-Symposium. In: Kraft, P., Linnemann, U. and Mazur, S. (eds.): Gondwanan margin of the Rheic Ocean in the Bohemian Massif. IGCP 497 The Rheic Ocean: Its origin, Evolution and Correlatives, Opening Meeting 2004. Excursion Guidebooks and Abstracts: 23-92.
- Kraft, P., Linnemann, U. and Mazur, S. (eds.). 2004.** Gondwanan margin of the Rheic Ocean in the Bohemian Massif. IGCP 497 The Rheic Ocean: Its origin, Evolution and Correlatives, Opening Meeting 2004. Excursion Guidebooks and Abstracts: 1-108.
- Kruse, P.D., Laurie J.R., and Webby B.D. 2004.** Cambrian geology and palaeontology of the Ord Basin. Memoir of the Australasian Association of Palaeontologists 30: 1-58.
- Landing, E. 2003.** Sauk "sequence" and the Knox unconformities: Practical base of the Upper Ordovician. Geological Society of America, Abstracts with Programs, 35(6): 544, 545.
- Landing, E. 2005.** Early Paleozoic Avalon-Gondwana unity: an obituary—response to "Palaeontological evidence bearing on global Ordovician-Silurian continental reconstructions" by R.A. Fortey and L.R.M. Cocks. Earth-Science Reviews, 69: 169–175.
- Landing, E., Pe-Piper, G., Kidd, W.S.F., and Azmy, K. 2003.** Tectonic setting of outer trench slope volcanism: pillow basalt and limestone in the Ordovician Taconian orogen of eastern New York. Canadian Journal of Earth Sciences, 40: 1173–1187.
- Landing, E., Westrop, S.R., and Lee, D.H. 2003.** First Middle Ordovician biota from southern New Brunswick: stratigraphic and tectonic implications for the evolution of the Avalon continent. Canadian Journal of Earth Sciences, 40: 715–730.
- Landing, E., Westrop, S.R., and Van Aller Hernick, L. 2003.** Uppermost Cambrian–Lower Ordovician faunas and Laurentian platform sequence stratigraphy, eastern New York and Vermont. Journal of Paleontology, 77: 78–98.
- Lavoie, D. and Asselin, E. 2004.** A New Stratigraphic Framework for the Gaspé Belt in Southern Quebec: Implications for the pre-Acadian Appalachians of Eastern Canada. Canadian Journal of Earth Sciences 41: 507-525.
- Lee, S.B., Lefebvre, B. and Choi, D.K. 2004.** Tremadocian stylophoran echinoderms from the Taebaek Basin, Korea. Erlanger Geologische Abhandlungen, 5: 47-48.
- Lee, S.B., Lefebvre, B. and Choi, D.K. 2004.** Morphometric analysis of Tremadocian (earliest Ordovician) kirkocystid mitrates (Echinodermata, Stylophora) from the Taebaeksan Basin, Korea. Geobios, 37(6): 731-748.
- Lee S.B., Lefebvre, B. and Choi, D.K. (in press).** Uppermost Cambrian cornutes (Echinodermata, Stylophora) from the Taebaeksan Basin, Korea. Journal of Paleontology, 79(1): 146-160.
- Lefebvre, B. and Esprit, N. 2004.** Palaeoecology and palaeobiogeography of Cambro-Ordovician stylophoran echinoderms. Erlanger Geologische Abhandlungen, 5: 50.
- Lefebvre, B., Ghobadipour, M. and Nardin, E. (in press).** Ordovician echinoderms from the Tabas and Damghan regions, Iran : palaeobiogeographical implications. Bulletin de la Société géologique de France.
- Lefebvre, B., Ghobadipour, M. and Nardin, E. 2005.** Ordovician echinoderms from the Tabas and Damghan regions, Iran: palaeobiogeographical implications. Bulletin de la société géologique de France. In Press.
- Li, Jun. 2004.** Environmental significance of the Ordovician acritarchs from Tarim Basin, NW China. Polen, 14: 133-134.
- Li, Jun, Changqun Cao, Servais, T., and Youhua Zhu. 2004.** Later Permian acritarchs from Meishan (SE China) in the context of Permian palaeobiogeography and palaeoecology. N. Jb. Geol. Paläont. Mh., 2004 (7): 427-428.
- Li, Jun, Servais, T. Yan Kui, and Zhu Huaicheng, 2004.** A nearshore-offshore trend in the acritarch distribution of the Early-Middle Ordovician of the Yangtze Platform, S-China. Review of Palaeobotany and Palynology, 130 (1-4): 141-161.
- Li, Jun and Yan Kui. 2004.** The Ordovician acritarchs assemblage from Meitan Formation, Tongzi, South China: biostratigraphy and biodiversity. Erlanger geologische Abhandlungen Sonderband 5: 50-51.
- Li, Y., Kershaw, S. and Chen, X. 2004.** Control of carbonate sedimentation and reef growth in Llandovery sequences on the northwestern margin of Yangtze Platform, South China. Gondwana Research, 7 (4), 937-949.
- Li, Y., Kershaw, S. and Mu, X. 2004.** Ordovician reef systems and settings in south China before the Late Ordovician mass extinction. Palaeogeography, Palaeoclimatology, Palaeoecology. 205, 235-254.
- Löfgren, A. 2004.** The conodont fauna in the Middle Ordovician Eoplacognathus pseudoplanus Zone of Baltoscandia. Geological Magazine, 141: 505-524.
- Lubnina, N.V. 2004.** Paleomagnetic investigation of the Ordovician rocks from St. Petersburg area: age of remagnetizations and their correlation with tectonic events. In: Mertanen, S. (eds.). Supercontinents, remagnetizations and geomagnetic modeling. 5th

Nordic Paleomagnetic Workshop, GTK, Report Q29.1/2004/1, Espoo: 103-108.

**Lubnina, N.V. 2004.** Ordovician palaeogeographical reconstructions of Baltica: palaeomagnetic data. International Symposium on Early Palaeozoic Palaeogeography and Palaeoclimate. Germany, Erlangen: 52.

**Lubnina, N.V. and Zaitsev, A.V. 2004.** Paleomagnetic investigations of the Early-Middle Ordovician limestones of the St. Petersburg area. In: Hints, O., Ainsaar, L. (eds.). WOGOGOB-2004 Conference materials, Tartu University Press, Tartu: 59-60.

**Lubnina, N.V., Zaitsev, A.V. and Pavlov, V.E. 2005.** New data on position of paleomagnetic pole of the East-European continent in Ordovician. Doklady Earth Science, 401.

**Lubnina, N.V., Zaitsev, A.V. and Pavlov, V.E. 2005.** New paleomagnetic data on magnetostratigraphy of the Early-Middle Ordovician of St. Petersburg area. Vestnik MSU: Geology.

