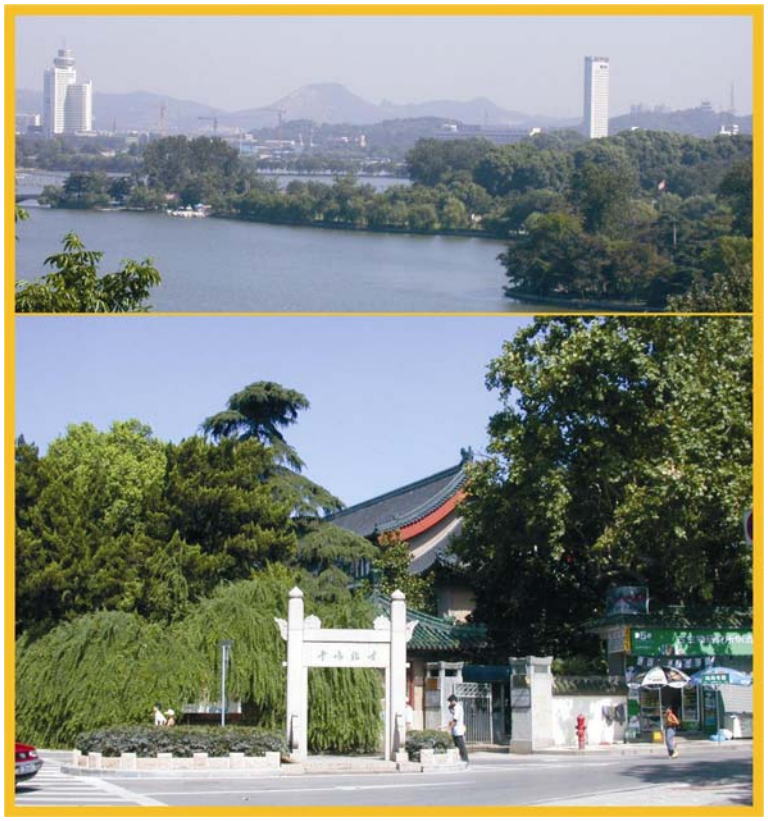
ORDOVICIAN NEWS

SUBCOMMISSION ON ORDOVICIAN STRATIGRAPHY
INTERNATIONAL COMMISSION ON STRATIGRAPHY



Nº 21

2004

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URL: http://seis.natsci.csulb.edu/ISOS

Cover: A panoramic view of Nanjing City, China, the elected venue for the 10th ISOS 2007 (up), and the Nanjing Institute of Geology and Palaeontology (down).

Errata: The picture of the Global Stratotype Section and Point included in the cover of previous number (nº 20, 2003) actually corresponds to the Diabasbrottert quarry, Mount Hunneberg, Sweden.

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 sixth one since I am serving as editor. Current number (21, 2004) 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.

As you may know the *9th International Symposium on the Ordovician System, 7th International Graptolite Conference & 2003 Field Meeting of the Subcommission on Silurian Stratigraphy* was held in Argentina, last year. Remember to visit the web site of INSUGEO (CONICET – Universidad Nacional de Tucumán, Argentina) for free downloading of the proceedings and field trip guides of the events (http://www.unt.edu.ar/fcsnat/INSUGEO).

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. For example, current year is commencing the new IGCP project 503, which gives natural continuity to the successful project 410. Present number especially includes short biographies telling about important contributions to the knowledge of the Ordovician System by the seven members of the SOS that will retire in August at 32º 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 John Francis (California State University, Long Beach, USA), 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 Subcommission.

GUILLERMO L. ALBANESI

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CHAIRMAN´S REPORT

This is the eighth report I have written as chair of the Ordovician Subcommission, and it is my last. I am amazed at how quickly the time has passed since I was selected as subcommission chair in Las Vegas in 1995. The last few months have been busy with inspecting candidate stratotype sections, recruiting and reviewing GSSP proposals, and setting up the Subcommission web site for online discussions of the proposals. Yet, the work has also been satisfying and rewarding. When my term began in 1996, only the Darriwilian Stage was formally defined with a GSSP. Now, GSSPs have been approved and ratified for the Ordovician System (and the Tremadocian Stage), the Second Stage, and the Upper Ordovician Series (and its lower stage). Serious GSSP proposals are being evaluated for the Middle Ordovician Series (and its lower stage) and the Hirnantian Stage, and a GSSP proposal will soon be submitted for the middle stage of the Upper Ordovician Series. It is possible that GSSPs for all stages and series of the Ordovician will be approved by the Subcommission by the end of my term as chair in August 2004. Whether or not that is the case, I have enjoyed the process very much, and I take satisfaction in knowing that the new, global Ordovician chronostratigraphic classification will be completed and in use in the near future. Even more so, I have enjoyed working with colleagues worldwide.

Another current Subcommission activity is the session "global Ordovician Earth system" at the 32nd International Geological Congress in Florence in August 2004. The session includes 22 papers with such titles as *Ordovician Paleoceanography; Caradocian Global Paleobiogeography and Ocean-Climate System: Integrating Data with Models; Ordovician Eustasy; Temporal Variation in Marine Carbonate Carbon Isotope Ratios during the Ordovician; The Ordovician Black Shale-Mudstone Lithofacies; Paleogeographic, Paleoceanographic, and Tectonic Controls on Early Late Ordovician Graptolite Diversity Patterns; The Higher-Taxa Paleogeographical Segregation as a Major Feature of the Ordovician Radiation: Evidence from Brachiopods; The Late Ordovician Glaciation of North African Gondwana: The Present State of Knowledge*. With its GOES Program, the Subcommission has been promoting integrated, multi-disciplinary investigations of the Earth systems during the Ordovician. The program for Florence is a wonderful response. It reflects the future of Ordovician research, and much of this research requires a chronostratigraphic foundation for high-resolution global correlation, which the new Ordovician Time Scale provides.

The International Commission on Stratigraphy will hold a special business meeting at Florence to continue the discussion that began at the Urbino meeting in 2002. The Commission is both promoting the completion of selection of GSSPs for all Phanerozoic stages by 2008 and developing its future, long-term objective of using the greatly refined, modern Geologic Time Scale to address geologic issues, in particular process-oriented stratigraphy. For detailed information on activities of the ICS and of its many individual subcommissions, I direct you to the ICS website at http://www.stratigraphy.org. There you can also view and download an up-to-date version of the Geologic Time Scale, including the latest version for the Ordovician System, and connect with links to descriptions of most GSSPs.

As reported below, IGCP Project 503 "The impact of the changing palaeogeography and palaeoclimate on the major biotic changes through the Ordovician (Ordovician biodiversification, end-Ordovician extinction, Silurian radiation)" led by Tom Servais and colleagues was awarded funding and kicks off this year immediately after the Florence Congress with a meeting in Erlangen and a field excursion to Sweden. Over the next five years, this project will fund several meetings and field excursions and greatly stimulate research on the Ordovician Earth system, and like its predecessor IGCP 410 it will support the participation of many young workers from developing countries.

In concluding this report, my last, I thank those who have made my tenure enjoyable: the voting members of the Subcommission who elected me and participated diligently in Subcommission business, especially discussions and votes on GSSPs; my predecessor Barry Webby who developed the strategy for selection of Ordovician stages, series, and their boundaries that has proved successful; secretaries Henry Williams and Guillermo Albanesi and vice-chair Chen Xu for their dedicated work on Subcommission business; and the organizers of the many memorable Subcommission activities, in particular the Prague and San Juan symposia. The generous travel support provided by the administrators of California State University at Long Beach was essential for me to carry out my duties as Subcommission chair. I look forward to continuing with my service to the Subcommission as a voting member and to working with the new officers, Chen Xu (chair), Juan Carlos Gutierrez-Marco (vice chair), and Guillermo Albanesi (secretary), the other continuing members, and the new voting members Dave Harper, Li Jun, Godfrey Nowlan, Ian Percival,

and Matthew Saltzmann. Finally, in my continuing service as vice chair of ICS, I will always have a most favorable opinion of the activities and success of the Ordovician Subcommission.

STAN FINNEY

SOS ANNUAL REPORT FOR 2003

1. Name of constituent body:
Subcommission on Ordovician Stratigraphy (SOS)

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

The Subcommission 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.

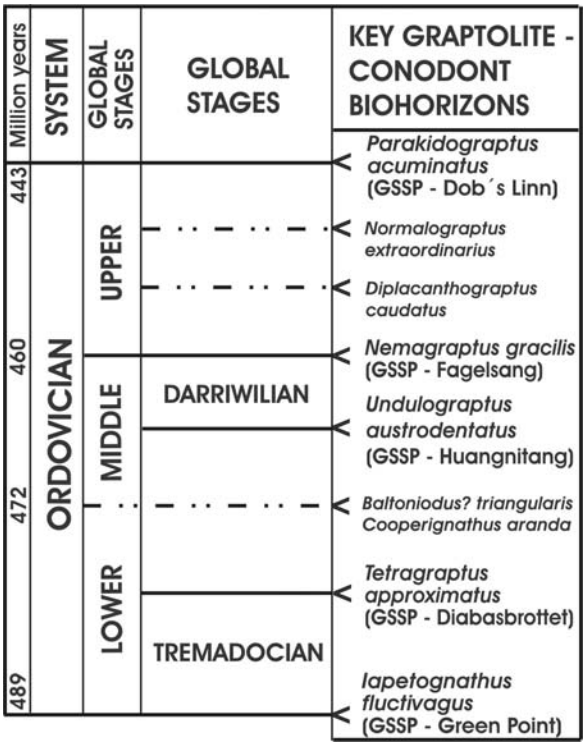
b. To promote regular international meetings on aspects of Ordovician geology, especially those devoted to clarifying stratigraphic procedures, nomenclature and methods for use in establishing a unified global time scale, and to prepare correlation charts with explanatory notes (this latter task now 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 Subcommission 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 Subcommission involves much of the global geological community.

3. Summary table of Ordovician subdivisions



4. Organization:

a. Subcommission Executive
Chairperson, S.C. Finney (U.S.A.)
Vice-chairperson, Chen Xu (P.R. China)
Secretary, G.L. Albanesi (Argentina)
18 other Voting Members
92 Corresponding Members

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

4a. Nominated Officers for 2004-2008:

Chair: Chen Xu, Nanjing Institute of Geology & Palaeontology, Nanjing, CHINA

Vice-Chair: Juan Carlos Gutierrez-Marco, Instituto de Geololgiá Económica (CSIC) and Uiversidad Complutense Madrid, SPAIN

Secretary: Guillermo Albanesi, CONICET - Museo de Paleontología, Universidad Nacional de Córdoba, ARGENTINA

Selection Process: Before and during the 9th ISOS in August 2003, the Subcommission chair informally discussed possible nominees for the executive offices of the Subcommission and found there was a general consensus for those listed above. At a formal business meeting of the Subcommission at 9th ISOS,

the nominees were presented and discussed at length, after the nominees were asked to leave the room. Those voting members present then voted in a secret ballot, the results of which were a near unanimous approval. Subsequently, in September 2003, a formal mail ballot was sent to ALL voting members of the Subcommission. The result of the ballot is that all three nominees were approved by overwhelming majority votes.

5. Extent of national / regional / global support from sources other than IUGS

SOS receives no formal support from international organizations outside IUGS/ICS. The activities of some Subcommission members (voting and corresponding) have been supported in part by the recently completed IGCP 410. If approved for funding, the successor IGCP "Impact of changing palaeogeography and palaeoclimate on major biotic changes through the Ordovician" will continue this support. Independent support for projects comes mainly from individual Ordovician workers, through their employer organizations and through individual to multidisciplinary, cooperative, team activities supported by grants from national/regional government-funded bodies.

6. 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 channging palaeogeography and palaeoclimate on major biotic changes through the Ordovician. Proposers are corresponding and nominated voting members of Ordovician Subcommission. This is a successor to IGCP 410 and will support substantial research on Ordovician strata and fossils, including travel to meetings at which Subcommission business will be carried out. It will include activities stimulated by the GOES project of the Subcommission.

7. Chief accomplishments and products in 2003

a. Diabasbrottet and Fagelsang GSSPs were dedicated in Sweden in May 2003. Diabasbrottet GSSP defines base of Second Stage of Ordovician System (i.e., the upper stage of the Lower Ordovician Series), which will be named after the upper boundary of the stage is defined. Fagelsang GSSP defines base of Upper Ordovician Series and the Fifth Stage of the the Ordovician System (i.e. lower stage of the Upper Ordovician Series), which will be named after the upper boundary of the stage is defined.

b. The 9th International Symposium on the Ordovician System was held in San Juan, Argentina in August 2003. This meeting was held in conjunction with the 7th International Graptolite Conference and a Field Meeting of the Subcommission on Silurian Stratigraphy. There were 130 registered participants. Over three days of technical sessions, 124 papers were presented. Pre- and post-symposium and mid-symposium field trips explored Ordovician and Silurian stratigraphy and examined graptolite successions in the Precordillera and Eastern Cordillera of the northwestern Argentina. Two proceedings volumes were distributed at the meeting: "Ordovician from the Andes: Proceedings of the 9th International Symposium on the Ordovician System", edited by Guillermo L. Albanesi, Matilde S. Beresi, and Silvio H. Peralta with 94 papers and 556 pages, and "Proceedings of the 7th International Graptolite Conference and Field Meeting of the International Subcommission on Silurian Stratigraphy", edited by Gladys Ortega and Guillermo F. Aceñolaza with 30 papers and 188. Also a series of field trip guidebooks were prepared and published. And, as an expression of their pride in organizing this importance symposium, the Argentine colleagues produced the book *Aspects of the Ordovician System in Argentina,* edited by F.G. Acenolaza, which includes 24 papers on a rich variety of topics related to Ordovician geology in Argentina. All this products were published by the Instituto Superior de Correlacion Geologica, Universidad Nacional de Tucuman as part of the established publication series Serie Correlacion Geologica.

c. Considerable progress was made on selection of the GSSP for the base of the Middle Ordovician Series (also the base of the Third Stage). Proposals have been submitted to the Subcommission for two candidate GSSPs: 1) the FAD of the conodont *Protoprioniodus aranda* in the Niquivil section, Argentina, and 2) the FAD of the conodont *Baltoniodus triangularis* in the Huanghuachang section, China. The Niquivil section was visited during the pre-symposium field excursion during the 9th ISOS. A small group of voting members and offiers will inspect the Huanghuachang in March 2004. In addition, a small, dedicated section is evaluating the potential of a section in Western Newfoundland, Candidate. The Subcommission expects to move forward with voting on the candidate GSSPs in Spring 2004.

d. In 1995, the Subcommission voted to subdivide the Upper Ordovician Series into two

stages (the Fifth and Sixth Stages of the Ordovician System) with the boundary between them being based on the FAD of the graptolite *Dicellograptus complanatus* and/or the conodont *Amorphognathus ordovicicus*. After 17 years of evaluating sections, no adequate stratotype sections could be found for these biohorizons. Accordingly, in business meetings at 9th ISOS, the Subcommission voted to pursue a new strategy, which is to divide the Upper Ordovician Series into three stages with the boundaries between them placed at biohorizons with known potential for reliable global correlation and for which there exists suitable stratotype sections. The FAD of the graptolite *Diplacanthograptus caudatus* is favored as the biohorizon for defining the base of the Sixth Stage (base of middle stage of Upper Ordovician Series) with candidate stratotype sections at Black Knob Ridge, Oklahoma, USA and Hartfell Spa, southern Scotland, UK. The Seventh Stage (or uppermost stage of the Upper Ordovician Series) will be the Hirnantian Stage. One GSSP proposal is the base of the *Normalograptus extraordinarius-N. ojsuensis* graptolite biozone in the Wangjiawan section in China. A call has gone out for additional proposals. The Wangjiawan section will be visited by the Subcommission in March 2004. A January 10, 2004 deadline has been set for GSSP proposals for all boundaries for all Upper Ordovician stages. The goal is to move towards voting on candidate GSSPs in the Spring 2004.

e. *Ordovician News No. 20* was produced and posted on the Subcommission web site in September 2003 and a limited number of hard copies were printed and distributed.

