SILURIAN TIMES

No. 8, 2000

A NEWSLETTER OF THE SILURIAN SUBCOMMISSION

SUBCOMMISSION ON SILURIAN STRATIGRAPHY

INTERNATIONAL COMMISSION ON STRATIGRAPHY

INTERNATIONAL UNION OF GEOLOGICAL SCIENCES

INTERNATIONAL UNION OF GEOLGICAL SCIENCES

President: Robin Brett (USA)
Secretary: Attilio C. Boriani (Italy)
Tresurer: Zdenek Johan (France)

INTERNATIONAL COMMISSION ON STRATIGRAPHY

Chairman: Kurt Remane (Switzerland)
1st Vice-Chairman: H. Richard Lane (USA)
Secretary-General: Olaf Michelsen (Denmark)

INTERNATIONAL SUBCOMMISSION ON SILURIAN STRATIGRAPHY

Chairman: M.E. Johnson (USA)
Vice-Chirman: J-y. Rong (China)
Secretary: A.C. Lenz (Canada)
A.J. Boucot (USA)
M.V. Caputo (Brazil)
L.R.M. Cocks (UK)
W. Hänsch (Germany)
J.S. Jell (Australia)
M.E. Johnson (USA)
D. Kaljo (Estonia)
T.N. Koren (Russia)
J. Kríz (Czech Republic)
A. Le Hérissé (France)
A.C. Lenz (Canada)
J.-y. Rong (China)
E. Serpagli (Italy)
D.L. Strusz (Australia)
L. Teller (Poland)

TABLE OF CONTENTS

EDITORIAL

This is the fifth and final newsletter under my editorship. Following the July, 2000, meeting in Australia, the editorship will pass into the younger, but very able hands of Mike Melchin, the third Canadian editor of the newsletter (do I detect a Canadian conspiracy??). I wish Mike every success in what is a time-consuming, but in some ways, very rewarding job. The job has been, to me, rewarding in the sense that it puts the editor in contact with Silurian workers all over the world, most of whom include small personal notes with their research/publication contributions. In some ways I will miss this but, needless to say, will not miss the many hours spent in the final stages of formatting and organizing the newsletter, although the electronic age transmission of the vast majority of the newsletters has substantially eased the amount of time involved. So, good luck and good editing Mike!

ANNUAL REPORT OF THE SUBCOMMISSION ON SILURIAN STRATIGRAPHY (SSS) OF THE INTERNATIONAL COMMISSION ON STRATIGRAPHY FOR 1999

1. Title of constituent body:
   SUBCOMMISSION ON SILURIAN STRATIGRAPHY (SSS)
2. Summary table of Silurian subdivisions:
   Source: Holland, C.H. and Bassett, M.G. (1989). A Global Standard for the Silurian System, National Museum of Wales, Geological Series No. 9, p. 24.

System		Series	Stages
Silurian	Upper	Pridoli	(no subdivisions)
		Ludlow	Ludfordian
			Gorstian
	Lower	Wenlock	Homerian
			Sheinwoodian
		Llandovery	Telychian
			Aeronian
			Rhuddanian

No changes or additions to this scheme have been made during the last seven years. As recently as the last biennial meeting of the SSS in Spain in 1998, the membership confirmed its majority support for the status quo. New officers of the subcommission may take the decision to reopen nominclatural questions after July 2000 when the next biennial meeting of the SSS occurs in Australia.

3. Overall objectives:

a) Elaboration and improvement of the standard global stratigraphical (SGS) scale for the Silurian System, including definition of boundaries and the selection of Global Stratotype Sections and Points (GSSP) under IUGS guidelines.
b) Refinement of international correlation within the Silurian System, with particular emphasis on development of a generalized scheme of zonal fossils (left-hand column) for global applications.
c) Stimulation of research and international cooperation, with particular emphasis on the coordination of working groups focused on various zonal fossils such as graptolites, conodonts, chitinozoans, etc.
d) Evaluation and integration of new approaches to the correlation of Silurian strata on a global scale.

4. Organization:

The SSS is a subcommission of the International Commission on Stratigraphy, consisting of 15 Voting and 48 Corresponding members. Voting members are selected to achieve regional representation and a balanced stratigraphic expertise. Corresponding membership is open to all individuals demonstrating a commitment to scholarship in Silurian stratigraphy.

Officers:
Chairman: Markes.E. Johnson (Dept. of Geosciences, Williams College, Williamstown, Massachusetts, 01267 USA).
Vice-chairman: Rong Jia-yu (Nanjing Institute of Geology and Palaeontology, Academia Sinica, Nanjing 210008, People's Republic of China.
Secretary: Alfred C. Lenz, Dept. of Earth Sciences, University of Western Ontario, London, Ontario N6A 5B7, Canada).
The SSS Treasury is maintained as a separate organizational account at Williams College.

5. Extent of national/regional/global support of projects:

Membership in the SSS is represented by specialists from 29 countries and from all continents except Antarctica. Most of the major regions of the world with extensive exposures of Silurian strata are covered, especially Eurasia, North America, South America, Australia, and Africa. The next biennial field meeting sponsored by the SSS will take place in New South Wales and Queensland, Australia in July 2000.

The 2nd International Symposium on the Silurian System (convened in Rochester, N.Y. in August 1996 under primary sponsorship of the SSS) enjoyed significant financial support from educational institutions, private science foundations, and corporate sponsors. Ongoing grant support has underwriten publications from this symposium through the cooperation of the New York State Museum.

Substantial national-based support was contributed for other SSS field meetings in Spain and Portugal (1998) Austria (1994), the Czech Republic (1992), Estonia (1990), Australia (1986), the Ukraine (1983), Norway (1982), Canada (1981), and the United Kingdom (1979, 1989).

6. Interface with other international projects:

Due to the significant occurrence of thelodonts in Silurian strata, some members of the SSS participate in IGCP Project No. 406 (Circum-Arctic Lower-Middle Palaeozoic Vertebrate Palaeontology and Biostratigraphy) -which is scheduled to run through 2000. SSS member, Tiiu Marss (Estonia) is a co-leader of the project. Other SSS members are

very active in the IPA international research groups on graptolites and conodonts. The SSS field conference held in Spain and Portugal in 1998 was arranged to coincide with the Sixth International Graptolite Conference.

7. Accomplishments and products generated in 1999:

One publication was brought out in 1999: The only product generated in 1999 was the seventh issue of Silurian Times -the official newsletter of the Silurian Subcommission (edited by Secretary Alf Lenz). The newsletter was circulated in January 1999 to all subcommission members as well as a broad constituency of Silurian researchers around the world. This is the second year we circulated the newsletter primarily via electronic mail. About 150 copies were distributed electronically and only 50 hard copies were circulated through the normal postal system. By this means, the SSS realized a considerable savings in postal costs.

8. Chief problems encountered in 1999:

A sustained effort has been made to collect and edit manuscripts based on keynote talks presented at the James Hall Meeting (or 2nd International Symposium on the Silurian System) convened in Rochester, N.Y. in August 1996 under primary sponsorship of the SSS. The publication of two volumes through the auspices of the New York State Museum was the original goal. The first of those volumes was finally made available in 1998. Thedecision was taken in 1998 to divide the keynote manuscripts into two volumes, based on the length of the early manuscripts submitted for editorial review. The first of those was to appear under the tentative title: Silurian Lands to Shelf Margins: Silurian world exclusive of North America. The final volume is planned to focus on the Silurian of North America.

The chief problem encountered in 1999 continues to be the glacial speed of the editorial process. The next volume, covering Avalonia, Baltica, southern and eastern Europe, Kazakhstan, Siberia, China, Australia, India, and North Africa, is basically ready to go to press -except for lack of co-operation from one set of authors who promised to submit their manuscript at the end of 1998 and failed to meet a succession of sliding deadlines through the summer of 1999. As the value of the planned publication will be adversely affected by the omission of the territory in question, the editors have been forced to make alternative plans to acquire this important coverage elsewhere. New work has been set in motion and publication of this volume is now anticipated in 2000.

9. Work plan for 2000:

a) The Australian organizing committee has advertised via the world wide web a July 2000 venue for the next SSS biennial field conference. The technical session (Frederick McCoy Silurian Symposium) will take place in Orange, New South Wales on July 14- 15, 2000. Related field trips on the Silurian of New South Wales and a field excursion to Heron Island in Queensland are planned. During the meeting, SSS Vice Chairman Rong Jia-yu (Nanjing Institute of Geology & Palaeontology) will succeed Markes Johnson (Williams College) as SSS Chairman. Tatyana Koren (All-Russian Geological Institute, St. Petersburg) will succeed Rong as the new Vice Chairman.

b) Final volume design for about half the manuscripts based on keynote presentations at the 1996 James Hall Meeting regarding "Silurian Lands to Shelf Margins" should be completed by the end of 1999. This work continues through the sponsorship of the New York State Museum in Albany, N.Y. At the end of October 1999, all but one of the manuscripts based on the keynote lectures representing the Silurian world exclusive of

North America were received in good order. Manuscripts on the Silurian of North America are on hold until this phase of the project is in press.
c) Production of the eighth issue of Silurian Times.
d) Continued work by the task force on "High-resolution Silurian Graptolite Zonation" led by titular member Tatyana Koren. Anticipated work plans for future years: At the discretion of the new SSS officers.
10. Potential funding sources outside IUGS:
A publication fund, based on revenues raised for the James Hall Meeting and ongoing grant contributions is established. These funds are being released to the New York Geological Survey in order to cover initial editing costs of symposium volumes. Other potential funds through the New York State Museum may facilitate publication based on anticipated reimbursement from sales of symposium volumes. The 1998 volume entitled "Silurian Cycles - Linkages of Dynamic Stratigraphy with Atmospheric, Oceanic, and Tectonic Changes" (New York State Museum Bulletin 491, 327 p.) has enjoyed a solid sales profile.
11. Financial statement for 1999

a) Income (U.S. dollars)	
1. Carryover from 1998	$ 0.00
2. 1998 ICS subvention	400.00
Total operating funds	400.00
b) Expenditures	
1. Newsletter production	143.26
2. Postage	43.59
Total expenditures for 1999	197.85
Net balance at the end of 1999	$202.15

12. Budget for 2000:

1. Production & mailing of newsletter	$ 200.00
2. Support for attendance by New officers at Australian Subcommission meeting	$ 600.00

ALLOTMENT REQUESTED FROM ICS FOR 2000 - $ 600.00

CHAIRMAN'S CORNER

This column is the last to appear in Silurian Times under my name as SSS chairman. My eight-year term of service is nearly at an end. I take advantage of the opportunity to combine some official news of the last year with personal news and my outlook on the future of the SSS. Wearing different hats as a chairman, an editor, and a private individual with ongoing interests in Silurian research, 1999 was a year of considerable frustration but also great personal satisfaction. My main job as chairman last year was to guide the nominations of my successor Rong Jia-yu (Nanjing Institute of Geology and Palaeontology) and the new vice-chairman Tatjana Koren (All-Russian Geological Research Institute, St. Petersburg) through the process of ratification by the International Commission on Stratigraphy. The expected results were achieved and the SSS is thereby assured strong leadership over the next four years from July 2000 through 2004. Other official work concerned preparations for new faces to join the titular membership of the

SSS (see accompanying article). This process may continue until the last moments before our next biennial meeting in Australia in July 2000. It is vital to the health of the SSS that our senior membership is slowly replenished by people still at an early stage in their research careers. This is the only way that new outlooks and fresh ideas will come to our organization and shape our future agenda.

As symposium editor, I made it my goal to complete another volume of research papers based on keynote lectures presented at the 1996 Second International Symposium on the Silurian System (also known as the James Hall Meeting). This goal was not achieved. The decision was taken early on to hold back papers on the Silurian of North America and to concentrate on contributions covering the stratigraphy and paleogeography of the remaining Silurian world. Manuscripts based on the keynote lectures have been received, reviewed, and edited for all but one major Silurian paleocontinent in this category. The missing manuscript proved impossible to obtain from the authors originally assigned to the task. In the belief that coverage of the region is critical to the success of the volume, the difficult decision was made late last year to enlist the help of new authors. I am in a position to watch closely over progress on the missing chapter and I anticipate publication of the next volume sometime this year under the continued imprint of the New York State Museum Bulletin.

During July 1999, Gudveig Baarli and I joined Rong Jia-yu and others in Inner Mongolia for field research with respect to Upper Silurian rocky shorelines on the North China Plate. Under support from the National Geographic Society, the project was successful beyond my wildest expectations. We not only achieved a better understanding of Silurian paleogeography in North China through basic mapping, but also discovered a Silurian island replete with an intact rocky-shore fauna and lithofacies that indicate prevailing Silurian winds and marine circulation. We anticipate our ongoing research will result in new contributions on taxonomy, on the record of Upper Silurian sea-level changes, and on theinterpretation of atmospheric and marine circulation related to Silurian paleogeography. In short, last summer's fieldwork was some of the most stimulating I have undertaken during recent years. I am left with an optimistic feeling that much of basic interest and importance remains to be done to elucidate the physical and biological evolution of the Silurian world. Further, I am convinced that our own SSS is well suited to promote such work under the sprit of international cooperation. The core responsibility of the SSS is to define time-rock units within the Silurian System. Without internationally accepted definitions, any attempt to work out the physical and biological evolution of the Silurian world is hopeless. There remains much to be done if we wish to establish boundaries on a finer scale (substage chronostratigraphic units). The SSS has a bright future if we continue to make the organization work for us and respond to our own interests and enthusiasm for field studies. I extend a warm welcome to Rong Jia-yu and Tatjana Koren as our new chairman and vice-chairman, respectively. Please join me in giving them your full support over the next four years.

ANNOUNCEMENT OF CHANGES IN SSS MEMBERSHIP - NEWSLETTER EDITORSHIP

Effective with the July 2000 biennial meeting of the Silurian Subcommission in Australia, changes in the titular membership of the organization have been approved by the International Commission on Stratigraphy following consideration by the voting

members of the SSS in December 1999. Arthur J. Boucot (U.S.A.) and Des Strusz (Australia) will relinquish their seats as voting members and resume corresponding membership in the SSS. The officers and all members of the SSS are grateful for the many years of service contributed by our two distinguished colleagues. At the same time, promotion from corresponding to voting
membership will occur for Michael J. Melchin (Canada) and David K. Loydell (U.K.). Our newest titular members are warmly welcomed in anticipation of their future years of useful service to the organization.

With this issue of Silurian Times, Alf Lenz completes a five-year term of service as editor. Alf took over the editorship with production of the 1996 newsletter and instituted use of the internet for distribution of the newsletter. The officers and all members of the SSS are grateful to Alf for his long and faithful dedication to the job. Mike Melchin has agreed to assume the editorship of Silurian Times beginning with the year-2001 issue. All future correspondence regarding our annual newsletter should be sent to him in care of the Department of Geology, St. Francis Xavier University, P.O. Box 5000, Antigonish, Nova Scotia B2G 2W5, Canada.

MILLENNIUM BRACHIOPOD CONGRESS [FROM ROBIN COCKS (UK)]
A key meeting about brachiopods, their ecology and biostratigraphy during the Phanerozoic, very much including the Silurian. To be held at the Natural History Museum, London, from 10th to 14th July 2000, plus field trips which include Palaeozoic of Wales and the Welsh Borderland led by Mike Bassett. Details and registration forms from Robin Cocks, e-mail r.cocks @ nhm.ac.uk.

Palaeontology Down-Under
Interlinked Meetings for the Year 2000
(11–15 July 2000, with pre-conference, 8–10 July, and post-conference excursions, 16–20 and 21–25 July)

PROGRAM
Five interlocking events — three conferences, two IGCP meetings and associated excursions have been programmed to follow on from the Australian Geological Congress (3-7 July, 2000, University of Technology, Sydney). The conferences and meetings are:

1. Australasian Palaeontological Convention-2000 (**APC-2000**) — including a celebration honouring Professor Barry W. Webby.
2. The Third International Symposium on the Silurian System (**Sir Frederick McCoy Silurian Symposium**).
3. The Second Australasian Conodont Symposium (**AUSCOS-2**).
4. **IGCP 410** Meeting (The Great Ordovician biodiversity event: implications for global correlation and resources).
5. **IGCP 421** Meeting (North Gondwana mid-Palaeozoic bioevent/biogeography in relation to crustal dynamics).

INTERNET ADDRESS:

Second Circular and Booking form became available on 9 December on:

www.es.mq.edu.au/MUCEP/

CONFERENCE VENUE:
Orange, NSW, 260 km west of Sydney, in the heart of the most instructive Ordovician, Silurian and Early Devonian sequences in eastern Australia. Orange is serviced daily from Sydney by regular air services (4 per day).

After much negotiation, we have decided to run the conference in, and use the accommodation of, the Kinross-Wallaroi School, close to the centre of Orange. It is one of the most prestigious private schools in New South Wales, and has convenient facilities including central heating. Single and twin accommodation is available (surcharge for single accommodation); a few rooms hold 4 to 6.

GENERAL:
Unless otherwise stated, costs include breakfast, lunch, morning and afternoon refreshments, shared accommodation and travel. Evening meal is not included unless stated. **Single accommodation can be organised at an additional cost of AUD$40 per night**. Since our estimates of costs were given in the First Circular, Australia has been inflicted with a Goods and Services Tax (GST) of 10%. This, unfortunately, we are forced to pass on for all goods and services (accommodation, transport, conference fees, etc). You will note that it will not apply to T-shirts ordered herein as you will be buying them prior to 1 July and we will just hand them over to you when you arrive! We have tried to keep all costs down—close as possible to our first estimates.

ABSTRACTS:
Abstracts submitted (and accepted) will be published as a substantial volume (A4 format) in the Geological Society of Australia Abstracts series. The abstracts volume will be co-ordinated by George Wilson and John Laurie. Abstracts should be informative and preferably be one page in length, but abstracts to a maximum of two pages in length (including line-drawings, but not half-tones, will be accepted). The text should fit into a box 15.5 cm in width and 25.5 cm in length and be right–margin justified. The title should be in bold-face capitals, followed by a blank line, then a line\lines with author's name (or names of authors) capitalized followed by institutional affiliation in lower case, followed by a blank line, and then the body of the abstract, single-spaced with the first line of each paragraph indented.

Abstracts should be submitted to George Wilson, Earth and Planetary Sciences, Macquarie University 2109, Australia, preferably as e-mail attachments (gawilson@laurel.ocs.mq.edu.au), by **2 APRIL** (the same date for making final payments—see below).

MAJOR PUBLICATIONS:
There will be four other volumes of publications emanating from the conference:

1. **A Festschrift in celebration of the contribution Prof. Barry Webby has made to Australian and international palaeontology.** A special number of *Alcheringa* (vol. 25, nos 1 and 2, scheduled for March\April 2001) to be edited by Glenn Brock and Ian Percival.

2. APC 2000—a collection of papers of a general nature. A Memoir of the Australasian Association of Palaeontologists to be edited by John Laurie. **Contributions by young-career researchers are especially encouraged.**

3. The Sir Frederick McCoy Silurian Symposium. To be edited by Greg Edgecombe for publication as a volume of the Australian Musem Records**.**

4. AUSCOS-2. A volume of conodont papers to be edited by the conveners—Ruth Mawson, Andrew Simpson and John Talent—for publication as a volume of the Courier Forschungsinstitut Senckenberg.

Submission of manuscripts:

Manuscripts (3 copies) for refereeing should be submitted as follows:
Volumes 1–3. Manuscripts should be brought to the conference and delivered to one of the editors specified above on the first day of the conference, 11 July, so they can be forwarded to referees during or immediately following the conference.
Volume 4 (AUSCOS-2 volume), should be despatched to Ruth Mawson, Earth and Planetary Sciences, Macquarie University 2109, Australia, so as to reach her by 1 May.

PAYMENT:

1. Please make your payment in **Australian dollars** by:

(a) Telegraphic transfer to
Account: Palaeontology Down-under
Account number: 47808 2391
Bank: National Bank of Australia, Macquarie University branch,
Branch number: 082 241
OR

(b) Bank cheque made payable to **Palaeontology Down-under**.
Mail to George Wilson MUCEP, Dept of Earth & Planetary Sciences, Macquarie University, N.S.W. 2109

Unfortunately, to keep costs down, credit–card facilities are not available for paying conference fees, and will not be available at the conference.

2. Please return your form with details as soon as possible (preferably by 15 January 2000). We would like payment of the full amount (preferably) or a deposit of $200 to accompany the registration form. THE FULL AMOUNT, HOWEVER, MUST BE PAID BY 2 APRIL.

3. Late Fee: Late payments will incur an additional 10% charge.

EXCURSION PACKAGE 1: Pre-Conference Excursion (3 days and 2 nights)

Sat 8 July: 8 am Travel from Macquarie University to Yass via Bungonia and Windellama: Windellama Limestone; Bungonia Group and the Silurian of the Yass Synclinorium; night: Yass.

Sunday 9 July: Travel to Wellington: Silurian (Llandovery-Wenlock): Quarry Creek, Borenore (graptolites/conodonts/corals); night: Wellington.

Monday 10 July: 8 am Wellington to Orange: Late Silurian-Early Devonian – Wellington, Eurimbla and Nubrigyn (autochthonous and allochthonous sequences: channel deposits, carbonate fans, intermittent platform exposure and

grand-scale platform-margin collapse); night: Orange. *Evening*: *Registration for combined APC-2000/ AUSCOS-2/McCoy Silurian Symposium/ IGCP Meetings.*

Cost = AUD$340 + 10%GST AUD$34 **= AUD$374**

This will include: Travel costs from Sydney (Macquarie University—other pick-up points to be notified); accommodation at Yass and Wellington; breakfasts, lunches, morning and afternoon refreshments; field guide.

CONFERENCE PACKAGE A (5 days and 5 nights)

Monday evening: Registration and overnight at Orange.

Tuesday 11 July: First day of papers – parallel sessions: APC-2000 - general themes; AUSCOS-2 - Cambrian, Ordovician and Silurian conodonts.

Wednesday 12 July: Second day of papers – parallel sessions: APC-2000 - general themes; AUSCOS-2 - Silurian, Devonian and younger conodonts.

Thursday 13 July: Excursion interlude: Three alternatives will be offered:

1. Day trip to Wellington, Pliocene-Holocene biodiversity: Wellington Caves/ phosphate mine vertebrate fauna; Western Plains Zoo (Dubbo) and Lake Burrendong Arboretum
2. Day trip to Cliefden; Late Ordovician shelly faunas/ conodonts. Visit Canowindra Age of Fishes Museum.
3. Wineries of the Orange area.

Friday 14 July: Third day of papers – parallel sessions: APC-2000 (Mesozoic and Cainozoic papers); Sir Frederick McCoy Symposium papers. *Evening:* Conference Dinner.

Saturday 15 July: Papers for APC-2000/AUSCOS-2/McCoy Symposium continued and Meetings of IGCP410 and IGCP421.

Cost: AUD$590 + 10% GST AUD$59 **= AUD$649**

Student (post- or undergraduate) cost: AUD$450 + 10% GST $45 = **AUD$495.**

This will include: Accommodation (5 nights in Orange—all linen provided), breakfast, lunch, morning and afternoon teas, dinner, conference program and abstract volume, mid–conference excursion (including transport and entry fees), conference dinner, and conference fee.

Student status requires confirmation by head of department or supervisor.