**Lubnina, N.V., Zaitsev, A.V. and Pavlov, V.E. 2004.** Paleomagnetic investigation of the Ordovician rocks from St. Petersburg area: new paleomagnetic data and magnetostratigraphy. In: Mertanen, S. (eds.). Supercontinents, remagnetizations and geomagnetic modeling. 5th Nordic Paleomagnetic Workshop, GTK, Report Q29.1/2004/1, Espoo: 29-34.

**Lee, S.-B., Lefebvre B. and Choi, D.K. 2004.** Morphometric analysis of Tremadocian (earliest Ordovician) kirkocystid mitrates (Echindermata, Stylophora) from the Taebaeksan Basin, Korea. Geobios, 37: 731-748.

**Legrand, Ph. 2003.** Paléogéographie du Sahara algérien à l'Ordovicien terminal et au Silurien inférieur. Bulletin de la Société géologique de France, 174 (1): 19-32.

**Legrand, Ph. 2004.** The Late Ordovician glaciation of North-African Gondwana: the present stage of knowledge; 32 nd IGC Florence - Scientific Sessions: abstracts (2): 988.

**Le Hérisse, A., Massa, D., Paris, F. and Steemans, P. 2004.** Northern Gondwana palynomorphs from the Ordovician-Silurian boundary beds: the exemple of northern Chad. Sedimentary basins of Libya, Third Symposium: Geology of East Libya, Benghazi, 21-23 Nov. 2004.

**Lehnert, O., Nowlan, G.S. and Lee, C. 2004.** Die Bedeutung der Conodontenstratigraphie in der Klastenforschung am Beispiel der Tertiärabfolgen von Ellesmere Island (kanadische Arktis). Archiv für Geschiebekunde 3 (8/11): 599-618.

**Li, J., Servais, T., Yan, Y., and Zhu, H. 2004.** A nearshore-offshore trend in the acritarch distribution of the EarlyMiddle Ordovician of the Yangtze Platform, S-China. Review of Palaeobotany and Palynology. Amsterdam.

**Li, Yue, Kershaw, S., and Chen Xu, 2004.** Control of Carbonate Sedimentation and Reef Growth in

Llandovery Sequences on the Northwestern Margin of the Yangtze Platform, South China. Gondwana Research, 7(4): 937-939.

**Ludvigson, G.A., Witzke, B.J., González, L.A., Carpenter, S.J., Schneider, C.L., and Hasiuk, F.H., 2004.** Late Ordovician (Turinian-Chatfieldian) carbon isotope excursions and their stratigraphic and paleoceanographic significance: Palaeogeography, Palaeoclimatology, Palaeoecology, 210: 187-214 .

**Maletz, J. 2004.** Isolated Chewtonian (Lower Ordovician) graptolites from western Newfoundland. Paläontologische Zeitschrift, 78: 173-187.

**Maletz, J. 2004.** Late Arenig (Castlemainian 4) graptolites from the Ballantrae Complex, SW Scotland. Scottish Journal of Geology, 40: 185-187.

**Mángano, M.G., Astini, R., Buatois, L.A. and Dávila, F. 2003.** The Ordovician System in the Famatina Belt: depositional and tectonic evolution. In: Aceñolaza, F.G. (Ed.), Aspects of the Ordovician System in Argentina. Serie de Correlación Geológica 16: 295-312.

**Mángano, M.G. and Buatois, L.A. 2003.** Trace Fossils. In: Benedetto, J.L. (Ed.), Ordovician Fossils of Argentina. Universidad Nacional de Córdoba, Secretaría de Ciencia y Tecnología, p. 507-553.

**Mángano, M.G. and Buatois, L.A. 2003.** Trace fossils and storm deposits in the Late Cambrian to Early Ordovician Santa Rosita Formation, northwest Argentina. Third Latinoamerican Sedimentological Congress, Abstract Volume: 175-176.

**Mángano, M.G. and Buatois, L.A. 2003.** Ichnofabrics from Late Cambrian to Early Ordovician open marine siliciclastic deposits in northwest Argentina: Environmental controls and evolutionary innovations. VII International Ichnofabric Workshop, Abstracts, p. 37. Basel.

**Mángano, M.G. and Buatois, L.A. 2003.** El Paleozoico inferior de la Sierra del Campo, provincia de Tucumán: Nuevos datos sobre la prolongación austral de la cuenca eopaleozoica del noroeste argentino. Revista de la Asociación Geológica Argentina 58: 623-628.

**Mángano, M.G. and Buatois, L.A. 2004.** Integración de estratigrafía secuencial, sedimentología e icnología para un análisis cronoestratigráfico del Paleozoico inferior del noroeste argentino. Revista de la Asociación Geológica Argentina 59: 273-280.

**Mángano, M.G. and Droser, M.L. 2003.** Ecospace utilization and paleoenvironmental expansion during the Ordovician radiation: the ichnologic evidence. Proceedings of the 9th International Symposium on the Ordovician System, San Juan: 315-319.

**Mángano, M.G. and Droser, M.L. 2004.** The ichnologic record of the Ordovician radiation. In: Webby, B.D., Droser, M.L., Paris, F. and Percival, I.G. (Eds.), The Great Ordovician Biodiversification Event. Columbia University Press, New York. 369-379.