8. Chief problems encountered in 2003

Progress stalled on identifying potential GSSPs for the base of the Middle Ordovician Series and for the base of the stage boundary within the Upper Ordovician Series. Accordingly, the Subcommission was forced to devise a new strategy, which it is now pursuing as describe above. As always, the lack of travel support limits the participation of Voting Members in field meetings to evaluate potential stratotype sections. Although the Subcommission supports investigations of potential GSSPs, the amount available is so limited that most of these investigations must be supported by other sources.

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

Inspection of Huanghuachang section, China, candidate GSSP for base of Middle Ordovician Series, March 2004.

Inspection of Wangjiawan section, China, candidate GSSP for base of Hirnantian Stage, March 2004.

Selection of new voting members of Subcommission and retirement of several long-term voting members.

Evaluation of candidate GSSPs for base of Middle Ordovician Series and decision to proceed with voting or to reconsider a different biohorizon, April 2004.

Evalution of candidate GSSPs for base of Hirnantian Stage (7th stage of Ordovician System) and decision to proceed with formal ballot, April 2004.

Evaluation of candidate GSSPs for base of middle stage of Upper Ordovician Series (6th stage of Ordovician System), and decision to proceed with formal ballot, April 2004.

Sponsorship of General Symposium G - 22.02 "The global Ordovician Earth system" at the 32nd International Geological Congress, Florence, August 2004

Production and internet distribution of *Ordovician News No. 21* in May 2004.

10. Review chief accomplishments over last five years (1999-2003)

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 three GSSPs remaining to be selected and approved by the Subcommission, 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. 8th International Symposium on the Ordovician System in Prague, Czech Republic in July 1999, and publication of a 543 page proceedings volume (Acta Universitatis Carolinae, Geologica, v. 43, no. 1/2). 147 participants represented 21 countries; 142 papers were presented in technical sessions.

f. 9th 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 Subcommission on Silurian Stratigraphy and publication of 556 page proceedings, 130 participants

represented 18 countries, 124 papers were presented in technical sessions.

g. Publication of *Ordovician News* nos. 16-20 and their posting on the Subcommission's web site.

h. Development of the web site "Ordovician Stratigraphy Discussion Group" to facilitate discussions on selection of the GSSP for the base of the Middle Ordovician Series. This site has evolved into the Subcommission's web site and also includes postings of *Ordovician News.*

i. 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.

j. 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."

k. Sponsorship at the 32nd International Geological congress of the symposium "The global Ordovician Earth system."

l. 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.

m. 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.

11. 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 (6th stage of Ordovician System).

Selection of GSSP for base of Hirnantian Stage (7th stage of Ordovician System)

Publication of papers presented at "The global Ordovician Earth system" symposium at the 32nd IGC.

With completion of selection of GSSPs for all stages, refocusing of Subcommission to address the global Ordovician Earth system.

Transfer of executive to new chair.

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

STAN FINNEY

INTERNATIONAL SYMPOSIA, CONFERENCES AND FIELD MEETINGS

48TH ANNUAL MEETING OF THE PALAEONTOLOGICAL ASSOCIATION (UK)

From 17 to 20 December 2004 in Villeneuve d'Ascq, N. France, T. Servais and A. Blieck (USTL & CNRS - UMR 8014 research unit) will host the 48th annual meeting of the Palaeontological Association (UK), including a half-day workshop on Dec. 17 about palaeobiogeography (details on PalAss website http://www.palass.org/; and on USTL website http://www.univ-lille1.fr/geosciences/page_ufr/actualites/news.html).

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).

"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 (Etage8). *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 6th Baltic StratigraphicConference 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

8TH MEETING OF THE WORKING GROUP ON THE ORDOVICIAN GEOLOGY OF BALTOSCANDIA

The Eighth WOGOGOB Meeting will take place in Estonia in May 13-18, 2004. The organisers invite all Ordovician workers to attend the meeting and present results of their current research and new ideas in Ordovician geology. All relevant contributions on palaeontology, stratigraphy, sedimentology, geochemistry, mineralogy and other topics are welcome.

Two excursions can be organisized: pre-conference excursion to NW Estonia (1 day); post-conference field-trip to Central and NE Estonia (2 days). Scientific sessions can be held at the Institute of Geology, University of Tartu, in May 15-16, 2004.
The first circular is available and the pre-registration information can be submitted via internet using home page: http://www.gi.ee/WOGOGOB/
The second circular can be distributed during October 2003.

LINDA HINTS AND LEHO AINSAAR

FIRST INTERNATIONAL SYMPOSIUM ON EARLY PALAEOZOIC PALAEOGEOGRAPHY AND PALAEOCLIMATE

First Circular & Call for Papers
September 1 – 3, 2004, Erlangen, Germany
Field Meeting
September 4 – 12, 2004
Ordovician and Silurian of southern Sweden
(Fågelsång, Öland, Gotland)
http://www.pal.uni-erlangen.de/IGCP503/

Important Dates in 2004

16 February, First Circular - Call for Papers

31 May, Registration at reduced fees and deadline for submission of abstracts

16 July, Second Circular – Final Programme - Arrival Instructions

Welcome - Purpose of the Congress

We cordially invite you to join the First International Symposium on Early Palaeozoic Palaeogeography and Palaeoclimate in September 2004.
We will convene in the city of Erlangen, an old Huguenot town, and site of a prospering university. Erlangen is located in Franconia, northern Bavaria, which is famous for its surrounding geology with spectacular Jurassic sponge-microbial reefs. The world famous *Archaeopteryx*-site in Solnhofen is not far from Erlangen and will be visited during our meeting.

Franconia has the greatest density of micro-breweries in the world - about 1500. At least some of those genuine German beers will be offered during our symposium. Additionally, we have the pleasure to invite all participants to a traditional brewery in the city centre of Erlangen at the end of our meeting.

Our symposium will serve as the Opening Meeting for the new IGCP project n° 503 "Ordovician Palaeogeography and Palaeoclimate", the successor project to the very successful IGCP project n° 410 "The Great Ordovician Biodiversification Event" (1997-2002). After a three days indoor meeting at Erlangen, we have planned a field meeting to the Lower Palaeozoic in southern Sweden (palaeocontinent Baltica) with visits to the GSSP of the base of the Upper Ordovician at Fågelsång, the Ordovician of the island of Öland, and the Silurian succession of the island of Gotland.

Please, contact us for information about this meeting and we look forward to seeing you in Erlangen.

On behalf of the organising institutions and the Scientific Committee.

Organising Committee
International Scientific Committee

D.A.T. Harper	Copenhagen, Denmark
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A. Munnecke	Erlangen, Germany
A.W. Owen	Glasgow, Scotland, UK
P. Sheehan	Milwaukee, USA
T. Servais	Lille, France
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(Institute of Palaeontology, Erlangen University)
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Chris Schulbert
Jürgen Titschack
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For questions regarding IGCP n° 503 "Ordovician Palaeogeography and Palaeoclimate", and in particular grant aid for participation, please contact:

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Scientific Themes-Keynote Lectures-Proceedings

The aim of the Symposium is to provide an interdisciplinary platform for the understanding of Palaeo(bio)geography and palaeoclimate during the Early Palaeozoic — with a particular focus on the Ordovician and Silurian (Ordovician biodiversification, end-Ordovician extinction, Silurian radiation). The congress also serves as the official Opening Meeting of the new IGCP project n° 503 "Ordovician Palaeogeography and Palaeoclimate" that will run from 2004 to 2008, and is followed by the first Field Meeting of this new programme.

The following scientific themes will be scheduled during the scientific sessions:
Understanding Early Palaeozoic biodiversity trends
Early Palaeozoic palaeogeographical reconstructions
Palaeobiogeographical scenarios of different Early Palaeozoic fossil groups
Early Palaeozoic climate and climate modelling
Interpretation of isotope geochemistry in the Early Palaeozoic
Stratigraphical framework in the Early Palaeozoic
Early Palaeozoic palaeoecology

The scientific programme will be designed to maximise opportunities for communication and discussion. Participants are encouraged to submit papers in the themes listed above, but are also invited to propose additional themes.

Oral and poster sessions will carry equal weight regarding quality of contributions. Both space and time will be reserved to ensure that appropriate attention can be given to the poster session. Therefore, the poster session will be open during the entire Symposium, and our coffee breaks are at the same location. The Scientific Committee will make decisions on the balance between oral and poster presentations after the receipt of abstracts, and reserves the right to accept or refuse any submission. Participants will be notified in June whether their paper has been accepted for a poster or oral presentation.

Several invited speakers are currently being contacted in order to present review papers. These Keynote Lectures (45 minutes duration) include papers on new palaeogeographic reconstructions, CO_2 modelling, numerical climate modelling, isotope geochemistry, and other topics. In addition, based on the submitted abstracts, the Scientific Committee may ask a number of participants to modify their contributions for Keynote Lectures (30 minutes duration).

Abstracts will be published in a Symposium Volume available at the congress. In addition, we plan to publish a proceedings volume following the symposium and devoted to the scientific themes of the meeting. We are currently discussing with the editors of *Palaeogeography, Palaeoclimatology, Palaeoecology* the possibility to publish a special issue of this journal after our meeting. If you are interested in submitting a manuscript in a proceedings volume, please, contact the organisers as soon as possible, and not later than May 1st 2004.

Conference language: all presentations and abstracts will be given in English.

Provisional Programme

The Symposium venue is Erlangen Castle in the city centre of Erlangen, some 300 m from the Central Railway Station. All keynote lectures and talks will take place in the lecture hall in the Castle on the second floor (no parallel sessions are planned). Registration, the icebreaker party, all coffee and tea breaks and the poster session will take place in the hall on the first floor of the Castle.

Tuesday 31 August
Registration
16:00h - 20:00h
Erect posters
16:00h - 22:00h
Icebreaker-Party
18:00h - 22:00h
Wednesday 1 September
Opening Ceremony
09:00h - 09:30h
Keynote lectures and scientific session I
09:30h - 12:30h
Lunch Break
12:30h - 14:00h
Keynote lectures and scientific session II
14:00h - 17:00h

Opening meeting IGCP 503
17:00h - 18:00h
Guided tour, historic city of Erlangen
18:30h - 20:00h
Thursday 2 September
Keynote lectures and scientific session III
09:00h - 12:00h
Lunch Break
12:00h - 13:00h
Geological excursion and "Solnhofen" museum
13:00h - 19:00h
Conference Dinner "Bayerischer Hof"
20:00h - 23:00h
Friday 3 September
Keynote lectures and scientific session IV
09:30h - 12:30h
Lunch Break
12:30h - 14:00h
Keynote lectures and scientific session V
14:00h - 16:00h
Closing session
16:30h - 17:00h
Visit and "sampling" of beer at brewery Kitzmann
17:30h - 19:30h
Saturday 4 September
Departure for Field Meeting
08:00h

Saturday 4 September - Sunday, 12 September
Field meeting (see next page)

Field Meeting - Geological Excursion

Immediately following the opening conference of IGCP n° 503, we are holding the first field meeting of the new IGCP project. We will visit the Lower Palaeozoic of southern Sweden (palaeocontinent Baltica), including the GSSP of the base of the Upper Ordovician at Fågelsång, the Ordovician of the Island of Öland, and the Silurian succession of the Island of Gotland. Departure and arrival point is Erlangen.

Provisional Excursion Programme:

Saturday 4 September
Departure Field Meeting, Erlangen at 8:00h
Arrival Lund, Sweden
Sunday 5 September
Visit GSSP Fågelsång
Field guide: Per Ahlberg
Arrival Öland
Monday-Tuesday 6-7 September
Geological excursion, Ordovician of Öland
Field guide: Svend Stouge
Wednesday 8 September
Travel from Öland to Gotland, first outcrops on Gotland
Thursday-Friday 9-10 September
Geological excursion, Silurian of Gotland
Field guides: Axel Munnecke, Lennart Jeppsson, Mikael Calner
Saturday-Sunday 11-12 September
Return to Erlangen. Arrival at Erlangen at about 19:00h

Transport from and to Erlangen will be by mini-buses. Accommodation in Sweden will be organised in hotels and in the geological field station of the University of Lund on Gotland. Please note that accommodation is only available in twin bed rooms!

Price of the excursion, including transport, accommodation, field guidebooks: 650 Euros. Except for several days when a lunch pack will be organised, lunch and dinner will be in restaurants. These costs are not included in the fee, and have to be paid by each person himself or herself (estimated additional cost 250 Euros).

Please note that the number of participants for the field excursion is limited to 20! We therefore recommend you to book early to make sure to get a place! Non-Europeans have to make sure they have valid visas for Denmark and Sweden.

Oral Presentations

Presentations are provisionally scheduled for 20 minutes, with 15 minutes for the talk and 5 minutes for discussion. The lecture hall will have available: 2 projectors for standard 35mm slides, screens, 1 overhead projector, and 1 beamer (PC-projector) for PowerPoint presentations. The latter should be delivered on CD-ROM. 2 Laptop computers (Mac OS X and PC Windows XP Professional) for video presentations will be provided by the local organising committee.

We recommend contacting us on August 31 while you register to check your presentation on the systems provided.

Poster Presentations

Poster presentations will form an important part of the symposium. Exact details of available poster space will accompany notification of acceptance. We will provide poster boards in DINA0 Format (841 x 1189 mm).

Abstract Submission

Abstracts must reach the Symposium-Chair by May 31, 2004. Late submissions will not be scheduled for oral presentation, and will not be included in the abstract volume. Acceptance of abstracts is subject to full payment of registration fees.