Accompanying person cost: AUD$400 + 10% GST AUD $40 = **AUD$ 440;**

This will include: Accommodation (5 nights in Orange—all linen provided), breakfast, lunch, morning and afternoon refreshment, dinner, mid-conference excursion (including transport and entry fees), and conference dinner.

Participants living locally cost: AUD$200 + 10% GST $20 = **AUD$220.**

For people who live locally or will be organising their own accommodation, a special deal has been struck that will include morning and afternoon refreshments and lunch, conference dinner, conference program and abstract volume, and mid-conference excursion and conference fee.

NOTE: People not participating in Excursion Package 2 or 4 will need to make their own travel arrangements back to Sydney or other destinations. To help you with your planning air, train and bus timetables have been "hot-spotted" on our Web site. Overnight accommodation and breakfast can be arranged in Orange for an additional AUS$50.

CONFERENCE PACKAGE B (2 days and 3 nights)
For people who wish to attend the mid-conference excursion and the sessions on Friday for Mesozoic and Cainozoic papers, a special deal has been struck that will include 3 nights accommodation, all meals, morning and afternoon refreshments, conference dinner, conference abstract book, and mid-conference excursion.
Cost: AUD$280 + 10% GST AUD$28 = **AUD$308.**

CONFERENCE PACKAGE C ("bare-bones" daily rate)
Cost: AUD$35 + 10% GST AUD$3.50 = **AUD$38.50**
For local participants or students who wish to attend an individual day of the conference, a special deal has been struck that will include morning and afternoon refreshment and lunch. The Abstracts volume will be on sale at the venue.

EXCURSION PACKAGE 2: Post-Conference Excursion (5 days and 6 nights)
Saturday 15 July: Overnight at Orange
Sunday 16 July: Travel by road to Tamworth via Scone, Timor and Nundle: examination of Timor and "Crawney" limestones, (shelly faunas, conodonts; autochthonous and allochthonous sequences); night: Nemingha (near Tamworth).
Monday 17 July: Cambrian-Devonian of the Tamworth Belt: Woolomin, Loomberah, Tamworth Hospital Quarry (shelly faunas, conodonts, mainly allochthonous sequences); night: Nemingha (near Tamworth).
Tuesday 18 July: Autochthonous Early and Middle Devonian limestones at Sulcor, Attunga and Yarramanbully (shelly faunas, conodonts; autochthonous and allochthonous sequences); Travel to Goondiwindi (via Moree Artesian Spa Baths); night: Goondiwindi .
Possibility: Depart Tamworth for other destinations (own arrangements).
Wednesday 19 July: Travel to Monto. Mid-Palaeozoics at Monto (briefly) en route; night: Monto.
Thursday 20 July): Travel to Gladstone: Devonian-Early Carboniferous of Mount Morgan–Rockhampton–Raglan area (Mount Etna, Horrigan Creek, Mt Holly (conodonts, corals; autochthonous *vs* allochthonous stratigraphy); dinner at Raglan Hotel; night at Gladstone
Full cost: AUD$660 + 10% GST AUD$66 = **AUD$726**
This will include 6 nights accommodation (Orange, Nemingha [2 nights]; Goondiwindi, Monto and Gladstone); breakfasts and lunches, morning and afternoon teas, entrance to the Moree Artesian Spa Pool, field guide.
A special rate will be calculated for those who can supply their own vehicle and/or can take one or more passengers.
NOTE: Participants not wishing to participate in Excursion package 3 may either make their own onward travel arrangements from Gladstone, e.g. by air, bus or train to Sydney/Brisbane/Cairns or wherever or, alternatively may return to Sydney on 21-22 July with the excursion vehicles **– paying approximately AUD$200 plus own accommodation and meals en route.**

Carbonate/Build-up Workshop (5 days and 4 nights)
NOTE: Participants not participating in Excursion Package 2 will need to make their own airline bookings so as to be in Gladstone for departure by catamaran from the Gladstone Marina at 11am on Friday, 21 July. Arrival at Gladstone airport should therefore be not later than 10.30 am, e.g. flying from Sydney around 6.15 am…

Friday 21 July: Depart Gladstone 11 am for Heron Island by catamaran for **Sir Frederick McCoy Symposium Carbonate/Build-up Workshop** — focussed on carbonate sedimentation and reef-structuring organisms. Convener: John Jell.
Saturday 22 July to Monday 24 July: three full days on Heron Island.
Tuesday 25 July: Depart Heron **EXCURSION PACKAGE 3: Sir Frederick McCoy Symposium** Island at 1.30pm to arrive Gladstone at 3.30pm. Flights back to Brisbane or Sydney or Cairns or wherever depart around 4.15pm or 6.15pm. **Participants to make their own airline bookings**.

Cost: Gladstone to Gladstone AUD$650 + 10% GST AUD$65 = **AUD$715**
This will include catamaran transport from Gladstone to Heron Island return (approximately 70 km); shared accommodation—all linen provided, all food (including evening meal and dinner drinks), workshop booklet, bench fees at the Heron Island Research Station. Participants will need to bring swimming gear, snorkel, mask, flippers, dive boots or shoes suitable for reef walking (e.g. old hard-soled gym boots), cheap dive gloves ($5 type or even garden gloves are adequate), and, if possible, a wet suit.

NEW!!!! EXCURSION PACKAGE 4 (4 days and 5 nights)
IGCP 410 Post-Conference field-trip, July 2000
Maximum 9 participants
Saturday 15 July: Overnight at Orange
Sunday July 16: approx. distance to be covered 140 km
Depart Orange (8 am); travel via to Cliefden Caves area (observe Fossil Hill Limestone and Belubula Limestone [Eastonian 1, BA 2-3 shelly fauna] in Caves Track and west Shearing Shed sections; Vandon Limestone [Eastonian 2, BA 3 shelly fauna] and overlying Malongulli Formation [Eastonian 3], including limestone breccias [BA 4-5 sponges] and graptolitic spiculites [BA 6], at Trilobite Hill); if time permits, visit Kurrajongs section through Cliefden Caves Limestone Subgroup [BA 1-3]. 5 pm: Travel to Canowindra (overnight in country pub).
Monday 17 July: approx. distance covered 180 km
Depart Canowindra (8 am); travel to Bowan Park area (visit Daylesford Limestone [Eastonian 1, BA 1-3 shelly fauna]; upper Daylesford Limestone and Quondong Limestone [Eastonian 2, BA 3 rich shelly fauna]; Ballingoole Limestone [Eastonian 3, BA 4? Shelly fauna] and Fauna IV [Bolindian 2?] coral assemblage in Cheesemans Creek Formation at Malachis Hill); travel via Molong to Yuranigh Limestone Member [Gisbornian 2, BA 1-2]; visit Yuranigh's grave (aboriginal site with carved posts). Travel to Parkes; visit Mugincoble Chert [Darriwilian 3/4-Gisbornian 1, BA 6?]. (overnight in Parkes).
Tuesday 18July: approx. distance covered 210 km

Depart Parkes 8 am; travel west to “Yarrimbah” property to inspect Yarrimbah Formation (Bendigonian graptolites, BA 4-6); travel to Gunningbland area to Billabong Creek Limestone [Darriwilian 3/4-Gisbornian-Eastonian 2, BA 1-3], Gunningbland Shale Member [Eastonian 3] at New Durran [BA 6 graptolites and trilobites] and Currajong Park [BA 2-3 corals, brachiopods, trilobites]. Return to Parkes - travel to Alectown (view radiotelescope), then to Wellington Caves Caravan Park (overnight in motel–type cabins).

Wednesday 19July: approx. distance covered 170 km

Depart Wellington Caves 8 am; travel to “Wahringa” for Hensleigh Siltstone [Bendigonian graptolites, allochthonous limestones with conodonts] and Wahringa Limestone Member [Darriwilian 4-Gisbornian 1, BA 1-3 shelly fauna].

Return to Wellington (lunch in Cameron Park botanical garden; visit Aboriginal Co-op shop); drive to Gulgong (historic town) - visit Ordovician outcrop (allochthonous lime–stone); drive to Mudgee (overnight at country pub); excursion dinner at local winery.

Thursday 20 July: approx. distance covered 300 km

Depart Mudgee 8.30 am, travel to Sydney (5-6 hours drive including stops and lunch), visiting local geological sites, historic village, and several scenic lookouts in Blue Mountains, arriving Sydney mid to late afternoon. Flights out of Sydney should be scheduled after 7 pm.

COST: AUD$450 + GST 10% AUD$45 = **AUD$495.**

Includes 5 nights accommodation, transport, field guide, all food (except evening meals on days 2, 3 and 4), morning and afternoon refreshments, excursion dinner.

T-SHIRTS, ETC.

No conference would be complete without a T-shirt. If you place your order now and pay prior to the conference, we can legally avoid the GST! We have decided on a conference T-shirt for Palaeontology Down-under for $15 each. We are also offering a number of typical Australian-design, T-shirts ($25) and polo shirts ($32) as well as warmer rugby tops ($42). As it will be very cool to cold in Orange, we thought this appropriate! All designs are illustrated on the Web page.

MID-CONFERENCE EXCURSIONS

For Thursday, 13 July we ask you to nominate the excursion you would like to join.

1. **Wellington Caves (Devonian Garra Limestone and Phosphate Mine with 5my fossil vertebrates), Dubbo Zoo (Australian fauna) and Burrendong Arboretum (Australian vegetation).**

8 am Depart from outside Kinross–Wallaroi, Orange

Drive to Wellington Caves via Molong (95 km). Brief overview of the Wellington Caves vertebrate fauna. Visit Phosphate Mine to see Late Pliocene fossils in situ. Morning refreshments.

11am: Drive to Dubbo to the Western Plains Zoo (60 km). Tour of the zoo, lunch, opportunity for souvenir purchases.

2.30pm Drive to Stuart Town Arboretum (75 km). Refreshments and tour of Arboretum.

4.30–5pm: Return to Orange (60 km).

2. **Fossil Hill at Cliefden (Ordovician), historic Cadia Mine, fossil town of Carcoar, Canowindra Fossil Fish Museum.**

8 am Depart from outside Kinross–Wallaroi, Orange drive to Cadia Mine for overview from lookout and visit to restored White Engine House (historic workings from 1870s) - approx 45 mins ; drive to Carcoar via Forest Reefs or Flyers Creek; drive-time Orange to Carcoar (excl. stop) approx 1 hr
9.45 Arrive at Carcoar - walk around town, have morning tea - approx 45 mins
10.30 Depart Carcoar via Mandurama for Fossil Hill - drive-time approx 30 mins
Overview of geology talk from top of hill above Caves Track - 15 mins;
11.15 am Arrive Fossil Hill (from Large Flat if fine; otherwise walk in) raverse over Fossil Hill sequence for 1.5 hours; have lunch 45 mins; raverse over Dunhill Bluff for 1 hour
2.30 pm Depart Large Flat drive to Canowindra - drive-time 30 mins
3 pm Arrive Canowindra Fish Museum either tour museum, or walk around town, have afternoon tea - 1 hour
4 pm Depart Canowindra, travelling to Orange via Cargo - drive-time 1 hour
5 pm (dark) Arrive Orange.

3. Wineries and geology of the Orange district with our local expert, Lawrence Sherwin.

8am: Depart from outside Kinross–Wallaroi, Orange.

ACCOMMODATION IN SYDNEY:

Overnight accommodation in Sydney is NOT included in cost of field trips. You are therefore advised to make bookings prior to your arrival in Australia. If you need to stay in Sydney before or after the conference and its attendant excursions, you are advised to book prior to your departure; Olympic Games visitors will have begun arriving. Your travel agent may have some good deals for you but here is a bargain-basement suggestion:
1. Budget Hotel in the City – recommended by the Australian Museum for their visiting researchers:
Frisco Hotel, 46 Dowling Street, Sydney. Ph. 61 2 9357 1800; Fax: 61 2 9357 2020; e–mail: frisco@bigpond.com.
$55 double or twin; $66 double (both shared bathroom)– they do not expect this price to rise!
Taxi fare to/from airport approx. $20.

2. Park Lodge Hotel 747 South Dowling Street, Sydney. Ph. 61 2 9318 2393; Fax: 61 2 9318 2513; e–mail reservations@parklodgehotel.com
$83 (exclusive use of bathroom down the hall) single or double. $121 (en suite) single or double. $132 (en suite) single double or twin.
Taxi fare to/from airport approx. $20.

Airport Sydney International Motor Inn. 35 Levey Street Arncliffe, Ph. 61 2 95561555, Fax 61 2 95671309 e-mail info@airportinn.com.au .
$131 (en suite) single, twin or double (transfers to and from airport included).
Budget Hotel close to airport with shuttle service.
Get a price from the cheapest hotel near the airport…… Phone them for all contact details…..

Useful e-mail addresses

Glenn Brock gbrock@laurel.ocs.mq.edu.au
Greg Edgecombe gredge@amsg.austmus.gov.au
John Laurie jlaurie@agso.gov.au
Ruth Mawson rmawson@laurel.ocs.mq.edu.au
Ian Percival iperciva@laurel.ocs.mq.edu.au
Andrew Simpson asimpson@els.mq.edu.au
John Talent jtalent@laurel.ocs.mq.edu.au
George Wilson gawilson@laurel.ocs.mq.edu.au

Summary of costs (and services involved)

	Cost (AUD$)	Conference Registration	Abstract book	Travel	Accommodation	Breakfast	Lunch	Dinner	Morn & afternoon Conference	Mid conf.	Entrance fees	Excursion	Booklet/guide
Conference Registration	100	*											
Conference package A	649	*	*		5 nights	*	*	*	*	*	*	*	*
" " Students	495	*	*		5 nights	*	*	*	*	*	*	*	*
" " Accompanying person	440				5 nights	*	*	*	*	*	*		*
Own accommodation	220	*	*				*		*	*	*		*
Conference package B	308	*	*		3 nights	*	*	*	*	*	*	*	*
Conference package C	38.5/day	*					*		*				*
Excursion package 1	374			ex Sydney	2 nights	*	*		*				*
Excursion package 2	726			ex Orange	6 nights	*	*		*			*	*
Excursion package 3	715			ex Gladstone	4 nights	*	*	*	*				*
Excursion package 4	495			ex Orange	5 nights	*	*	2	*			*	*
Gladstone to Sydney by car	200			ex Gladstone									
Conference t-shirt	15												

Rock art t-shirt	25
Polo shirt	32
Rugby top	42

15TH INTERNATIONAL SENCKENBERG CONFERENCE

Submitted by John Talent

Mid-Palaeozoic bio- and geodynamics: North Gondwana – Laurussia interaction

A joint meeting of the 'International Geological Correlation Program (IGCP) 421' and the 'Subcommission on Devonian Stratigraphy (SDS)' hosted by the 'Senckenbergische Naturforschende Gesellschaft', Frankfurt am Main at the 'Forschungsinstitut und Naturmuseum Senckenberg' Frankfurt am Main (Germany)

May 11 – 21, 2001

First circular and preliminary registration

As one of the final meetings of IGCP 421, there will be a joint meeting of IGCP 421 and the Subcommission on Devonian Stratigraphy—arranged during joint meetings in Bologna/Modena (Italy) and in Morocco. The meeting will be hosted by the 'Senckenbergische Naturforschende Gesellschaft' in Frankfurt am Main, Germany as the '15th International Senckenberg Conference'. In addition to the technical sessions to be held at the 'Naturmuseum Senckenberg' from May 15 – 17, 2001, there will be two pre-symposium field trips and one post-symposium field trip. Field trips prior to the lectures will go to the Belgian Ardennes (organized by P. Bultynck, Bruxelles), May 11 – 12, 2001, and to the Rheinisches Schiefergebirge (organized by the Senckenberg group), May 13 – 14, 2001. After the technical session in Frankfurt, a field trip will go to the Thüringisches Schiefergebirge (May 18 – 19, 2001)—organized in cooperation with our Thuringian colleagues—and to to the Barrandian area of the Czech Republic (May 20 – 21) where our Czech colleagues will guide the participants. During these trips, a broad spectrum of rocks generated in different facies inter-tidal to pelagic, will be visited—mainly Devonian, but also Carboniferous and Silurian. The oral presentations will be arranged according to topics in different sessions: for example, biogeography of various faunal and floral groups, biogeographical methods and databases, biofacies belts, bioevents, plate tectonics, palaeomagnetism, map-reconstructions, etc. Dedicated sessions of IGCP 421 and the Subcommission on Devonian Stratigraphy will take place during the meeting.

Program overview

May 11 – 12, 2001: Pre-conference field trip (V1), starting from Bruxelles and ending in Frankfurt, organized by P. Bultynck: Belgian Ardennes.
May 13 – 14, 2001: Pre-conference field trip (V2), starting from Frankfurt (overnight stay in Frankfurt as well on May 13, 2001), organized by the Senckenberg group: Rheinisches Schiefergebirge.
May 14, 2001 (evening): Ice-breaker party at the Naturmuseum Senckenberg.
May 15 – 17, 2001: Technical sessions at the Naturmuseum Senckenberg, Frankfurt.
Registration: May 15, 2001, from 8.00 to 9.00 a.m.
May 18 – 21, 2001: Post-conference field trip (N), starting from Frankfurt with overnight stay in Thuringia on May 18, 2001 (organized by the Thuringian colleagues), and leading to Praha (organization by the Czech colleagues), where the excursion ends on May 21, 2001: Thüringisches Schiefergebirge and Barrandian area.

Remarks: Transport by coach will be possible for participants returning to Frankfurt on May 22, 2001.
Registration fees: Because of the early date for this first circular, all costs will not be notified until the 2nd circular.
Second circular: Will be sent in June 2000 to people who reply to this circular. A website will be arranged (by February 2000). Please, find a link to this via the Senckenberg home-page (http://www.senckenberg.uni-frankfurt.de).
Presentations: Oral presentations (one oral presentation per participant, please) will be 15 minutes + 5 minutes for discussion.
Conference language: English.
Publications: All abstracts will be published in a special volume received by each participant. Excursion guidebooks will be distributed to excursion participants. Manuscripts based on conference contributions will be refereed and published as a volume of 'Cour. Forsch.-Inst. Senckenberg' (details in the 2nd circular).
Accomodation: We will organise a selection of hotels of different classification (first class, medium, 'cheap' — details in the 2nd Circular). Bookings are to be made by participants direct to the hotels.
Letter of invitation: If an official document is needed to confirm participation or help arrange funds for travel and attendance, please write or contact the organizers.
Insurance: All participants should note that they must have valid health and travel insurance. Please purchase prior to your departure.
Visa: Those who want to take part in the post-conference field trip to the Barrandian area, please check if you need a visa for entering the Czech Republic.
Funding: Limited funding may be available for participants from developing countries.
Social events: To be announced in the 2nd circular.
Deadlines:
March 1, 2000: Return of 1st circular.
November 1, 2000: Return of 2nd circular (sent to those who reply to the first circular, 3rd circular with scientific program will be sent to those people who reply to the 2nd circular in March 2001).
November 1, 2000: Submission of abstracts.
August 1, 2001: Submission of manuscripts for the proceedings volume.
November 1, 2000: Payments (conference and excursions); after this date, 20% more until January 1, 2001.
Until March 1, 2001: Refunding possible (with cancellation fee of 20%); after March 1, 2001 no refunding will be possible.
Organization: Please, contact one of the following persons (mailing address for all of them is: Forschungsinstitut Senckenberg, Senckenberganlage 25, D-60325 Frankfurt am Main):
G. Plodowski (phone: ++49-69-97075127, fax: ++49-69-97075137,
e-mail: gplodows@sngkw.uni-frankfurt.de)
P. Königshof (phone: ++49-69-7542257, fax: ++49-69-7542242,
e-mail: pkoenigs@sng.uni-frankfurt.de)
E. Schindler (phone: ++49-69-97075132, fax: ++49-69-97075137;
e-mail: eschindl@sngkw.uni-frankfurt.de

15th International Senckenberg Conference

Mid-Palaeozoic bio- and geodynamics: The North Gondwana – Laurussia interaction

Registration form IGCP421/SDS Meeting; May 11 – 21, 2001

(please print clearly and indicate wishes by circles, please, send back until March 1, 2000)
Last name:

First name:

Degree:

Address:
Institution:
Street:
Zip code:
City:
Country:

Phone:
Fax:
e-mail, website:

Attendance:
Technical sessions: yes no probably
Excursion V1: yes no probably
Excursion V2: yes no probably
Excursion N: yes no probably

Presentation of oral lecture (intention; 15 minutes + 5 minutes discussion):
yes no probably (if yes or probably, please give tentative title below)

Presentation of poster (intention):
yes no probably (if yes or probably, please give tentative title below)

Publication of contribution in proceedings volume (intention): yes no probably

Tentative wish for accomodation: First class hotel (250,- to 300,- DM), medium class hotel (120,- to 200,- DM), 'cheap' hotel (80,- to 120,- DM)

I agree with putting my name onto a publicly accessible electronic list of participants (WWW)

Date, Signature:

IGCP PROJECT 406 "CIRCUM-ARCTIC LOWER AND MIDDLE PALEOZOIC VERTEBRATE PALEONTOLOGY AND BIOSTRATIGRAPHY" CONFERENCE "PALAEOZOIC PAN-ARCTIC TECTONICS AND EVOLUTION OF BASINS AND FAUNAS" (CAPV-2000)

Syktyvkar, Russia, 12-15 July, 2000

FIRST CIRCULAR

Invitation. All interested Palaeozoic workers are invited to attend the IGCP Project 406 conference (CAPV-2000) in Syktyvkar, Russia, 12-15 July 2000. The conference will be devoted to the evolution of Early and Middle Palaeozoic faunas and sedimentary basins, and palaeotectonical development of the Circum-Arctic regions.

PROGRAMME

Excursions

Two excursions (pre-conference and post-conference) are planned:

1. *Pre-conference excursion: 7-11 July.*

The excursion will take the participants to South Timan, where they can study a number of Late Devonian sections exposing different strata (including the type section of the well-known "Domanic facies", and several fish-bearing strata). The maximum number of participants is 30-40.

2. *Post-conference excursion*: *16-26 July.*

This excursion takes the participants to the Lower and Middle Palaeozoic sections in the Subpolar Urals, Kozhym River. Ordovician, Silurian, Devonian, Carboniferous and Lower Permian strata, representing various sedimentary environments, can be examined. At the end of the excursion the participants will visit Ukhta, where several core sections (exposing Lower and Middle Palaeozoic strata) from the Pechora Syneclise will be demonstrated at the Timan-Pechora Scientific Research Centre.

The maximum number of participants is 20.

Scientific sessions *12-15 July*

Sessions will be held in Syktyvkar, in the Institute of Geology, Komi Science Centre, Uralian Division of Russian Academy of Sciences.

The main topics of presentations will be:

A. Palaeontology and biostratigraphy;
B. Sedimentology and sequence stratigraphy;
C. Tectonics and basins.

Both, talks and posters are welcome.

Abstracts. Extended abstracts in form of short papers should be submitted before 15 April, 2000. The contribution (in English) should not exceed six A4 pages, including references and illustrations. However, as a guide and for consistency, it is suggested that the text be submitted in font size12 Times New Roman, double-spaced, with genus and species names in italics. The abstract title and the author(s)' name(s) (in capital letters) should be followed by the address(es) of the author(s). The references should be given according to the examples below. The maximum size for drawings and photographic

plates is 160x220 mm. (Note: only one photographic plate by article). The line drawings can be sent as computer files (.tif or .pcx format bitmaps), photo-plates only as high-quality hard copies. Abstracts will be published in special publications of the Ichtyolith Issues.