- Mángano, M.G. and Waisfeld, B. 2004.** Looking for the usual suspects: Trilobites as Cruziana-Rusophycus producers in lower Paleozoic sandstones of northwest Argentina. *Ichnia* 2004, First International Congress on Ichnology, Abstract Book. Trelew.
- Männik, P. 2003.** Distribution of conodonts. In Pöldvere, A. (ed.) Ruhnu (500) drill core. Estonian Geological Sections 5, Geological Survey of Estonia, Tallinn: 17–23.
- Männik, P. 2004.** Recognition of the Mid-Caradoc Event in the conodont sequence of Estonia. In: Hints, O. and Ainsaar, L. (eds.). WOGOGOB-2004 Conference Materials. Tartu University Press, Tartu: 63-64.
- Männik, P., Beznosova, T. and Martma, T. 2004.** Ordovician–Silurian boundary in the Subpolar Urals, some new developments. In: Hints, O. and Ainsaar, L. (eds.). WOGOGOB-2004 Conference Materials. Tartu University Press, Tartu: 65-66.
- Mayr, U., Brent, T., de Freitas, T., Frisch, T., Nowlan, G.S. and Okulitch, A.V. 2004.** Geology of eastern Prince of Wales Island and adjacent smaller islands, Nunavut. Geological Survey of Canada Bulletin 574.
- McGhee G.R., Jr., Sheehan, P.M., Bottjer, D.J. and Droser, M.L. 2004.** Ecological ranking of Phanerozoic biodiversity crises: ecological and taxonomic severities are decoupled. *Palaeogeography, Palaeoclimatology, Palaeoecology*, 211: 289-297.
- McLaughlin, P.I. and Brett, C.E. 2004.** Eustatic and tectonic control on the distribution of marine seismites: examples from the Upper Ordovician of Kentucky, USA. *Sedimentary Geology*, 168: 165-192.
- McLaughlin, P.I. and Brett, C.E. 2004.** Sequence stratigraphy and stratinomy of marine hardgrounds: Examples from the middle Paleozoic of eastern Laurentia. Geological Society of America Abstracts with Programs, 36 (6).
- McLaughlin, P.I. and Brett, C.E. 2004.** High-resolution sequence and event stratigraphy of the Trenton-Utica succession in Ohio: new insights into the Late Ordovician paleogeography of eastern Laurentia. Abstracts with programs. AAPG eastern section meeting 2004.
- McLaughlin, P.I. and Brett, C.E. 2004.** Faunal gradient analysis of “shoal” carbonates: uncovering the role of siliciclastic sediment starvation in producing widespread skeletal sediments. Abstracts with programs, AAPG Annual Meeting 2004.
- McLaughlin, P.I., Brett, C.E., Taha McLaughlin, S.L., and Cornell, S.R. 2004.** High-resolution sequence stratigraphy of a mixed carbonate-siliciclastic, cratonic ramp (Upper Ordovician; Kentucky-Ohio, USA): insights into the relative influence of eustasy and tectonics through analysis of facies gradients. *Palaeogeography, Palaeoclimatology, Palaeoecology* 210: 267-294.
- Mikuláš, R. and Dronov, A.V. 2004.** Description vs. interpretation: problem of small rounded pits and shafts of the Early Ordovician hard substrates (St Petersburgs region, Russia). 4th International Bioerosion Workshop, Abstract Book. Institute of Geology, Academy of Sciences of the Czech Republic, Prague: 44-45.
- Mikuláš, R. and Dronov, A.V. 2004.** Early Ordovician of the Baltic Region: A birthplace of modern bioerosion and complex ichnofabric? *Ichnia* 2004. First International Congress of Ichnology. Abstract Book. Museo Paleontológico Egidio Feruglio, Trelew: 57-58
- Melchin, M.J., Rong Jiayu, Gradstein, F., Koren’ T.N. and Finney, S.C. 2004.** Stability in Stratigraphy. *Lethaia*, 37(1): 124-125.
- Moczydlowska, M., Popov, L. and Stockfors, M. 2004.** Upper Cambrian-Ordovician successions overlying Timanian complexes: new evidence of acritarchs and brachiopods from Kolguev Island, Arctic Russia. *Geobios*, 37(2): 239-251.
- Mohiuddin, U., Molyneux, S. Paris, F. and Penney R.A. 2004.** Haima Supergroup of Oman: Biostratigraphy and palaeoenvironments. XI IPC Granada, Abstracts. *Polen*, 14: 440.
- Molyneux, S.G, Mohiuddin, U., Penney, R. and Paris, F. 2004.** Turnover of acritarch and chitinozoan species, endemism and sequence stratigraphy in the Lower Palaeozoic of Oman XI IPC Granada, Abstracts (Oral presentations). *Polen*, 14: 132.
- Moreau, J., Ghienne, J.-F., Deynoux, M. and Rubino, J.-L. 2004.** Ice-proximal sedimentary records of the Late Ordovician glacial cycles. Early palaeozoic Paleogeography and Palaeoclimates, IGCP 503, Erlangen, September 1-3. In: Munnecke, A., Servais, T., and Shulbert, C.. City-Druck, Tischner and Hoppe GmbH, Nürnberg, Germany. P.55.
- Moya, M.C., Malanca, S., Monteros, J.A, Albanesi, G.L., Ortega, G. and Buatois, L.A. 2003.** Late Cambrian – Tremadocian faunas and events from the Angosto del Moreno section, Eastern Cordillera, Argentina. Proceedings of the 9th International Symposium of the Ordovician System, San Juan: 439-444.
- Mullins, G.L., Aldridge, R.J. and Dorning, K.J. 2004.** The phytoPal reference database, 09/09/2004, 97 pp. [http://www.le.ac.uk/geology/glm2/phytopal/reference\\_database.pdf](http://www.le.ac.uk/geology/glm2/phytopal/reference_database.pdf).
- Mullins, G. L., Aldridge, R.J., Dorning, K. J., Le Herisse, A, Moczydlowska-Vidal, M., Molyneux, S., Servais, T. and Wicander, R. 2004.** PhytoPal: a database of Palaeozoic phytoplankton. Abstracts, XI International Palynological Congress, Granada, Spain. *Polen*, 14: 242. ISSN: 1135-8408. Poster at <http://www.le.ac.uk/geology/glm2/phytopal/granada.pdf>.
- Munnecke, A., Samtleben, C. and Bickert, T. 2003.** The Ireviken Event in the lower Silurian of Gotland, Sweden - relation to similar Palaeozoic and