The abstract length should not exceed one A4 page (approximately 500 words). Abstracts must be submitted by e-mail to the Symposium-Chair as MS

Word and/or RTF files. Please, do not include figures, plates, or tables in the abstract. Please, indicate the affiliations of all co-authors, and the e-mail address of the senior author. Note, if your abstract contains non-ASCII symbols and special characters (i.e. delta notations for isotopes, subscripts and superscripts, etc.) then a hard copy MUST also be sent.

Please indicate together with your abstract if you prefer an oral or poster presentation.

Social Events

A series of social events are organised. All activities, except the conference dinner and the Solnhofen museum, are free of charge for all participants and accompanying persons, but registration is required through the registration form.

The conference will open on Tuesday 31 August with an Icebreaker-Party that is scheduled from 18:00h – 22:00h in Erlangen Castle, where registration starts at 16:00h.

A guided sightseeing tour of Erlangen (90 minutes walking tour) will be organised after the first day of scientific sessions, Wednesday 1 September, from 18:30h to 20:00h. This tour will start from the Castle (Palace, Erlanger Schloss) and allows an appreciation of historical buildings such as the Huguenot Church, Palais Stutterheim, the Baroque Orangerie, the Palace Gardens, the Botanical Gardens, Margrave´s Theater, and others.

The afternoon of the second day of scientific sessions, Thursday 2 September, will provide all participants an opportunity to visit the world famous Jurassic Fossil-Lagerstätte of Solnhofen near Erlangen. A bus trip will bring us to the outcrops and to the museum at Solnhofen (between 13:00h and 19:00h).

This visit is followed by the conference dinner, that will take place in the historical vaulted cellar of the Hotel Bayerischer Hof in the city centre of Erlangen, where the medieval Margrave´s Buffet (including a large selection of Franconian specialities) will be served.

After the third and last day of scientific sessions, Friday 3 September, following the closing session of the congress, a guided tour through a 250 year old traditional family brewery will be organised. This guided tour will end in a „sample room“ where the local products can be tasted and enjoyed.

Meals

Meals are not organised, except the conference dinner on the evening of September 2. As the conference venue is in the city centre of Erlangen, a large number of restaurants are in easy walking distance. Meals are available at all price ranges and in various styles, ranging from fast-food restaurants to typical Franconian style local restaurants.

Accommodation

Accommodation is not organised and must be arranged individually. We recommend you to visit the website www.erlangen.de to find information about the city and accommodation.

The most convenient way to book your room is through the Tourist Information Office (see attached RTF document). The form sheet "ROOM RESERVATION" is available in various formats (WORD, RTF, PDF) under www.pal.uni-erlangen.de/IGCP503/accomm/. Rooms are available at a wide range of prices, from simple rooms in private houses (equivalent to B&B) starting with prices of about 15 Euros per person in single or double rooms, or „Hotels Garni“ and ranging up to 3 and 4 stars (up to 200 Euros per night per person). A youth hostel and camping sites are also available. There are a total of almost 50 hotels and guest-houses with over 2800 beds in the city centre, and another 1700 rooms within the city limits.

Please, note that Erlangen is an important regional and national centre and the headquarter of *SIEMENS*, and that hotel facilities may quickly be booked out. Therefore we suggest you to book your accommodation as soon as possible with the help of the Tourist Information Office (www.erlangen.de).

How to get to Erlangen

Erlangen is situated in northern Bavaria, a few kilometres north of Nuremberg. Motorways, airports and major railway lines allow easy access from inside and outside Germany.

By plane

The nearest airport is Nuremberg about 15 km south of Erlangen. From here you can choose the U2-subway from the airport to the Nuremberg Central Station within 20 minutes where frequent trains leave to Erlangen (another 15 minutes). Taxi shuttle fares from the airport to Erlangen cost about 23 Euros (phone 0911-19410). For detailed information, please visit the airport web-site: www.airport-nuernberg.de. If you arrive at the Frankfurt airport you also have train connections to Nuremberg and Erlangen (about 3 hours).

By car

There are several options to reach Erlangen by car from either direction. The motorways A73 and A3 pass Erlangen.

By train

Nuremberg Central Station is the nearest major railway station. From here you have to change train to Erlangen (about 15 minutes).

Climate

The meeting takes place in the late summer. Daily temperatures may still reach up to 20 °C but be prepared for occasional showers.

Immigration and Visa requirements

Participants are advised to check their individual circumstances for entry. Please, note that Germany, Denmark, and Sweden are Schengen countries and a single visa is valid for all countries belonging to the Schengen territory. If you need an official invitation to get your visa, please, contact the Organising Chair.

Insurance

All insurance is the responsibility of the participants. The Organising Committee accepts no liability or responsibility for death, illness, injury, or financial loss by any person attending the Symposium and the Field Meeting, whatever the cause. It is strongly recommended that overseas participants arrange their own health and accident insurance and travel assistance.

Currency and Banking

Germany is a country in the Euro-Zone. Exchange rates vary, but at the time of preparing this circular (February 2004) 1 Euro = ca. 1.25 US$. All banks (except in airports) are closed on Saturdays and Sundays, but automatic cash machines are available. Participants of the field meeting should note that Denmark and Sweden are not in the Euro-Zone, and Danish and Swedish crowns are required for payments in bars, restaurants and shops.

IGCP - Grant Aid for participants

Our symposium serves as the official opening meeting of the new IGCP project n° 503 (Ordovician Palaeogeography and Palaeoclimate). The International Geoscience Programme (IGCP) (http://www.unesco.org/ science/earthsciences/igcp/) is a joint endeavour of UNESCO (United Nations Educational, Scientific and Cultural Organisation) and IUGS (International Union of Geological Sciences). It was launched in 1972 to facilitate co-operation among geoscientists across frontiers and boundaries. Its objective is to bring scientists from all over the world together and enhance interaction, particularly between North and South, through joint research work, meetings and workshops.

According to the rules of the IGCP, the financial support allocated to IGCP project leaders is to cover partly the costs of organising and managing the project and to facilitate, in particular, the participation in meetings and field excursions of scientists from developing countries. If you are not yet listed as participant of IGCP n° 503, but if you are interested in participating in our new IGCP project, please contact Thomas Servais.

We reserve the financial support allocated to IGCP project n° 503 to participants from developing countries that wish to take part in the Erlangen meeting. Scientists (and in particular young researchers from central and eastern Europe presenting their results at the meeting) are requested to ask the Project Leaders about the possibilities of funding to take part in the Erlangen meeting and the field excursion to Sweden. For information about IGCP project n° 503 and for a request for financial help, please contact:

Thomas Servais
Phone: 32 (0)3 20 33 72 20
Fax: 32 (0)3 20 43 69 00
E-mail: thomas.servais@univ-lille1.fr

Registration

Registration and the payment of fees in EURO must reach the organisers by the end of May 2004 to ensure acceptance of the abstract in the abstract volume and participation in the field excursion. Late registration is possible after June 1st at an increased rate. Students benefit from a reduced registration fee, but must provide a certificate of their student status.

The registration fees cover the abstract volume, final programme, list of participants, the icebreaker reception, coffee and refreshments during the scientific sessions, as well as all social events, except the conference dinner and the Solnhofen excursion. Please, note that registration is required for these social events.

Mode of payment:

Payment by credit card is not possible. Payments must arrive before May 31, 2004 by (international) bank transfer on the following bank account:

Banking details:

for non-Germans:
Holder of the bank account:
Staatsoberkasse Bayern in Landshut
Address: Postfach 2849, D - 84026 Landshut, Germany
Name of the Bank: Bayerische Landesbank München
SWIFT/BIC Code: BYLADEMM
IBAN Code: DE66700500000301279280
Account Number: 301279280
Reference: DST 808 317-2 (important!!)
for Germans:
Kontoinhaber: Staatsoberkasse Bayern in Landshut
Adresse: Postfach 2849, D - 84026 Landshut, Germany
Name der Bank: Bayerische Landesbank München
Bankleitzahl: 700 500 00

Kontonummer: 301279280

Kennwort: DST 808 317-2 (sehr wichtig!!)

Your participation in the symposium and confirmation to present either a talk or a poster is only guaranteed by the receipt of your fee before May 31, 2004.

Please, note that the international bank transfer costs (varying for each country and each bank) are covered by the participants.

The reception of your registration fee will be confirmed to you as soon as possible via e-mail.

REGISTRATION FORM

Name _____

Affiliation_____

Address_____

Telephone_____

Telefax_____

E-mail_____

Please book the following (tick corresponding box):

CONFERENCE FEE (until May 31)	Regular Participant	100 Euro	□
	Student Participant	50 Euro	□
	Accompanying Person	20 Euro	□
LATE REGISTRATION (after June 1)	Regular Participant	150 Euro	□
	Student Participant	75 Euro	□
	Accompanying Person	30 Euro	□
Icebreaker Party	August 31st	free	□
Guided sightseeing tour	September 1st	free	□
Bus trip: excursion and Solnhofen museum	September 2nd (____ persons à)	15 Euro	□
Conference Dinner	September 2nd (____ persons à)	40 Euro	□
Brewery Visit	September 3rd	free	□
FIELD MEETING	September 4-12	650 Euro	□

TOTAL: _____ Euro

_____

Date and signature

Please return this form by fax until May 31st together with your abstract and with your payment to the organisers (Fax 49 (0)9131 - 85 22690)

PROJECTS

We are very happy to announce you that the new IGCP (International Geoscience Programme) project proposal **"Ordovician Palaeogeography and Palaeoclimate"**, that has been deposited at the IGCP office at Paris in October 2003, has been accepted by the IGCP Board last week. As announced earlier, over 180 scientists agreed to participate in the new project, that can be considered a successor project of IGCP 410 that mostof you know. The first scientifical meeting of our new project IGCP n° 503 "Ordovician Palaeogeography and Palaeoclimate" is now scheduled: the official Opening Meeting will be held at the University of Erlangen, Germany, September 1-3, 2004, directly following the International Geological Congress in Florence, Italy. Our opening congress will be followed by a field meeting to the Ordovician and Silurian of southern Sweden (Fagelsand GSSP, Öland, Gotland), September 4-12. With this message we invite you to take part in this congress and the field meeting. You can find all information on this meeting, but also on the new IGCP project 503 on the following website: http://www.pal.uni-erlangen.de/IGCP503/

THOMAS SERVAIS

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

IS THE NAME "VOLKHOVIAN" APPROPRIATE FOR THE THIRD GLOBAL STAGE OF THE ORDOVICIAN SYSTEM?

In several recent publications, Webby (1998) among them, the name "Volkhovian" has been used in place of the third global stage of the Ordovician System. Dronov with co-authors, studying many sections in Volkhov River area proposed to formalise the Volkhovian Stage as a global unit (Dronov et al. 2003). We certainly agree that Baltoscandia, including the Volkhov River area has many good sections and is representative of that particular interval of geological time. However, according to the International Stratigraphic Guide, the names of new stratigraphical units should be unique in order to prevent ambiguity. The term Volkhov(ian) unfortunately carries already stratigraphical meaning and is widely used in regional litho- and chronostratigraphical standards in NW Russia, Baltic countries, and Scandinavia (e.g., Männil and Meidla 1994). In latter two regions, it has mostly chronostratigraphical meaning whereas in NW Russia both Volkhov Regional Stage and Volkhov Formation are actively used, sometimes with different volume (e.g., Dronov et al. 2000).

Stratigraphical units having one and the same name but different definition and content may easily lead to confusion and errors, especially by people without stratigraphical background. Dronov et al. (2003) proposed re-classifying the regional Volkhov Stage. However, we see no way of doing that without negative impact on common understanding and usability of the regional stratigraphical standard. Since the base of the overlying Kunda Regional Stage does not coincide with the base of Darriwilian, the content of regional and global Volkhov(ian) will always remain different. Not to mention that also the lower boundary definitions and correlation criteria for global and regional Volkhov(ian) will likely turn out different. Hence we consider that "Volkhovian" is not appropriate name for the third global stage of the Ordovician System.

If it appears practical to find a suitable name from the Baltic region, we suggest the name "Lavan", after Lava River in the St. Petersburg region, some 40 km from the Volkhov River area (see e.g., Tolmacheva 2001, figs 4,8; Tolmacheva and Fedorov 2001). This term is also not entirely new to stratigraphy, but it has gained no regional acceptance and has never been used after the initial proposal by Iskjul and Kuznetsov (1962).

Dronov A.V., Koren T.N., Tolmacheva T.Ju., Holmer L. and Meidla T. 2003. "Volkhovian" as a name for the third global stage of the Ordovician System. In: Albanesi G.L., Beresi M.S. and Peralta S.H. (eds.). Ordovician from the Andes. INSUGEO, Serie Correlacion Geologica, 17: 59-65.

Dronov A.V., Meidla T., Ainsaar L. and Tinn O. 2000. The Billingen and Volkhov stages in the northern East Baltic: detailed stratigraphy and lithofacies zonation. Proc. Estonian Acad. Sci. Geol., 49: 3-16.

Iskjul, N.V. and Kuznetsov, S.S. 1962. Geology of the Lava River valley (Leningrad District). Academy of Sciences of USSR. Geological Museum. Studies. Vol. 11. Publishers of the Academy of Sciences of USSR. Moscow, Leningrad. 54 pp.

Männil R. and Meidla T. 1994. The Ordovician System of the East European Platform (Estonia, Latvia, Lithuania, Byelorussia, parts of Russia, the Ukraine and Moldova). In: B.D. Webby, R.J. Ross Jr. and Y.Y. Zeng (eds.), IUGS Publication No. 28, 1-52.

Tolmacheva T.Ju. 2001. Conodont biostratigraphy and diversity in the Lower-Middle Ordovician of Eastern Baltoscandia (St. Petersburg region, Russia) and Kazakhstan. Comprehensive Summary of Doctoral Dissertation. Department of Earth Sciences, Historical Geology and Palaeontology, Uppsala University. 40 pp.

Tolmacheva T. and Fedorov P. 2001. The Ordovician Billingen/Volkhov boundary interval (Arenig) at Lava River, nothwestern Russia. Norsk Geologisk Tidsskrift, 81: 161-168.

Webby B.D. 1998. Steps toward a global standard for Ordovician stratigraphy. Newsl. Stratigr. 36,1-33.