Examples of refereces

Journals:

TRAMMER, J. 1989. Middle to Upper Oxfordian sponges of the Polish Jura. - *Acta Geologica Polonica*, 39 (1): 49-91.

OVNATANOVA, N. S. & KONONOVA, L. I. 1984. Correlation of the Upper Devonian-Lower Tournaisian beds in the European part of USSR by conodonts. - *Sovetskaya geologiya*, 8 (2): 32-42 [in Russian].

Books:

WILSON, J. I. 1975. Carbonate facies in geologic history, 471 pp. *Springer*; Berlin-Heidelberg.

Book chapter:

FLUGEL, E. & STEIGER, T. 1981. An Jurassic sponge-algal buildup from the Northern Frankenalb, West Germany - In Toomey, D. F. (*ed.*): European fossil reef models. *SERM Special Publication*, 30: 371-397.

Symposium Volume:

ODIN, G.S. 1984. Geochronology of the Jurassic time: status in 1984. - In Michelson, O. & Zeiss, A. (*eds.*). International Symposium on Jurassic Stratigraphy: 767-776.

Abstracts:

KOLESNIK, L. & IVANOV, A. 1994. Famennian conodonts and ichthyofauna from two facial zones of the Polar Urals. - Abstracts of the Moskow Symposium "Devonian Eustatic Changes of the World Ocean Level" - 9-22.07.94, Moskow – Ukhta: 19.

Estimated costs. Considering the prices at the moment, the estimated costs are as follows:
registration fee: $50 (includes excursion guide, abstract volume, programme, coffee during the sessions, and ice-breaking party);
accommodation in Syktyvkar: $10-30 per person per day;
conference dinner: $30;
pre-conference excursion to South Timan: $180;
post-conference excursion to the Subpolar Urals: $490.
An attempt will be made to reduce prices for students and to provide some financial support to other participants. Also, we are trying to find sponsors. Any suggestion concerning sources of financial support will be greatly appreciated.

Preliminary registration. In order to know the number of interested persons and to start with organization, please fill in the Registration Form included. The Second Circular will be sent only to those who have pre-registered.

Contact address:

Anna Antoshkina
Instute of Geology, Komi Science Centre,
Uralian Division of Russian Academy of Sciences
54 Pervomayskaya St.
167610 Syktyvkar
RUSSIA
Fax: 821 2 425 346

e-mail: Antoshkina@geo.komi.ru

Pre-registration form

Forename: Initial(s): Surname:
Title: Sex (M/F):
Institution:
Address (street): City:
Postal code: Country: State:
Phone:
Fax:
e-Mail:

Please underline
I shall attend yes probably
and accompanied by one two more accompanying persons
I intend to give a lecture yes no
I plan to present a poster yes no
I intend to submit an abstract (abstracts) entitled

I intend to join the pre-conference excursion to South Timan yes no
I intend to join the post-conference excursion to the Subpolar Urals yes no

I need financial support yes no

I need an official invitation yes no

Signature

[Accommodation will be specified in future]
For additional information please contact A. Antoshkina.

Pre-conference excursion: South Timan, Ukhta Region
6-12 July 2000

The pre-conference field trip will be held in the Ukhta Region, South Timan. The excursion starts in Ukhta on 6 July. There are several possibilities of reaching Ukhta: by plane directly from Moscow; by train from Moscow, St. Petersburg or Syktyvkar; by bus from Syktyvkar.
The cost of the excursion ($180) includes transport and meals during the field-trip, accommodation in the field-camp, and travel to Syktyvkar after the excursion. The first three nights (from 6 to 9 July) participants will stay in Ukhta. The hotel and students hostel in Ukhta are available at the following prices:

single room in hotel "Timan": $15 per night,
single room in students hostel: $20 for the full period in Ukhta,
bed in a double room in students hostel: $10 for the full period in Ukhta.

On 9 July the participants will move to a field-camp on the Lyaiol' River where they will live in tents.

Itinerary:
6 July: assembly in Ukhta and registration
7 July (first day of field trip)
Stop 1: Ukhta River, Vodnyj Village
Stop 2: Chut' River
Stop 3: Domanik Creek
8 July (second day of field trip)
Stop 4: Podgornyj quarry
Stop 5: Sirachoj road cut
Stop 6: Bel'gop quarry
9 July (third day of field trip)
Stop 7: Izhma River
Stop 8: Yarega oil mine;
travel to the camp on the Lyaiol' River
10 July (fourth day of field trip)
Stop 9: Lyaiol' River
11 July (fifth day of field trip)
Stop 10: Sed'yu River
12 July: Travel from Ukhta to Syktyvkar

Deadlines:
1 February for registration to the excursion
15 March for transfer of money

Brief description of the localities
A full complex of Frasnian deposits represented by a third order cycle [Highstand (HST: reefs, backreef and basin facies), Transgression (TST)and Lowerstand (LST) System Tracts] and containing rich faunal assemblages will be studied.
Stop 1: Ukhta River, Vodnyj. Sections of Lower Frasnian shallow water clastic and carbonate deposits with abundant ostracodes, brachiopods, crinoids, conodonts, vertebrates (psammosteid agnathans, acanthodians, placoderms, chondrichthyans and sarcopterygians), fossil plants.
Stop 2: Chut' River. Sections of Lower-Middle Frasnian shelf carbonates and deposits of basin facies (condensed sequence of classic "Domanik Facies") represented by cherts, silicious limestones and oil shales with abundant ostracodes, ammonoids, dacryoconarids, conodonts, vertebrates (placoderms, chondrichthyans and sarcopterygians).
Stop 3: Domanik River. Sections of Middle Frasnian basin deposits (condensed sequence of classic Domanik Formation) represented by thin-bedded carbonate shales with large carbonate nodules, and silicious limestones with ostracodes, ammonoid and nautiloid cephalopods, dacryoconarids, arthropods, bivalves, conodonts, vertebrates (placoderms).
Stop 4: Podgornyj quarry. Sections of Upper Frasnian clay and clastic deposits of progradation terrace (LST), of bioclastic limestones and clays (TST) with corals, ostracodes, abundant brachiopods, bryozoans, crinoids, vertebrates (antiarchs and sarcopterygians), plant remains, as well as various trace fossils.

Stop 5: Sirachoj quarry. Sections of Upper Frasnian back-reef deposits (HST) with numerous and diverse corals and stromatoporoids, ostracodes, gastropods, brachiopods, vertebrates (placoderms).
Stop 6: Bel'gop quarry. Sections of Upper Frasnian back-reef deposits (HST) with numerous and diverse corals and stromatoporoids, ostracodes, gastropods, bivalves, brachiopods, nautiloids, conodonts, vertebrates (arthrodires, dipnoans).
Stop 7: Izhma quarry. Sections of Lower Famennian carbonate deposits with abundant vertebrates(antiarchs, porolepiform and dipnoan sarcopterygians). In this locality also remains of tetrapods have been found.
Stop 8: Yarega oil mine. In a 600 m deep shaft highly viscous oil is produced (using steam heating) from the Middle Devonian sandstones
Stop 9: Lyaiol' River. Sections of Upper Frasnian deep-water deposits. These deposits are interpreted as being formed in conditions transitional from Highstand to Lowstand in shelf depression. Abundant ostracodes, diverse and numerous ammonoids, arthropods, brachiopod coquinas, conodonts, vertebrates (psammostiid agnathans, various placoderms, chondrichthyans, dipnoan and porolepiid sarcopterygians), and plant remains are characteristic of these sediments.
Stop 10: Sed'yu River. Sections of Upper Frasnian fore-reef, reef and back-reef (with small bioherms) deposits with calcareous algae, corals and stromatoporoids, ostracodes, gastropods, bivalves, brachiopods, and rare vertebrates (antiarchs, sarcopterygians).

Post-conference excursion: Subpolar Urals, Kozhym River
16-26 July 2000

This excursion will focus on the Ordovician-Early Permian carbonate sequences in the Subpolar Urals (Kozhym River basin), but also the Upper Devonian sequences in South Timan will be visited. The cost of the excursion will be $490 [including the transport from Syktyvkar to Inta, from Kozhym to Ukhta and during the excursion, accommodation, meals, etc., (accommodation in Ukhta excluded)]. On the Kozhym River the participants will live in field-camps (in tents), during the last three ninghts they will stay in Ukhta. In Ukhta, hotel and students hostels are available at the following prices:

single room in hotel "Timan": $15 per night,
single room in student hosting: $20 for full period of trip,
bed in the double room in students hostel: $10 for full period in Ukhta.

Itinerary:
16 July: departure from Syktyvkar to Inta by train
17 July (first day of field trip) Arrival to Inta, departure for the Kozhym River by car (camp 1 is located close to the Tavrota section)
Stop 1: Kozhym River, Tavrota section
18 July (second day of field trip)
Stop 2: Kozhym River, Balban'yu section
19 July (third day of field trip)
Stop 3: Kozhym River, Yarenej Brook
In the evening the group will move to camp 2 (located cose to the mouth of the Ust'Durnayu River)
20 July (fourth day of field trip)
Stop 4: Kozhym River, Marshrutnyj Brook

21 July (fifth day of field trip)
Stop 5: Kozhym River, Ust' Durnayu River
In the evening of this day the group will move to camp 3 (located close to the mouth of the Syv'yu River)
22 July (sixth day of field trip)
Stop 6: Kozhym River, Syv'yu River
Stop 7: Kozhym River, Syv'yu River
23 July (seventh day of field trip)
Stop 8: Kozhym River, Nortnechyael' Brook
Stop 9: Kozhym River, Nortnechyael' Brook
Afternoon transportation to the Kozhym railway station and by train to Ukhta.
24 July (eighth day of field trip)
Stop 10: Domanik Brook
Stop 11: Izhma River
25 July (nineth day of field trip)
Stop 12: Yarega oil mine
26 July (tenth day of field trip)
Stop 13:examination of core-sections in Ukhta
In the afternoon departure.

Deadlines:
1 February for registration to the excursion
15 March for transfer of money

Brief description of the localities:
A sequence of Ordovican-Lower Permian strata represented by various (lagoonal, shallow- and deep-water shelf, reef and condenced basin) deposits, containing rich faunal assemblages will be examined.
Stop 1: Kozhym River, Tavrota River. Sections of Upper Ordovician shallow-water carbonates with ostracodes, crinoids, brachiopods, conodonts, stromatoporoids.
Stop 2: Kozhym River, Balban'yu River. Sections of Upper Ordovician and Upper Wenlock-Ludlow reef deposits, and Upper Ordovician-Lower Silurian deep-water deposits with abundant corals, problematic hydroids, heliolitids, brachiopods, pelecypods, crinoids, conodonts, bryozoans, sponges, algae, thelodonts.
Stop 3: Kozhym River, Yarenej Brook. Ordovician-Silurian boundary: shallow-water carbonates with abundant brachiopods, stromatoporoids, corals, cephalopods, conodonts, crinoids.
Stop 4: Kozhym River, Marshrutnyj Brook. Sections of upper Telychian-Ludlow open shallow shelf and back-reef lagoonal carbonates with abundant corals, stromatoporoids, brachiopods, ostracodes, cephalopods, crinoids, bryozoans, conodonts.
Stop 5: Kozhym River, Durnayu River. Section of Rhuddanian-Gorstian shallow-water shelf, tidal flat and back-reef (lagoonal) carbonates with abundant corals, ostracodes, bivalves, crinoids, stromatoporoids, brachiopods, conodonts.
Stop 6: Kozhym River, Syv'yu River. Sections of Ludlow-Lochkovian open shallow-water shelf and back-reef (lagoonal) deposits with abundant corals, brachiopods, bryozoans, ostracodes, crinoids, stromatoporoids, vertebrates (thelodonts, *Poracanthodes* and other acanthodians, etc), spores.

Stop 7: Kozhym River, Syv'yu River. Sections of Pragian-Emsian back-reef lagoonal/marsh-alluvial plain deposits with vertebrates (acanthodians, thelodonts, placoderms, etc.), plant microfossils (acritarchs, spores).
Stop 8: Kozhym River, Nortnechyael' Brook. Section of upper Devonian-Tournaisian condensed basin sediments with conodonts, brachiopods, ammonoids, ostracodes, foraminifers, corals.
Stop 9: Kozhym River, Nortnechyael' Brook. Sections of upper Carboniferous-Lower Permian deep-water and shallow-water (reef) deposits with abundant brachiopods, bryozoans, foraminifers, hydroids (*Palaeoplysina*), trilobites, corals, ammonoids.
Stop 10: Domanik River: sections of Middle Frasnian deposits of basin facies (condensed section of the classic "Domanik Facies") with ostracodes, ammonoid and nautiloid cephalopods, dacryoconarids, arthropods, bivalves, conodonts, vertebrates (placoderms).
Stop 11: Quarry on the Izhma River. Sections of Lower Famennian carbonate deposits with abundant vertebrates (antiarchs, porolepiforms and dipnoan sarcopterygians). In this locality also remains of tetrapods have been found.
Stop 12: Yarega oil mine. Here, in a 600 m deep shaft highly viscous oil is produced (using steam heating) from the Middle Devonian sandstones.
Stop 13: Ukhta. Ordovician-Silurian shallow-water shelf and lagoonal deposits with various fossils can be studied in core sections from the Pechore Syneclise.

"7TH INTERNATIONAL GRAPTOLITE CONFERENCE – ARGENTINA 2003"
During the last Graptolite Conference (Madrid, 1998), Argentina was chosen as host of the 7th International Graptolite Conference. Initially, the meeting was planned to be held in 2001,
but this date has been changed to 2003 in order to coincide with the 9th International Symposium on the Ordovician System, which will also be held in Argentina. The main Argentine academic institutions and professional bodies gave their endorsements for the organization of these international events. Pre and post-conference field trips will be scheduled, visiting classical graptolite localities in the Precordillera, the Famatina System and Eastern Cordillera. The meeting will include oral and poster sessions, and a special volume will be published. Highly fossiliferous sections in wonderful landscapes will be visited, as well as typical folk events will show diverse aspects of our culture to ensure a nice Argentine experience. A first circular with specific information will be mailed shortly.

Gladys Ortega
Chair
gcortega@arnet.com.ar

Guillermo Aceñolaza
Secretary
eg17112@autovia.com

ATLAS OF GRAPTOLITE TYPE SPECIMENS: (NEW - FROM THE PALAEONTOGRAPGICAL SOCIETY!)
Editors: Mike Howe, Jana Hutt, Adrian Rushton & Jan Zalasiewicz
A new publication that aims to bring you high quality information on key specimens of graptolites at a very moderate cost. Graptolites are among the most valuable fossils in the stratigraphy and correlation of Lower Palaeozoic rocks. To realise their full potential,

they need to be correctly identified, which often makes it important to refer back to the type specimens.

However, the types of internationally-distributed species may be housed in almost any part of the world and some may be difficult to access. many old-established and widely recorded species have not been illustrated large enough or well enough for the present-day worker to be clear about their features.

The Atlas of Graptolite Specimens aims to give you simple but high quality, annotated line drawings of holotype, lectotypes and topotypes of as many graptolite species as possible, in essence telling you what the type specimens show, including their defects. The drawings are at standard magnifications, with critical details enlarged for clarity; annotations give key measurements and brief notes on the morphology and preservation. One or two key references are given for each species.

The Atlas is not intended to replace more detailed descriptions, but rather be a permanent reference to the original material.

The Atlas is issued in a loose-leaf format (A4 single-sided), so that you can arrange the species alphabetically or taxonomically, according to taste. It will appear in folios of 100 species, as material becomes available. the first folio will be ready in the Autumn of 1999, and can be ordered now. It will contain drawings of a variety of Ordovician and Silurian species assigned to over 30 genera from several countries.

Do you have suitable drawings of type graptolites? If so, the editors would be glad to consider them for inclusion in future folios. You can Email me, Dr Jana Hutt, at <jolyonjana@btinternet.com>or write to me at Garlinemore, Knockando, Aberlour, Banffshire, AB38 7SF, UK if you have type drawings or need any further information about the Atlas.

Folios should be ordered from:

Cost: Europe £10
Rest of world surface mail $15

The Marketing Manager
Palaeontographical Society
27, the Crescent
Maidenhead
Berkshire
SL6 6AA, UK

A NEW (STANDARD?) SILURIAN CONODONT ZONATION (LATE LLANDOVERY-END PRIDOLI)

Carlo Corradini & Enrico Serpagli, Dipartimento di Scienze della Terra, Università di Modena, Italy

A partly revised version of the global standard conodont zonation for the Wenlock-Pridoli interval, which apparently fits better with the Sardinian sequences, have been recently proposed to replace the more recent one appearing in Silurian Time n°3 (Nowlan, 1995). The paper (Corradini & Serpagli, 1999), which includes full discussion of all biozones, associated fauna and worldwide relationships has been just published in the Proceedings of the Seventh European Conodont Symposium (ECOS VII). Conodont data from Sardinia derives from researches carried out for almost thirty years by the

³Palaeozoic Group² (led by E. Serpagli) of the Earth Sciences Dept. of Modena University. Because no carbonatic rocks of lowermost Silurian age are known in Sardinia the proposed scheme ranges from top Llandovery to end Pridoli. This interval has been divided into fifteen zones. Fourteen of them have been reported in Sardinia, while the Oz. s. rhenana Zone has not been documented to date in the island. Therefore, this biointerval has been defined using data from other areas. One zone is newly named (Oz. e. hamata) and three are re-introduced (K. crassa, K. v. variabilis and Pe. latialata), having been sporadically used by different authors. The Sardinian biozonation is most detailed for the Ludlow, which is divided into 8 biointervals, i.e. two more than the Left Hand Standard Column (Silurian Times, 3). It should be pointed out that this biozonation is not a phyletic one, as the boundaries between the zones are defined by FO and LO of different taxa, not always phylogenetically related. Four biozones are ³total range Zones² (Pt. am. amorphognathoides, K. crassa, Pol. siluricus and Oz. crispa), with lower and upper boundaries defined by the FO and the LO of the index taxon respectively; four are ³interval Zones s.s.² (K. ranuliformis, K. v. variabilis, Oz. snajdri and Oz. remscheidensis), i.e. the index species, because its long range, does not define either the lower boundary or the upper boundary, which are marked by disappearance or appearance of other species. All the other intervals are ³consecutive range zones². A comparision between our Sardinian Biozonation some of the more recent schemes is shown in Fig. 1; the graptolite standard zonation is also tentatively reported on the right side of the figure. However, in a few levels it was possible a cross-control between conodonts and graptolites thanks to the occurrence of a peculiar graptolite limestone facies in SW Sardinia.

The main differences between our proposals and the other schemes can be summarized as follows:

- the Sardinian Silurian Conodont Zonation provides increased detail in Ludlow time, which is subdivided in eight biointervals.
- the post-bohemica - pre-ploeckensis interval can be subdived into three: Po. crassus Zone, K. v. variabilis i. Z. and Oz. exc. hamata Zone, providing a more detailed division of the Gorstian than in any previous zonation.
- the K. crassa Zone, reintroduced here, corresponds to the lower part of the "stauros Zone" of Silurian Times 3. However, the range of K. stauros seems to extend into older strata than the first occurrence of K. crassa; thus we belive that to confirm a K. stauros Zone it is necessary to clarify either the variability of that species or its stratigraphical position. A correlation between this interval and the equivalent graptolite nilssoni (colonus) zone (lower part) seems to be well estabilished.
- the Oz. exc. hamata Zone is here formally proposed as a standard zone to span a narrow interval just below the A. ploeckensis Zone. - the Pe. latialata Zone is reintroduced as a valid biozone to recognize strata just above the Po. siluricus Zone; thus, the Oz. snajdri interval Zone is shorter than reported previously.
- the Oul. el. detortus Zone identifies the top Pridoli beds.

Some conodont zones are widely reported around the world (Pt. am. amorphognathoides, Oz. s. sagitta, Oz. bohemica, A. ploeckensis, Po. siluricus, Oz. crispa and Oz. remscheidensis i.Z.), even if sometimes with slightly different definitions and time ranges.

However, in some areas (i.e., Estonia) the absence of important markers, like Po. siluricus, complicates correlations between these regions and elsewhere.
It is also difficult to correlate the preliminary data from central Asia (Koren & Walliser, 1998), where the stratigraphical distribution of some important taxa, like Po. siluricus, Pe. latialata and Oz. crispa, appears to be quite different from elsewhere. Only when the whole conodont fauna from that area is studied and illustrated will it be possible to state if that preliminary data can be used for global or local correlations.
The biozonation scheme proposed for Sardinia also applies well to many sections in different localities around the world. For instance, in the Cellon Section, the reference section for Silurian conodont biostratigraphy, all our biozones can be recognized.
To conclude, our proposal seems to be of pratical use for Silurian biostratigraphy globally, and therefore more generally useful than extremely detailed schemes, sometimes based on not yet defined or endemic taxa; such detailed zonations are, however, good when related to particular facies of limited areas.
This is a contribution to IGCP project 421 [3]North Gondwana Mid-Palaeozoic Bioevent/ Biogeography Patterns in Relation to Crustal Dynamics[2].
For a complete discussion refer to the full paper: Corradini C. & Serpagli E., 1999, A Silurian conodont biozonation from late Llandovery to end Pridoli in Sardinia (Italy). In: Serpagli, E. (Ed.), Conodont studies - Proceedings of the Seventh European Conodont Symposium. Boll. Soc. Paleont. Ital., 37 (2-3) (1998), 255-273.