- Proterozoic events. *Palaeogeography, Palaeoclimatology, Palaeoecology*, 195(1-2): 99-124.
- Munnecke, A., Servais, T. and Schulbert, C. (eds.) 2004.** International Symposium on Early Palaeozoic Palaeogeography and Palaeoclimate, September 2004, Erlangen, Germany - Abstracts and Field Guides.- Erlanger geologische Abhandlungen, Sonderband 5, 156 pp. (<http://www.pal.uni-erlangen.de/IGCP503/page/proceedings.pdf>)
- Munnecke, A. and Westphal, H. (in press).** Variations in primary aragonite, calcite, and clay in fine-grained calcareous rhythmites of Cambrian to Jurassic age - an environmental archive? *Facies*, 51.
- Musteikis, P. and Cocks, L.R.M. 2004.** Strophomenide and orthotetide Silurian brachiopods from the Baltic region, with particular reference to Lithuanian boreholes. *Acta Palaeontologica Polonica* 49: 455-482.
- Nardin, E. and Lefebvre, B. 2004.** Palaeogeography and biodiversity of Cambro-Ordovician echinoderms. *Erlanger Geologische Abhandlungen*, 5: 55-56.
- Nardin, E., Lefebvre, B. and Ghobadipour, M. 2004.** Lower Ordovician echinoderms from the Lashkarak Formation, Damghan area, northern Iran. In: Chatzipetros A.A. and Pavlides S. B. (eds.). *Proceedings, 5th International Symposium on Eastern Mediterranean Geology*, 14-20 April 2004, Thessaloniki, 1: 484-487.
- Nardin, E., Lefebvre, B. and Ghobadi Pour, M. 2004.** Lower Ordovician echinoderms from the Lashkarak Formation, Damghan area, northern Iran. *Fifth International Symposium on Eastern Mediterranean Geology*, Thessaloniki, Greece, 14-20 April 2004, Abstracts, Ref: S5-18.
- Nestell, G. P. and Tolmacheva, T. Yu. 2004.** Early Ordovician foraminifers from the Lava River Section, northwestern Russia. *Micropaleontology*, 50 (3): 253-280.
- Nitecki, N.H. Webby B.D., Spjelnaes N. and Zhen Y.Y. 2004.** Receptaculitids and Algae; pp.336-347. In B.D.Webby, F. Paris, M.L. Droser and I.G. Percival (eds.). *The Great Ordovician Biodiversification Event. Critical Moments and Perspectives in Paleobiology and Earth History Series.* Columbia University Press, New York.
- Nowlan, G.S., Bobrowsky, P.M. and Clague, J.J. 2004.** Protection of Geological Heritage: A North American Perspective on Geoparks. *Episodes*, v. 27, p. 172-176.
- Ortega, G. and Albanesi, G.L. 2004.** El registro de fósiles guías para la correlación intercontinental del Paleozoico Inferior en el Sistema de Famatina a partir de los primeros hallazgos efectuados por Bodenbender. *Simposio Bodenbender. CRILAR, La Rioja. INSUGEO, Tucumán, Miscelánea* 13: 21-22.
- Ortega, G., Albanesi, G.L., Banchig, A.L. and Peralta, G.L. 2004.** Bioestratigrafía de graptolitos y conodontes de la Formación Sierra de La Invernada (Ordovícico Medio a Superior), Precordillera de San Juan, Argentina. *Reunión anual de comunicaciones de la Asociación Paleontológica Argentina, Diamante. Ameghiniana* 41 (4): 17.
- Ortega, G., Albanesi, G.L. and Frigerio, S.E. 2004.** Early Darriwilian graptolite and conodont biofacies in the Los Azules Formation, Cerro Viejo section, Central Precordillera, Argentina. *International Symposium on Early Palaeozoic Palaeogeography and Paleoclimate, Erlanger Geologische Abhandlungen, Erlangen, Germany. Abstract: 57.*
- Owens, R.M. 2002.** Cyclopygid trilobites from the Ordovician Bultth-Llandrindod inlier, central Wales. *Palaeontology*, 45:469-485.
- Owens, R.M. 2004.** Late Ordovician and early Silurian Proetida (Trilobita) from north-western and central Europe. *Palaeontology*, 47: 557-578.
- Palmer, T.J. and Wilson M.A. (in press).** Calcite precipitation and dissolution of biogenic aragonite in shallow Ordovician Calcite Seas. *Lethaia*, 37.
- Paris, F., Achab, A., Asselin, E., Nölvak, J., Wang, X.-F., Chen, X., Grahn, Y., Sennikov, N., Obut, O., Samuelsson, J., Vecoli, M., Verniers, J. and Winchester- Seeto, T., 2004.** Chitinozoa. In: B. D. Webby, M.L. Droser, F. Paris and I. Percival. (Editors), *The Great Ordovician Diversification Event.* Columbia University Press: 294-311.
- Paris, F. A. Le Hérisse, O., Vecoli, M., Monod, J.F. Ghienne, Dean W.T., Kozlu H. and Günay Y. 2004.** Northern Gondwana chitinozoans and acritarchs from the Ordovician of Turkey. XI IPC Granada, Abstracts (Oral presentations). *Polen*, 14: 163.
- Paris, F. and Webby B.D. 2004.** Aims, achievements and lessons learnt from six years of IGCP Project n° 410. In A. Munneke, T. Servais and C. Schulbert eds: *International Symposium on Early Palaeozoic Palaeogeography and Palaeoclimate.* Erlangen September 1-3, 2004. *Abstract and Field Guides, Erlanger geol.Abh.*, 5, 156: 59.
- Podhalańska, T. 2004.** New data on the Ordovician ichnofossils from the Koszalin-Chojnice region (Pomerania, NW Poland), palaeogeographic implication. *Int. Symp.on Early Palaeozoic Palaeogeography and Palaeoclimate. Abstracts and Field Guides, Erlangen geol. Abh.*, 5, p. 60.
- Pope, M., and Harris, M.T. 2004.** New insights into Late Ordovician climate, oceanography and tectonics (introduction to theme issue): *Palaeogeography, Palaeoclimatology, and Palaeoecology*, 210: 117-118.
- Popov, L.E. and Holmer, L.E. 2003.** Understanding lingulid brachiopods: *Obolus* and *Ungula* as examples. *Carnets de Geologie – Notebooks on Geology, Maintenin, Article 2003/06 (CG2003\_AO6\_LEP-LEH):* 13 pp.
- Puura, I. and Viira, V. 2004.** Tracing the base of the Ordovician System in Baltoscandia. In: Hints, O. Ainsaar, L. (eds.). *WOGOGO-2004 Conference Materials.* Tartu University Press, Tartu. 85-86.