JAAK NÕLVAK, OLLE HINTS AND HELJE PÄRNASTE

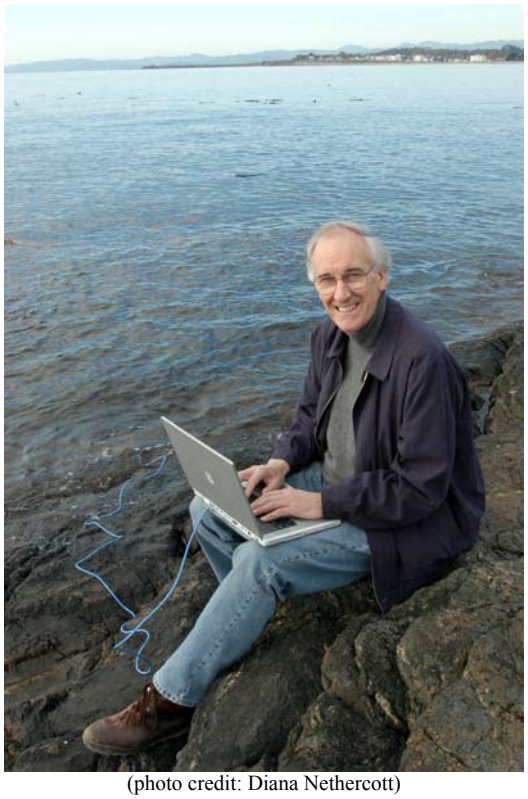
HONORARY NOTES

THE CHANGING FACE OF THE SUBCOMMISSION

The retirement of seven voting members of the Subcommission in August 2004 represents the greatest one-time turnover in the leadership of the Subcommission since its founding. Some have been voting members since the Subcommission was founded, and all have made important contributions during the course of their tenures. Of course, they have fond memories of endless debates on boundary issues, incidents on field excursions, long-lasting friendships, and reunions in cities worldwide at International Symposia on the Ordovician System.

Christopher R. Barnes was a member of the Ordovician/Silurian Boundary Working Group from 1975 to 1985 and has been a member of the Ordovician Subcommission since 1977. He served as Subcommission Chair from 1982 to 1989 and chaired the 5th ISOS in St. Johns Newfoundland in 1988. Chris played a major role in discussions leading to selection of GSSPs for the Cambrian/Ordovician and Ordovician/Silurian boundaries. His work on the Green Point, Newfoundland section, in particular the conodont biostratigraphy, was critical in that section being selected as the global stratotype for the Cambrian/Ordovician boundary, and he was a strong advocate for the Anticosti section as the global stratotype for the Ordovician/Silurian boundary. Although the Anticosti section was not selected, the section received very serious consideration and was the choice of many, in large part because of the extensive investigations and substantial documentation provided by Chris and his colleagues and because of Chris' strong advocacy.

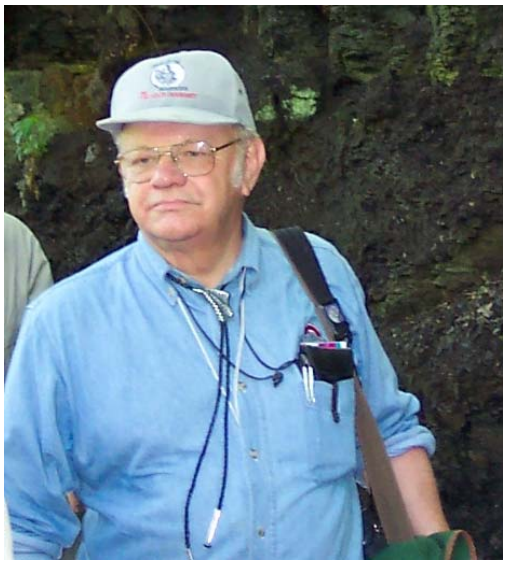
Chris also served as a corresponding member of the Subcommission on Silurian Stratigraphy (1981-89), as a member of the Commission on Stratigraphic Classification (1982-89), and presently is a leader of the Global Ordovician Earth Systems program of the Ordovician Subcommission.



(photo credit: Diana Nethercott)

Chris remembers well his considerable efforts devoted to the activities of both the C/O and O/S boundary debates, including his personal research programs on the Western Newfoundland and Anticosti sections, respectively. His collaboration and field excursions with fellow Ordoviciphiles were always a pleasure, although this was tempered by some of the delays and a few acrimonious debates on system boundary issues. For Chris, the future challenge of the Subcommission is to move away from chronostratigraphic issues to the more broader ones of the Earth system processes that prevailed during the Early Paleozoic.

Stig M. Bergström has been a member of the Ordovician Subcommission since its establishment at the Birmingham meeting in 1974. He served as secretary from 1976 to 1982, and was the choice of most voting members to serve as Subcommission Chair at one time or another, but he always chose not to serve in that role. Stig was co-organizer with Walt Sweet of the 3rd ISOS in Columbus, Ohio in 1977. Some of Stig's fondest memories are when he visited China in 1978 as part of a 5-man Subcommission group (the first such group to get permission to enter that country since WWII), and since then Stig has returned to China often, visited Ordovician successions in most parts of the country, and has established long-term collaborations and friendships with colleagues throughout China.



Stig has attended all 9 International Ordovician Symposia and most Subcommission meetings. He has been a member or chair of several boundary Working Groups. He was co-proposer of the GSSPs of the Second Stage, Darriwilian Stage, and the Upper Ordovician Series and has also been much involved in work on the GSSPs for the Middle Ordovician Series and the Hirnantian Stage. Stig is co-editor (with Reuben J. Ross, Jr.) of five regional Ordovician Correlation Charts with Explanatory Notes.

David L. Bruton has been a voting member of the Subcommission since at least 1977, and he organized the very successful 4th ISOS in Norway in 1982 (the Sundvollen Meeting) and publication afterwards of the book "Aspects of the Ordovician System" (Bruton, D.L. ed. 1984) and "Field Excursion Guide" (Bruton, D.L. and Williams, S.H. eds.).

In 1980 David organized a field meeting and workshop for the Working Group on the Cambrian/Ordovician boundary and demonstrated a newly cleared section which then and several years afterwards, had the potential of becoming the boundary stratotype. In 1990 he became a voting member of the working group and remained until nearly the end. It may be of interest to note here, that Gunnar Henningsmoen was the first Chairman of this group established at the Birmingham meeting in 1974. Because of ill health, David chaired this meeting for Gunnar and was confronted with the arguments from British colleagues, who then still assigned the Tremadoc to the Cambrian. David remembers especially a difference between Rube Ross and Alwyn Williams which led Rube to say "Christ Alwyn you remind me of a Nixon!". Alwyn's reply was "I am a Nixon !" Gunnar Henningsmoen did much to get the working group going and knew more about the problem than ensuing Chairmen. The political arguments involved up to the final decision are well known.

David followed Valdar Jaanusson as the Commission's representative for Scandinavia. His interests in the Baltic area led to the 1992 WOGOGOB meeting (the Sem meeting) which he organized in Oslo.

David takes great pleasure in the fact that his work with Ordovician rocks attracted many visitors to Oslo and most stayed with Anne and him at their home in Slemdalsveien. In turn, these visitors have fond memories of the warm, kind hospitality of David and Anne. Among these who later worked with David at the Paleontologisk Museum were the young students Richard A. Fortey, Alan W. Owen, David A.T. Harper and Henry S. Williams all of whom have since gone on to be well acknowledged Ordovician experts in their own right.

Roger A. Cooper has been active in Subcommission activities since the 1980s and became a voting member in 1992. Roger is especially well known as the leader who overcame the greatest challenge faced by the Subcommission - the Cambrian/Ordovician boundary controversy.

He was an original voting member of the Cambrian-Ordovician Boundary Working Group, which was established as an independent body under the ICS. It came under the direction of the Ordovician Subcommission in about 1991. Roger succeeded admirably in leading the Cambrian-Ordovician Boundary Working Group to reach a clear consensus on choice of the GSSP for base of the Ordovician Period. This boundary became a highly contentious issue and the original working group was disbanded in 1993 after it had chosen its preferred candidate (Dayangcha, China) then rejected it in the final vote. A new group was established, with Roger as Chair and Godfrey Nowlan as secretary, and charged to resolve the question urgently. In Roger's words, it was a great tribute to all members of the WG that they were able to do this. The Green Point Section in western Newfoundland was chosen, with the level placed at the first appearance of the conodont *Iapetognathus fluctivagus*. Roger doesn't know why the issue was so controversial, but suspects there were several agendas at work. Roger's personal research activities have benefited the Subcommission greatly. Along with Fons VandenBerg, he has been instrumental in refining the Ordovician graptolite biostratigraphy of Australia. He has contributed to the Ordovician correlation chart for Australia, New Zealand and Antarctica. More recently, he has worked to develop advanced biostratigraphic correlation tools and to refine the geochronology of the Ordovician time scale.

Among Roger's remembrances are 1) Richard Fortey being stung by a giant hornet during a field excursion in China, 2) the intense work done by Bob Nicoll, Godfrey Nowlan and their colleagues on selecting and describing the conodont for C/O GSSP, 3) Bernie Erdtmann talking into his tape recorder at night while others were trying to sleep, and 4) the Calgary meeting organized by Brian Norford when the WG passed two landmark resolutions for guidance in selection of the GSSP.

Wang Xiaofeng has been a voting member of the Subcommission since 1988. He participated in the 6th (Sydney), 7th (Las Vegas), and 9th (San Juan) ISOS, and he organized two field excursions on the

Ordovician successions of the Yangtze Gorges area during the 29th IGC in 1996 and the IGCP 410 Field Meeting in 1998.

Much of Xiaofeng's activities have been devoted to the outstanding sections of the Yangtze Gorges area, and he has published extensively on graptolites, chitinozoa, and paleogeography of the region. Xiaofeng and his assistants at the Yichang Institute of Geology and Mineral Resources have investigated the Huanghuachang section, and their proposal of this section as the global stratotype for the base of the Middle Ordovician Series in now under consideration by the Subcommission. Xiaofeng is also a co-author of the Wangjiawan GSSP proposal for the Hirnantian Stage, also under consideration by the Subcommission at this time. Having served as a director of the Yichang Institute and having spent most of his career studying the Yangtze Gorges region, Xiaofeng has been a wonderful host and valued guide to outside visitors wanting to study the important Chinese sections.

S. Henry Williams became a voting member in 1989. However, he first made his mark at the 4th ISOS in Oslo in 1982 where 1) he ably assisted David Bruton in organizing the meeting and 2) he presented the graptolite biostratigraphy for the Dob's Linn section that would be the primary criterion on which to define the GSSP for the Ordovician/Silurian boundary.

In 1988, he again contributed greatly to an Ordovician Symposium, assisting Chris Barnes in organizing the 5th ISOS in St. Johns, and serving as co-author of the symposium volume "Advances in Ordovician Geology.

Henry considers his greatest contributions to the Subcommission to have been the collection and assimilation of data used to help select the stratotype sections of both the upper and lower boundaries of the System and his service as Secretary for 8 years (1990-1998) when he continued the annual production of Ordovician News. His best memories are related to the various international meetings that he attended (often in places that he would never have had the opportunity to otherwise visit), and especially the many spectacular field trips arranged by organizers which opened his eyes beyond the confines of UK and Canadian geology.

Zhou Zhiyi became a voting member of the Subcommission in 1991. However, he has been active in Ordovician research since 1976, working on the Ordovician biostratigraphy and trilobites in sections across China. Zhiyi has studied and established Ordovician trilobite sequences and biofacies patterns for the North China, Tarim, South China, Indo-China and Sibumasu terranes.

He contributed extensively to the Cambrian/ Ordovician Boundary Working Group. Thirteen sections across the Cambrian-Ordovician boundary were measured and critically studied in North and Northeast China during 1976-1980, and two of them, the Dayangcha and Wushan sections, were proposed as candidates for the boundary stratotype in 1984. Zhiyi organized an extensive investigation on the Phanerozoic strata of Northwest China from 1986 to 1995. This led to the establishment of a high-resolution Ordovician biostratigraphic and chronostratigraphic framework for the Tarim Basin and to an understanding of the Ordovician plate-tectonic and palaeogeographic evolution of Northwest China.

Although retiring, these voting members will still maintain interest in, and contribute their valuable expertise to, the activities of the Subcommission. Their places on the Subcommission will be taken by new voting members - younger Ordovician workers with less expertise and experience but already with substantial records of accomplishments and with energy and desire to contribute to the Subcommission. These new voting members, whose terms begin in August 2004, are David Harper, Li Jun, Godfrey Nowlan, Ian Percival, and Matt Saltzmann.

STAN FINNEY

AWARDS

IUGS INTERNATIONAL COMMISSION ON STRATIGRAPHY
ICS STRATIGRAPHY PRIZES

Introduction

The International Commission on Stratigraphy (ICS) is a leading Commission of the International Union of Geological Sciences, with responsibility for establishing international standards in stratigraphy such as the International Chronostratigraphical Scale, defined by boundary stratotypes (GSSPs), and the Geological Time-scale.

Definition

Stratigraphy is the core discipline of the Geological Sciences, concerned with the relationships in time and space of rocks (including sedimentary, igneous and metamorphic rocks) and other geological phenomena such as structures. Results and interpretations deriving from other disciplines can only be integrated into a coherent all-embracing geological history if based on sound Stratigraphy.

ICS Prizes

To emphasise the key role of Stratigraphy the International Commission on Stratigraphy is establishing two ICS Prizes, to be awarded every four years during an International Geological Congress. The first awards will be made at the 32nd IGC in Florence, 2004.

The awards will be made at two levels:

1. The **Digby McLaren Medal** will be awarded to honour a significant body of internationally important contributions to Stratigraphy sustained over a number of years. The contributions can be in research (through publication of papers, monographs or books) or in education (through development of influential educational material or resources). It is expected that a major proportion of this work be published in an international language. The medal is named in honour of the Canadian geologist Digby McLaren who was so influential in developing the key "golden spike" concept of a GSSP with reference to the Silurian/Devonian boundary, and a major force in the International Geological Correlation Programme (IGCP).

2. The **ICS Medal** will be awarded to honour high quality research in Stratigraphy by recognising a singular major achievement in advancing stratigraphical knowledge. The research can be either in the development of new methods of analysis in Stratigraphy or in the presentation of new data and/or interpretation of the geological history of an area. No limitations of size or scale are suggested. The geographical scope of the work need not necessarily be international, but the work should be an internationally significant contribution of new and important knowledge. The language of publication of the work is not important and one single paper of distinction or a series of papers over a short time that have the same impact may be involved.

Nominations and Selection

Nominations for either of the Awards are solicited from any source, not just members of the Commission and its Subcommissions. Please give a brief biographical background, a reasoned case for the Nominee and, if necessary, translation of at least abstracts into English so that independent judgements can be made.

The ICS has established a committee to elicit and evaluate nominations for the two ICS Prizes, before making recommendations to all members of the Commission, who must approve the nominations by a clear majority vote.