<table>
<tr><th colspan="2"></th><th>CORRADINI & SERPAGLI 1999</th><th>SILURIAN TIMES n.3 1995</th><th>ALDRIDGE & SCHONLAUB 1989</th><th>WALLISER 1964</th><th>GRAPTOLITE ZONATION Silurian Times n.3 1995</th></tr>
<tr><td rowspan="5">PRIDOLI</td><td rowspan="5"></td><td></td><td>O.eost.-O.e.detorta</td><td>I.w.woschmidti</td><td rowspan="5"></td><td>bouceki-transgrediens</td></tr>
<tr><td>Oul. el. detortus</td><td rowspan="4">O. remscheidensis interval Zone</td><td rowspan="4">O. rem. eosteinhornensis</td><td>branikensis-lochkovensis</td></tr>
<tr><td rowspan="3">O. remscheidensis interval Zone</td><td rowspan="3">"S. stein. eosteinhornensis"</td><td rowspan="3">parultimus-ultimus</td></tr>
<tr><td></td></tr>
<tr><td></td></tr>
<tr><td rowspan="10">LUDLOW</td><td rowspan="5"></td><td>O. crispa</td><td>O. crispa</td><td rowspan="2"></td><td rowspan="2">"S. crispus"</td><td rowspan="2">formosus</td></tr>
<tr><td rowspan="3">O. snajdri interval zone</td><td rowspan="3">O. snajdri interval zone</td></tr>
<tr><td rowspan="2">O. crispa</td><td rowspan="3">"I. latialatus"</td><td rowspan="3">kozlowskii-boh.tenuis</td></tr>
<tr><td>O. snajdri</td></tr>
<tr><td>Pe. latialata</td><td>P. siluricus</td><td>P. siluricus</td><td>P.siluricus</td></tr>
<tr><td>LUDFORDIAN</td><td rowspan="4">A. ploeckensis</td><td rowspan="4">A. ploeckensis</td><td rowspan="4">A. ploeckensis</td><td rowspan="4">A. ploeckensis</td><td rowspan="2">leintwardinensis (fritschi linearis)</td></tr>
<tr><td rowspan="4"></td></tr>
<tr><td>O. e. hamata</td><td>NOT ZONED</td><td rowspan="2">scanicus (chimaera)</td></tr>
<tr><td>K. v. variabilis i.z.</td><td rowspan="2">K. stauros</td><td rowspan="3"></td><td rowspan="2">"O. crassa"</td><td rowspan="2">nilssoni (colonus)</td></tr>
<tr><td>GORSTIAN</td><td>K. crassa</td></tr>
<tr><td rowspan="2">WENLOCK</td><td rowspan="2">HOMERIAN</td><td rowspan="2">O. bohemica</td><td rowspan="2">O. bohemica</td><td rowspan="2">O. bohemica bohemica</td><td rowspan="2">"S. sagitta"</td><td>ludensis</td></tr>
<tr><td>praedeubeli-deubeli</td></tr>
</table>

						parvus-nassa
			O. s. sagitta			lundgreni
		O. sagitta sagitta				
			NOT ZONED			
			O. s. rhenana - K. patula	O. sagitta sagitta		rigidus-perneri
		O. sagitta rhenana				riccartonensis-belophorus
		K. ranuliformis *interval zone*	K. ranuliformis *interval zone*	O. sagitta rhenana	K. patula	
	SHEINWOODIAN					centrifugus-murchisoni
						lapworthi-insectus
		Pt. am. amorphognathoides	Pt. amorphognathoides	Pt. amorphognathoides	Pt. amorphognathoides	spiralis *interval zone*
						griestonensis-crenulata
			Pt. celloni	Pt. celloni	Pt. celloni	
						turriculatus-crispus
	TELYCHIAN					guerichi
						sedgwickii
						convolutus
						argenteus
	AERONIAN		P. tenuis - D. staurognathoides			triangulatus-pectinatus
				D. staurognathoides		
						cyphus
						vesiculosus
LLANDOVERY			D. kentuckyensis			
	RHUDDANIAN		O.? nathani	D. kentuckyensis		acuminatus

Data ultimo aggiornamento 20-12-1999

Aggiornato da Carlo Corradini

Indirizzo di posta elettronica: ccorr@unimo.it

VLADIMÍR HAVLÍCEK IN BRACHIOPOD PARADISE: by Jiri Kriz

I met Vladimír first time more than 40 years ago as a young student of the geological high school. I visited him with brachiopods I collected in the temporary outcrops in Prague, asking him for determination of them. He was very nice to me and identified the specimens. For some nice specimens he offered me reprints in exchange for his publications. And this was the start of our co-operation which lasted during my Charles University studies. When I was looking for a job in 1966, it was very difficult time to find any job as a geologist in our country. When I asked Vladimír, he offered me the job in the Geological Survey but only as his technician since places for university educated people were not available. So, for two years I described for Vladimír test pits and bore holes, organising workers who made them. I was geologically mapping with

him in the Cambrian fields in the military training area in central Bohemia and we also collected fossils together in the Beroun and Prague vicinity. Vladimír collected brachiopods and I collected bivalves. But at the same time he gave to me the possibility to study Silurian bivalves and to map the Silurian of the Prague Basin.

To work closely with Vladimír was for me the great school of geology and systematic paleontology. Vladimír required precise work and logic in geological maps. After two years of my work for Vladimir I continued the mapping of the Silurian in the Prague Basin and the study of the Lower Paleozoic bivalves. Many discussions with him were frank, straight to the problem. It is impossible to forget him, and his way of work. He was shy when dealing with other people when mapping in the country but he was strict when dealing with technicians. Originals of his geological maps were drawn by Vladimír himself; very professionally, precisely.

Vladimír was very careful when describing new species and new genera. He was very good collector, careful and modern - always making notes about the locality, section, layer. His collection of brachiopods is magnificent and very extensive. It represents the largest and best kept collection of brachiopods not only from the Prague Basin but also from other countries. It is stored in the local museum in Rokycany, close to the Plzeò Town because he wanted to be sure that his collection will be stored as one collection according to his opinion on evidence of specimens - types and additional material together, all well numbered and described.

Vladimír's main interests were brachiopods, geology and stratigraphy of the Barrandian area. His careful mapping of the Cambrian and Ordovician rocks of central Bohemia represented the basis for Prague Basin definition and interpretation, for his interpretation of the Lower Paleozoic development of Bohemian Massif. He was not a good bureaucrat but he was very good and honest scientist. His hobbies were recent plants, his small rock garden and his brachiopod collection. He liked to eat plums from the trees along the roads in autumn, he liked to be in the nature, in the field. He was very industrious worker. His brachiopod monographs represent the most extensive monographs published in Bohemia since Barrande's times. Vladimír Havlícek is second author on the World list of the new brachiopod species and genera after Dr. Cooper from the Smithsonian Institution in Washington, D.C., but his aim was not to describe the new species and genera. He was above all trying to understand brachiopods as living creatures and their relationship to environment. The number of new species and genera was the result of this understanding. He was always interested in the importance of the brachiopods for local Prague Basin stratigraphy and for international correlations. Besides brachiopods from Bohemia he described many species also from Morocco, Libya, Bolivia, Italy, Carnic Alps, Sardinia, Montagne Noire and other countries.

When he retired, he continued his work almost without interruption. During the last fifteen years he published numerous papers on brachiopods, stratigraphy and geology of the Prague Basin and Bohemian Massif. He visited me in the Survey almost once a week during all this time and we discussed many geological and paleontological problems. We sadly observed that the number of people who studied in the Lower Paleozoic of Bohemia was continually decreasing without replacement. Vladimír did the same. He left after him an empty space since he had no chance to train somebody to continue his work in the Ordovician and in the brachiopods; simply because our country is too small to produce more frequently people of his format and qualities.

We were sitting together with Vladimír in the same room for more than 25 years when our Survey was still at Mala Strana Square below Prague Castle. Vladimír was a very good and excellent advisor, unofficial supervisor, teacher of geology and paleontology - and above all - good friend. It is still too early for me to write these words. I still have the feeling that he will come on Monday and we will chat together.

COMMENT: ORIGIN OF SICULAR ANNULI IN MONOGRAPTIDS – a comment on Jörg Maletz's views, by Adam Urbanek and Lech Teller.
The recent paper by Jörg Maletz (Heisograptus micropoma (Jaekel 1889) in north German glacial erratic boulder. Greifswalder Geowissenschaftliche Beiträge [X1], 6, 279-290) deals not only with the phylogeny of monograptids with geniculate thecae, but also offers an interpretation of the origin of sicular annuli , a feature so characteristic of the Late Silurian monograptids. His views are interesting and thought-provoking . They require, however, some comments.

According to Maletz (ibid., p. 283), "all monograptid species of the post-lungreni extinction event bear the annuli, that may indicate a phylogenetic relationship. Sicular annuli, therefore, may have been developed only after the big crisis in the graptolite evolution ("Grosse Krise ": Jaeger 1991) in the Late Wenlock". Moreover, as Maletz observes "not a single monograptid with sicular annuli has been described from strata older than late Homerian". The two last conclusions are untenable in view of the recently published data (Teller 1999,p. 349) on numerous specimens of Pristiograptus dubius s.l. from the Cyrtograptus lundgreni Zone (therein Pl. II, figs 10-13). They display as much as 10-14 annuli within a single sicula! Therefore, the appearance of sicular annuli clearly precedes the dubius-nassa extinction event. Still the origin and number of sicular rings may be somehow related to the instability of the environmental conditions (as suggested i.a. by Urbanek 1997, p. 119). But were annuli a shared apomorphic character as Maletz seems to suggest ? One can doubt it, especially in view of the extreme variation of sicular annuli, which may be absent or present within a single species, as well as because their possible relation to the environmental change. However, it is the presence of sicular annuli in the Ludlow micropoma lineage is used by Maletz to exclude its relationship with Late Wenlock Monoclimacis (probably lacking the sicular annuli). On the other hand, Maletz is convinced that the presence of sicular annuli in micropoma suggests a close relation with other "annulate" Early Ludlow monograptids. The discovery by Teller (1988) of the possible Wenlock ancestor of the micropoma lineage (a single rhabdosome without a sicula) is in Maletz's opinion "useless for inferring phylogenetic relationships". Yet it is a form with the right morphology and occurring at right time to be considered an ancestral one. One can say that Maletz tries to make his life easier by discarding the inconvenient data. His idea that all monograptids with sicular annuli have a common ancestor (his Fig.1 clearly indicates that this common ancestor was Pristiograptus dubius), implies that hooked Uncinatograptus uncinatus is also an Early Ludlow derivative of the dubius stock. This is, however, a purely speculative inference, without any substantiation in the fossil record. We think that Maletz exaggerated the phylogenetic significance of the sicular annuli, but otherwise some aspects of his views are interesting.

SILURIAN RESEARCH 1998-1999

AICHA ACHAB, AZZEDDINE SOUFIANE (CANADA)

Chitinozoa, Late Ordovician, Silurian, Biostratigraphy, Biiodiversity, Systematics, Paleogeography. Chitinozoans taxonomy and biostratigraphy of the Late Ordovician and the Early Silurian of Anticosti Island is in press (Rev. Palaeob. Palynol.) Our attention will be focused this year on the systematics, biodiversity and biostratigraphy of Silurian Chitinozoa from the Canadian Arctic Islands in collaboration with M. Melchin (St-Francis Xavier Univ.), A. Lenz (Univ. of Western Ontario) for the graptolite data and with Paula Noble (University Nevada-Reno) for radiolarian data. A special attention will be payed to the chitinozoan biodiversity and biostratigraphy in the Wenlockian and lower Ludlovian interval where two extinction events (lundgreni and ludensis events) are recognized.

HOWARD ARMSTRONG (UK)

I am currently engaged mainly on Ordovician studies. However a grant application is ready to go on the Ecological controls on growth in conodonts this will involve work in the Llandovery again.

WILLIAM AUSICH (USA)

a. Early Silurian systematics of crinoids from Anticosti Island, Quebec, Canada (with Paul Copper). b. Radiation of the Silurian crinoid fauna. c. Early Silurian crinoids from Ohio. d. Framebuilding organisms on Early Silurian reefs from the Brassfield Formation, southwestern Ohio (with Kerri Schneider)

CHRIS BARNES (CANADA)

I have three main topics of ongoing research that involve Silurian strata. First, Shunxin Zhang (PDF 1997-98) and I have completed a project to document that conodont faunas from the Becscie, Merrimack and Gun River formations (Lower Llandovery) of Anticosti Island. This represents the last part of the entire Anticosti sequence for which the conodonts had remained undocumented, based on my earlier collections; three papers on the diverse fauna have been submitted, one of which is now in press in J. Paleontology. Second, I am involved in studying the Lower Paleozoic stratigraphy and conodont faunas from the Canadian Rocky Mountains; in this past summer's field work Leanne Pyle and I extended the collections through the Llandovery in both the platform and basin sequences. Third, Dave Jowett has started an M.Sc. thesis on Llandovery to early Ludlow conodonts from the slope facies of the Cape Phillips Formation with extensive collections made in summer of 1998; Mike Melchin was the field work leader and the team will also investigate graptolites, radiolarians, chitinozoans and carbon isotopes.

RICHARD A. BATCHELOR (UK)

I am currently concentrating on Telychian metabentonites from Ireland (with Dave Harper), Scotland and Norway, attempting to find correlations using trace element geochemistry. Collaboration continues with Tarmo Kiipli (Tallinn, Estonia) on geochemical correlation between Norwegian and Estonian metabentonites of Telychian age. Preliminary results are encouraging.

STIG M. BERGSTROM (USA)

I have continued work on Silurian K-bentonites in North America, Baltoscandia, and the Ukraine (in cooperation with Warren Huff and others) and on Lower Silurian conodonts. Papers published in 1999 include a study of the very interesting Ordovician-Silurian succession in the recently drilled Rostanga 1 core in the classical Rostanga area, Scania,

South Sweden (with T. Koren' and others) and a paper describing Llandoverian conodonts from the Argentine Precordillera, the first Llandoverian conodonts reported from South America (with O. Lehnert and others). A paper is in press describing the Silurian K-bentonites in the Podolian sequence in the Ukraine. A notable find made during the post-meeting field trip of the VIII International Ordovician Symposium in Prague this past summer was the discovery of two K-bentonite beds, the nature of which has been confirmed by X-ray investigations, in the Pridolian stratotype section at the Pozary Quarries about 1 km east of Praha-Reporyje in the Prague Basin. These are now being studied in cooperation with W. Huff. These ash beds, which are in the same general stratigraphic interval, and may have the same source area, as some of the Podolian K-bentonites, apparently represent only the second record of Pridolian K-bentonites in the world.

HENNING BLOM (SWEDEN)

The work on various Silurian (and Lower Devonian) vertebrate remains of North Greenland and Scandinavia continues, with special reference on thelodont systematics and biostratigraphy. Present research also include detailed studies on the affinity and distribution of Silurian articulated and disarticulated birkeniid anaspids (together with Tiiu Märss, Tallinn and Giles Miller, London), and their potential biostratigraphical utility.

OL'GA K. BOGOLEPOVA (RUSSIA)

is working on a new theme within the EUROPROBE TIMPEBAR project – The Neoproterozoic and Palaeozoic stratigraphy of Severnaya Zemlya (Russia) with analysis of faunas and comparison with Baltica, Siberia and Taimyr - the aim of which is to understand the Phanerozoic dynamic evolution of the Eurasian High Arctic. Last summer we, a team of seven Russian and Swedish geoscientists (mapping and tectonics, geochemistry, paleomag and palaeontology) were working on the Upper Cambrian - Lower Devonian sections in the central and southern part of October Revolution Island. For most of the science, laboratory work during the coming months will be essential before we can report new results. However, as far as the Silurian rocks are concerned, the presence of terrigenous-carbonate deposits with rich faunas of graptolites, cephalopods, myodocopid ostracodes, antipleurid and lunulacardiid bivalves, gastropods and brachiopods has been documented on the Severnaya Zemlya Archipelago for the first time. A brief note on this discovery is prepared for a publication in the GFF with A. Gubanov and D. Loydell.

In addition to this work, several problems and papers are in consideration: 1) Lower Palaeozoic cephalopods from Austria: a review with new data; 2) Upper Silurian cephalopods from the Ossa Morena Zone of Spain (with M. Robardet and J.C. Gutierrez-Marco); 3) Silurian cephalopods from NW Anatolia of Turkey (collections of M.C. Goncuoglu); 4) problematic molluscs from the Silurian of the Carnic Alps; 5) REE contents of phosphatic shell fossils: examples from the Ordovician and Silurian limestones of Austria and Spain (with S. Felitsyn); 6) a data base on the Ordovician nautiloid faunas from Russia and Baltica (the Nautiloid Clade Group, IGCP 410);

MARGARET BRADSHAW (NEW ZEALAND)

I am currently investigating relationships between rather limited outcrops of arenaceous Silurian to ?Lower Devonian sediments (Hailes Quartzite)and the overlying muddier Baton Formation (Lower Devonian)in Northwest Nelson. Silurian sediments are

extremely rare in New Zealand but sedimentation may have been continuous into the Lower Devonian where more fossiliferous sandstones underly the Baton formation.

CARLTON E. BRETT (USA)

Silurian K-Bentonites: In May, fieldwork with UC graduate student David Ray led to discovery of several probable K-bentonites in the Silurian of western New York. These included two unctuous smectitic clays from the Williamson Shale (latest Llandovery), as well as K-bentonites in the Gasport Limestone (middle upper Wenlock), and clay layers (possible bentonites) in the upper Irondequoit Limestone and Rochester Shale. These findings are particularly intriguing in conjunction with our discovery of additional new K-bentonites in the latest Llandovery (Crab Orchard Shale, Osgood Shale) and middle-upper Wenlock (Bisher, Louisville formations) in southern Ohio, Kentucky, and Indiana. We intend to pursue this project with chemical fingerprinting of the bentonites and attempts at correlations between the Appalachian foreland basin and the mid continent region.

Much of my field work near Cincinnati, with T. J. Algeo (UC), was devoted to refined stratigraphy and cycle interpretation of the Upper Ordovician Kope Formation (Algeo and Brett, 1999). However, we are also studying the detailed event and sequence stratigraphy of Silurian units of the southeast flank of the Cincinnati Arch in southern Ohio and northern Kentucky (Brett and Algeo, 1999). We have begun to trace out two previously unrecognized disconformities, as well as major flooding surfaces, in the Bisher Formation (Wenlock). These discontinuities appear to be correlative with sequence bounding unconformities and flooding surfaces already correlated in the Appalachian Basin. Moreover, reconnaissance studies in southern Indiana suggest that these depositional sequences can also be recognized on the west side of the Cincinnati Arch. It is also intriguing that a newly recognized interval of strongly dolomitized bioherms (previously considered to be collapse breccias) from the middle upper Wenlock Lilly/upper Bisher formations may correlate with the widespread Gasport "reef" tract in the Appalachian Basin. Together, these studies indicate that a much more detailed, sequence based stratigraphy for the Lower Silurian can be extended from the Appalchian Basin into the North American Mid-continent, further supporting eustatic sea level fluctuation as a cause for these sequences. A final interesting development is the recognition of a 0.5 to 1 m interval of strongly deformed, silty dolostones within the Bisher Formation of Ohio and Kentucky. This interval appears to be coeval with the widespread deformed DeCew Dolostone of New York and Ontario. If so, this could represent one of the most widespread "seismite" horizons presently known.

CAROLE BURROW (AUSTRALIA)

I am nearing completion of my Ph D thesis on "Late Silurian to Middle Devonian microvertebrate faunas of eastern Australia", with the emphasis very much on acanthodians. Several reviews on Australian Silurian vertebrates (rare though they are) for the final IGCP-328 and PAFF volumes, co-authored with Sue Turner, are still in press.

MIKAEL CALNER (SWEDEN)

Currently working on two manuscripts (in advanced stage) relying on detailed studies of the sedimentology and high-resolution stratigraphy/eventstratigraphy of the Late Wenlock of Gotland (with L. Jeppsson). 2. An investigation of a Late Wenlock, thin, mud-facies biostrome from Gotland is in an advanced stage (with. O. Sandström and M.-

A. Motus). 3. Further studies in carbonate sedimentology (including a study of biotic-abiotic shifts in carbonate production) if financial support for post-doc is available.

XIAOHONG CHEN (CHINA)

I am currently involved in the project on the Neoproterozoic(III) to Lower Paleozoic litho-, bio- and sequence stratigraphy in the Yangtze Gorges area with Xiaofeng Wang. Besides, I continue to work on Ordovician and Silurian chitinozoans in South China with Wang Xiaofeng. Results will be presented at the end of this year.

ROBIN COCKS (UK)

Continuing work on global Ordovician and Silurian palaeogeography (with Richard Fortey and postdoc David Lees), in particular by tying brachiopod and trilobite faunas to varied palaeocontinets and their associated marginal fragments over 16 successive time slots and integrating the reults with palaeomagnetics and other independent data. The Baltic continent and Shan-Thai (Sibumasu) are the subjects of systematic studies.Also preparing for Millennium Brachiopod Congress here in London in July 2000.

PAUL COPPER (CANADA)

Dr Evan Edinger [ph.d. McMaster, 1998] is with me at Laurentian as a post-doc, working on problems of growth and bioerosion. We plan a joint excursion to the Banks Island for Frasnian reefs in july 2000. Dr Zhan Renbin [post-doc]is working on Anticosti orthid brachiopods (Hirnantian-Telychian), part time at Laurentian and part-time at UWO. I have two grad students both working on Silurian problems: 1. Leif Tapanila: Bioerosion in Early Silurian and latest Ordovician corals, stromatoporoids and red algae. We have discovered intensely (c. 70% or more of surface) , macro- and microbored corals and sponges, and are plotting these in reef and non-reefal settings. As in modern day biota (Edinger & Risk), reef corals are less intensely bored than non-reef corals; AND 2. Adrienne Sokoloskie: works on growth rates of Early Silurian reef biota of Anticosti.

CARLO CORRADINI (ITALY)

He has just completed two papers (with E. Serpagli): one on the conodont zonation from top Llandovery to end Pridoli and the second on the revision of the Kockelella Group from top Homerian to mid Ludfordian and its evolution. Is working mostly in SE Sardinia on Ockerkalk conodont stratigraphy, while a study of the Silurian rocks of the italian side of the Carnic Alps has just started.

ENRIQUE DIAZ-MARTINEZ (SPAIN)

I have continued work on the Paleozoic sequences of the Central Andes, in conjunction with colleagues at the University of Cusco, Peru (V. Carlotto, J. Cárdenas, and students). This included searching for evidence for the two main Paleozoic glaciation events in the region: latest Ordovician-Early Silurian, and late Devonian-Early Carboniferous. We found new evidence for the former one in the Peruvian Altiplano (Ayaviri) for the first time, as well as new outcrops in the Peruvian Eastern Cordillera (Pisac). Both have important implications, so we presented some of these results at the 4th Int. Symp. on Andean Geodynamics (Göttingen, 1999). We have not found clear evidence for the latter one in the Peruvian Altiplano and Subandean regions, but keep looking for it, as it is quite conspicuous right across the border in Bolivia.

Milada Vavrdova and Jiri Bek (Praha) are doing an excellent job in charge of the palynology, and we hope to have some results published soon. Over here in Spain, I keep the work on the detailed sedimentology of glaciomarine deposits at the base of the Silurian.

BOB ELIAS (Canada)
is studying various aspects of corals and environmental change during the Ordovician mass extinction and Early Silurian recovery. Research with Graham Young focuses on the diversity, paleoecology, community structure, and morphologic trends 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. Adam Melzak (Ph.D. student) is working on the Late Ordovician to earliest Silurian rugose corals of Anticosti Island, Quebec. M.Sc. and Ph.D. projects are available; see http://www.umanitoba.ca/faculties/science/geological_sciences/faculty/elias/elias.html for information.

ANNALISA FERRETTI (ITALY)
She continues her investigation on the cephalopod limestone biofacies from the Carnic Alps.

BARRY FORDHAM (AUSTRALIA)
continues work on Ordovician - Lower Carboniferous conodonts and geology of Queensland, Australia and on the Paleozoic time scale

MAURIZIO GNOLI (ITALY)
He is working on cephalopods from Sardinia, the Carnic Alps and other areas of North Gondwana.

YNGVE GRAHN (BRAZIL)
A short paper entitled "Palynological dating of the Tiangua Formation, Serra Grande Group, northern Brazil." has been submitted to the abstract program of the 31rd IGC in Rio 2000, but I do not rember the correct order of all the co-authors. Anyway, they are in alphabetical order: Grahn, Y., Le Hérisse, A., Loboziak, S., Melo, J.H.G. and Quadros, L.P. No Silurian works are planned for next year. I will be very occupied with Devonian and Ordovician matters.

ALEXANDER GUBANOV (RUSSIA)
continues his projects on Lower Palaeozoic molluscs.