- Pyle, L. J. and Barnes C.R. 2003.** Lower Paleozoic stratigraphic and biostratigraphic correlations in the Canadian Cordillera: implications for the tectonic evolution of the Laurentian margin. *Canadian Journal of Earth Sciences*, v. 40, p. 1739-1753.
- Raevskaia, E., Vecoli, M., Bednarczyk, W. and Tongiorgi, M. 2004.** Early Arenig acritarchs from the East European Craton and their palaeobiogeographic significance. *Lethaia* 37 (1): 97-111.; Taylor and Francis, Oslo.
- Rapalini, A.E. and Cingolani, C.A. 2004.** First Late Ordovician Paleomagnetic Pole for the Cuyania (Precordillera) Terrane of Western Argentina: a Microcontinent of a Laurentian Plateau? *Gondwana Research*, 7(4):1089-1104.
- Rohr, D.M., Fix, M.F. and Darrough, G. 2004.** Life association of shell and operculum of *Ceratopea Ulrich, 1911*, (Ordovician CGastropoda). *Journal of Paleontology* 78:590-593.
- Rohr, D.M., Measures, E.A., and Boyce, W.D. 2004.** Middle Ordovician (Whiterockian) gastropods from the Table Point Formation, western Newfoundland. Newfoundland Department of Mines and Energy, Report 04-1:225-234
- Rong, Jiayu, Alvarez F., Modzalevskaya T.L. and Zhang Yan. 2004.** Revision of the Athyrasininae, Siluro-Devonian brachiopods from China and Russia. *Palaeontology*, 47(4): 811-857.
- Rong, Jiayu and Zhan Renbin. 2004.** Niuchang Formation, a new lithostratigraphical unit of Llandovery (Silurian) from the Upper Yangtze Region. *Journal of Stratigraphy*, 28(4): 300-306 (in Chinese with English abstract).
- Rong, Jiayu, Zhan Renbin and Jin Jisuo. 2004.** The Late Ordovician and Early Silurian pentameride brachiopod *Holorhynchus Kiaer, 1902* from North China. *Journal of Paleontology*, 78(2): 287-299.
- Rowan, E.L., Ryder, R.T., Repetski, J.E., Trippi, M.H. and Ruppert, L.F. 2004.** Initial results of a 2D burial/thermal history model, central Appalachian basin, Ohio and West Virginia. U.S. Geological Survey Open-File Report 04-1445, 1-34.
- Rozhnov, S.V. 2002.** Morphogenesis and evolution of crinoids and other pelmatozoan echinoderms in the Early Paleozoic// *Paleontol. journ.* Vol. 36. Suppl. 6. P.S525-S674.
- Rozhnov, S.V. 2003.** (coauthors Sumrall, Colin D., Koverman, Kimberly S.) Where is the missing Cambrian echinoderm diversity – evidence from Arctic Siberia// *The Geological Society of America. Joint Annual Meeting. Abstract ID#:49533*
- Rozhnov, S.V. 2003.** Contribution of Echinoderms to the Change in Structure and Composition of the Benthos at the Cambrian-Ordovician Boundary// *Abstracts of Guide book of Ordovician expedition-2003 in Mongolia. Ulaanbaatar. P.31-32.* Palaeogeography and the origin of higher taxa of echinoderms in the Early Palaeozoic// *Erlanger geologische Abhandlungen. 5. S. 62-63.*
- Rozhnov, S.V. 2004.** Echinoderms of the biogerms of the Baltic Ordovician basin: comparison of the coldwater (Volkhovian) and tropical (Keila) communities// 8<sup>th</sup> Meeting of the Working Group on the Ordovician Geology of Baltoscandia. Conference materials. Tartu University Press. P. 88-89
- Rozhnov, S.V. 2004.** Development of the echinoderm communities in the Eastern part of the Baltic Ordovician Basin. In: *The Ordovician plateau. Dedicated to 100-th anniversary of B.P. Asatkin.* Moscow. P. 109-119. [in Russian].
- Rozhnov, S.V. 2005.** Morphological patterns in the formation and evolution of higher taxa of echinoderms. In: *Vorobieva E.I. (Ed.). The Evolutionary Factors of Animal Diversity Formation.* Moscow, KMK Publishers. P. 157-172. [In Russian].
- Rubinstein, C., Mángano, M.G. and Buatois, L.A. 2003.** Late Cambrian acritarchs from the Santa Rosita Formation: Implications for the recognition of the Cambrian-Ordovician boundary in the Eastern Cordillera of northwest Argentina. *Revista Brasileira de Paleontologia* 6: 43-48.
- Sadler, P.M. and Cooper, R.A. 2004.** Calibration of the Ordovician timescale. In *Webby, B.D., Droser, M.L., and Paris, F. (eds.), The Great Ordovician biodiversification event.* Columbia University Press: 48-51.
- Saltzman, M.R. and Young, S.A. 2005.** A long-lived glaciation in the Late Ordovician?: Isotopic and sequence stratigraphic evidence from western Laurentia: *Geology*, v. 33, p. 109-112.
- Sánchez, T.M. and Benedetto, J.L. 2004.** The higher-taxa paleogeographical segregation as a major feature of the Ordovician radiation: evidence from brachiopods and bivalves of western Gondwana. 32<sup>nd</sup> International Geological Congress, The Global Ordovician Earth Symposium. Abstracts: 213-214.
- Sánchez, T.M., Marengo, L. and Astini, R.A., 2003.** Late Ordovician *Bibalvia Heteroconchia* (Cycloconchidae and Glyptarcidae) from western Argentina. *Ameghiniana*, 40: 433-440.
- Sennikov, N.V. 2003.** Ordovician events in Altai-Salair-Kuznetsky and Tuva basins and their influence on the sedimentary facies and marine biota (Siberia, Russia) // In: *Albanesi G.I., Beresi M.S. and Peralta S.H. (Eds.). Ordovician from the Andes. INSUGEO, Serie Correlacion Geologica*, 17: 461-465.
- Sennikov, N.V., Kazansky A.Yu., Iwata K., Obut O.T., Sugai Y., Zybin V.A. and Khlebnikova T.V. 2004.** Comparative Position of Baneny and Biya-Katun' Terrains (Altai-Sayn Folded Area, Russia) in Cambrian Based on Combined Paleomagnetic and Paleontological Data // *Gondwana Research. Vol. 7, № 3: 833-841.*
- Sennikov, N.V. and Obut, O.T. 2003.** Synthesis of the graptolite and chitinozoan for the Altai-Salair