Nomination documents should be submitted to:

Either

Dr. Nicol Morton
Le Chardon, Dept. of Geological Sciences, Quartier Brugière, 07200 Vogüé, France
Tel. ** 33 4 75 37 03 80
E-mail: NICOL.MORTON@wanadoo.fr

Or

Prof. Stan Finney
California State University
Long Beach, CA 9084
USA
Tel. ** 1 562 985 8637
E-mail: scfinney@csulb.edu

By (date to be established)

MISCELLANEA

BOOKS & JOURNALS

ORDOVICIAN FOSSILS OF ARGENTINA

Edited by Juan L. Benedetto

The Ordovician System is superbly represented in western Argentina by a complete stratigraphic record hosting varied and well preserved fossils. Much of this information is essential for the understanding of the early history of the Gondwana margin.

This book provides the first comprehensive and fully illustrated account of the Ordovician fossils of Argentina. It has been written by 14 Argentine authors working together in teams from five universities and other research centres. The first of the twelve chapters summarizes the available stratigraphic information from the four main Early Paleozoic basins of Argentina (Precordillera, Famatina, Central Andes and Puna), including a complete set of maps and stratigraphic columns. The second chapter provides an update biostratigraphic and chronostratigraphic framework for the Ordovician faunas mentioned in the book. A separate chapter summarizes the palentological evidence supporting current palaeogeographic hypothesis on the evolution of the proto-Andean margin of Gondwana. The fourth introductory chapter examines available information on paleoecology and taphonomy of Ordovician faunal assemblages, and analyzes the biodiversity patterns through the Ordovician in the context of the geodynamic evolution of Gondwana.

The following eight chapters provide a compilation of published sponges, bryozoans, brachiopods, bivalves, rostroconchs, trilobites, ostracods, graptolites and trace fossils. All taxa are accompanied by brief morphological, paleoecological or biostratigraphical comments, precise data on stratigraphic and geographic provenance, and a list of references. Taxonomic chapters contain a complete set of high-quality photographs covering most of described species. Illustrations are included in more than 100 plates, 20x28.5 cm in size. Finally a complete bibliography of around 2000 references provides a valuable source of information on Ordovician geology, stratigraphy and faunas of Argentina.

About the Editor

Juan L. Benedetto is at the Paleobiological Reseach Center (CIPAL), Universidad Nacional de Córdoba, Argentina. He is also a research member of the CONICET (National Research Council of Argentina).

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CURRENT RESEARCH

ACEÑOLAZA, GUILLERMO F. (Argentina). During the last year I was deeply involved in the 9th ISOS. Now that the meeting is over, I am back full time studing Cambro-Ordovician trace fossil assemblages in NW Argentina. Impressive *Cruziana* pavements have been recently found, and are the main focus of a multi-approach project.

AINSAAR, LEHO (Estonia). I continue working on sedimentology and stable isotope geology of Ordovician 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 am working on diverse projects dealing with Lower Paleozoic conodont faunas from the Argentine Precordillera, Famatina System, and NW Argentine basins. We continue assembling an integrated biostratigraphic chart for the Ordovician and Silurian Systems of Argentina. Other projects include the participation of colleagues from different universities of Argentina, Spain, USA, and Canada, who are devoted to related topics of historical geology of the Lower Paleozoic. Current year we will submit to the SOS the final proposal of a global stratotype for the base of the Middle Ordovician Series in the Argentine Precordillera. During past year I have been heavily involved in the organization of the international event *"9th International Symposium on the Ordovician System, International Graptolite Conference, and Field Meeting of the International Subcommission on Silurian Stratigraphy"* and related field trips that were held in San Juan, Argentina, August 18-21 2003 (see web site: http://www.cricyt.edu.ar/2003.htm). On December 2003, a post-graduate course on conodont-graptolite paleobiology and geological applications was given at the National University of Córdoba, Argentina (http://www.efn.unc.edu.ar/escuelas/4to/dcg/).

ALDRIDGE, RICHARD J. (United Kingdom). For the first time in many years, I didn't visit the Soom Shale Lagerstätte (Upper Ordovician, South Africa) in 2003, but I did manange to make some progress on two manuscripts on Soom Shale fossils: one on a 'naked agnathan' and one on coprolites (both with Sarah Gabbott, Hannes Theron and other colleagues). A paper on the myodocope ostracods of the Soom appeared. I shall be back in South Africa for fieldwork in 2004, accompanied by a new research student, Rowan Whittle, who has begun work on some of the enigmatic taxa from the Soom Shale.

ALVARO, JOSÉ JAVIER (France). My present work is focused in two topics: the Cambrian-Ordovician transition, both in siliciclastic and mixed platforms, and the Hirnantian glacigenic processes recorded in the western Mediterranean area. Several papers are in progress trying to illustrate the relationships between sedimentary processes and benthic community replacements preserved as in-situ bryozoan echinoderm reefs and bioaccumulations, and trilobite assemblages. Other contributions are related to litho- and biostratigraphic revisions in the Iberian Chains (NE Spain), southern Montagne Noire (southern France), and Moroccan Anti-Atlas, in collaboration with J. Destombes, F. Tortello, E. Vennin, E. Villas, and D. Vizcaïno.

ARMSTRONG, HOWARD A. (United Kingdom). I´m actively working on Ordovician conodonts from the islands of the Iapetus Ocean, with a view to testing palaeogeographical hypotheses. Work continues n the Upper Ordovician glaciation in Southern Jordan, particularly focussing on insolation forcing of deglaciation. Papers recently submitted to Geology and Palaeo cubed. Work has just started on stable carbon isotope analysis of Upper Ordovician biomarkers with geoff Abbott at Newcastle University.

ASTINI, RICARDO A. (Argentina). I am continuing research on sedimentolgy, integrated stratigraphy and basin dynamics in all three Ordovician basins of the Southern Central Andes and particularly devoting time to students and various related projects.

BAGNOLI, GABRIELLA (Italy). I am working on conodont, acritarch, and chitinozoan associations from Ordovician section in North Spain in cooperation with J.C. Gutierrez-Marco and G.N. Sarmiento

BATCHELOR, RICHARD A. (United Kingdom). I have recently published geochemical data for biotites extracted from Ordovician (Caradocian) and Silurian metabentonites collected from Sweden and Norway. The biotites from the Caradocian metabentonites show a distinctive signature which separates them from the Silurian samples. Their higher aluminium and lower magnesium concentrations support an origin from crustally-derived magmas. Sr isotope ratios (0.710-0.712) from cognate apatite crystals from the same metabentonites support an origin from crustally-contaminated mantle melts. Collaboration with Tarmo Kiipli (Estonia) on the geochemistry of Ordovician metabentonites continues.

BEDNARCZYK, WIESLAW STANISLAW (Poland). I am actively working on the Ordovician stratigraphy and palaeogeography of Poland (especially of the Holy Cross Ordovician) on the basis on microfossils (microscopical Lingulata, conodonts and palynomorf). At present I have prepared to

publication my last work on the stratigraphy and tectonic of the one section of Ordovician deposits in the northeastern (Lysogory) part of the Holy Cross Mountans. Because of the presence of Lower Ordovician beds are unknow from the other parts of the Lysogory region this profile is of primary importance for palaeogeography and tectonics.

BENEDETTO, JUAN L. (Argentina). I recently completed the edition of the book Ordovician Fossils of Argentina, which was presented in the 9th ISOS at San Juan, Argentina (see 'books and journals', this issue of Odovician News). Currently I am studying the Llanvirn brachiopods from the top of the San Juan Formation, which contains a varied open-shelf fauna including new and well preserved plectambonitoids. I am also continuing the study of the latest Cambrian-Tremadoc 'articulate' brachiopods from the Cordillera Oriental of northwestern Argentina basin in order to decipher the origin and early evolution of orthoids, plectorthoids and dalmanellidines. Work continues with T.M. Sánchez, B.Waisfeld and M. Carrera on the Ordovician radiation in the cold-water siliciclastic platforms of western Gondwana.

BERESI, MATILDE SYLVIA (Argentina). I am currently working on Ordovician biostratigraphy from Mendoza (Argentina) with Susana Heredia (conodonts) in the Ponón Trehue area, San Rafael block and in the olistostromic and siliciclastic sequences of San Isidro locality; At present I collaborate in stratigraphy, sedimentary environments and precise correlation of the Llanvirn deposits from the San Isidro area with Gladys Ortega and Guillermo Albanesi. I go on working with B. Frey on the Ordovician nautiloid fauna from the Argentine Precordillera. Of particular importance and relevance for my professional activity were the successful scientific sessions of the 9th International Symposium on the Ordovician System and the 7th International Graptolite Conference and Field Meeting of the International Subcommission on Silurian Stratigraphy, held in conjunction in San Juan City. Together with my Argentinian Ordovician colleagues and as the Secretary of the 9 ISOS and one of the editors of the Proceedings of the 9th Isos, we were devoted workers for these productive meetings.

BLIECK, ALAIN (France) AND TURNER, SUSAN (Australia). After a collaboration which begun under the auspices of IGCP 328 (1991-1996), we decided to re-open the record of earliest vertebrates. For this topic we collaborated with IGCP 410 (1997-2001) and colleagues Godfrey Nowlan and Gavin Young in producing a critical review of Ordovician mineralized vertebrates and other reports of problematic Ordovician vertebrates. During the course of this work, new localities of Cambrian vertebrates and supposed vertebrates have been published. All these data are presented in three different papers. In the first one (Blieck and Turner 2003) we analyze the palaeobiogeographical distribution of Ordovician vertebrates which are presently known from the four major Ordovician landmasses, viz., Gondwana, Laurentia, Baltica, and Siberia, plus a problematical record from South China. We define a Gondwana Endemic Assemblage, late Early to early Late Ordovician in age, and a Laurentia-Baltica-Siberia Assemblage, which is Late Ordovician in age. However, the very rare and dispersed distribution of this group of organisms as well as its strong endemism do not yet allow us to test confidently the various palaeocontinental reconstructions that have been produced for the Ordovician. In the second paper [Turner S., Blieck A. and Nowlan G.S. in press - Vertebrates (Agnathans and Gnathostomes) - In: Webby B.D., Droser M.L., Paris F. and Percival I.G. (eds), The Great Ordovician Biodiversification Event (IGCP 410 volume). Columbia University Press, "Critical moments and perspectives in Earth history and paleobiology"; New York] we have investigated the stratigraphical record of the group, and its biostratigraphic correlation to the standard scales of the Ordovician (based upon conodonts, graptolites and chitinozoans). We also make a rough biodiversity analysis, even if we consider that the fossil record is still much too poor to allow pertinent conclusions to be made on this point. In the third paper [Turner, S., Blieck, A. and Nowlan, G.S. (in progress) - Cambrian-Ordovician vertebrate database - *Ann. Soc. Géol. Nord*; Villeneuve d'Ascq] we aim to present as complete a review as possible of the Cambrian-Ordovician localities with confirmed and supposed vertebrates. In this paper we also briefly present our opinions on some still hotly debated problems such as the phylogenetic relationships of conodonts and "carpoid" echinoderms with vertebrates. A review of basal chordates such as tunicates, cephalochordates and some problematic Precambrian and Early Palaeozoic fossils is also provided.

BRABCOVÁ, ZDEŇKA VYHLASOVÁ (Czech Republic). I am actively working on the macro-morphological and micromorphological anylysis 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. 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, Sweden, Morroco.

BRUSSA, EDSEL DANIEL (Argentina). I continue working with the Ordovician and Silurian graptolites

from the Precordillera and Northwestern Argentina. Last year I had the opportunity to make a field trip to Bolivia (Moxos and Tuichi River areas) with Chuck Mitchell in the collaborative research project related to the evolution of the diplograptids. The collection will also help to paleobiogeographic analysis. I am finishing with Blanca Toro the re-examination of the Rusconi collection of the Empozada Formation from the museum of Mendoza and I am also involved with Patrick Racheboeuf in the study of the Ordovician phyllocarids from Argentina and Bolivia.

BUATOIS, LUIS ALBERTO (Argentina). I mostly working on the sedimentology and sequence stratigraphy of the Cambrian-Ordovician deposits of northwest Argentina. A paper on sedimentary facies and sequence stratigraphy of the Late Cambrian-Tremadocian Santa Rosita Formation has been recently published in *Journal of South American Earth Sciences*. Although the Cambrian-Ordovician boundary has been the topic of many biostratigraphic papers, there is a remarkable absence of detailed stratigraphic sections and only a few studies deal with the associated sedimentary facies and paleoenvironmental aspects of the Cambrian-Ordovician successions. The results of a study on this topic were presented during the last Symposium of the Ordovician System. Additionally, I am helping Gabriela Mángano in her studies of lower Paleozoic ichnofaunas.

CARRERA, MARCELO G. (Argentina). I continue working on the Ordovician sponges and bryozoans from Western Argentina. Global diversification of sponges was the most important project in the last two years and a forthcoming contribution will be 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.

CATALANI, JOHN A. (USA). At the end of this school year, I will be retiring. Hopefully, this will provide additional time to continue and expand the collecting of Platteville (Turinian which is lower Caradocian equivalent) nautiloids from mid-west USA. This year, a "new" site (old locality but new formation) was excavated providing another example of the Cowen Member (lower Grand Detour Formation) fauna. This is significant since, prior to this site, I had only two other productive Cowen exposures which are both currently unavailable. The extra time should also facilitate the completion of one or more papers on the diverse Platteville nautiloid fauna with Bob Frey.

CHOI, DUCK K. (Korea). I am mainly working on the Cambrian-Ordovician trilobites of Korea, but have made little progress on the Ordovician trilobites in 2003. The study on new material from the Cambrian-Ordovician boundary intervals is still in progress and I hope to prepare a manuscript on the systematic paleontology of the trilobites in 2004. Aside from the trilobites, two manuscripts on the Tremadocian stylophorans from the Tumugol Formation are planned for publication: one has been accepted to Geobios, and the other is now in final stage of preparation.

COCKS, L. ROBIN M. (England). 2003 was another busy year, with visits to Stockholm to look at the Ashgill Boda Limestone collections, to Trondheim twice to continue work on global Palaeozoic palaeogeography with Trond Torsvik, to Argentina for the Ordovician Congress and elsewhere. Work was nearly completed on the brachiopods, communities and stratigraphy of the Caradoc Dulankara Formation of Kazakhstan (with Leonid Popov). Processing and photography of the strophomenoids and plectambonitoids of the Boda Limestone started in earnest, with more than 30 species already segregated. The paper on 400 to 250 Ma global terrane positions with Trond Torsvik was finished and has now been accepted by The Geological Society of London. A review of the Lower Palaeozoic biostratigraphy of northern Malaysia and southern Thailand, with Richard Fortey and C.P. Lee, was submitted to the Journal of Asian Earth Sciences.

COOPER, ROGER (New Zealand). With Pete Sadler I am completing or have in press various papers on the Ordovician timescale, including a description of the constrained optimisation method as applied to timescale development. The same method and database are being used to develop a running graptolite biodiversity curve through Ordovician and Silurian time. In effect, species diversity is measured at about 2000 levels between latest Cambrian and early Devonian. With Robyn Cocks I have in press a paper describing the first reported Hirnantian Fauna from New Zealand.