JUAN CARLOS GUTIÉRREZ-MARCO (SPAIN)
My activities during 1999 were oriented mainly to Ordovician research in Iberia, Bulgaria and South America (with 14 published and 4 large papers submitted on these various Ordovician subjects). However, there was some activity regarding graptolites from the Silurian-Devonian succession of the Catalonian Coastal Ranges (NE Spain) and also in the frame of the IGCP Project 421 "North Gondwana Mid-Paleozoic Bioevent/Biogeography patterns in relation with crustal dynamics".

WOLFGANG HANSCH (GERMANY)
Unfortunately, because of my responsibility for a non-Silurian-project, at present, time is very short for Silurian research. The taxonomical and biostratigraphical work about the Silurian Ockerkalk ostracode fauna of Germany is still in progress. However, the most important point is, that in last autumn a working group of German Silurian workers was founded. The aim of this Silurian working group is to edit a monograph about the Silurian of Germany. It is a long-term project and will be finished not before 2003. In the next meeting (spring 2000) the schedule and the main topics of research will be fixed. Silurian workers from abroad which are interested in cooperation as corresponding members are welcome.

KATHLEEN HISTON (AUSTRIA)

A paleoecologic and taphonomic study of the nautiloid fauna of the Silurian Cephalopod limestone Facies in the Carnic Alps is almost completed with Annalisa Ferretti and Hans Peter Schonlaub. A taxonomic revision of Austrian nautiloid collections is completed. Revision of Italian nautiloid collections (with Maurizio Gnoli) from the Carnic Alps is almost completed. A new project investigating the presence of K-bentonite levels in the Carnic Alps is planned.

ANETTE HÖGSTRÖM (SWEDEN, presently USA))

Continued work on the problematic Machaeridians with special emphasis on sclerite microstructure as a way of possibly resolving the question of their affinities. Large parts of these studies will be performed on abundant Silurian material from the Rochester Shale of New York (USA), and Gotland (Sweden).

Another group of interest is the feather-like Plumulina (together with Dr Wendy L. Taylor), possible hydrozoans. Commonly found in Devonian rocks around e.g. Ithaca in New York State, they have also been recognized from Rochester Shale material of New York State.

MAGDALENA IORDAN (ROMANIA)

Though I am retired from the Geological Institute of Romania, I am continuing my work on the biostratigraphy of the Paleozoic in Romania. My further project is to contribute with paleontological and biostratigraphic data for a book on the Geology of the Moesian Platform and North Dobrogea, together with a group of colleagues from the Institute. Together with Dr. Marioara Vaida, specialized in Paleozoic palinology, we participated in the Joint meeting of EUROPROBE TESZ, PANCARDI and Georift Projects, held in Tulcea between 1-6 October. We both contributed to the field guide book of this meeting and with oral and poster presentations.

Dr. Vaida is currently working on the biostratigraphy of the Lower Paleozoic (Ordovician-Silurian) deposits from North Dobrogea and the Scythian Platform, as well as from the Black Forest.

LENNART JEPPSSON (SWEDEN)

I am actively working and publishing on Silurian extinction events and related matters and on conodonts, and hope to continue doing that for many years to come. In addition, two papers with R. Anehus and D. Fredholm on extraction methods were published during 1999. Next in line are papers on the 'mid' Homerian Mulde Event, the conodont zonation in that interval, and a conodont-based revision of the O. s. rhenana zone ('mid' Sheinwoodian) on Gotland

JISUO JIN (CANADA)

Paul Copper and I continue to collaborate on the Late Ordovician and Silurian brachiopods of Anticosti Island. A monographic manuscript (with 31 plates) on the Anticosti pentamerid brachiopods has been submitted to Palaeontographica Canadiana. Monographic studies of the rhynchonellids (Jin, 1989) and strophomenids (Dewing, 1999) have been completed. Works on the orthids (Jin, Zhan, Copper) and spire-bearers (Copper) are in progress.

DAVID JOWETT (CANADA)

I am completing a M.Sc. with Dr.C.R. Barnes on the conodont portion of a multidisciplinary effort to construct a high-resolution integrated biostratigraphy for the Ord/Silurian and Lower Silurian of the Cape Phillips Formation on Cornwallis Island.

Preservation and yields have been excellent, and I am currently working out the finer taxonomic details. I am interested in corresponding with anyone who has been working on the Telychian species of Aspelundia (especially A. capensis/borenorensis), which I have recovered in significant numbers.

STEVE KERSHAW (UK)

1) The nature of growth banding of corals and stromatoporoids from various Ordovician and Silurian facies, with Graham Young (Winnipeg). 2) Stromatoporoid palaeobiology and biostrome facies in the Silurian of Gotland, Sweden, with Olof Sandström, Lund, Sweden. Projects recently completed include: a preliminary study of stromatoporoid taphonomy, with Frank Brunton, (Ontario) 2) A study of spatial competition among reef organisms, with Al Fagerstrom, Ron West and Pat Cossey. 3) A study of facies and oceanographic change in the Ordovician-Silurian boundary deposits of southern Sichuan, China (with Zhang Tingshan, Wan Yun and Guangzhi Lan).

MARK KLEFFNER (USA)

I am FINALLY completing the latest revision of a conodont-, graptolite-, and now also chitinozoan-based Silurian chronostratigraphy (with James Barrick), and preparing a manuscript based on it that I hope will be ready to submit for publication by summer of 2000. I am also trying to complete a conodont biostratigraphy of the upper Lower and Upper Silurian of the northern Indiana subsurface (with Carl Rexroad). Lastly, I am working on a study of the nature of the Noland/Dayton contacts with the subjacent Brassfield and suprajacent Estill/Osgood in Ohio. I am attempting to do those projects while trying to get up and running in my new lab facilities in the new science building I moved into on my campus during 1999.

ANNA KOZLOWSKA-DAWIDZIUK (POLAND)

Evolution, phylogeny, biostratigraphy, and ultrastructure of Silurian retiolitids, mostly from boreholes of the East European Platform and Baltic erratic boulders. I am working with with Elzbieta Porebska on geochemical analyses, and with Monika Masiak on acritarch changes, of upper Wenlock *lundgreni* extinction event in EEP. Currently I am spending one year in Canada working with Alf Lenz on graptolites of Arctic Canada. I am also collaborating with Nancy Kirk and Danis Bates on retiolitid ultrastructure.

JIRI KRIZ (CZECH REPUBLIC)

Working on the monograph "Lochkovian bivalves of Bohemian type from the eastern Anti-Atlas (Morocco)" - it should be completed as the contribution to Project IGCP no. 421 early in 2001 and on "The genus Maminka (Bivalvia) from the Silurian of the Gondwanan Europe".

JURGA LAZAUSKIENE (LITHUANIA)

The main scientific activities are concentrated on the specific research topic “Analysis of the Baltic Silurian sedimentary basin: quantitative modelling of the origin, geological evolution and sedimentary architecture”, aiming in developing the complex time-step model of the evolving Baltic sedimentary basin. The research are undertaken with a purpose to test a recently indicated novel interpretation of the foreland setting of the Baltic sedimentary basin during Silurian and to test interealtionships between geodinamic evolution and the sedimentary architecture of the basin-fill in Silurian, incorporating plate tectonic processes, thrust load, subsidence, sediment input and eustasy. Thus, one part of research is focused to the geodinamic evolution and the 3D flexural modelling of the Baltic Basin, while 2D modelling of the sedimentary infill of the Baltic Silurian basin is a

target of the other. An analysis of the Silurian sedimentary succession in terms of sequence-stratigraphy and seismo-stratigraphy concepts and application of the results to the oil exploration are the primary tasks foreseen.

OLIVER LEHNERT (GERMANY)

is mainly working on Cambro-Ordovician conodont biostratigraphy, but expanding his interest into the Silurian. As a result of his studies on the composition of Tertiary conglomerates (with pebbles of mainly Cambro-Silurian ages) and the sampling of Upper Cambrian through Silurian sections on Ellesmere Island (Canadian Arctic) he will be engaged with Silurian stratigraphy. Godfrey Nowlan and he will work together on the corresponding conodont faunas this year. His first real touch with Silurian faunas was recently the description of first Llandovery conodonts from the Gondwana of western Argentina with Stig Bergström, Luis Benedetto, and Emilio Vaccari.

ALFRED LENZ (CANADA)

Work continues on the Wenlock and higher graptolite faunas, particularly the retiolitids, of Arctic Canada. The project has been broadened to involve studies of the radiolaria by Paula Noble (University of Nevada at Reno), palynomorphs by Aicha Achab and Azzeddine Soufiane (CNRS, Quebec), and carbon 13 analysis by Chris Holmden (University of Saskatchewan), the object being to integrate the biostratigraphic sequences of the biota with geochemistry of coeval strata. Anna Kozlowska-Dawidziuk (Institute of Paleobiology, Polish Academy of Sciences, Warsaw) is spending the year with me, collaborating on a taxonomic/evolutionary/biostratigraphic studies of latest Wenlock and Ludlow graptolites of the Canadian Arctic. We are particulary focussing on late Wenlock pre- and post-extinction graptolites, especially the retiolitids. A secondary project, in collaboration with Robert Blodgett (Oregon State University) and Jiri Fryda (Czech Survey) involves the study of beautifully preserved collections of silicified Late Silurian and Early Devonian grastropods from the Royal Creek area, northern Yukon.

PhD student Denis Tetreault is nearing coming of his study of a late Wenlock Konservat Lagerstätte from inter-reef lagoonal deposits in central Ontario. Soft-body algae are common, as are phyllocarids, echinoids and various kinds of “worms”. PhD student Sherrill Senior (co-supervised by Mike Melchin) is well launched into her study of cyrtograptid graptolites of the Canadian arctic.

STEVE LODUCA (USA)

Work continues on the evolutionary paleobiology, taphonomy, and systematics of early Paleozoic algae, including description of new noncalcified dasyclad taxa from the Silurian of Illinois and Wisconsin (with J. Kluessendorf and D. Mikulic), Canadian Arctic (with M. Melchin), and Ontario (with D. Tetreault). Work also continues on the stable carbon isotopic compositions of Paleozoic marine organic macrofossils (with L. Pratt) and the Silurian sequence stratigraphy of the Michigan and Appalachian Basins (with C. Brett and W. Goodman).

DARREL LONG (CANADA)

Darrel Long of Laurentian University will continue work on the Southern Hudson Platform, Canada, in an attempt to redefine stratigraphic and sedimentological knowledge of the Moose River Basin. The principal objective of this research is to determine how coastal morphodynamics (current patterns) and storm systems affected the distribution of siliciclastic material within this epiric basin.

DAVID LOYDELL (UK)

Integrated stratigraphical work is concentrated in three areas: (1) eastern Wales, with Gary Mullins – a study of the integration of chitinozoan and graptolite biostratigraphy is being written up for publication; (2) Latvia and Estonia – a study of a core in NE Latvia with Peep Männik and Viiu Nestor is nearing completion; most graptolite biozones from the middle Rhuddanian to the middle Sheinwoodian are represented; and (3) Spain – in June, 1999 the Corral de Calatrava section (remember the Silurian Express!) was revisited and large collections of graptolites and conodonts collected. These are being studied at present. Collaborators are Juan Carlos Gutiérrez-Marco, Graciela Sarmiento and Petr Štorch.

Work on North African graptolites, with Sebastian Lüning and Petr Štorch, is well under way. The monospecific assemblages of the Kufra Basin, SE Libya contrast strongly with the diverse assemblages from Morocco. A long Earth Science Reviews paper reviewing the early Silurian petroleum source rocks (and graptolites) of northern Gondwana is in press and will appear in 2000. The graptolites collected by Olga Bogolepova and colleagues from the Telychian of October Revolution Island, Severnaya Zemlya occur in both carbonate nodules and shale. All are being studied at present, the former using the SEM.

Research students' work is progressing well: Jude Thorogood is writing up her thesis on bentonite correlation in the Silurian of Wales; Kate Saunders is entering her final year of dendroid studies (co-supervised by Don Mikulic and Joanne Kluessendorf); Stephen Doherty continues his examination of the Wenlock graptolites of North Wales; and Antony Butcher (also co-supervised by Don Mikulic and Joanne Kluessendorf) has completed his second field season on the Silurian of the Grafton area, SW Illinois.

JÖRG MALETZ (GERMANY)

I have started a 2 year project in July on Llandovery graptolite faunas from Dalarna (Sweden) and Thuringia (Germany) trying to show faunal variations between both regions and biodiversity changes through time. The Dalarna sections include faunas from the Aeronian and Lower Telychian, probably up to the crispus Zone. Specimens are readily isolatable from limestones at many levels. The Thuringian material covers a larger time interval from the acuminatus Zone to the spiralis Zone. The work here concentrates on museum collections, as few localities are still available. There are large graptolite collections in many German museums. Also most of the published material by Eisel, Hemmann, Kirste, Manck, Münch, Hundt, etc. is present, but usually not catalogued. The probably largest collection is preserved at the Bergakademie Freiberg and includes about 80 000 to 100 000 slabs. Most of the material by Eisel, Manck and Hundt is present there, but is not catalogued and thus, not available for study. Some of the Hundt material has been refigured in publications of Müller and Schauer, but often was not acknowledged to belong to the Hundt collection. One important part of my research relates to the taxa erected by Hundt in his diverse - and often difficult to get - publications. All of his graptolite material seems to be preserved at Bergakademie Freiberg (ca. 40 000 slabs) and it might be possible to identify his specimens and revise the described new taxa. Despite the problems with the scientific credibility, especially of Hundt¹s work, the collections are of great value as they represent a century of intense collecting and give an excellent impression on the faunal diversity in Thuringia. Thus, it

seems better to use the material and data instead of ignoring them, as was even done by later graptolite workers from Germany.

PEEP MÄNNIK (ESTONIA)

Workcontinues 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 the distribution of conodonts, graptolites (with Dr. D. Loydell from Portsmouth, U. K.) and chitinozoans (with Dr. V. Nestor from Tallinn, Estonia) are going on.

TIIU MARSS (ESTONIA)

Mark Wilson, Edmonton, and I are in good progress in describing the Silurian and Lower Devonian thelodonts from Baillie-Hamilton and Cornwallis islands, Canadian Arctic Archipelago. Mark invited me to Edmonton, to the Alberta University, to finish this big work there at the beginning of 2000. For the future, if anybody has Silurian-Lower Devonian vertebrate, especially thelodont material available for description, and wishes to co-operate, please, contact with me or Mark. Canadian thelodonts are very important in some respect (vertebrate evolution, biogeography etc.etc.).

Together with Viive Viira and Peep Männik, Tallinn, we are studying in detail the conodont and thelodont distribution in the East Baltic bore core sections to use the data in the high resolution biostratigraphy. Another joint work (with Henning Blom, Uppsala, as main author, me, and Giles Miller, London) deals with the Silurian and Lower Devonian anaspids from the northern hemisphere. Material comes from the Baltic, Scandinavia, Britain, the Central Urals, and the Severnaya Zemlya and Canadian Arctic archipelago,

MICHAEL MELCHIN (CANADA)

Mike and his students and colleagues are currently working on a number of aspects of Late Ordovician and Early Silurian graptolites, radiolaria and biostratigraphy, biodiversity and paleoenvironmental changes as represented mainly in Arctic Canada and Russia, as well as some problems of international correlation. Work is in progress on the systematics and phylogeny of Cystograptus and Paraclimacograptus from Arctic Canada and Russia (with Tanya Koren'), Llandovery retiolitids (with Alf Lenz), and Llandovery monograptids. M.Sc. student Aleksandra Naczk is studying the phylogeny of Glyptograptus and related forms from Arctic Canada. With Henry Williams, Mike is working on the systematics, phylogeny and biostratigraphy of the akidograptids and related forms from Dob's Linn, with the aim of further refinement of the Silurian stratotype and its potential for international correlation (see the abstract Melchin, Koren' and Williams, 1998, for preliminary results of this work). Ph.D. student Jennifer Russel is continuing her work on the taphonomy and paleoecology of Llandovery graptolites, focusing on the details of their distribution faunal compositional changes within Cape Phillips concretions and their various lithologies. She has already presented a preliminary graptolite taphofacies model (Russel and Melchin, 1998) and is refining this model and applying to the wealth of data from the Arctic samples to try to unravel the relative contributions of paleoecologic versus taphonomic control on these graptolite assemblages.

In a collaborative project, Mike is working with several other researchers and students to compile a comprehensive documentation of the biostratigraphy, biodiversity patterns, stratigraphy, and stable isotope geochemistry of the mid-Ashgill-early Wenlock succession in Arctic Canada. Samples were collected together for graptolites, radiolaria

(being studied by Ph.D. student Eugene MacDonald, supervised by Mike), conodonts (David Jowett, supervised by Chris Barnes), chitinozoa (Azzedine Soufiane, supervised by Aicha Achab), and stable isotopes of carbon and oxygen (Chris Holmden). We anticipate that the unique co-occurrence of these various fossil groups will provide us with an unprecedented opportunity for detailed cross-correlation of the various zonal schemes and chemostratigraphic record, as well as a view of the relationship between the biodiversity dynamics of each group together with the environmental signals recorded in the physical and chemical properties of the sediments. The radiolarian fauna from this succession provides particularly unique opportunities since it is almost certainly the best and most continuously preserved succession of Llandovery-Wenlock radiolaria in the world. Eugene has already published some of the results of this work (MacDonald, 1998, in press) and is in the midst of the mammoth task of identifying and describing much of the rest of the fauna.

Mike is also working with Chuck Mitchell as assistant co-ordinating author of the next edition of the graptolite volume of the Treatise of Invertebrate Paleontology. Besides working with Chuck on several of the introductory chapters, Mike's main responsibility will be with the systematics and phylogeny of the Silurian taxa.

DONALD G. MIKULIC & JOANNE KLUESSENDORF (U.S.A.)

continue their work on Silurian sedimentology, paleontology, reef paleoecology, sequence stratigraphy, and depositional environments throughout the central U.S., as well as their research on Silurian Fossil Konservat-Lagerstätten. Don continues to work on Silurian trilobites, especially on the systematics, paleoecology, and taphonomy of trilobites in Silurian reefs of the Milwaukee-Chicago area. Joanne is also focusing on Silurian paleokarst and ichnological trends. For the Geological Society of America (GSA) North-Central Section meeting in April, they authored abstracts on an encrinurine-dominated trilobite association from the Silurian Pipe Creek Jr. reef in northern Indiana (with Jon Havens and K.C. Gass); lower Silurian conodont biostratigraphy of southeastern Wisconsin (R.D. Norby and Mark Kleffner); a new Fossil Konservat-Lagerstätte from the Silurian of northeastern Illinois (with Kate Saunders); noncalcified dasyclad algae from the Llandovery of Illinois and Wisconsin (with Steve LoDuca) and the Silurian legacy of Heinz Lowenstam. They also led a GSA field trip on Silurian Depositional Environments and Sequence Stratigraphy at the Northern Edge of the Illinois Basin. In October, they presented a paper on a structurally-controlled reef trend in Silurian rocks of the Michigan Basin at the Annual GSA meeting. Don and Joanne continue to help supervise David Loydell's (University of Portsmouth, U.K.) students. In addition to Kate Saunders' research on Silurian dendroid graptolites, they have begun to supervise Anthony Butcher's dissertation work on the Silurian biostratigraphy and sequence stratigraphy of west-central Illinois, as well as research on the Ordovician-Silurian boundary and the Llandovery-Wenlock boundary in the Chicago area by undergraduates Andrew Mallett and Stephen Dowling. In addition, they continue to work with the Wisconsin Geological & Natural History Survey on mapping the Silurian and Devonian rocks of southeastern Wisconsin.

C. GILES MILLER (UK)

I have been involved in a project with Tiiu Marss (Tallinn Technical University, Estonia) and Henning Blom (Uppsala University) on Silurian and lowermost Devonian anaspid scales and articulated specimens from the northern hemisphere. My contribution to the

publication, to be submitted to the Royal Society of Edinburgh early next year, has been to describe the British material. I continue collaborations with Tiiu Marss and Viive Viira (Tallinn) with whom I collected for Wenlock Shallow water conodonts on Saaremaa this summer.

TANIA MODZLAEVSKAYA (RUSSIA)

Last year my field of activity related with Silurian topic was the studying of Late Ordovician-Early Silurian brachiopods of Taimyr Penninsula; revision of the brachiopod Pentamerus samojedicus Keyserling, 1846 from the Timanian Range (with Madis Rubel) and the studing some silurian brachiopods of Lithuania and their palaeobiogeographic significance (with Petras Musteikis).The results were reported on the IGCP 416 meeting and Fourth Baltic Conference in Jurmala 1999 (September 27-30). Abstracts:in Ichtyolith Issues Special Publication 5.Pp.35-36 and 4th Baltic stratigraphical Conference "Problems and modern Regional stratigraphy", pp.72-73.

MICHAEL MURPHY (USA)

Peter Carls, Nacho Valenzuela and I are working on the interval across the S-D boundary in the Czech Republic, Spain and Nevada. We have had difficulty in finding material from the excavata group of conodonts in the interval just around the boundary. If any collegues have any material in this interval that we could beg, borrow, or see, we would be very interested in hear ing from them.

HELDUR NESTOR (ESTONIA)

Continued research with Carl W. Stock (University of Alabama) on the Llandovery stromatoporoids from the North America Midcontinent. Joint papers on the recovery of stromatoporoid fauna from the end-Ordovician mass extinction were presented at the Eight International Symposium on Fossil Cnidaria and Porifera and at the Geological Society of America Annual Meeting. A gradual extinction and recovery of stromatoporoid fauna was established, coinciding with a supposed “ice-house period” from the late Caradocian to the late Aeronian. Description of the uppermost Ordovician and Llandovery stromatoporoids from Anticosti Island is in progress. A paper on the community pattern and succession of the Baltoscandian early Paleozoic stromatoporoids has been published.

VIIU NESTOR (ESTONIA)

Continues her work on Silurian chitinozoans and biostratigraphy of the East Baltic and Kaliningrad deep core-sections. The study of the Early Silurian chitinozoans of the Oslo Region, Norway has been completed and a summary paper is in press. Collaboration with David Loydell and Peep Männik has been recently started on integrating the graptolite, conodont and chitinozoan biozones in the Aizpute (Latvia) Llandovery and lower Wenlock section.

GODFREY NOWLAN (CANADA)

1. Silurian conodont biostratigraphy of the Williston and Hudson Bay basins, especially the Ordovician - Silurian boundary (cooperative with R. Elias, University of Manitoba; Graham Young, Manitoba Museum; Fran Haidl, Saskatchewan Energy and Mines. 2. Silurian conodont biostratigraphy of eastern Ellesmere Island in support of mapping project led by Dr. Ulrich Mayr (GSC).

FLORENTIN PARIS (FRANCE)

I am presently working on the Ordovician-Silurian boundary beds in northern Gondwana regions. The main purpose is to document the faunal extinction close to the Late

Ordovician glaciation and the recovery in the latest Hirnantian- Rhuddanian. This is one of the aspects developed both by IGCP n° 410 and by the French CRISEVOLE project. In Mauritania, Morocco, Algeria, Libya, Saudi Arabia, Western France...marine post glacial deposit yield numerous chitinozoans, alone or in association with graptolites. Different "steps" are recorded in the Spinachitina fragilis lineage with the most tiny forms in the latest Hirnantian and the "normal" morphotype in the early Rhuddanian. However, it is not yet clear if the first S. fragilis coexist with graptolites of the uppermost part of the persculptus Zone (Paris et al. submitted). Additional investigations have been carried out on chitinozoans from south-eastern Algeria in order to provide a high resolution local chitinozoan biozonation in connection with sequence stratigraphy studies.