- Ordovician Basin (Siberia, Russia). In: Ortega G. and Acenolaza G.F. (Eds.). Proceedings of the 7<sup>th</sup> International Graptolite Conference and Field Meeting of the International Subcommittee on Silurian Stratigraphy. INSUGEO, Serie Correlacion Geologica, 18: 93-97.
- Sennikov, N.V., Obut, O.T., Iwata, K., Khlebnikova, T.V., and Ermikov, V.D. 2004.** Lithological Markers and Bio-indicators of Deep-water Environments during Paleozoic Siliceous Sedimentation (Gorny Altai Segment of the Paleo-Asian Ocean) // Gondwana Research, Vol. 7, № 3: 843-852.
- Servais, T., Li-Jun, Stricanne, L., Vecoli, M. and Wicander, R., 2004.** Acritarchs. In: B.D., Webby, F., Paris, M.L., Droser, and I.G., Percival, (eds.), The Great Ordovician Biodiversification Event. Columbia University Press, New York; pp. 348-360.
- Servais, T., Stricanne, L., Montenari, M. & Pross, J. 2004.** Population dynamics of galeate acritarchs at the Cambrian-Ordovician transition in the Algerian Sahara. *Palaeontology*, 47: 395-414.
- Servais, T., Li-Jun, Stricanne, L., Vecoli, M. and Wicander, R., 2004.** Acritarchs. In: B.D., Webby, F., Paris, M.L., Droser, and I.G., Percival, (eds.), The Great Ordovician Biodiversification Event. Columbia University Press, New York; pp. 348-360.
- Servais, T. and Wellman, C. 2004.** New directions in Palaeozoic palynology. Review of Palaeobotany and Palynology 130 (1-4): 1-14.
- Sheehan, P.M. 2004.** The Late Ordovician extinction: Ecological signature of a non-impact event. Geological Society of America Abstracts with Program, v. 36, no. 5, p. 321.
- Sheehan, P.M. and Harris, M.T. 2004.** Microbiolite resurgence after the Late Ordovician extinction: *Nature*, 430: 75-78.
- Sheehan, P.M. and Harper, D.A.T. 2004** Ecologic Diversification, In: Harper et al. (2004), pp. 171- 177.
- Sivhed, U., Erlström, M., Bojesen-Koefoed, J. A. and Löfgren, A. 2004.** Upper Ordovician carbonate mounds on Gotland, central Baltic Sea: distribution, composition and reservoir characteristics. *Journal of Petroleum Geology*, 27: 115-140.
- Stricanne, L., Munnecke, A., Pross, J. and Servais, T. 2004.** Acritarch distribution along an inshore-offshore transect in the Gorstian (lower Ludlow) of Gotland, Sweden. *Review of Palaeobotany and Palynology*, 130: 195-216.
- Stricanne, L., Servais, T., Talyzina, N. and Vanguetaine, M. 2005.** Reevaluation of the Late Cambrian – Early Ordovician acritarch *Nellia acifera* Golub & Volkova. *Neues Jahrbuch für Geologie und Paläontologie, Abhandlungen*.
- Suttner, T.J. and Lukeneder, A. 2004.** Accumulations of Late Silurian serpulid tubes and their palaeoecological implications (Blumau-Formation; Burgenland; Austria). *Ann. Naturhist. Mus. Wien*, 105 A: 175-187.
- Suttner, T.J., Schönlaub, H.P. and Hubmann, B. 2004.** New conodont data of the 'Baron v. Kottwitz' section (Upper Silurian to Lower Devonian). *Pangeo Austria, Berichte des Institutes für Erdwissenschaften der Karl - Franzens - Universität Graz*, 9: 395-397.
- Tan, Lan, Han, Nairen and Zhang, Yuandong. 2004.** Ordovician Graptolite Biostratigraphy of Gongcheng, Guangxi, China. *Journal of Stratigraphy*, 28(2): 158-167.
- Taylor, P.D. and Wilson, M.A. 2003.** Palaeoecology and evolution of marine hard substrate communities. *Earth-Science Reviews*, 62: 1-103.
- Tesakov, Yu.I., Kanygin, A.V., Yadrenkina, A.G., Simonov, O.N., Sychev, O.V., Abaimova, G.P., Divina, T.A., Moskalenko, T.A. 2003.** The Ordovician of the north-western Siberian Platform. Novosibirsk, SB RAS Publishers, Affiliate "Geo", 364 p. (in Russian).
- Thomas, W.A. and Astini, R.A. 2003.** Ordovician accretion of the Argentine Precordillera terrane to Gondwana: a review. *Journal of South American Earth Science*, 16: 67-79.
- Thomas, W.A., Astini, R.A., Mueller P.A., Gehrels, G.E. and Wooden, J.L. 2004.** Transfer of the Argentine Precordillera terrane from Laurentia: Constraints from detrital-zircon geochronology. *Geology*, 32: (11): 965-968.
- Timokhin, A.V. 2002.** Chapter 2.3. Trilobites //Atlas for Paleozoic-Mesozoic fauna and flora of Trans-Baikal region, Novosibirsk, Nauka, 2002, pp. 62-70 (in Russian).
- Tolmacheva, T., Popov, L., Gogin I. and Holmer L. 2004.** Conodont biostratigraphy and faunal assemblages in radiolarian ribbon-banded cherts of the Burubaital Formation, West Balkhash Region, Kazakhstan. *Geological Magazine*, 141(6): 699-715.
- Torsvik, T.H. and Cocks, L.R.M. 2004.** Earth geography from 400 to 250 Ma: a palaeomagnetic, faunal and facies review. *Journal of the Geological Society, London*, 161: 555-572.
- Trotter, J.A., Eggins, S.M., McCulloch, M.T., Barnes C.R., Nicoll R.S. and Nowlan, G.S. 2004.** Sr Isotopic and Mg Cycling in Early Palaeozoic Seawater: Implications for Tectonic and Climatic Processes. IGCP 503 Opening Meeting, Erlangen, Germany: Early Palaeogeography and Palaeoclimate
- Turner, B.R., Armstrong, H.A. and Makhlof, I.M. 2004.** Hirnantian deglaciation: a high latitude perspective from Palaeo-Tethys. IAS European meeting, Coimbra, Portugal.
- Turner, B.R., Armstrong, H.A. and Makhlof, I.M. 2004.** Postglacial crustal tectonics and the development of fault-controlled seismites in Upper Ordovician (Ashgillian) shoreface sandstones, southern Jordan. *Geoscience Africa, Johannesburg, South Africa*.
- Turner, S., Blicek, A. and Nowlan, G.S. 2004.** Vertebrates (Agnathans and Gnathostomes). In: Webby, B.D., Paris, F., Droser, M.L. and Percival,

- I.G. (eds). The Great Ordovician Biodiversification Event. Columbia University Press, "Critical moments and perspectives in Earth history and paleobiology", chapter 30: 327-335, 2 fig., 1 tabl. ; New York.
- Tychsen, A. and Harper, D.A.T. 2004.** Ordovician-Silurian distribution of Orthida (Palaeozoic Brachiopoda) in the greater Iapetus Ocean region. *Palaeontologia Electronica* 7, 15 pp.
- Vachard, D., Munnecke, A. and Servais, T. 2004.** New SEM-observations of the keriothecal walls, implications for the evolution of Fusulinida. *Journal of Foraminiferal Research*, 34(3): 232-242.
- Vandenbroucke, T.R.A. 2004.** Chitinozoan biostratigraphy of the Upper Ordovician Fågelsång GSSP, Scania, southern Sweden. *Review of Palaeobotany and Palynology*, 130: 217-238.
- Vandenbroucke, T.R.A., Chen Xu and Verniers J. 2004.** Preliminary notes on the chitinozoans from the Wangjiawan section. Report for the ISOS Hirnantian GSSP discussion site: <http://seis.natsci.csulb.edu/ord2/default.htm>
- Vandenbroucke, T.R.A., Van Nieuwenhove N. and Verniers, J. 2004.** Towards an Upper Ordovician chitinozoan biozonation on Avalonia? Research on historical type areas and other U.K. key sections. Abstract for the Avalonia-Moesia Symposium and Workshop on the Early Palaeozoic orogens of the Trans-European Suture Zone, Ghent/Ronse 9-12 october 2004, p. 38-39.
- Vanguetaine, M., Breuer, P. and Lehnert, O. 2004.** Discovery of an Early Ordovician conodont fauna in the Salm Group of the Stavelot Inlier, Belgium. *Bulletin de l'Institut royal des Sciences naturelles de Belgique, Sciences de la Terre*, 74: 39-48.
- Van Iten, H. and Vyhlasová Z., 2004.** Conulariids. In Barry D. Webby, Florentin Paris, Mary L Droser, and Ian G. Percival: The Great Ordovician Biodiversification Event. Columbia University Press, New York: 119-123.
- Van Iten, H., Vyhlasová, Z., Zhu, M.-Y. and Yi Q. (in press).** New data on the skeletal microstructure of conulariids. *Journal of Palaeontology*.
- Vanmeirhaeghe, J. 2004.** Upper Ordovician chitinozoans from the central part of the Condroz Inlier (Belgium, Avalonia). Abstracts for the ninth International Palynological Congress, 4-9 July 2004, Granada. *Polen*, 14, 141-142.
- Vanmeirhaeghe, J. and Verniers, J. 2004.** Chitinozoan bio- and lithostratigraphical study of the Ashgill Fosses and Génicot Formations (Condroz Inlier, Belgium). *Review of Palaeobotany and Palynology* 130/1-4: 241-267.
- Vanmeirhaeghe, J., Storme, A., Van Noten, K., Van Grootel, G. and Verniers, J. 2004.** Local chitinozoan biozonation of the Upper Ordovician of the Fauquez area (Brabant Massif, Belgium). Abstract for the Avalonia-Moesia Symposium and Workshop on the Early Palaeozoic orogens of the Trans-European Suture Zone, Ghent/Ronse 9-12 october 2004, p. 41-42.
- Vanmeirhaeghe, J., Van Noten, K., Van Grootel, G. and Verniers, J. 2004.** Chitinozoans from the Upper Ordovician of the Fauquez area (Brabant Massif, Belgium). Abstract for the IGCP 503 Opening Meeting "Early Palaeozoic Palaeogeography and Palaeoclimate", 1-3 september 2004, Erlangen, Germany, in: abstractbook, 1p.
- Vecoli, M. 2004.** Stratigraphic and palaeoenvironmental distribution of organic-walled microfossils in Cambrian-Ordovician transitional strata of borehole Bir Ben Tartar-1 (Tt-1; Ghadamis Basin, southern Tunisia). *Memoirs of the Association of Australasian Palaeontologists* 29: 13-30; Geoscience Australia, Canberra.
- Vecoli, M. 2004.** Complex dynamics and Self-Organized Criticality in biodiversity patterns of Palaeozoic marine microphytoplankton. 48<sup>th</sup> Palaeontological Association Meeting, Lille, France; December 17-20, 2004; *Palaeontological Association Newsletter*, 57, p. 188.
- Vecoli, M. 2004.** Diversity patterns of Ordovician microphytoplankton in the light of Self Organized Criticality. Abstracts, XI International Palynological Congress, Granada, Spain. *Polen* 14, 137-138.
- Vecoli, M. and Le Hérisse, A. 2004.** Biostratigraphy, taxonomic diversity, and patterns of morphological evolution of Ordovician acritarchs (organic-walled microphytoplankton) from the northern Gondwana margin in relation to palaeoclimatic and palaeogeographic changes. *Earth-Science Reviews* 67 (3-4), 267-311; Elsevier, Amsterdam.
- Vecoli, M. and Le Hérisse, A. 2004.** Acritarch High-Impact-Biostratigraphy in the Ordovician of North Gondwana. Abstracts, 5<sup>ème</sup> séminaire de Géologie Pétrolière, Boumerdes, Algeria.
- Vecoli, M., Al-Ruwaili, M. and Le Hérisse, A. 2004.** Palaeobiological and palaeoenvironmental significance of cryptospores and acritarchs from the Llanvirn of Saudi Arabia. IGCP N° 503 meeting: Early Palaeozoic Palaeogeography and Palaeoclimate, Erlangen, Germany; 1-3 September 2004. *Erlanger Geologische Abhandlungen, Sonderband* 5, p. 72.
- Vecoli, M., Tongiorgi, M., Quintavalle, M. and Massa, D. 2004.** Palynological contribution to the Cambro-Ordovician stratigraphy of NW Ghadamis Basin (Libya and Tunisia). In: M.J., Salem and K.M., Oun (eds.). *Sedimentary Basins of Libya*, Second Symposium, Geology of Northwest Libya. Gutenberg Press Ltd, Malta; pp. 110-125.
- Verniers, J. and Nielsen, A.T. 2004.** Chitinozoan biozonation around the Ordovician-Silurian boundary: comparison of the GSSP at Dob's Linn (Scotland, U.K.) with the graptolite dated Lönstorp core (Scania, Sweden). Abstract of the XI International Palynological Congress, Granada 4-9 July 2004, in *Polen*, 14, pp 142-143.