COPE, JOHN C. W. (United Kingdom). I have recently retired from Cardiff University but have only moved a short distance to the National Museum of Wales where I join an active group of Ordovician researchers. I have just finished describing some gorgoniids from the Arenig Series of Wales; those from the Early Arenig are the earliest examples of these fossils yet known. Steve Donovan and I believe we have identidied parablastoid holdfasts from the South Wales locality that has yielded common parablastoid remains (described by Paul and Cope, Palaeontology 1992); the description of these is to be published shortly.

DI CUNZOLO, SONIA (Argentina). I have recently started my Doctoral Thesis dealing with the Cambro-Ordovician biostratigraphic succession of NW

Argentina. Work will also search after zircons within sandstones, trying to provide new data on these widely developed sucessions. During the year I was involved as well, in the Organizing Commitee of the last ISOS held during August in San Juan (W Argentina).

DRONOV, ANDREI V. (Russia). I am continuing the study of Ordovician sea-level changes, sequence stratigraphy, sedimentary environments and facies. Currently I am working on following: 1) preparation of manuscript and volume arising from 5 years investigation of different aspects of Mishina Gora section. This unique section belongs to transitional zone between North Estonian and Central Baltoscandian Confacies belts (with S. Rozhnov, V.Kushlina, A Madison, P.Fedorov, E. Raevskaya, T.Tolmacheva, L.Melnikova, E. Iskul, A.Buslovich and A.Krylov); 2) preparation of manuscript on Ordovician eustasy; 3) detailed investigation of the "Glauconite sandstone" (Varangu, Hunneberg and Billingen stages) along the Baltic-Ladoga Glint line (with P. Fedorov, V. Ershova, T.Meidla, L.Ainsaar, O.Tinn and T.Saadre); 4) description of trace fossils and ichnofabrics in the Ordovician of St. Petersburg region (with R. Mikulás and M. Logvinova); 5) data analyses for the Ordovician of Pamirs (Tajikistan).

DROSER, MARY (USA). I continue to work on the paleoecology of the Ordovician of the Great Basin. My Ph.D. student, Seth Finnegan, is examining trends in paleocommunity structure across the Ibex-Whiterock boundary in the Great Basin in order to delineate the ecological context of the Ordovician radiation.

ELIAS, BOB (Canada). I'm studying various aspects of corals and environmental change during the Ordovician radiation, mass extinction, and Early Silurian recovery. Research with Graham Young focuses on the diversity, paleoecology, and community structure of coral faunas. A collaborative project is underway with Graham, Godfrey Nowlan, Dave Rudkin and others on a spectacular Late Ordovician-Early Silurian archipelago with rocky shorelines, exposed in the Churchill area of northern Manitoba. Dong-Jin Lee (Korea) and I are examining the paleobiology of tabulate corals from the Middle Ordovician of Tennessee and Late Ordovician of southern Manitoba. Research with Xu Shaochun (recent Postdoctoral Fellow) on the latest Ordovician solitary rugosans of South China is nearing completion. Adam Melzak (Ph.D. student) has almost finished a dissertation on the Late Ordovician to earliest Silurian rugose corals of Anticosti Island, Quebec. Raegan Porter (M.Sc. student) completed a B.Sc. thesis on biometric analysis of an Ordovician colonial rugosan. M.Sc. and Ph.D. projects are available on Ordovician corals, paleoecology and stratigraphy (please see http://www.umanitoba.ca/geoscience/faculty/elias/eli as.html)!

ERSHOVA, VICTORIA B. (Russia). I am undergraduate student on stratigraphy at geological faculty of St. Petersburg State University. In 2003 I start the study of lithofacies and sequence stratigraphy of the Latorp Regional Stage along the Baltic-Ladoga Glint (NW Russia). The supervisors of my studies are A.V. Dronov and P.V. Fedorov.

FATKA, OLDRICH (Czech Republic). In the year 2003 we described the first naraoid trilobite from the Barrandian Middle Ordovician (cooperation with P. Budil and J. Slavickova-Bruthansova, both Praha) and I documented an assemblage of organic walled microfossils from the Middle Ordovician Sarka Formation. We have analysed palaeogeographical and palaeoecological aspects of the early Ordovician echinoderms of peri-Gondwanan Europe (cooperation with B. Lefebvre, Dijon). We go on in the evaluation of skeletal fauna from the Griffelschiefer Formation of Thuringia (Germany, cooperation with K. Drost and U. Linnemann, Dresden). I started study of changes in acritarch and prasinophycean assemblages during Middle Ordovician to Middle Devonian transgressive pulses (cooperation with R. Brocke, Frankfurt).

FEDOROV, PETR V. (Russia). I am continuing my work on the detailed stratigraphy and fauna of the Ordovician of Baltic-Ladoga Glint with my colleagues A. Dronov, S. Rozhnov, V. Kushlina, V. Rodionov, E. Gourevich, E. Rajevskaja, N. Lubnina, S. Shipunov. Also, I guide a practical field work for students from the St.Petersburg State University who interesting for the Ordovician deposits of NW Russia. In 2003 I defended a thesis on the clay-calcareous mudmounds (called Hecker-type mud mounds) from the Lower Ordovician of Baltoscandia.

FENG, HONGZHEN (China). In cooperation with Erdtmann B. D. at Technical University Berlin and Zhang Yuandong at Nanjing Institute of Geology and Palaeontology, I continue to study the paleontology and biostratigraphy of Tremadoc graptolites from South China. Some papers have been published or revised. The most recent progress is that, under the *Tetragraptus approximatus* Zone in a section from the Jiangnan slope, we have identified a relatively complete zonal sequence of Late Tremadoc graptolites, which in descending order includes the *Hunnegraptus copiosus* Zone, *Araneograptus murrayi* Zone, *Aorograptus victoriae* Zone and *Adelograptus tenellus* Zone. More specimens is to be collected bed by bed in 2004. In South China, it may be possible to propose a Late Tremadoc graptolite-zonal scheme similar to that in Sweden.

FERRETTI, ANNALISA (Italy). My works on Late Ordovician conodont faunas from several European sections is continuing. A paper with E. Serpagli on Early Ordovician conodonts from Montagne Noire will soon be published.

FINNEY, STAN (USA). My duties as chair of the Ordovician Subcommission and vice-chair of ICS consume much of the time presently. Current research projects are 1) Provenance of Cambrian and Ordovician sandstones in the Argentine Precordillera, 2) Late Ordovician graptolite extinction based on sections in Nevada, and stratigraphy and structure of the Vinini Formation in the Roberts Mountains allochthon of north-central Nevada.

FORTEY, RICHARD (United Kingdom). Following a sojourn in Bristol as Collier Professor of Public Understanding of Science and Technology I am now back in the Natural History Museum and picking up some projects which have been laid aside. Among these are the revision of F R C Reed's Ordovician trilobites of Burma and Yunnan, having taken casts from the type specimens several years ago.Nearer home, Adrian Rushton and I recently described an aglaspidid from the type Tremadoc collected by an amateur Mr Tom Unite. The surprise was that after a century of more of collecting from this locality, the type for *Angelina sedgwickii*, which is known from hundreds of specimens, he has now found five specimens of a distinctive species that had escaped detection before (it proves that no locality is ever collected out). I have also been advising on a project on Iranian late Ordovician trilobites carried out by Talia Karim, who is currently ensconced in Iowa pursuing a PhD on the Cow head trilobites. I intend to look at trilobites of the type Llandeilan substage as revised in the recent Correlation Chart of the Ordovician of the British Isles, in conjunction with Derek Siveter. Bob Owens and I are looking at some silicified trilobites originally collected by Nansen from Novaya Zemlya.

GUTIÉRREZ-MARCO, JUAN CARLOS (Spain). On the road again, I combine a frenetic bureaucracy as head of an institute of the Spanish Council for Scientific Research (CSIC), integrated by more than 140 scientists, with the development of some Ordovician research. Along 2003 I have published one book and more than 10 papers dealing with Ordovician regional geology and paleontological topics, after having finished in the year before a general and actualised synthesis of the Spanish Ordovician published in a book of the Geological Society of London (UK). As revealer of Ordovician geology in Spain, my achievements for 2003 are: a) the construction of a geologic sight seeing parking over a giant recumbent fold in NW Spain, outlined by Lower and Middle Ordovician quartzites and shales (Caurel-Peñalba syncline, province of Lugo); b) the inauguration of a big exhibition with the rocks and fossils obtained during the excavation of a tunnel for a free superhighway in N Spain (renamed officially as "Túnel Ordovícico del Fabar", Asturian Princedom), and c) the consolidation of the annual excursion to the Cambrian-Ordovician sequence cropping out within the territory of a national park in Central Spain (north of Castille-La Mancha region), as part of the commemorative activities of the Science' week of the European Union. Research in 2004 will continue on the parameters of my official research projects in Spain, Bulgaria and South America, as well as trying to finish several papers started years ago. Other than bureaucracy, scientific policy and science divulgation, my diverse time-consuming activities include the direction of two Ordovician and one Silurian PhD students, as well as some third-cycle teaching at the Complutense University of Madrid.

HARRIS, MARK T. (USA). I am currently working on several projects. (1) Peter Sheehan (Milwaukee Public Museum) and I have been working with Leho Ainsaar and Madis Rubel of Tartu University, and Linda Hints, Peep Männik and Jaak Nõlvak (Geological Institute, Tallinn) on the sequences and communities of the Upper Ordovician and Lower Silurian section of Estonia. One paper on the Ordovician (upper Nabala to Porkuni Stages) is in press, and another in preparation. (2) Peter and I are also in the planning stages of a project with Mary Droser (University of California-Riverside) and Rob Ripperdan (University of Puerto Rico) on the middle Ordovician of the Great Basin. (3) Peter, Mike Pope (Washington State University) and I have been comparing our sequence interpretations from around the margins of Laurentia to see if we can identify eustatic versus tectonic sea-level signals. (4) Mike and I have finished editing a set of fourteen papers for Paleo3 on the Late Ordovician. We expect that the papers will appear in 2004.

HEREDIA, SUSANA (Argentina). I am continuing on Ordovician stratigraphy from Mendoza (Argentina) especially on Ponón Trehue area with Matilde Beresi; re-studying conodonts from alochthonous deposits from San Isidro area; Llanvirn deposits from the same area with Gladys Ortega, Guillermo Albanesi and Matilde Beresi. Finally I am, also, studying Lower Ordovician conodonts from selected localities from Cordillera Oriental (Argentina) with Guillermo Aceñolaza.

HERRMANN, ACHIM D. (USA). I recently defended my Ph.D. thesis at the Pennsylvania State University (thesis title "Late Ordovician ocean-climate system and paleobiogeography"). I am currently working as a visiting instructor for invertebrate paleontology at the George Washington University.

HINTS, LINDA (Estonia). I´m working on Ordovicin brachiopods (taxonomy, distribution) in the frame of a project "Ordovician-Silurian stratigraphical schemes: analyse and improvement of global and Baltic regional units based on high-resolution biostratigraphy, isotope geology and sequence stratigraphy." (2003-2004). In collaboration with David Harper we have almost finished the description of the Baltic Grorudiids. The taxonomic revision of genus *Cyrtonotella* is in progress with special attention on the morphology of cardinalia. In collaboration with P. Sheehan, M. Harris and my Estonian colleagues J. Nõlvak, P. Männik, L. Ainsaar and M. Rubel the comparison of the sequences and faunas of the Baltic Basin and Great Basin will be continued.

HINTS, OLLE (Estonia). I'm continuing studies on Ordovician-Silurian jawed polychaetes (scolecodonts) In 2003 some new Ordovician material came up from the Baltic Lower Ordovician. Description of these few primitive taxa is in progress and I'm also seeking for some additional material, particularly from the Tremadocian. Together with Mats Eriksson (Lund) we have an ongoing project related to global diversification of Ordovician jawed polychaetes, the emphasis being on Laurentian and Baltic material. A review of this study will be published in the IGCP 410 volume. I'm also concerned about the Ordovician stratigraphy, especially what is related to the Baltic region. Together with several colleagues we are making efforts to provide an updated generic stratigraphic chart for the Estonia. It will be presented in 8th WOGOGOB meeting in May 2004. In addition, I'm also developing collections management database at the Institute of Geology at TTU, which holds data on a great deal of Ordovician fossils and Estonian geological sites as well.

HÖGSTRÖM, ANETTE (Sweden). One of my primary Ordovician working areas this year is the Upper Ordovician Fjäcka Shale of Baltoscandia with an emphasis on faunal and environmental analysis, later work will also include a fine scale stratigraphic division and correlations. The Fjäcka project is lead by myself and Jan Ove R. Ebbestad (Uppsala). Other Ordovician interests include machaeridians from for example North America together with Mary L. Droser (Riverside).

KEY, MARCUS (USA). I just received a three year grant from the American Chemical Society's Petroleum Research Fund entitled: Bryozoan colony growth rates: a proxy for carbonate production in cool-water limestones. This will include work on the oxygen isotopes of Ordovician mid-paleolatitude bryozoans from Ireland and Estonia. This summer Patrick Wyse Jackson (Trinity College Dublin) and I will be doing some collecting in Estonia with the help of Linda Hints.

KRAFT, JAROSLAV (Czech Republic). I continue studies on Ordovician graptolites and stratigraphy, especially in the Bohemian Ordovician. I assemble databases of the Bohemian Ordovician localities (a project of the Ministry of Culture of the Czech Republic) and finished a study of extraordinary uppermost Arenigian/lowermost Llanvirnian graptolite assemblage from Prague together with my son Petr Kraft. I participate 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 study Ordovician stratigraphy, graptolites and other fossils, especially from Bohemian Ordovician. I continue to coordinate the project supported by Grant Agency of the Czech Republic on comprehensive study of the Klabava Formation (?Tremadocian-Arenigian). Together with my father Jaroslav I finished an assembling database of the Bohemian Ordovician localities (a project of the Ministry of Culture of the Czech Republic) and finished a study of extraordinary uppermost Arenigian/lowermost Llanvirnian graptolite assemblage from Prague. I participate on project phosphatic tubular fossils from the Prague Basin together with Zdenka Vyhlasova-Brabcova; I study *Sphenothallus* and similar forms in this project. I continue a study on palaeoscolecidans and chaetognaths together with Oli Lehnert.