JOSÉ MANUEL PIÇARRA D´ALMEIDA (PORTUGAL)

Stratigraphy of the Lower Paleozoic of South Portugal (Ossa Morena Zone). Silurian graptolites of Portugal (with A. Lenz, P. Štorch and J.C. Gutiérrez-Marco). 2.- Portuguese-French Project "Silurian-Devonian boundary in France and Portugal: biologic crises, biostratigraphy, stratigraphy and palaeogeography" (with J.T. Oliveira, J.M. Romão, M. Robardet, J. Le Meen and R. Gourvennec) - IGCP Project 410 and 421

HELGA PRIEWALDER (AUSTRIA)

I continued my studies on chitinozoans from the Carnic Alps, Austria.

LEANNE PYLE (CANADA)

Current Ph. D. research is on Upper Cambrian to Lower Silurian stratigraphy and conodont biostratigraphy of platform to basin facies, northeastern British Columbia. Also, a stratigraphic and conodont biostratigraphic project has been initiated in which a platform to basin transect of Ordovician and Silurian facies in the Halfway River, Ware and Trutch map-areas (NTS 94B, F, G), northeastern British Columbia, consists of 11 key stratigraphic sections. The units studied include the Kechika, Skoki, Beaverfoot, Unnamed Silurian and Nonda formations and three unnamed formations of the Road River Group (Shale and Quartzite unit, Carbonaceous Limestone unit and Silurian Breccia unit).

SUSAN RIGBY (UK)

I am currently interested in Rastrites maximus and in a section in the Southern Uplands at Thirlestane Score, which shows a repeated correlation between ash falls and graptolite blooms. Two papers are submitted but neither is in press yet.

MICHEL ROBARDET (FRANCE)

has been working: 1) on the Silurian and the Silurian-Devonian transition in the Catalonian Coastal Ranges of NE Spain, in collaboration with Juan Carlos Gutiérrez-Marco (Madrid). 2) on the Silurian and the Silurian-Devonian transition in the Armorican Massif of W France and in Portugal, within a joint project Portugal-France (1997-1999). This cooperation program also includes J. Le Menn and R. Gourvennec (Brest) and J.M. Piçarra, J.T. Oliveira, J.M. Romao and Z. Pereira (Portugal).

A new cooperation project (Devonian) has been submitted for 2000-2002.

DAVID RUDKIN (CANADA)

Continuing work on a field-based project lead by Graham Young (Manitoba Museum of Man & Nature) and Bob Elias (University of Manitoba) on the stratigraphy, palaeontology, and palaeoecology of the Ordovician-Silurian transition in the Churchill region, Manitoba. Ongoing studies of reef-associated biotas (particularly trilobites) of the Attawapiskat Formation (Lower Silurian, Telychian) in the Moose River and Hudson Bay Basins, Ontario and Nunavut. Field investigations on Akimiski Island (August 1999)

revealed the presence of numerous exhumed reefs within previously unmapped strata of the Attawapiskat Formation. Newly documented outcrops occur along the landward side of extensive tidal flats on the northeast shore and are particularly well exposed near Houston Point. Reef cores are deeply eroded, but reef margins and adjacent flank beds contain an abundance of well preserved shelly fossils (primarily brachiopods, molluscs, and trilobites) showing evidence of extensive postmortem hydrodynamic sorting. Preliminary observations suggest that demosponges were important components in reef frameworks and in interreef units.

CLAUDIA RUBENSTEIN (ARGENTINA)

Work continues on various aspects of palynomorphs (acritarchs, chitinozoans, spores, cryptospores) from the lower Ordovician up to the upper Devonian. Current Silurian projects include systematic, biostratigraphy, paleogeography and paleoecology of Silurian palynomorphs from the San Juan Precordillera (La Chilca and Los Espejos formations), Argentina; lower Silurian acritarchs and cryptospores from the La Puna, northwestern Argentina; palynomorphs from the Silurian-Devonian boundary of Libya (spores) and Brazil basins (acritarchs and spores), in collaboration with Philippe Steemans (Liege) and Alain Le Herisse (Brest).

VALERI SACHANSKI (BULGARIA)

Silurian Sequence Stratigraphy

OLOF SANDSTROM (SWEDEN)

Continuing research on stromatoporoid reef biostrome ecology and sedimentology. I am about to finish my PhD on this subject. The thesis is expected to be ready next spring.

ENRICO SERPAGLI (ITALY)

Has just completed the editing of the ECOS VII Volume (³Conodont studies²), which includes also some papers on Silurian. He is working mostly on Sardinian faunas, both from the Ockerkalk and the Orthoceras limestone facies. He has completed two papers (with C. Corradini): one on the revision of the Kockelella Group from top Homerian to mid Ludfordian and its evolution and the second one on the conodont zonation from top Llandovery to Pridoli.

PAOLO SERVENTI (ITALY)

He is working on cephalopods from the Carnic Alps, Sardinia and other areas of North

CARL W. STOCK (USA)

Heldur Nestor and I are cooperating on the study of the Llandovery recovery of stromatoporoids following the end-Ordovician mass extinction. We have a pretty good handle on the recovery at the level of genus, but species-level work will take a lot more meticulous study. Our work is based on new collections from the U.S. (Alabama, Oklahoma, Missouri, Iowa, Michigan, Ohio, New York) and Canada (Anticosti Island, Niagara Peninsula), and the existing literature on Eurasia (e.g., Oslo region, Gotland, Estonia, Siberia). A master's student of mine, Deirdra Cantrell, is doing her thesis on stromatoporoids from the Brassfield Formation (Aeronian) at West Milton, Ohio.

PETR STORCH (CZECH REPUBLIC)

Continues his research on Silurian graptolites of Bohemia. Work continues also with J.C. Gutierrez-Marco and D.K. Loydell on the graptolite rich Llandovery and Wenlock of Spanish Central Iberian and Ossa Morena zones. Special interests devoted to graptolite extinctions and subsequent recoveries as well as to the environmental distribution and

palaeobiogeography of the Silurian graptolite faunas. A new research project on Lower Silurian graptolites of Saharan Africa started with D. Massa and D.K. Loydell.

SUSAN TURNER (AUSTRALIA)

is working on Silurian microvertebrate remains especially thelodonts from Arctic Canada and related regions in eastern Canada and the USA as part of IGCP 406 - this is work in train with Jim Savelle (McGill Univ.) and Godfrey Nowlan (ISPG, Calgary). She also has "nose to the grindstone" to finish the Thelodonti part of the Agnatha handbook of Paleoichthyology (ed. H-P. Schultze, F. Pfeil, Munchen publisher). This last has necessitated reviewing all published work on Silurian thelodonts.

ADAM URBANEK (POLAND)

Present and proposed research on Silurian topics: I will work on a joint paper (with Dr D. Bates) dealing with Mastigograptus. Recently I work on a joint paper (with Prof. P.N. Dilly,London) on the stolon system of Rhabdopleura compacta. It reveals structures never seen before in pterobranchs and homologous to internal portions of the thecae in sessile graptolites. As the Silurian themes are concerned see below our comment with (Lech Teller) on Jorg Maletz recent paper dealing with sicular annuli in monograptids.

VIIVE VIIRA (ESTONIA)

A paper on East Baltic Late Silurian conodont biostratigraphy has been published and a manuscript on Ohesaare Regional Stage (latest Silurian) conodonts has been submitted for publication. Currently I am working on Tremadocian and Arenigian conodonts, but reseach also continues on Saaremaa Island Ludlow conodonts.

XIAOFENG WANG (CHINA)

I am continuing to lead an integrated study of Neoproterozoic to Lower Paleozoic litho-, bio-, chrono-and sequence- stratigraphy in the Yangtze Gorges area. The aim of this project is to establish new stratotype sections instead of these well-known or original named sections of different periods, separately exposed in the both sides of the Yangtze River, which will be submerged soon by water with the building of a high dam. The rest of team includes Xiaohong Chen (chitinozoans), Chuanshan Wang (graptolites), Weihong He (trilobites, brachiopods) and Zhihong Li (conodonts). In addition, this research group has reworked on high resolution biostratigraphic and chemostratigraphic correlation and biodiversification events from Late Ordovician to Early Silurian sequences at WangJiawan and Goujiaya sections near Yichang.

CHUANSHAN WANG (CHINA)

I am currently involved in the study on the Neoproterozoic(III) to Lower Paleozoic titho-, bio- and sequence stratigraphy in the Yangtze Gorges area, being in charge of Wang Xiaofeng and mainly dealing with Ordovician graptolites. The results on the occurrence of multiramosus graptolites and sea level changes will be published in “Geology and Mineral Resources of South China” (no.1, 2000).

RODNEY WATKINS (USA)

continues research on Silurian benthic marine ecology.

EVGENY YOLKIN (RUSSIA)

Principal directions of my researches for this year were: 1) Stratigraphy of the subsurface Paleozoic of the Western Siberian Plain (separate volume of the series "Stratigraphy of Siberian oil and gas basins"), 2) Evolution of facial environments and faunal associations in the Devonian within transitional shelf zone from the Paleoasian ocean to Siberian continent (grant RFBR), 3) IGCP 421 "North Gondwana mid-Paleozoic bioevent/biogeography patterns in relation to crustal dynamics" (contribution to the

Peshawar meeting: Yolkina V.N., Yolkin E.A., Talent J.A., Gratsianova R.T., Kipriyanova T.P., Kipriyanov A.A.Jr. Application of data analysis methods (FOREL and KRAB) in paleobiogeography: Progress report), and 4) Preparation of the second issue of the "News of Paleontology and Stratigraphy".

GRAHAM YOUNG (CANADA)

I am continuing to work on Lower Paleozoic corals, paleoecology, and stratigraphy. A project with S. Kershaw (Brunel University) considers paleoenvironmental applications of growth banding in corals and stromatoporoids. An ongoing field study of the Hudson Bay Lowland of Canada, with R.J. Elias (University of Manitoba), E. Dobrzanski (Manitoba Museum), D. Rudkin (Royal Ontario Museum), and G. Nowlan (Geological Survey of Canada) examines paleoenvironmental events across the Ordovician-Silurian boundary. I am also looking at the stratigraphic distribution of Ordovician and Silurian tabulate corals in North America.

JAN ZALASIEWICZ (UK)

I'm currently working on detailed biostratigraphy of the convolutus Zone in Scotland and Ireland, together with Mark Williams and Adrian Rushton. Mark and I are also writing up the taxonomy of the Wenlock graptolites of the Builth district, whose biostratigraphy we published last year. More long-term projects include the Atlas of Graptolite Type Specimens, the first folio of which is shortly to be published and a revised range-chart of UK Ordovician and Silurian graptolites, recently completed by Lindsey Taylor, Adrian Rushton, David Loydell, Barrie Rickards and myself - to go to press this year as a Geological Society Special Report. I also continue to work on the potential use of authigenic monazite nodules in radiometrically dating Lower Palaeozoic mudrocks, with Jane Evans and Ann-Marie Fiddy.

YUAN-DONG ZHANG (CHINA)

Recently I am preparing for my visit to British Museum. As scheduled, I will stay there for three months in coopertaion with Dr. Fortey on the phylogeny of early Diplograptoids. This year, I spent all my time on the descriptions of Ningkuo Formation graptolites, and pay little attention to the Silurian stratigraphy and graptolites. However, I have a short paper, co-authored by A.C. Lenz, on the Silurian graptolite sequence of southern China. Presently I am also preparing a joint project between China and Vietnam, which is on the correlation of Ordovician and Silurian graptolites sequence and biostratigraphy in SW China and Northern Vietnam. If successful, I will visit Vietnam next year for the first time and also take a field excursion there.

RESEARCH PUBLICATIONS 1998-1999

Aceñolaza, G.F. & Gutiérrez-Marco, J.C. 1999. Icnofósiles del Ordovícico terminal (Pizarras Chavera, Pizarras de Orea: Hirnantiense) de algunas localidades españolas [Latest Ordovician ichnofossils from Hirnantian shales (Chavera and Orea formations) of some Spanish localities]. Boletín Geológico y Minero, 110 (2), 123-134.

Algeo, T.J. and Brett, C.E., eds., Sequence, Cycle and Event Stratigraphy of Upper Ordovician & Silurian Strata of the Cincinnati Arch Region, Guidebook, 1999 Field Conference, Great Lakes Section SEPM-SSG (Society for Sedimentary Geologists), 120 p..

Al-Hajri, S. & Paris, F. 1998. Age and paleoenvironment of the Sharawra Member (Silurian of north-western Saudi Arabia). Geobios, 31, 1 : 3-12

Alvarez, F. 1999. Colle, notas sobre un yacimiento clásico en el Devónico Cantábrico (NO de España). Temas Geológico-Mineros ITGE, 26, 48-53.

Alvarez, F. 1999. El registro paleontológico de Colle (Sabero, NE de León, España). Temas Geológico-Mineros ITGE, 26, 54-59.

Alvarez, F. y Carlson, S.J. 1998. Evolución y relaciones filogenéticas entre los grupos de mayor rango taxonómico de atíridos y otros "braquiópodos articulados". Revista Española de Paleontología, 13, 209-234.

Alvarez, F., Rong Jia-yu, y Boucot, A.J. 1998. The classification of athyridid brachiopods. Journal of Paleontology, 72, 827-855.

Antoshkina A.I. Origin and evolution evolution of the Lower Paleozoic reefs in the Pechora Urals, Russia. Bulletin of Canadian Petroleum Geology. 1999. Vol. 47/2. P. 85-103.

Antoshkina A.I. Evolution of the Pechora Urals reefs in the Late Palaeozoic. Abstracts of XIV Inter. Congress on the Carboniferous and Permian, August 17-21. Calgary, Canada, 1999. P. 30.

Antoshkina A.I., Soja C.M., White B. Silurian reefs through Euramerica. Ichthyolith Issues, Special publication, 5. Lower-Middle Palaeozoic Events Across the Circum-Arctic. (E. Luksevics, Stinkulis G & M.V.H.Wilson, eds.) Jurmala, Latvia, 1999, ð .5-7. associations. In A.J. Boucot and J.D. Lawson, (eds.), Paleocommunities A

Azmy, K., Veizer, Wenzel, B., J. Bassett, M.G. & COPPER, P. 1999. Silurian strontium isotope stratigraphy. Bulletin Geological Society America 111: 475-483.

Baarli, B.G., Johnson, M.E. and Keilen, H.B. 1999. Silurian communities of the Oslo Region, Norway. In, Boucot, A.J. and Lawson, J.D. (eds.), Paleocommunities: A Case Study from the Silurian and Lower Devonian. Cambridge University Press, p. 327-349.

Barnes, C.R. 1999. Paleoceanography and paleoclimatology: an Earth System perspective. In Veizer, J., (ed.) Earth System Evolution: Geochemical perspectives. Special issue of Chemical Geology v. 161, p. 17-35.

Barnes, C. R. and Pyle, L. J., 1999, Lower Paleozoic stratigraphy and conodont biostratigraphy, platform to basin transect, Trutch, Halfway River and Ware map-areas (94G, B, F), northeastern British Columbia--GSC Central Foreland NATMAP Project, abstract 99-05O, in Conference Proceedings of the CSPG and Petroleum Society Joint Convention, Calgary, Alberta.

Poussart, P. F., Weaver, A.J. and Barnes, C. R. 1999. Late Ordovician glaciation under high atmospheric CO2: a coupled model analysis. Paleoceanography, v. 14 p. 542-558.

Barnes, C.R. and Zhang, S. 1999. Patterns of conodont extinction and recovery across the Ordovician-Silurian boundary interval. Acta Universitatis Carolinae, Geologica, v. 43, p. 211-212.

Batchelor R.A. & Jeppsson L. 1999. Wenlock metabentonites from Gotland, Sweden: sources and their potential as chemostratigraphic markers using Rare Earth Elements distribution in apatite. Geological Magazine 136, 661-669.

Batchelor R.A. 1999. Metabentonites from the Silurian inliers of the southern Midland Valley of Scotland: distribution and geochemistry. Scottish Journal of Geology 35, 71-77.

Bergstrom, S.M., Huff, W.D., Koren', T., Larsson, K., Ahlberg, P. & Kolata, D. 1999. The 1997 core drilling through Ordovician and Silurian strata at Rostanga, S. Sweden: Preliminary stratigraphic assessment and regional comparison. GFF, 121:127-135.

Biernat, Gertruda and Teller, Lech. 1998. Lower Devonian Lingulata from the well Ursynów 1 (E.Poland). Geological Quarterly: V. 42 (4):456 – 460

Blake, P. R., Simpson, G. A., Fordham, B. G., & Hayward, M. A. (1998). The Yarrol fore-arc basin: a complex suite of volcanic facies and allochthonous limestone blocks. Abstracts, Geological Society of Australia, 49: 42.

Blom, H. 1999. Loganellia (Thelodonti, Agnatha) from the Lower Silurian of North Greenland, with special reference on their stratigraphical and palaeogeographical significance. - Acta Geologica Polonica, 49 (2), 97-104.

Blom, H. 1999. Vertebrate remains from Upper Silurian - Lower Devonian beds of Hall Land, North Greenland. - Geology of Greenland Survey Bulletin, 182: 1-80.

Blom, H., Marss, T. and Miller, C. G. Affinity, classification and distribution of Silurian and lowermost Devonian anaspid scales in the Circum-arctic, Baltoscandia and Britain. Proceedings of the 4th Baltic Stratigraphic Conference, Riga 1999. Ichthyolith Issues Special Publication, 5, 12-13.

Bogolepova, O.K. 1999. Ordovician cephalopods and lingulate brachiopods from

Boucot, A.J., Cocks, L.R.M. & Racheboeuf, P.R. 1999. Early Devonian brachiopods from Satun Province, southern Thailand. Journal of Paleontology,73,850-859.

Brett, C.E. and Algeo, T.J., 1999, Sequence stratigraphy of Upper Ordovician and Lower Silurian strata of the Cincinnati Arch region. In Algeo, T.J. and Brett, C.E., eds., Sequence, Cycle and Event

Stratigraphy of Upper Ordovician & Silurian Strata of the Cincinnati Arch Region, Guidebook, 1999 Field Conference, Great Lakes Section SEPM-SSG (Society for Sedimentary Geologists), p. 34-46.
Brett, C.E. and Allison. P.A., 1998, Paleontological approaches to environmental interpretation of marine mudrocks. In Schieber, J., Zimmerle, W., and Parvinder, S.S., eds., Shales and Mudstones Vol. I. E. Schweizerbart'sche Verlagsbuchhandlung, Stuttgart, p. 301-349.
Brett, C.E., 1998, Sequence stratigraphy, paleoecology, and evolution: biotic clues and responses to sea-level fluctuations. Palaios, v. 13, p. 241-262.
Brett, C.E., 1999, Wenlockian fossil communities in New York State and adjacent areas. In Boucot, A.J. and Lawson, J.D., eds., Paleocommunities: A Case Study from the Silurian and Lower Devonian. Cambridge University Press. p. 592-637.
Brett, C.E., Baarli, B.G., Chowns, T., Cotter, E., Driese, S., Goodman, W., and Johnson, M.E., 1998. Early Silurian condensed intervals, ironstones, and sequence stratigraphy in the Appalachian foreland basin. In Landing, E., ed., New York State Museum Bulletin 491: 89-143.
Brett, C.E., Goodman, W.M., LoDuca, S.T. and Tetreault, D.K., 1999, Silurian-Early Devonian sequence stratigraphy, events, and paleoenvironments of western New York and Ontario, Canada. New York State Geological Association 71st Annual Meeting, Field Trip Guidebook, Fredonia, NY, p. B1-B58.
Brunton, F., Smith, L., Dixon, O., Copper, P., Nestor, H. and Kershaw, S. 1998. Silurian reef episodes, changing seascapes and palaeobiogeography. In: Landing, E. and Johnson, M.E. (eds). Silurian Cycles: linkages of dynamic stratigraphy with atmospheric, oceanic and tectonic changes; James Hall Centennial Volume. New York State Museum Bulletin, 491. University of the State of New York, The State Education Department.
Burrow, C.J. & Turner, S. 1999. A review of placoderm scales, and their significance in placoderm phylogeny. Journal of Vertebrate Palaeontology, 19(2), 204-219.
Burrow, C.J. & Young, G.C. 1999. An articulated teleostome fish from the Late Silurian (Ludlow) of Victoria, Australia. Records of the Western Australian Museum, Suppl. 57, 1-14.
Burrow, C.J., Vergoossen, J.M.J., Turner, S., Uyeno, T., & Thorsteinsson, R. 1999. Microvertebrate assemblages from the Upper Silurian of Cornwallis Island, Arctic Canada. Canadian Journal of Earth Sciences, 36, 349-361.
Calner, M. & Jeppsson, L., (1999): Emersion and subaerial exposure in the Silurian of Gotland - response to a mid-Homerian glaciation. GFF 121, 78-79.
Calner, M. & Säll, E., (1999): Transgressive oolites onlapping a Silurian rocky shoreline unconformity, Gotland, Sweden. GFF 121, 91-100.
Calner, M. and L. Jeppsson 1999. Emersion and subaerial exposure of Gotland - response to a mid-Homerian glaciation. GFF 121: 78-79.
Calner, M., (1999): Comments to the mid-late Homerian (Silur) sea-level curve. In M. Eriksson (ed.): Lundadagarna VI, 15-16 March. Lund Publications in Geology 144, p. 7.
Calner, M., (1999): Stratigraphy, facies development, and depositional dynamics of the Late Wenlock Fröjel Formation, Gotland, Sweden. GFF 121, 13-24.
Calner, M., 1998a: Facies development on a regressive Silurian mixed carbonate-siliciclastic ramp, Gotland, Sweden. Abstracts, 23rd Nordic Geological Winter Meeting, Aarhus, January 1998, p. 45.
Calner, M., 1998b: Erosion and sedimentation in the Silurian Baltic Basin, Gotland (Sweden) - coeval with faunal extinction and a sea-level fall and rise. Geological Society of America, annual meeting, Toronto 26-29 Oct. 1998, Abstracts with programs 30 (7), p. 195. case study from the Silurian and Lower Devonian. Cambridge University Press.
Carls, P. & Valenzuela-Ríos, J.I. 1999. Similitudes y diferencias estratigráficas entre el Pridoliense-Praguiense celtibérico y armoricano [Stratigraphic similarities and differences between the Celtiberian and Armorican sucession during the Pridoli-Pragian]. Revista Española de Paleontología, 14 (2), 279-292.
Checa, A.G., Histon, K. & Sandoval, J. (1999) Cephalopod accumulations linked to condensation episodes in the Jurassic of the Subbetic (Southern Spain) and in the Carnic Alps (Austria). In Histon, K. (Ed.) V International Symposium Cephalopods – Present and Past. Abstracts Volume. -Ber. Geol. Bundesanst. 46, 26, Wien 1999
Chen X. And Wang X., 1999. Early paleozoic chrono- and sequence- stratigraphy in the Yang Gorges area, China with an approach of palaeobiogeography. Gondwana Research. 2(4): 627-633.
Chen X. And Wang X., 1999. Multiple stratigraphic subdivision and sea level changes of the Early Paleozoic in Yangtze Gorges area. Geology and Mineral Resources of South China. 3: 1-11.