- Verniers, J., Debacker, T., Vanmeirhaeghe, J. and Sintubin, M. 2004.** Review of the Anglo-Brabant Deformation Belt: advances after the PACE network. Abstract for the Avalonia-Moesia Symposium and Workshop on the Early Palaeozoic orogens of the Trans-European Suture Zone, Ghent/Ronse 9-12 October 2004, p. 43-45.
- Verniers, J., Vandenbroucke, T. and Vanmeirhaeghe, J. 2004.** Comparison of chitinozoans of the Ordovician/Silurian transition from Avalonia, Laurentia and Northern Gondwana. Résumés du 5eme Séminaire de Géologie Pétrolière, 18-20 Janvier, CRD Sonatrach, Algérie.
- Viira, V., Löfgren, A. and Mens, K. 2004.** Sedimentation, erosion and redeposition of sediment and conodont elements in the upper Tremadoc boundary beds of Cape Pakri, NW Estonia. In: Hints, O. and Ainsaar, L. (eds.). WOGOGOB-2004 Conference Materials. Tartu University Press, Tartu. p. 100.
- Westphal, H. and Munnecke, A. 2003.** Limestone-marl alternations - A warm-water phenomenon? *Geology*, 31(3): 263-266.
- Wang Xiao-feng, Chen Xiao-hong, Wang Chuan-shan and Li Zhi-hong, 2004,** Ordovician to the Lowest Silurian chronostratigraphic subdivision in China. *Journal of Stratigraphy*, 28(1): 1-17 (in Chinese with English abstract).
- Wang Xiaofeng, Svend Stouge, Bernd-D.Erdtmann, Chen Xiaohong, Li Zhihong, Wang Chuanshan, Zeng Qingluan, Zhou Zhiqiang and Chen Huiming. 2004.** A proposed GSSP for the base of the Middle Ordovician Series: the Huanghuachang section, Yichang, China, International Subcommittee on Ordovician Stratigraphy, web site.
- Wang, Xiaofeng and Chen, Xiaohong. 2004.** Ordovician chitinozoan diversification events in China. *Science in China, Ser.D Earth Sciences*, 47(10): 874-879.
- Wang, Chuanshan and Wang, Xiaofeng. 2004.** A revision of Late Ordovician *Tangyagraptus* (graptolite) in eastern Yangtze Gorges area. *Acta Geoscientica Sinica*, 25(1): 47-51 (in Chinese with English abstract).
- Webby B.D. 2004.** Introduction. In B.D.Webby, F. Paris, M.L. Droser and I.G. Percival (eds.). *The Great Ordovician Biodiversification Event. Critical Moments and Perspectives in Paleobiology and Earth History Series.* Columbia University Press, New York: 1-37.
- Webby, B.D. 2004.** Stromatoporoids. In B.D.Webby, F. Paris, M.L. Droser and I.G. Percival (eds.). *The Great Ordovician Biodiversification Event. Critical Moments and Perspectives in Paleobiology and Earth History Series.* Columbia University Press, New York: 112-118.
- Webby, B.D., Cooper R.A. Bergström and F. Paris. 2004.** Stratigraphic framework and time slices. In B.D.Webby, F. Paris, M.L. Droser and I.G. Percival (eds.). *The Great Ordovician Biodiversification Event. Critical Moments and Perspectives in Paleobiology and Earth History Series.* Columbia University Press, New York: 41-47.
- Webby, B.D., Droser, M. and Paris, F. 2004.** Final Report of IGCP Project 410 (1997-2002) "The Great Ordovician Biodiversification Event". *Episodes*, 27, 3: 203-208.
- Webby, B.D., Elias, R.J. Young, G.A., Neuman, B.E.E. and Kaljo, D. 2004.** Corals. In B.D.Webby, F. Paris, M.L. Droser and I.G. Percival (eds.). *The Great Ordovician Biodiversification Event. Critical Moments and Perspectives in Paleobiology and Earth History Series.* Columbia University Press, New York: 124-146.
- Webby, B.D., Mángano, M.G. and Buatois, L.A. (eds.). 2004.** Trace fossils in evolutionary palaeoecology. Proceedings of Session 18 (Trace Fossils) of the First International Palaeontological Congress, Sydney, Australia. *Fossils and Strata* 51: i-v, 1-153.
- Webby B.D., Paris F., and Droser M.L. 2004.** Final Report of IGCP 410 (1997-2002) - The Great Ordovician Biodiversification Event. *Episodes* 27 (3): 203-208.
- Webby, B.D., Paris, F., Droser, M.L. and Percival, I.G. (eds.). 2004.** *The Great Ordovician Biodiversification Event.* Columbia University Press, New York: 1-484.
- Wheley, J.R., Cherns, L. and Wright, V. P. 2004.** The Ordovician Baltoscandian epeiric sea - taphonomy and early diagenesis of its carbonate sediments. *Erlanger geologische Abhandlungen, Sonderband* 5, 75-76.
- Wicander, R. 2004.** A review of Ordovician Laurentian acritarch assemblages and their relevance to palaeogeographic and diversification trends. *Memoirs of the Association of Australasian Palaeontologists*, 29: 245-251.
- Wilson, M.A. 2004.** Cornulitids, coleoloids and sphenothallids. In: Webby, Droser and Paris (eds.), *The Great Ordovician Biodiversification Event.*
- Wilson, R.A, Burden, E., Bertrand, R., Asselin, E., McCracken, A.D. 2004.** Stratigraphy and Tectono-sedimentary Evolution of the Late Ordovician to Middle Devonian Gaspé Belt in northern New Brunswick: Evidence from the Restigouche Area. *Canadian Journal of Earth Sciences* 41: 527-551.
- Yochelson, E.L. 2004.** The record of the early "Scaphopoda" (?Mollusca) reevaluated. *Ann. Naturhist. Museum Wien.* 106-A: 13-31.
- Zalasiewicz, J., Rushton, A., Vandenbroucke, T., Verniers, J, Stone, P. and Floyd, J. 2004.** Submission of Hartfell Score (south Scotland) as a GSSP for the base of the middle stage of the Upper Ordovician Series. Website ISOS: <http://www.ordovician.cn/down/HartfellGSSP.pdf>
- Zhan, Ren-bin, Rong, Jia-yu, Cheng Jin-hui, and Chen, Peng-fei. 2004.** Early-Mid Ordovician