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

LE HERISSE, ALAIN (France). CNRS Researcher, Université de Bretagne Occidentale, Brest, France: I am continuing working on Ordovician and more recent series on the climatic/oceanographic interpretation of the occurrence and distribution of palynomorphs (particularly acritarchs and other resting stages of microlgae). With Marco Vecoli we completed this year a paper on the evolution of biodiversity of acritarchs from the Ordovician of the North Gondwana (submitted to Earth Sciences Review). Another manuscript is quite completed on the palynological signals in relation to glaciation-deglaciation in the late Ordovician, in collaboration with Ahmed Bourharouh, Marco Vecoli, Florentin Paris, Axel Munnecke and Mansour Al-Ruwaili. The results of that have been presented at the AAPG meeting of Algiers, Algeria, and EUG of Nice, France in 2003.

LEHNERT, OLIVER (Germany). At the moment I am mainly focussing on conodonts, associated faunas and several other aspects like hydrothermal vent

communities from the Cambro-Ordocician of the Barrandian area together with Petr Kraft and Olda Fatka (Charles Univ. Prague). The stratigraphic work in the Silurian there is combined with isotopic studies (Jiri Kriz, Jiri Fryda, and Stepan Manda; Czech Geol. Surv.). With Michel Vanguestine and Pierre Breuer (Univ. Liège) Early Ordovician conodonts from greywackes in the Salm Group of Belgium will be described. I didn't stop working on Cambro-Ordovician conodonts and associated microfossils from "forgotten dolomites" of the southwestern Great Basin. There are also other older projects and unfinished manuscripts with some of our friends which hopefully will be submitted this year. The papers with with Godfrey Nowlan and Sandy McCracken on allochthonous conodont faunas from Cambrian-Devonian sections as well as with Carmen Lee and Godfrey on allochthonous faunas from carbonate pebbles in the Tertiary of Ellesmere Island (Canadian Arctic) will hopefully be published early this year. He is still looking for microfossils associated to conodonts together with collegues and friends from different countries. The project with Werner Buggisch and Michael Joachimski (Univ. Erlangen) has been delayed for a little while due to the prologation of his Humboldt fellowship in Prague and his struggle to survive on grants. However, together they are starting to work on oxygen isotopes from conodont phosphate combined with C-isotope studies from several levels in the Early Palaeozoic and from locations in different palaeolatitudes.

LENZ, ALFRED (Canada). Dennis Jackson (England) and I recently completed and published our final study on the Tremadoc graptolites of northern Yukon. Beginning some time in 2004, our focus will turn to the overlying Arenig graptolites from the same region, beginning with the *approximatus* Biozone.

LÖFGREN, ANITA (Sweden). I am just now working on a number of smaller projects, with numerous coworkers, concerning Ordovician conodonts in Sweden and am also contributing to a combined sedimentological and conodont biostratigraphical study with Viive Viira and Kaisa Mens in Estonia. I also continue my stratigraphical and taxonomical studies based on conodonts, now well into the Middle Ordovician.

MALETZ, JÖRG (Germany). I am currently working on a number of projects in the Ordovician and Silurian. A biostratigraphic paper on the graptolite faunas of the Middle Ordovician of the Elnes Formation of Norway is in preparation including considerable new findings. I am also working on a taxonomic revision of the graptolites of the Lower Ordovician Toyen Shale Formation of Scandinavia. Together with Aicha Achab, Tammy Dunlavey, Charles E. Mitchell, Michael J. Melchin and Svend S. Stouge I am working on a proposal for a GSSP at the base of the Middle Ordovician in the Cow Head Group of western Newfoundland, based on diverse faunas of graptolites, conodonts and chitinozoans. A new project on the graptolite biostratigraphy and biogeography in the Whiterockian of the Basin and Ranges Province, western North America has been submitted to NSF.

MÁNGANO, MARIA GABRIELA (Argentina). My work is focused on the ichnology of Cambrian-Ordovician clastic successions of northwest Argentina. In particular, I am trying to explore paleoenvironmental, paleoecological and paleobiological aspects of these ichnofaunas. A review on the Ordovician ichnofaunas of Argentina has been just published in a book on Ordovician Fossils of Argentina edited by the University of Córdoba. In this chapter we present detailed descriptions and discussions of the different ichnotaxa together with an evaluation of the importance of Ordovician trace fossils in facies reconstruction, paleoecology, sequence stratigraphy, biostratigraphy and macroevolution. A paper with Mary Droser on ichnological aspects of the Ordovician radiation is included as part of the book on the Ordovician Biodiversification Event (IGCP-410) to be published by Columbia University Press.

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. Joint studies of evolution and high-resolution stratigraphy of the Early Palaeozoic sedimentary basins in northern Baltica, Siberia and Laurentia palaeocontinents (with colleagues from Lund, Vilnius, StPetersburg, Syktyvkar, Ukhta, Ekaterinburg, Novosibirsk, Lubbock and Milwaukee) are going on.

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.

MEISEL, SÖREN (Germany). I continue my work started in 2002 which comprises primarily sedimentological evaluation and facies analyses of rock profiles preferably logged from Himalayan and central European Formations being Ashgillian in age. The investigation of Late Ordovician Formations in N-Africa not yet realised in 2002/03 will probably (hopefully!) become made up leeway at the end of this year. Besides that, stable isotope measures will play an increasing role this year in my examinations of samples taken from deposits related to the 'Hirnantian glaciation'. Further works actually concentrate on the Silurian.

MIKULAS, RADEK (Czech Republic). In 2003, my ichnologic fieldwork was focused mostly off the Ordovician, except some occasional outcrops in the Barrandian area. However, I have obtained a grant for the study of trace fossils and ichnofabrics across the Volkhov depositional sequence (Ordovician, Arenig of St. Petersburg Region, Russia). I am working on a systematic evaluation of the alredy documented trace fossils and I am planning a fieldwork with Andrei Dronov to have as much data as possible of potential use for environmental and sequence stratigraphy studies of the region.

MILLER, JAMES F. (USA). Because of conflicts with my son's wedding and the start of classes at my University, I was unable to attend the Ordovician Symposium this summer. I am working on Cambrian and Ordovician conodonts and sequence stratigraphy in the Ibex Area of western Utah (with Kevin Evans and Ben Dattilo), in Minnesota (with Tony Runkel), and in Wyoming and Montana (with Paul Myrow, John Taylor, and Ray Ethington). My work on sequence stratigraphy of the Sauk Sequence (Cambrian and Ordovician) continues, although I recently published a summary of 37 years of research on lithostratigraphy, biostratigraphy (trilobites, brachiopods, conodonts), sequence stratigraphy, and paleotectonics in the Ibex Area and Central Texas (see first reference below). This paper has a discussion on correlation of these strata to the Green Point section in Newfoundland. Lars Holmer, Leonid Popov, and I continue to study Lower Ordovician organophosphatic brachiopods found in my conodont samples from the Ibex Area. Evens, Dattilo, and I led a field trip in October to study the sequence stratigraphy of the Sauk Sequence in the Ibex Area in Utah. The published guidebook (second reference below) contains an interpretation of the sequence stratigraphy of the middle and upper Cambrian and the Ordovician parts of the Sauk Sequence, which is ca. 10 km thick in this area. This field trip was followed by a symposium on sequence stratigraphy of the Sauk Sequence in North America; abstracts are in GSA Abstracts with Programs: 35(6):543-545. In November I was installed as a Fellow of the Geological Society of America.

MODZALEVSKAYA, TATIANA L'VOVNA (Russia). I'm actively working on infill of the electronic base by Ordovician and Silurian local and Regional stratones of European and Asian Arctic Russia.

ORTEGA, GLADYS (Argentina). I am working on Early Ordovician graptolite fauna from Eastern Cordillera and the Famatina System of NW Argentina, and I continue studying Early, Middle and Late Ordovician graptolites from the Argentine Precordillera. I also continue studies together with Guillermo Albanesi on a long term project trying to assemble a conodont-graptolite biostratigraphic scheme for the Ordovician System of Argentina. Currently, together with several Argentine colleagues I am involved in the organization of the 7th International Graptolite Conference, to be held in San Juan City, Argentina, in August 2003 (see the web site for further information: http://www.cricyt.edu.ar/2003.htm).

OWEN, ALAN (United Kingdom). I am continuing my work on the Ordovician palaebiogeography and terrane evolution of the Caledonides of Britain and Ireland (with Howard Armstrong) which includes the description of trilobite faunas from terranes in the Iapetus Suture Zone (with Mike Romano). This year I hope to complete my work on the geochemistry and provenance of cherts in the Scottish Highland Border Complex (with Howard Armstrong and Geoff Tanner) and after many years, I have returned to studying faunal changes across the Ordovician-Silurian boundary in the Oslo Region, Norway (with Dave Harper and Rachel Hardie). As for my research students: Alison Bowdler-Hicks has been awarded her PhD and will be writing up her work on the trinucleid trilobite family Marrolithinae for publication over the next year or so, Sarah Stewart is completing her investigatations of a wide range of obscure and neglected components in the Ordovician faunas of the Girvan district, S.W. Scotland and Kathy Keefe has submitted her MSc thesis on aspects of the taxonomy and palaeogeographical origins of the Ashgill trilobites from Girvan.

PACHUT, JOSEPH F. (USA). Bob Anstey and I continue work on analyzing how best to identifying species in the fossil record. We are also currently conducting a detailed analysis of the tempo and mode of speciation, the calculation of selection coefficients (+ their meaning), and the match of cladistic patterns with stratigraphic occurrences in species of the Upper Ordovician bryozoan genus *Peronopora*.

PALMA, MIGUEL A. (Argentina). I am actively working on consulting geology.

PARIS, FLORENTIN (France). I am working on the development (geographic extension, timing) and on the effects (erosion, faunal crisis) of the Late Ordovician glaciation in northern Gondwana regions. One of my main goals is to depict the impact of the glaciation on the biodiversification of marine microfossils (chitinozoans). Sections, and /or samples are investigated in Algeria, Morocco, France, Libya, Turkey, Saudi Arabia, Oman.

PÄRNASTE, HELJE (Estonia). This is the last year of my PhD studies at University of Tartu dealing with systematics and biozonation of the Arenigian trilobites of northern East Baltic supervised by Professor Tõnu Meidla. The Billingen trilobites are of the highest priority. My second interest is the

systematics of superfamily Cheirurina. Two cyrtometopinine genera Krattaspis and Reraspis are revised (one is published, the other in press), and the paper about the earliest encrinurid is in final stage of preparation. I am also taking part in two projects at Institute of Geology in Tallinn: (1) "Ordovician-Silurian stratigraphical schemes: analyse and improvement of global and Baltic regional units based on high-resolution biostratigraphy, isotope geology and sequence stratigraphy" led by Dr. Linda Hints; (2) "Correlation criteria and environmental changes at the boundaries of the global Ordovician stages in the East Baltic" led by Dr. Jaak Nõlvak.

PERCIVAL, IAN (Australia). Ordovician conodonts continue to occupy almost all my research time, with focus on both carbonate residues and chert thick-sections from New South Wales. Papers I presented at the 9th ISOS (where I attended both the pre- and post-conference field trips) concentrated on biostratigraphic correlations using Early Ordovician conodonts, and their potential for use in constraining tectonic reconstructions. During the year I continued a productive collaboration with Yongyi Zhen (Australian Museum) and Barry Webby (Macquarie University), involving four publications during 2003, and a further three scheduled for publication this current year. Also to appear in early 2004 is the Columbia University Press book on the Great Ordovician Biodiversification, which I have assisted in editing over the past year. Current projects include contributions to Late Cambrian to Darriwilian conodont biostratigraphy for a paper with Richard Glen and Ian Stewart on the exotic Narooma Terrane on the south coast of New South Wales (accepted for *Australian Journal of Earth Sciences*), further study of Ordovician conodonts from cherts in the Lachlan Orogen of central New South Wales, co-authoring a paper on Cambro-Ordovician biostratigraphy of the Koonenberry Belt in the far-western part of the state, and describing faunas from Late Ordovician (Bolindian) limestones and graptolitic sediments with various colleagues.

PODHALAŃSKA, TERESA (Poland). I am actively working on biostratigraphy, graptolites, facial development and chemostratigraphy related to change in climate, sea level 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 (Russia). I am continuing my work on a number of projects related to the Ordovician brachiopods, biogeography and biostratigraphy of Kazakhstan, Uzbekistan, Iran and St. Petersburg Region in Russia.

REPETSKI, JOHN E. (USA). I am still 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 Appalachian basin, I am preparing Ordovician and Devonian thermal maturation (CAI and %Ro) maps for states in the basin; studying Late Cambrian through Ibexian shelf to slope faunas across Virginia, Maryland, and Pennsylvania (with J. Taylor, and D. Brezinski); trying to unravel the history of the Hamburg "klippe" terrane in E. Penna. (w/Bob Ganis); and age-dating metamorphosed sedimentary units in Vermont to support mapping there. I am still working on Ibexian faunas in western US (w/J. Taylor, J. Loch, R. Ethington, R. Ripperdan, and P. Myrow) and in Sonora, Mexico, and southwestern US (w/A. Harris). I continue providing age-dating support for projects in the US Midcontinent, Alaska, and elsewhere. Finally, I am working on several taxonomic projects, mostly on Upper Cambrian to Middle Ordovician conodonts, mostly with various colleagues.

RUBINSTEIN, CLAUDIA VIVIANA (Argentina). I continue working on Paleozoic palynomorphs (acritarchs, chitinozoans, cryptospores and spores) from Argentina and South America. Current projects involve: The Cambrian, Ordovician and Silurian from Puna, Eastern Cordillera, Subandean Ranges and Famatina, in northwestern Argentina, with special emphasis in the Cambrian-Ordovician boundary, the Tremadoc-Arenig boundary and the Ordovician- Silurian boundary. The Ordovician/Silurian boundary in the Precordillera Basin, Argentina, in collaboration with Philippe Steemans (Liege, Belgium).

SALTZMAN, MATTHEW (USA). I'm currently pursuing stratigraphic study of stable (C, S) and radiogenic (Sr, Nd) isotopes in the Ordovician. Currently, I am focused on the interval corresponding the *undatus-tenuis* conodont zones in Laurentia and equivalents elsewhere, in collaboration with Stig Bergstrom and students here at Ohio State. I am also collaborating with Bill Ausich and Paul Copper in chemostratigraphic study of the Ordovician stratigraphy on Anticosti Island. Other collaborative projects are also underway in the Ordovician of Argentina (Guillermo Albanesi), China (Chen Xu and Rong Jia-yu) and Nevada.

SÁNCHEZ, TERESA M. (Argentina). I am continuing research on Tremadoc and Arenig bivalves and rostroconchs from western Argentina. The aim of the studies on bivalves is help to understand the early stages of their evolution in the context of the early Ordovician radiation on the Gondwana shelves. Together with B. Waisfeld, M. Carrera, and J.

Benedetto I am working on Gondwana diversification patterns compared with global Ordovician trends.

SARMIENTO, GRACIELA N. (Spain). I continue working on several projects involving Ordovician and Silurian conodonts with a number of colleagues.