Chen X. and Wang X., 1999. Sequence stratigraphy and depositional enviroments of the Late Sinian-Early Cambrian black rock series in western Hunan and iits origins. Acta Geoscientia Sinica. 20(1): 87-95

Chen X. And Wang X., 1999.Palaeogeography and biogeography of Silurian in China. Professional Paper of Stratigraphy and Palaeotology. 27:54-71.

Chlupac, I., V. Havlicek, J. Kriz, Z. Kukal, and P. Storch. 1998. Paleozoic of the Barrandian (Cambrian to Devonian). Cesky geologicky ustav, 1 - 183, Praha.

Cocks, L.R.M. & Zhan Ren-bin 1998. Caradoc brachiopods from the Shan States, Burma (Myanmawr). Bulletin of the Natural History Museum (Geology), 54,109-130, pls 1-5.

Cocks, L.R.M. 1999. Ordovican geography of South-east Asia. Acta Universitatis Carolinae, 43, 513-514.

Copper, P. 1999. Brachiopods during and after the Late Ordovician mass extinctions on Anticosti Island, E Canada. Acta Universitatis Carolinae. Geologica 43: 207-209.

Corradini C. & Serpagli E., 1999. A Silurian conodont zonation from late Llandovery to end Pridoli in Sardinia. In: Serpagli,E. (ed), Studies on Conodonts, Proceedings of the Seventh European Conodont Symposium, Boll. Soc. Paleont. Ital., 37(2/3)(1998), 255-283.

Corradini C., Ferretti A. & Serpagli E., 1999. Updated conodont biostratigraphy of the Sardinian Ockerkalk (late Silurian). In: R. Feist, J. Talent & B. Orth (Eds), Abstract book-Errachidia meeting SDS-IGCP 421, April 23rd-May 1st 1999, 9-11.

Desrochers, A., Copper, P., and Long, D.G.F., 1998. Sedimentology and paleontology of Early Ordovician through Early Silurian shallow-water carbonates of the Mingan Islands and Anticosti Island. Geological Association of Canada/Mineralogical Association of Canada, Joint Annual Meeting, Quebec City, 20 26 May, 1998. Field Trip B8 Guidebook. 97 p.

Desrochers, A., D'Iorio, M., Gauthier, E., Copper, P., and Long, D.G.F., 1998. A new look at bedrock and surface geology of the Anticosti Island using airborn C-Band radar Images. Geological Association of Canada – Mineralogical Association of Canada, Annual Meeting May 1998, Quebec City, Canada. Abstract Volume 23: A44.

Díaz Martínez, E., Acosta, H., Rodríguez, R., Carlotto, V. y Cárdenas, J., 1999. Evidence for the latest Ordovician-Early Silurian glaciation in the Peruvian Altiplano: tectonic implications. 4th International Symposium on Andean Geodynamics, Göttingen. Expanded abstracts, p. 214-218.

Díaz Martínez, E., Acosta, H., Rodríguez, R., Carlotto, V. y Cárdenas, J., 1999. La glaciación del límite Ordovícico-Silúrico en el Altiplano de Perú: evidencias e implicaciones tectónicas. Geogaceta, vol. 26, in press.

Domagala, J., Bultitude, R. J., Donchak, P. J. T., Fordham, B. G., Jell, J. S., & Fanning, M. (1998). Tectonic setting implications from greywacke provenance data from the Hodgkinson Province. Abstracts, Geological Society of Australia, 49: 116.

Elias, R.J. and G.A. Young. 1998. Coral diversity, ecology, and provincial structure during a time of crisis: the latest Ordovician to earliest Silurian Edgewood Province in Laurentia. Palaios, 13: 98-112.

Elias, R.J., , G.A.Young, G.S. Nowlan, E.P. Dobrzanski and D.M. Rudkin 1999 Ordovician-Silurian boundary section discovered near Churchill, Manitoba: preliminary report. in Kraft, P. & Fatka, O. (Eds.) Quo vadis Ordovician?: Acta Universitatis Carolinae, Geologica, v. 43, no. 1/2, p. 229-232.

Elias, R.J., Young, , G.A.,Nowlan, G.S., Dobrzanski, E.P., and Rudkin, D.M. 1999 Ordovician-Silurian boundary section discovered near Churchill, Manitoba: preliminary report. in Kraft, P. & Fatka, O. (Eds.) Quo vadis Ordovician?: Acta Universitatis Carolinae, Geologica, v. 43, no. 1/2, p. 229-232.

Ettensohn, F. and Brett, C.E., 1998 Tectonic components in third order Silurian cycles: Examples from the Appalachian Basin and global implications. In Landing, E., ed., New York State Museum Bulletin 491, p. 143-162.

Fagerstrom, J.A., West, RR., Kershaw, S. and Cossey, P.J. (in press). Spatial competition among clonal organisms in extant and selected Paleozoic reef communities. Facies, 42, 1-24. Gubanov, A. P. 1998. Species diversity of Silurian gastropods in relation to abiotic events. Bulletin of the New York State Museum 491, 209-213.

Ferretti, A. & Histon, K. 1998 Cephalopod Limestone Biofacies, Carnic Alps, Austria. SW Iberia Field Meeting of the Subcommision Silurian Stratigraphy, Madrid June 15-18th. Abstract Volume. Gutiérrez- Marco, J.C. and Rabano, I. (Eds.) Proceedings of the Sixth International Graptolite Conference of the GWG (IPA) and the 1998 Field Meeting of the International Subcommission on Silurian Stratigraphy (ICS.IUGS). Instituto Tecnológico Geominero de Espana, Temas Geológico-Mineros, 23, p. 76-79. Madrid

Ferretti, A., Gnoli , M. & Vai, G.B.,1999, Silurian to Lower Devonian Communities of Sardinia. In: A.J. Boucot & J.D. Lawson (Eds): Paleocommunities-a case study from the Silurian and Lower Devonian, Cambridge Univ. Press, 271-281.

Ferretti, A., Histon, K. & Schönlaub, H. P., 1999, The Silurian and Early Devonian of the Rauchkofel Boden Section, Southern Carnic Alps, Austria. In: K. Histon (Ed.), V International Symposium: Cephalopods - Present and Past. Carnic Alps Excursion Guidebook, Ber. Geol. Bundesanst. 47: 55-62, 6 figs.

Fordham, B. G. (1998). Silurian time: how much of it was Prídolí? In: Gutiérrez-Marco, J. C. & Rábano, I. (Ed.), Proceedings of the Sixth International Graptolite Conference of the GWG (IPA) and the 1998 Field Meeting of the International Subcommission on Silurian Stratigraphy (ICS-IUGS): 80 -84. Instituto Tecnológico Geominero de España, Madrid (Temas Geológico-Mineros, 23).

Fordham, B. G. (1998). Concentration (and transport?) of conodonts in internal sediments in limestone breccias: Silurian - Lower Devonian Chillagoe "Formation", "Bellevue" area, Hodgkinson Province, north Queensland, Australia. In: Bagnoli, G. (Ed.), Seventh International Conodont Symposium Held in Europe. Abstracts: 36 - 38. Tipografia Compositori, Bologna.

Fordham, B. G. (1999). Discussion of "Palaeozoic timescales" by Fons VandenBerg The Australian Geologist 111: 6 - 8.

Fordham, B. G., Murray, C. G., Hayward, M. A., Simpson, G. A., & Blake, P. R. (1998). Basin history of the Yarrol Block: steady tectonic subsidence and repeated forearc development from Silurian to Permian Abstracts, Geological Society of Australia, 49: 151.

Frest, T.J., Brett, C.E., and Witzke, B.J., 1999, Caradocian-Gedinnian echinoderm associations of central and eastern North America, in Boucot, A.J., and Lawton, J.D., eds., Paleocommunities: A case study from the Silurian and Lower Devonian: Cambridge Univ. Press, p. 638-783.

Gnoli, M. & Histon, K. 1998 Silurian Nautiloids from the Carnic Alps, A preliminary investigation. Bollettino della Societê Paleontologica Italiana, 36 (3), 311-330, 4pls.

Gnoli, M.,1998, A further contribution towards the taxonomic revision of Silurian Nautiloid cephalopods erected and/or reported by J. Barrande in the last century in the Barrandian (Central Bohemia): Acta Universitatis Carolinae-Geologica 1997,41(1),15-45.

Grahn, Y. 1998: Lower Silurian (Llandovery - middle Wenlock) Chitinozoa and biostratigraphy of the mainland of Sweden. GFF 120, 273-283.

Grahn, Y. 1998: Lower Silurian (Llandovery - middle Wenlock) Chitinozoa and biostratigraphy of the mainland of Sweden. GFF 120, 273-283.

Grahn, Y. 1999: Chapter 6. Recent Progress in the Silurian and Devonian Biostratigraphy of the Paraná Basin in Brazil and Paraguay. In: Rodrigues, M.A. and Pereira, E (Eds.): Ordovician - Devonian palynostratigraphy in western Gondwana: update, problems and perspectives, 147-163. Faculdade de Geologia, UERJ, Rio de Janeiro.

Grahn, Y. 1999: Chapter 6. Recent Progress in the Silurian and Devonian Biostratigraphy of the Paraná Basin in Brazil and Paraguay. In: Rodrigues, M.A. and Pereira, E (Eds.): Ordovician - Devonian palynostratigraphy in western Gondwana: update, problems and perspectives, 147-163. Faculdade de Geologia, UERJ, Rio de Janeiro.

Gubanov, A. P. 1998. Reconstruction of the Silurian palaeobasin in the Siberian platform. 91-93. In: Gutiérez-Marco, J. C. and Rábano, I (eds). Proceedings of the Sixth International Graptolite Conference of the GWP (IPA) and the 1998 Field Meeting of the International Subcomission on Silurian Stratigraphy (ICS-IUGS). Instituto Tecnológico Geominero de España, Madrid, Temas Geológico-Mineros, 23, 337pp.

Gubanov, A. P. and Tait, J. 1998. Maclurites (Mollusca) and Ordovician palaeogeography. Schriften des Staatlichen Museums für Mineralogie und eologie zu Dresden 9, 140-142.

Gubanov, A.P. and Bogolepova, O.K. 1999. Minute fossils from the Ordovician Uggwa Limestone of the Austrian Carnic Alps. Acta Universitatis Carolinae, Geologica, 43, no 1/2, 417-420.

Gubanov, A.P., Ebbestad, J.O.R. and Bogolepova, O.K. 1999. Microcommunity of the Boda Limestone (Upper Ordovician, Sweden). Acta Universitatis Carolinae, Geologica, 43, no 1/2, 421-423.

Gutiérrez-Marco, J.C. & Rábano, I. 1999. Paleontología del Neoproterozoico y Paleozoico Inferior de Castilla-La Mancha. [Neoproterozoic and Lower Palaeozoic palaeontology in the Community of Castile-La Mancha]. In Aguirre, E. & Rábano, I. (Ed.): La huella del pasado: fósiles de Castilla-La Mancha. Junta de Comunidades de Castilla-La Mancha, Serie "Patrimonio Histórico. Arqueología de Castilla-La Mancha", n1 16, Toledo, 25-50.

Gutiérrez-Marco, J.C. 1999. Algunos ejemplos inusuales de nematulario en graptolitos silúricos del noreste de España [Some unusual nematularia in Silurian graptolites from norteastern Spain]. Temas Geológico-Mineros ITGE, 26 (1), 239-243.

Gutiérrez-Marco, J.C., Roqué Bernal, J., Robardet, M. & Ibáñez Sotillos, R. 1999. Graptolitos de la Biozona de Coronograptus cyphus (Rhuddaniense: Silúrico Inferior) en el área del Montseny (Cadenas Costeras Catalanas, noreste de España) [Graptolites from the Coronograptus cyphus Biozone (Rhuddanian: Lower Silurian) in the Montseny area, Catalonian Coastal Ranges (northeast Spain)]. Temas Geológico-Mineros ITGE, 26 (2), 618-622.

Gutiérrez-Marco, J.C., Ferrer, E., Robardet, M. & Roqué Bernal, J. 1999. Graptolitos multiramosos del Devónico de las Cadenas Costeras Catalanas (noreste de España) [Multiramose graptolites from the Devonian of the Catalonian Coastal Ranges, northeast Spain]. Temas Geológico-Mineros ITGE, 26 (2), 610-617.

Gutierrez-Marco, J. C., Yanev S. N., Sachanski, V.V. 1999. Braquiopodos inarticulados del Ordovicico Inferior de la Unidad Ranovac-Vlasina ("Supragethicum") y paleobiogeografia de las unidades tectonicas balcanides de Serbia oriental (Yugoslavia). Temas Geologico - Mineros ITGE, 26, 566-574.

Gutiérrez-Marco, J.C., and Lenz, A.C. 1998. Graptolite synrhabdosomes: biological or taphonomic entities? Paleobiology, 24: 37-48.

Gutiérrez-Marco, J.C., and Štorch, P. 1998. Graptolite biostratigraphy of the lower Silurian (Llandovery) shelf deposits of the Western Iberian Cordillera, Spain. Geol. Mag., 135, 1, 71-92. Cambridge.

Harris, M.T., Kuglitsch, J.J., Watkins, R., Hegrenes, D.P., and Waldhuetter, K.R., 1998. Early Silurian stratigraphic sequences of eastern Wisconsin. New York State Museum Bulletin 491, p. 39-49.

Havlícek, V., and Štorch, P. 1999. Silurian and Lochkovian communities in the Prague basin (Barrandian area, Czech Republic).- In Boucot, A.J., and Lawson, J.D. (eds.): Palaeocommunities - a case study from the Silurian and Lower Devonian. World and Regional Geology 11. Cambridge University Press. Cambridge. 200-228.

Histon, K & Schönlaub, H.P. (1999). Taphonomy, Paleoecology and Bathymetric implications of the Nautiloid Fauna from the Silurian of the Cellon Section (Carnic Alps, Austria). In Feist & Talent (Eds) Proceedings of the First International Conference on North Gondwanan Mid-Palaeozoic Biodynamics (IGCP Project 421). Abh. Geol.B.-A., 54, 259 -274, 18 figs.

Histon, K. & Gnoli, M. 1999 Nautiloid Paleobathymetry from the Silurian 'Orthoceras limestone' facies of SW Sardinia, Italy. In Oloriz & Rodriguez-Tovar(Eds.) Advancing Research in Living and Fossil Cephalopods, Chapter 27, 381-394, 4 figs, 2 tables. Kluwer Academic / Plenum Publishers, New York.

Histon, K. (1999) Revision of Silurian Nautiloid cephalopods from the Carnic Alps (Austria) - The Heritsch (1929) Collection in the Geological Survey of Austria. In Lobitzer & Grecula (Eds) Geologie ohne grenzen – Festschrift 150 Jahre Geologische Bundesanstalt. Abh. Geol.B.-A., 56, 229 - 258, 3 figs, 7 pls, 1 table.

Histon, K. (1999) Telescoping in orthoconic nautiloids: an indication of high or low energy hydrodynamic regime ?. In Histon, K. (Ed.) V International Symposium Cephalopods – Present and Past. Abstracts Volume. -Ber. Geol. Bundesanst. 46, 48, Wien 1999.

Histon, K. (Ed.) 1999 V International Symposium Cephalopods – Present and Past. Carnic Alps Excursion Guidebook. -Ber. Geol. Bundesanst. 47, 1-84, Ill., Wien 1999

Histon, K. 1998. Die Nautiloideen-Fauna aus dem Silur der Karnischen Alpen.. Geol. Paläont. Mitt. Innsbruck. Band 23, 105-115, 4 figs, 2 tables.

Histon, K. 1999 Silurian Cephalopod Limestone Facies in the Carnic Alps (Rauchkofel Boden Section, Austria): Taphonomy of the Nautiloid Fauna. In Oloriz, F. & Rodriguez-Tovar, F.J.(Eds.) Advancing Research in Living and Fossil, Chapter 26, 365-379, 8 figs, 2 tables. Kluwer Academic / Plenum Publishers, New York.

Histon, K., Ferretti, A. & Schönlaub, H. P., 1999, Silurian Cephalopod Limestone sequence of the Cellon Section, Carnic Alps, Austria. In: K. Histon (Ed.), V International Symposium: Cephalopods - Present and Past. Carnic Alps Excursion Guidebook, Ber. Geol. Bundesanst. 47: 46-54, 4 figs.

Histon, K., Ferretti, A. & Schönlaub, H. P., 1999, The Upper Silurian sequence at the Valentintörl section. In: K. Histon (Ed.), V International Symposium: Cephalopods - Present and Past. Carnic Alps Excursion Guidebook, Ber. Geol. Bundesanst. 47: 64-68, 4 figs.

Iordan Magdalena, 1999a. Biostratigraphy of the Paleozoic from the foreland of the Romanian Carpathians. Rom. J. Tect. Reg. Geol. 77, suppl. no.1, 59-60. Abstracts volume of the Joint Meeting of

EUROPROBE TESZ, PANCARDI and Georift Projects “Dobrogea – the interface between the Carpathians and the Trans-European Suture Zone”, Tulcea, 1999.

Iordan Magdalena, 1999b. Biostratigraphy of the Paleozoic in North Dobrogea. Rom. J. Tect. Reg. Geol. 77, suppl. no.2, 23-24. Excursion Guide of the Joint Meeting of EUROPROBE TESZ, PANCARDI and Georift Projects “Dobrogea – the interface between the Carpathians and the Trans-European Suture Zone”, Tulcea, 1999.

Iordan Magdalena, 1999c. Biostratigraphy of the Paleozoic in the Moesian Platform.: Rom. J. Tect. Reg. Geol. 77, suppl. no.2, 18-23. Excursion Guide of the Joint Meeting of EUROPROBE TESZ, PANCARDI and Georift Projects “Dobrogea – the interface between the Carpathians and the Trans-European Suture Zone”, Tulcea, 1999.

Jacyna J., Lazauskiene J., 1998. Oil recourses and exploration in Lithuania. Lietuvos Mokslas. Vilnius. 160-171. (in Lithuanian)

Jacyna, J., J.Lazauskiene, S.Sliaupa. 1999. The Baltic sedimentary basin: a status report from the task force of the sedimentary basin analysis and modelling program. Seventh EUROBRIDGE workshop, Warsaw. 39-42.

Jacyna, J., J.Lazauskiene. 1999. Geological structure and oil potential of the transitional facial zone of the Silurian Baltic Basin. The fourth Baltic stratigraphical conference, Abstracts, Riga. 35-37.

Jeppsson, L. 1998a. Silurian oceanic events: Summary of general characteristics, p. 239-257. In E. Landing and M.E. Johnson (eds.), Silurian cycles: Linkages of dynamic stratigraphy with atmospheric, oceanic, and tectonic changes. New York State Museum Bulletin 491.

Jeppsson, L. 1998b. The cause of the biomeres - a comparison with Silurian oceanic cycles, p. 11-12. In P. Ahlberg, M. Eriksson and I. Olsson (eds.), IV Field conference of the Cambrian stage subdivision working group. International Subcommission on Cambrian stratigraphy. Sweden 24-31 August 1998. Lund Publications in Geology 142.

Jeppsson, L. and R. Anehus 1999: A new technique to separate conodont elements from heavier minerals. Alcheringia 23: 57-62. Jeppsson, L. (ed.) 1999: Allekvia News p. 1-4.

Jeppsson, L., R. Anehus and D. Fredholm 1999. The optimal acetate buffered acetic acid technique for extracting phosphatic fossils. Journal of Paleontology 73: 957-965. Jin J. and Copper, P. 1999. Deep-water brachiopod Dicoelosia from the Early Silurian carbonate ramp-shelf of Anticosti Island, eastern Canada. Journal of Paleontology, v. 73, pp. 1042-1055.

Jin, J. and Copper, P. 1998. Kulumbella and Microcardinalia (Chiastodoca) new subgenus, Early Silurian divaricate stricklandiid brachiopods from Anticosti Island, eastern Canada. Journal of Paleontology, v. 72, pp. 441-453.

Jin, J., Haidl, F.M., Bezys, R.K., and Gerla, G. 1999. The Early Silurian Virgiana brachiopod beds in the northeastern Williston Basin, Manitoba and Saskatchewan. Summary of Investigations 1997, Saskatchewan Geological Survey, Miscellaneous Report 99-4.1, pp. 3-11.

Jin, J.S. & Copper, P. 1999. Early Silurian Dicoelosia brachiopods from Anticosti Island, E. Canada. Journal of Paleontology 73 (3): 136-149. [A]

Jin, J.S. & Copper, P. 1998. Kulumbella and Microcardinalia (Chiastodoca) new subgenus, Early Silurian divaricate stricklandiid brachiopods from Anticosti Island, eastern Canada. Journal of Paleontology 72(3): 441-453, 9 text-figs.

Johnson, M.E and Baarli, B. G. 1999. Diversification of rocky-shore biotas through geologic time. Geobios, v. 32, p. 257-273. [includes discussion of Silurian faunas]

Johnson, M.E., Rong, J-Y. and Kershaw, S. 1998. Calibrating Silurian eustasy against the erosion and burial of coastal palaeotopography. pp3-13 In: Landing, E. and Johnson, M.E. (eds). Silurian Cycles: linkages of dynamic stratigraphy with atmospheric, oceanic and tectonic changes; James Hall Centennial Volume. New York State Museum Bulletin, 491. University of the State of New York, The State Education Department.

Jowett, D.M.S. and C.R. Barnes (August 1999). Lower Silurian biostratigraphy of the Cape Phillips Formation, Canadian Franklinian Miogeocline, Cornwallis Island, Arctic Islands. XIV International Congress on the Carboniferous and Permian, Pander Society, Canadian Paleontology Conference Programme with Abstracts: 70.

Kaljo, D., Martma, T., Mannik, P. & Viira, V. 1999. Silurian oceanic episodes and carbon isotope shifts: a preliminary Baltic comparison. In: Luksevics, E., Stinkulis, G. & Kalnina, L. (eds.) The Fourth Baltic Stratigraphical Conference. Problems and Methods of Modern Regional Stratigraphy. Abstracts. Riga, 40-42.

Kershaw, S. 1998. The Applications of stromatoporoid palaeobiology in palaeoenvironment analysis. Palaeontology, 41, 509-544.

Kershaw, S. and Brunton, F. 1999. Palaeozoic stromatoporoid taphonomy: ecologic and environmental significance. Palaeogeography, Palaeoclimatology, Palaeoecology, 147, 1-16.

Kleffner, M. A., and Rexroad, C. B., 1999. Preliminary conodont biostratigraphy of the Salina Group (Silurian) of the northern Indiana subsurface and recognition of the Wenlock/Ludlow boundary (abs.). American Association of Petroleum Geologists Eastern Section Twenty-Eighth Annual Meeting Program with Abstracts, p. 33-34

Kleffner, M. A., Norby, R. D., Kluessendorf, J., and Mikulic, D. G., 1999. Lower Silurian conodont biostratigraphy of southeastern Wisconsin (abs.). The Geological Society of America Abstracts with Programs, 31(5):A28.

Kluessendorf, Joanne, and Donald G. Mikulic. 1999. The Mississinewa Fossil Lagerstätte Revisited. In J. Sunderman, et al (eds) Silurian reefs and interreef strata of northeastern Indiana guidebook and conference program: 27-31.

Kozlowska-Dawidziuk A. 1999. Wydarzenie *Cyrtograptus lundgreni* a rozwoj retiolitow (Graptolitina) na platformie wschodnioeuropejskiej. Przeglad Geologiczny 47, 354-358.