brachiopod diversification in South China. *Science in China Ser. D Earth Sciences*, 34(10): 896-907. (in Chinese).

**Zhan, Ren-bin, Rong, Jiayu, Cheng, Jinhui and Chen, Pengfei. 2004.** Preliminary study on the Early to Mid Ordovician brachiopod biodiversification of South China. *Science in China (Series D)*, 34 (10): 896-907.

**Zhang, J. and Barnes, C.R. 2004.** Late Ordovician conodonts from the Stokes Siltstone, Amadeus Basin, central Australia. In: *Second Australian Conodont Symposium*, Eds: R.Mawson and J.A.Talent, Courier Forschungsinstitut Senckenberg, Bd. 245, p. 1-38 (2003).

**Zhang, S. and Barnes, C.R. 2004.** Conodont bioevents, cladistics and response to glacio-eustasy, Ordovician-Silurian boundary through Llandovery, Anticosti Basin, Québec. In: *The palynology and micropaleontology of boundaries*, A.B. Beaudoin and M.J. Head (Eds.), Geological Society, London, Special Publications 230, 73-104.

**Zhang, S. and Barnes, C.R. 2004.** Late Cambrian and Early Ordovician conodont communities from platform and slope facies, western Newfoundland: a statistical approach. In: *The palynology and micropaleontology of boundaries*, A.B. Beaudoin and M.J. Head (Eds.), Geological Society, London, Special Publications, 230, 47-72.

**Zhang, S. and Barnes, C.R. 2004.** Arenigian (Early Ordovician) sea level history and the response of conodont communities, western Newfoundland. *Canadian Journal of Earth Sciences*, 41, 843-865.

**Zhang, S. Barnes, C.R., and Jowett, D.M.S. 2004.** Differentiating sea level events across Laurentia in the Early Silurian using the pattern of conodont communities. Joint annual meeting of the Geological Association of Canada and Mineralogical Association of Canada, Program with Abstracts CD.

**Zhang, yuandong and Erdtmann, B.-D.. 2004.** Astogenetic aspects of the dendroid graptolite *Airograptus* (Late Cambrian—Early Ordovician) and their phylogenetic implications. *Lethaia*, 37(4): 357-365.

**Zhang, Yuandong and Erdtmann, B.-D. 2004.** Late Tremadoc (Ordovician) biostratigraphy and graptolites at Dayangcha of Baishan, NE China. *Paläontologische Zeitschrift*, 78(2): 323-354.

**Zhen, Y.-y. and Percival, I.G. 2004a.** Middle Ordovician (Darriwilian) conodonts from allochthonous limestones in the Oakdale Formation of central New South Wales. *Alcheringa*, 28: 77-111.

**Zhen, Y.-y. and Percival, I.G. 2004b.** Darriwilian (Middle Ordovician) conodonts from the Weemalla Formation, south of Orange, New South Wales. *Memoirs of the Association of Australasian Palaeontologists*, 30: 153-178.

**Zhen, Y.-y., Percival, I.G. and Webby, B.D. 2004a.** Early Ordovician (Bendigonian) conodonts from

central New South Wales, Australia. *Courier Forschungsinstitut Senckenberg*, 245: 39-73.

**Zhen, Y.-y., Percival, I.G. and Webby, B.D. 2004b.** Conodont faunas from the Mid to Late Ordovician boundary interval of the Warringa Limestone Member (Fairbridge Volcanics), central New South Wales. *Proceedings of the Linnean Society of New South Wales*, 125: 141-164.

**Zuykov, M.A. 2003.** Questions of morphology and taxonomy of the brachiopod genus *Platystrophia*. *Proceedings of St. Petersburg State University. Ser.7. Geology*. 4 (31), p. 29-36.

**Zuykov, M.A. and Harper, D.A.T. 2004.** Case 3290. *Platystrophia* King, 1850 (Brachiopoda, Orthida): proposed conservation of usage by designation of *Porambonites costata* Pander, 1830 (currently *Platystrophia costata*) as the type species of *Platystrophia*. *Bulletin of Zoological Nomenclature* 61, 1-5.

**Zuykov, M.A. and Harper D.A.T. 2004.** *Platystrophia* King, 1850 (Brachiopoda, Orthida): proposed conservation of usage by designation of *Porambonites costata* Pander, 1830 (currently *Platystrophia costata*) as the type species of *Platystrophia*. *Bulletin of Zoological Nomenclature*, 61 (4), 246-250.

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