SERVAIS, THOMAS (France). Investigations on Lower Palaeozoic organic-walled micro-phytoplankton continues with ongoing research on the Ordovician of China (with Li Jun and Yan Kui, Nanjing), the Cambrian-Ordovician boundary (with Elena Raevskaya, St. Petersburg), Marco Vecoli (currently post-doc at Lille) and an MSc student (Mathilde Blanchon). A paper on acritarchs of the "Tremadoc-Arenig" (global stages 1 and 2) boundary will be finalised with Stewart G. Molyneux (BGS, Keyworth UK) and Elena. A paper on the inshore-offshore distribution of acritarchs at the Early-Middle Ordovician boundary of the Yangtze Platform will be published soon (Rev. Palaeobot. Palyn.), as well as a paper on the ecophenotypism of galeate acritarchs (Palaeontology). The revision of distinctive acritarchs of the interval Late Cambrian - Early Ordovician (with Ludovic Stricanne, Tübingen, and Elena) includes the review of Nellia, Vulcanisphaera and other taxa. Another ongoing project is the comparison of the global distribution of the acritarchs in the Ordovician with other planktonic and nectonic groups, including fish (Alain Blieck, Lille), graptolites (Chen Xu, Nanjing), chitinozoa (Florentin PARIS) and "planktonic" trilobites (Franco Tortello, La Plata). A revision of the trilobites of the Darriwilian of Belgium is also in progress (with Robert Owens, Cardiff).

SENNIKOV, NIKOLAY V. (Russia). I am actively working on a) Ordovician graptolite, conodont and chitinozoan zonal scales; b) paleogeography of Altai-Salair and Tuva Ordovician paleobasins; c) Ordovician bio- and sedimentary events.

SMITH, PAUL (UK). I have recently started a project to document the sedimentology, palaeontology and sequence stratigraphy of the Cambro-Ordovician Durness Group of NW Scotland, in collaboration with the British Geological Survey. The work will be carried out by myself and a PhD student, Rob Raine, and the first phase will concentrate on the sedimentology and conodont faunas.

TORO, BLANCA (Argentina). Taxonomic, biostratigraphic and paleobiogeographic aspects of the Ordovician and Silurian graptolite fauna from northwestern Argentina and the southern Precordillera are still the major goals of my research activities. An update of the systematic descriptions and the biozonation schemes of the Argentine Ordovician graptolites were presented together with Edsel Brussa in two chapters of the book "Ordovician fossils of Argentina" during the ISOS 2003. In addition, new taxonomic and biostratigraphic graptolite data from the Puna region and the Precordillera were exposed at that Symposium. Currently, I am involved on a number of large projects together with Argentine colleagues: 1) to obtain a high-resolution biostratigraphic scheme calibrated with different groups of fossils for the Ordovician from northwestern Argentina. 2) to deal mainly with the analysis of the zonal succession, international correlation and the paleobiogeographic affinities of the graptolite fauna from Argentine Precordillera. 3) I am still working on the Ordovician graptolites from Mendoza Province with previous Rusconi Collection and new material collected by myself.

TROTTER, JULIE A. (Australia). I am continuing PhD research on conodont geochemistry as potential recorders of palaeocean chemistry and proxies of environmental change during the Ordovician and Early Silurian, principally using high-resolution, in-situ, micro-analytical techniques (eg. laser ablation ICPMS).

VANDENBROUCKE, THIJS (Belgium). This year, I mainly focussed on the rich and diverse chitinozoan fauna of the Type Ashgill area (Howgill Fells, UK), which has already been presented on the ISOS meeting in Argentina (A big "thank you" to the Argentine colleagues for a very nice meeting indeed!). A paper on these Type Ashgill chitinozoans will hopefully be published in the near future. Next year, I am continuing to work on my PhD project (third year), which will include work on several British sections through the Upper Ordovician, a.o. the Cardigan coast section, Whitland section, the Pus Gill section, the Onny Valley and the Hart Fell section. I am also co operating with Chen Xu (Nanjing), focussing on the chitinozoan biostratigraphy of some selected Chinese Ordovician sections such as the Wangjiawan and the Dawangou sections.

VANMEIRHAEGHE, JAN (Belgium). In 2003, I have completed the first year of my Ph. D. project on the mid-Ordovician to Silurian basin development at the northern edge of the Midlands Microcraton (Condroz – Brabant – East Anglia) under the supervision of Dr. Jacques Verniers. This year, the work focussed on the central part of the Condroz Inlier, one of the least investigated lower Palaeozoic areas of Belgium. A section in Faulx-les-Tombes, comprising Caradoc and Ashgill formations, was lithostratigraphically studied in detail. Furthermore, the chitinozoans of this section were studied from more than twenty samples, allowing correlation with international chitinozoan biozonation and accurate dating. Together with Dr. Verniers, I recently finished a paper (in press) that deals with the litho- and biostratigraphy (with

chitinozoans) of two Ashgill formations in the western part of the Condroz Inlier, in the Puagne area. Two conglomeratic levels in the upper formation may be associated with the sea-level drop, caused by the Hirnantian glaciation. In the same paper, two new chitinozoan species are defined. Next year, other Upper Ordovician formations will be studied in the central part of the Condroz Inlier and I will tackle the Silurian of the eastern part of the Condroz Inlier.

VERNIERS, JACQUES (Belgium). This year, I will study the chitinozoans from the Ashgill-Llandovery transition in a borehole from Scania, in collaboration with A. Nielsen (Kopenhagen), where the detailed graptolite biozonation was recently well established by T. Koren. I also want to mention that five Master students are writing their dissertation on chitinozoan biostratigraphy within our research unit. Two of them focus on Belgian chitinozoan biostratigrapy in the Upper Ordovician Ittre and Bornival Formations of the Brabant Massif, while the other three are studying the Ordovician chitinozoans from the Dobs Linn, Hart Fell and Greenscoe sections, the former two in the Southern Uplands, Scotland, and the latter in the Lake District (UK).

SU, WENBO (China). Since 1997, when I finished my doctoral degree program, I have been teaching in the China University of Geosciences (Beijing)(CUGB). Now I am an Associate Professor of the Group of Stratigraphy & Paleontology, School of Earth Sciences & Resources, CUGB. So far, besides the teaching work, I have been studying mainly on the Ordovician sequence stratigraphy and the sea-level changes in South China based on the integrated stratigraphic approach. Meanwhile, I have taken part in some projects for paleogeography and basin analysis respectively in Xinjiang and Inner Mongolia of China.

From 1999 to 2001, I had been in charge of a project from our National Nature Science Foundation Committee (NSFC). It was named ' On the Drowning-unconformities of the Upper Yangtze carbonate platform and the fauna responses during Cambrian and Ordovician'. The main core of this project is to probe the relationship between the sea-level changes and the evolution of the faunas during Ordovician Period based on the sequence stratigraphy and other integrated study. In fact, it was the extending of my doctoral degree program. Some papers and one monograph have been published when the project finished.

At the same time while the above-mentioned program, I had discovered many K-bentonite beds in many Ordovician- Silurian boundary sections in South China. Most recently, my colleagues and I have preliminarily explored the high-resolution correlatability of the volcanic deposits and their tectonomagmatic significances. Two papers have been published. And hence, last year, my new proposal to our NSFC, which named 'On the high-resolution correlatability of the K-bentonite beds and their coupling with the geo-spheres during the Ordovician– Silurian transition in South China', has been granted again and it will be lasted from 2004 to 2006 for another three years.

Nowadays, I am preparing a presentation about the K-bentonites research in S. China for the relevant Ordovician session of the coming 32nd IGC in Italy. Most honored and helpful to me, Profs. Warren D. Huff (University of Cincinnati, K-bentonites) and Gerald R. Baum (Maryland Geological Survey, sequence stratigraphy) are the oversea co-authors.

WAISFELD, BEATRIZ G. (Argentina). My research continues on Ordovician trilobites from Argentina. Extensive collections in several localities of the Northwestern of Argentina yielded new trilobite forms. The taxonomic study of this fauna is in progress with my colleague Emilio Vaccari. As well, we are revising stratigraphical and geographical distributions of most taxa in order to achieve a more comprehensive biostratigraphical scheme based on trilobites for the Late Cambrian-Early Ordovician successions of the Northwestern basin. I am also involved in other projects concerning paleoecology and diversification in Early Ordovician assemblages from the west of Argentina together with my coworkers from the University of Córdoba. Our main focus is to understand the significance of the faunal changes during the Ordovician Radiation in the Southwest of Gondwana. Additionally, a study of Early Ordovician trilobites from classical sections of South Bolivia is in progress in collaboration with Emilio Vaccari and LeGrand Smith.

WHEELEY, JAMES R. (UK). I continue my PhD research with Lesley Cherns and Paul Wright (Cardiff University) on the taphonomy and sedimentology of the Ordovician cephalopod limestones of Sweden. Summer 2003 was spent in Jämtland with Lars Karis, Linda Wickström (Geological Survey of Sweden) and Lesley Cherns collecting material for analysis. I am using field, petrographic and geochemical studies to investigate the early diagenesis of these limestones. From initial results a diagenetic model is being developed that links early remobilisation of biogenic carbonate with the formation of the distinctive 'beds' in these sequences. External (environmental) controls on 'bed' and decimetre cycle formation are also being considered. The trace fossils of these limestones are also being deciphered. Further fieldwork is planned for 2004.

WICANDER, REED (USA). I am continuing my acritarch work on various Ordovician formations. Dr. Geoffrey Playford, University of Queensland,

Australia spent six months in my department and we completed a manuscript on the acritarchs and prasinophytes of the Upper Ordovician Sylvan Shale, Oklahoma, USA. I plan on presenting the results of that research at the XI International Palynologic Congress in Granada, Spain this summer.

WILSON, MARK A. (USA). My work has lately concentrated on the radiation of bioeroders in the Middle and Late Ordovician (the "Ordovician Bioerosion Revolution"). I have an ACS-PRF grant for three years to work out the patterns of Ordovician bioerosion history. So far my work has been in the Upper Midwest of the USA (Iowa and Minnesota) and the Cincinnati area (Ohio, Indiana and Kentucky). I hope to soon expand this fieldwork to Utah and Nevada and maybe even to Argentina. I have also been studying museum collections of Ordovician borings from around the world.

I continue to maintain bibliographies (on hardgrounds and bioerosion), an introductory website on bioerosion and other items accessible at: http://www.wooster.edu/geology/MWilson.html

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 section on corals of Laurentia is in press in the book on Ordovician Biodiversification, IGCP Project 410. 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. Drillcore was recovered from five sites in 2003; this will permit three-dimensional reconstructions. Recently completed work with Steve Kershaw (Brunel University England) establishes a classification system for growth banding and related features in Paleozoic corals and stromatoporoids, through a comparison of Ordovician material from Manitoba and Silurian fossils from Gotland, Sweden.

YOCHELSON, ELLIS (USA). I published a short paper in 2003 in the "Archives of Natural History" on the trilobite with legs from the Upper Ordovician of Cincinnati. I have submitted to Donald Mikulic a longer piece on Walcott's discovery of Middle Ordovician trilobite appendages from Trenton Falls, New York. It is uncertain when this will appear.

I am currently working on the Ordovician brachiopod radiation of South China that is a part of the giant project led by Prof. Rong Jia-yu (Academician): Biotic origination, radiation, extinction and recovery in major geological time intervals. During the past a few years, we had investigated more than 10 Lower to Middle Ordovician sections in South China and collected thousands and thousands of specimens of fossils, mostly brachiopods. A thorough revision on the Early to Middle Ordovician brachiopods of South China is being finished in a couple of years. My main publications in 2003 are as follows:

ZHAN, RENBIN (China). I am currently working on the Ordovician brachiopod radiation of South China that is a part of the giant project led by Prof. Rong Jia-yu (Academician): Biotic origination, radiation, extinction and recovery in major geological time intervals. During the past a few years, we had investigated more than 10 Lower to Middle Ordovician sections in South China and collected thousands and thousands of specimens of fossils, mostly brachiopods. A thorough revision on the Early to Middle Ordovician brachiopods of South China is being finished in a couple of years.

ZHANG, SHUNXIN (Canada). My research is still focused on the Ordovician and Silurian conodont paleoecology and reconstruction of the sea level history based on the conodont community changes through time. Currently, my active projects include works on the Appalachians, Cordillera, and Arctic.

ZHANG, YUANDONG (China). I am working on the following aspects: 1) the middle Ordovician biotic-radiation. After the 2001 field excursion to Upper Yangtze Platform, eg., northern Guizhou, southern Sichuan, together with some of my colleagues in Nanjing, and Prof. Liu Jianbo from Beijing University, last year (2003) Renbin and I finished the field work on the early to middle Ordovician Dawan Fm. in the Yangtze Gorges area of China. The preliminary results of this work turned out to be interesting. The formation shows a comparatively low biodiversity of early-middle Ordovician (both pelagic graptolites and benthic brachiopods), even in the northern margin of the Yangtze platform (e.g. Nanzhang and Jingshan of Hubei) where was previously believed to represent a relatively deep-water environment. The detailed work including the identification and analysis is yet to be finished. 2) Tremadocian biostratigraphy and graptolites of China. I continue to cooperate with Prof. B.-D. Erdtmann in Technical University Berlin and Prof. Feng Hongzhen of Nanjing University, China, to study the late Tremadocian graptolite and biostratigraphy in North China and South China, and the correlation with Baltica, Newfoundland and Bolivia etc. On the basis of this cooperation in the past years, we have been able to deliver several manuscripts for publishing. 3) 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, Dr. Fan Juanxuan and Prof. R.A. Fortey etc.). The study on the origin and early evolution of biserial

graptolites have been conducted in collaboration with Richard Fortey, and turned out some interesting results which are to be published soon. The other studies are on the way. The work is financially supported by the Natural Science Foundation of China.

ZHEN, YONG YI (Australia). I am continue working on the Ordovician conodonts from New South Wales and China in association with Ian Percival, Barry Webby, and Jianbo Liu.

ZHOU, ZHIYI (China). Work continues on the Ordovician trilobite biofacies and biodiversity changes of the Yangtze Block. Relative researches involve a review of the previously established Chinese trilobite genera and faunal sequences, and a stratigraphic correlation of trilobite-bearing beds between different facies belts. A few papers on the terminal Ordovician extinction and early Middle Ordovician radiation of the South China trilobites are almost ready to submit. Other work includes studies on the Llanvirn-early Ashgill trilobite faunas of Pagoda facies from the Yangtze region (with Zhou, Zhiqiang) and on the ontogeny of Arenig trilobites from Anhui (with Yuan, Wenwei). I was able to join the 9th ISOS held in San Juan, Argentina in August. It was well organized and I felt rewarding and profitable. I was pleased to have the chance to meet friends and colleagues old and new, and to see for the first time the Ordovician of South America.

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