Kozlowska-Dawidziuk, A. 1998. Diversity of siculae length in retiolitids. Temas Geologico-Mineros ITGE, 23, 205-208.

Kozlowska-Dawidziuk, A. 1998. Ultrastructural study on retiolitid graptolites. Lethaia 31, 42.

Kozlowska-Dawidziuk, A. 1998. XVI Konferencja Paleontologow - Wiktorowo 02-04. 1998. Przeglad Geologiczny 46, 1203-1204.

Kozlowska-Dawidziuk, A., Lenz, A.C. and Storch, P. 1998. Late Homerian-early Ludlow post-extinction graptolites, Vseradice, Czech Republic. Proc. 6th International Graptolite Conference and 1998 Field Meeting, IUGS Subcommission on Silurian Stratigraphy (J.C. Gutiérrez-Marco and I. Rábano, eds.). Temas Geológico-Mineros ITGE, vol. 23: 212-214, Madrid.

Kozlowska-Dawidziuk, A., Lenz, A.C. and Storch, P. 1998. Late Homerian-early Ludlow post-extinction graptolites, Vseradice, Czech Republic. Temas Geológico-Mineros ITGE,. 23: 212-214, Madrid.

Kozlowska-Dawidziuk, A., Lenz, A.C., and Štorch, P. 1998. Late Homerian-early Ludlow post-extinction graptolites, Všeradice, Czech Republic.- In Gutiérrez-Marco, J.C. - Rábano, I. (eds): Proceedings of the Sixth International graptolite Conference of the GWG (IPA) and the SW Iberia Field Meeting 1998 of the International Subcommission on Silurian Stratigraphy (ICS-IUGS). Temas Gológico-Mineros ITGE, 23, 289-318. Madrid.

Kriz, J. (1999). Bivalvia dominated communities of Bohemian type from the Silurian and Lower Devonian carbonate facies. - Cambridge University Press, 225-248.

Kriz, J. (1999). Cephalopod limestone biofacies on the northern slopes of the Silurian volcanic archipelago in the Prague Basin containing re-described benthic Cardiola donigala - Slava cubicula Community (Bivalvia, Barrandian, Bohemia). - J. Czech Geol. Soc., 44(1-2):159-165, Praha.

Kriz, J. (1999). Geological monuments of Prague (Proterozoic and Lower Paleozoic). Cesky geologicky ustav, 1-280, Praha.

Kriz, J. (1999). Joachim Barrande (1799 - 1883). Cesky geologicky ustav, 1-42, Praha.

Kriz, J. (1999). Joachim Barrande (1799 - 1883). Cesky geologicky ustav, 1-42, Praha.

Kriz, J. (1999). Silurian and lowermost Devonian Bivalve of Bohemian type from the Carnic Alps. Abhandlungen der Geologischen Bundesanstalt, 56, Wien.

Kriz, J. (1999). Silurian Bivalvia - evolution, palaeocology, palaeogeography, importance for biostratigraphy and correlation. Abh. Geol. B.-A., 54:377-384, Wien.

Kriz, J. 1998. Recurrent Silurian-lowest Devonian cephalopod limestones of Gondwanan Europe and Perunica.- In: Landing, E. & Johnson, M. E. (eds.), Silurian cycles: Linkages of dynamic stratigraphy with atmospheric, oceanic, and tectonic changes.- New York State Museum Bulletin, 491 : 183-198, Albany.

Kriz, J. 1998. Taxonomy, functional morphology and autecology of the sinistrally twisted bivalve Vlasta BARRANDE, 1881 from the Lower Devonian of Bohemia, Morocco and Central Asia. GEOBIOS, 31 (4) : 455 - 465, Villeurbanne.

Kriz, J. 1998. Taxonomy, functional morphology and autecology of the sinistrally twisted bivalve Vlasta BARRANDE, 1881 from the Lower Devonian of Bohemia, Morocco and Central Asia. GEOBIOS, 31 (4) : 455 - 465, Villeurbanne.

Kriz, J., and Boucot, A. J. (1999). Definition of the terms "homologous" and "analogous" community. Cambridge University Press, 32.

Lazauskienë J., Jacyna J., 1998. Offshore Oil Resources of Lithuania. Energy News No. 3(13), 22-23

Lazauskiene J., Sliaupa S., Poprawa P., Stephenson R. 1997. Modelling of the subsidence of the Baltic sedimentary basin during Palaeozoic. Geologijos akiraèiai 3, 26-33 (in Lithuanian)

Lazauskiene J., Sliaupa S., Poprawa P., Stephenson R.A. and Van Wees J.-D., 1998. Flexural model of the Silurian Baltic Basin on the Western margin of the East European Craton. EGS Abstracts 16 ,C63

Lazauskiene J., Sliaupa S., Stephenson R.A., 1998. 3D Flexural Model of the Silurian Foreland Basin in the Baltic region. Perspectives of petroleum exploration in the Baltic region. Abs., 101-103.

Lazauskiene, J, J.Jacyna. 1999. 2D sedimentary modelling of the Silurian Baltic Basin. The fourth Baltic stratigraphical conference, Abstracts, Riga. 47-49.

Lazauskiene, J.& Musteikis, P. 1999. Modelling of the sedimentary fill of the Baltic Silurian Basin. European EUG-10 Abstracts, Strasbourg: 310.

Lebold, J.G. 1998. Analysis of epizoans on Silurian stromatoporoids within the Brassfield Formation near Fairborn, Ohio. Geological Society of America Abstracts with Programs, 30(2):31.

Lehnert, O., Bergström, S. M., Benedetto, J. L. & Vaccari, N. E. (1999): First record of Lower Silurian conodonts from South America: biostratigraphic and paleobiogeographic implications of Llandovery conodonts in the Precordillera of Argentina. - Geological Magazine, 136 (2): 119-131; London.

Lenz, A.C. 1999. Wenlockian to Pragian brachiopod communities of the northern Canadian Cordillera. In: Paleocommunites: a case study of the Silurian and Lower Devonian, edited by A.J. Boucot and J.D. Lawson. Cambridge University Press, pp. 784-792.

Lenz, A.C. and Kozlowska-Dawidziuk. 1998. Sicular annuli and thickened interthecal septa in Silurian graptolites: new information. Proc. 6th International Graptolite Conference and 1998 Field Meeting, IUGS Subcommission on Silurian Stratigraphy (J.C. Gutiérrez-Marco and I. Rábano, eds.). Temas Geológico-Mineros ITGE, vol. 23: 97-100, Madrid.

Little, C. Morris, N., Maslennikov, V. and Gubanov, A. P. 2000. Two Palaeozoic hydrothermal vent community from the southern Urals, Russia. Palaeontology 43.

Loydell, D. K. and Fone, W. 1998. Graptolites from the Lower Elton Formation (Ludlow) of Shadwell Rock quarry, Shropshire. Geological Journal, 33, 147–148.

Loydell, D.K. Zalasiewicz, J.A. & Cave, R. 1998. Predation on graptolites: new evidence from the Silurian of Wales. Palaeontology, 41, 423-427.

Lüning, S., Craig, J., Fitches, B., Mayouf, J., Busrewil, A., El Dieb, M., Gammudi, A., Loydell, D. and McIlroy, D. 1999. Re-evaluation of the petroleum potential of the Kufra Basin (SE Libya, NE Chad): does the source rock barrier fall? Marine and Petroleum Geology, 16, 693–718.

MacDonald, E.W. (in press). Insolitignum n.gen. and Palaeoephippium Goodbody, 1986 (Radiolaria) from the Lower Silurian of the Cape Phillips Formation, Arctic Canada. Canadian Journal of Earth Sciences, 36.

MacDonald, E.W. 1998. Llandovery Secuicollactinae and Rotasphaeridae (Radiolaria) from the Cape Phillips Formation, Cornwallis Island, Arctic Canada. Journal of Paleontology, 72: 585-604.

Maletz, J. (1999). Heisograptus micropoma (Jaekel) in a north German glacial erratic boulder. - Greifswalder Geowissenschaftliche Beiträge 6, 279-290.

Maletz, J. (1999). Lowermost Silurian graptolite faunas of the Deerlijk 404 well, Brabant Massif (Belgium). - Neues Jahrbuch für Geologie und Paläontologie, Abhandlungen 213, 335-354.

McCann T., Sliaupa S., Poprawa P., Narkiewicz M., Matyja H., Lipiec M. and Lazauskienë J., 1997. The Devonian-Carboniferous tectonic evolution of selected intracratonic and passive margin basins from Central and Eastern Europe: constraints from subsidence analysis. Terra Nostra 97/11, 85-89.

Melchin, M. J., Russel, J. C., Koren', T. N., and Mitchell, C. E., 1999. Observations of graptolite growth patterns made using infrared video microscopy: paleobiologic and phylogenetic implications. Ninth Canadian Paleontology Conference, Calgary, Alberta, August, 1999, Program with Abstracts.

Melchin, M.J. 1998. Morphology and phylogeny of some Early Silurian "diplograptid" genera from Cornwallis Island, Arctic Canada. Palaeontology, 41, 263-326.

Melchin, M.J. 1999. Extinction events of the Late Ordovician and Early Silurian: the impact of global environmental changes associated with glaciation. GAC/MAC Joint Annual Meeting, May 26-28, 1999, Sudbury, Program with Abstracts.

Melchin, M.J. and Anderson, A.J. 1998. Infrared video microscopy for the study of graptolites and other organic-walled fossils. Journal of Paleontology, 72:397-400.

Melchin, M.J., Koren', T.N. and Lukasik, J.J. 1998. Morphology and phylogeny of some Rhuddanian monograptids from the South Urals and Artic Canada based on observations from Infrared Video Microscopy. In Proceedings of the Sixth International Graptolite Conference of the GWG (IPA) and the 1998 Field Meeting of the International Subcommission on Silurian Stratigraphy (ICS-IUGS), Gutiérrez-Marco, J.C. and Rábano, I. (eds.). Instituto Tecnológico Geominero de España, Temas Geológico-Mineros, 23, pp. 220-221.

Melchin, M.J., Koren', T.N. and Williams, S.H.1998a. Global correlation of the lower part of the earliest Silurian *Akidograptus ascensus-Parakidograptus acuminatus* Zone. In Proceedings of the Sixth International Graptolite Conference of the GWG (IPA) and the 1998 Field Meeting of the International Subcommission on Silurian Stratigraphy (ICS-IUGS), Gutiérrez-Marco, J.C. and Rábano, I. (eds.). Instituto Tecnológico Geominero de España, Temas Geológico-Mineros, 23, pp. 107-108.

Melchin, M.J., Koren, T.N., and Štorch, P. 1998. Global diversity and survivorship patterns of Silurian graptoloids. In Landing, E., and Johnson, M.E. (eds): Silurian Cycles: linkages of dynamic processes in the atmosphere and oceans. N.Y. st. Mus. Bull., 491, 165-182. Albany.

Melchin, M.J.1998. A hydrodynamic function for the graptoloid virgella. In Proceedings of the Sixth International Graptolite Conference of the GWG (IPA) and the 1998 Field Meeting of the International Subcommission on Silurian Stratigraphy (ICS-IUGS), Gutiérrez-Marco, J.C. and Rábano, I. (eds.). Instituto Tecnológico Geominero de España, Temas Geológico-Mineros, 23, pp. 218-219.

Mikulic, Donald G. 999. Silurian trilobite associations in North America. In: A.J. Boucot & J.D. Lawson (eds) Paleoecommunities: a case study from the Silurian and Lower Devonian, Cambridge University Press: 793-798.

Mikulic, Donald G. and Joanne Kluessendorf. 1999. Stasis and extinction of Silurian (Llandovery-Wenlock) trilobite associations related to oceanic cyclicity, Journal of Paleontology 73: 320-325.)

Mikulic, Donald G., and Joanne Kluessendorf. 1999. The classic Silurian reefs of the Chicago area. Illinois State Geological Survey Guidebook 29, 42 pp.

Mikulic, Donald G., and Joanne Kluessendorf. 1999. The discovery of Silurian reefs in Indiana. In J. Sunderman, et al (eds) Silurian reefs and interreef strata of northeastern Indiana guidebook and conference program: 37-40.

Miller, C. G. and Marss, T. A conodont, thelodont and acanthodian fauna from the lower Pridoli (Silurian) of the Much Wenlock area, Shropshire. Palaeontology, 42(4), 691-714.

Modzalevskaya T. & Wenzel B. Biostratigraphy and geochemistry of Upper Silurian brachiopods from the Timan-Pechora region (Russia). Acta geologica Polonica, vol. 49 (1999), No.2. Pp.145-157.

Nestor H. & C.W. Stock. 1999. Recovery of stromatoporoid fauna from the end-Ordovician mass extinction. 8th International Symposium on Fossil Cnidaria and Porifera, Sendai, Japan, Abstract, p. 75.

Nestor V.. 1999. Distribution of chitinozoans in the Llandovery of the Oslo Region. In: Tongiorgi,M & Playford, G. (eds.) -Studies in Palaeozoic palynology. Selected paper from the CIMP Symposium at Pisa, 1998. Boll. Soc. paleont. ital., 38 (2-3): 227-238.

Nestor, H. 1999. Community structure and succession of Baltoscandian early Palaeozoic stromatoporoids. Proceedings of the Estonian Academy of Sciences Geology, 48(3): 123-139.

Nestor, V-K. 1999. Chitinozoans in the Llandovery of the Oslo Region. Abstr. in the Fourth Baltic Stratigraphical Conference. Riga, 75. Nestor, H. 1999. Community pattern and succession of Baltoscandian early Palaeozoic stromatoporoids. The Fourth Baltic Stratigraphical Conference Abstracts, Riga: 73-74.

Ni, Y-n., Lenz, A.C., and Chen, X. 1998. Pridoli graptolites from northern Xinjiang, Northwest China. Canadian Journal of Earth Sciences, **35**: 1123-1133.

Nowlan, G.S. and Haidl, F.M. 1999. New conodont data from the Ordovician -Silurian boundary interval in southeastern Saskatchewan. In: Summary of Investigations, 1999, volume 1, Saskatchewan Geological Survey, Saskatchewan Energy and Mines Miscelllaneous Report 99-4.1, p. 12-16.

O'Brien, N. , Brett, C.E., and Woodard, M. 1998. Shale fabric as a clue to sedimentary processes--Example from the Williamson-Willowvale Shale (Silurian), New York. In Schieber, J., Zimmerle, W., and Parvinder, S.S., eds., Shales and Mudstones. Vol. II. E. Schweizerbart'sche Verlagsbuchhandlung, Stuttgart, p. 55-66.

Paris, F. 1998. Early Palaeozoic palaeogeography of Northern Gondwana. p. 26-27. In Rong Jia-yu, Zhou Zhi-yi & Chen Xu (eds) 1998. Abstracts and Programme for the International Symposium on the Great Ordovician Biodiversification Event (IGCP Project n° 410). Palaeoword , 10: 26-27.

Paris, F. in Dégardin, J.M. coord. . 1998 - Ordovicien supérieur-Silurien. In A. Barnolas et J.C. Chiron eds. Synthèse géologique et géophysique des Pyrénées, Tome 1 - Cycle Hercynien - 1995,. Edition BRGM - ITGE – Orléans edt Madrid, p. 211-233.

Paris, F., Deynoux, M. & Ghienne, J.F. 1998. Découverte de chitinozoaires à la limite Ordovicien-Silurien en Mauritanie); implications paléogéographiques. C.R. Acad Sci. Paris, 326 : 499-504.

Paris, F., Grahn, Y., Nestor, V.& Lakova, I.. 1999 A revised chitinozoan classification. Journal of Paleontology, 73 (4): 547-568.

Paris, F., Grahn, Y., Nestor, V., Lakova, I. 1999. A revised chitinozoan classification. J. Paleont., 73(4), 549-570.

Peel, J. S. and Gubanov, A. P. 1997. Mode of life of an uncoiled Silurian gastropod from Siberia. Bulletin of the Czech Geological Survey 72, (4), 339-344.

Piçarra J. M., le Menn J., Pereira Z., Gourvennec R., Oliveira J.T. & Robardet M. 1999 - Novos dados sobre o Devónico inferior de Barrancos (Zona de Ossa Morena, Portugal). Temas Geológico-Mineros ITGE, vol.26: 628-631.

Piçarra, J.M., Romão, J.C., Gutiérrez-Marco, J.C. & Oliveira, J.T. 1999. Preliminary note on the Ordovician-Silurian stratigraphic sequence of the Serra de Sâo Mamede region, southern border of the Central Iberian Zone, Portugal. Journal of Conference Abstracts, Cambridge, 4 (3), 1018.

Piçarra, J.M., Gutiérrez-Marco, J.C., Lenz, A.C., and Robardet, M. 1998. Prídolí graptolites from the Iberian Peninsula: a review of previous data and new records. Canadian Journal of Earth Sciences, 35: 65-75.

Piçarra, J.M., Le Menn, J., Pereira, Z., Gourvennec, R., Oliveira, J. T. & Robardet, M. 1999. Novos dados sobre o Devónico inferior de Barrancos (Zona de Ossa Morena, Portugal). Temas Geológicos-Mineros ITGE, 26:628-631.

Piçarra, J.M., Romão, J.C., Gutiérrez-Marco, J.C. & Oliveira, J.T. 1999. Preliminary note on the Ordovician-Silurian stratigraphic sequence of the Serra de São Mamede region, southern border of the Central Iberian Zone, Portugal. XV Reunión de Geología del Oeste Peninsular, Journal of Conefrence Abstracts, 4(3):1018.

Poprawa P., Narkiewicz M., Sliaupa S., Stephenson R.A. and Lazauskiene J., 1997. Caledonian accretion along the TESZ (Baltic region to SE Poland). Terra Nostra 97/11, 110-117.

Poprawa P., Sliaupa S., Lazauskiene J. and Stephenson R.A., 1997. Early Palaeozoic subsidence history of the Baltic Syneclise and Podlasie Depression. European EUG-9 Abstracts, Strasburg, 142.

Porawa P., Sliaupa S., Stephenson R., Lazauskiene J. 1998. Late Vendian - Early Palaeozoic tectonic evolution of the Baltic Basin: regional implications from subsidence analysis (accepted for Tectonophysics).

Poussart, P.R., Weaver, A.J. and Barnes, C.R., 1999. Late Ordovician glaciation and high atmospheric CO2: addressing an apparent paradox via a coupled model approach. Acta Universitatis Carolinae, Geologica, v. 43, p. 167-169.

Rabano I., Robardet M. & Gutierrez-Marco J.C. 1999 - The Valle syncline: an exceptional geological area in the Natural Park of the Sierra Norte of Seville (Andalusia, southern Spain). In: Barettino D., Vallejo M. & Gallego E. (Eds.) Towards the Balanced Management and Conservation of the Geological Heritage in the New Millenium, pp. 262-265, Madrid.

Rábano, I., Robardet, M. & Gutiérrez-Marco, J.C. 1999. The Valle syncline: an exceptional geological area in the Natural Park of the Sierra Norte of Seville (Andalusia, southern Spain). In Barettino, D., Vallejo, M. & Gallego, E. (Ed.): Towards the Balanced Management and Conservation of the Geological Heritage in the New Milennium. Sociedad Geológica de España, Madrid, 262-265.

Robardet, M., Picarra, J.M., Štorch, P., Gutiérrez-Marco, J.C., and Sarmiento, G.N. 1998. Ordovician and Silurian stratigraphy and faunas (graptolites and conodonts) in the Ossa Morena Zone of the SW Iberian Peninsula (Portugal and Spain).- In Gutiérrez-Marco, J.C., and Rábano, I. (eds): Proceedings of the Sixth International graptolite Conference of the GWG (IPA) and the SW Iberia Field Meeting 1998 of the International Subcommission on Silurian Stratigraphy (ICS-IUGS). Temas Gológico-Mineros ITGE, 23, 289-318. Madrid.

Rohr D. and Gubanov, A. P. 1997. Macluritid opercula (Gastropoda) from the Middle Ordovician of Siberia and Alaska. Journal of Paleontology 71(3), 394-400.

Roqué, J. 1999. La Biozona ascensus-acuminatus en el Silúrico de las Cadenas Costeras Catalanas (NE de España) [The Silurian ascensus-acuminatus Biozone in the Catalonian Coastal Ranges of NE Spain]. Temas Geológico-Mineros ITGE, 26 (2), 632-637.

Rubinstein, C. & Brussa, E., 1998 Biostratigraphy of the Central Precordillera Silurian basin, Argentina, based on palynomorphs and graptolites. CIMP Symposium and Workshops Pisa 1998. Abstract, p. 23-24.

Rubinstein, C., 1998. Microflora y microplancton silúricos de la Precordillera Central de San Juan, Argentina. XII Simposio de la A.P.L.E. León, septiembre-octubre 1998. Libro de Resúmenes, p. 45.

Rudkin, D.M. and Fenton, P.E. 1999 Lower Silurian (Telychian) reef associated biotas of the Attawapiskat Formation, Akimiski Island, Nunavut, Canada. 21st Annual Royal Ontario Museum Research Colloquium, Abstracts of Papers, Toronto, Ontario, p. 4.

Russel, J. and Melchin, M.J. 1998. A proposed graptolite taphofacies model. In Proceedings of the Sixth International Graptolite Conference of the GWG (IPA) and the 1998 Field Meeting of the International Subcommission on Silurian Stratigraphy (ICS-IUGS), Gutiérrez-Marco, J.C. and Rábano, I. (eds.). Instituto Tecnológico Geominero de España, Temas Geológico-Mineros, 23, pp. 252-254.

Sachanski, V. V. & Gutierrez-Marco, J. C. 1999. Nuevos hallazgos de graptolitos en el Ordovicico de Bulgaria. Temas Geologico - Mineros ITGE, 26, 575-579.

Sachanski, V. V. 1998. Ordovician, Silurian and Devonian graptolites from Bulgaria. Temas Geologico-Mineros ITGE, 23, 255-257.

Sandsröm, O. & Calner, M. 1999: A distal platform reef biostrome from the mid-Silurian Mulde Beds on Gotland, Sweden. In: M. Eriksson (ed.) Lundadagarna i Historisk Geologi & Palaeontologi VI (abstracts). Lund Publications in Geology no. 144. p 27.

Sandström, O. & Calner, M., (1999): A distal platform reef biostrome from the mid-Silurian Mulde Beds on Gotland. In M. Eriksson (ed.): Lundadagarna VI, 15-16 March. Lund Publications in Geology 144, p. 27.

Sandström, O. & Kershaw, S., 1999: Reef biostrome facies models from the Ludlow (Upper Silurian) of Gotland, Sweden. IAS Regional meeting, Copenhagen 1999, Abstract Volume. 218-219.

Sanz-López, J., Valenzuela-Ríos, J.I., García-López, S., Gil Peña, I. & Robador, A. 1999. Nota preliminar sobre la estratigrafía y el contenido en conodontos del Prídolí-Lochkoviense inferior en la unidad de els Castells (Pirineo central) [Preliminary note on the Pridoli-lower Lochkovian stratigraphy and conodonts from the els Castells unit (central Pyrenees)]. Temas Geológico-Mineros ITGE, 26 (1), 638-642.

Sarmiento G.N., Picarra J.M., Rebelo J.A., Robardet M., Gutierrez-Marco J.C., Storch P. & Rabano I. 1999 - Le Silurien du synclinorium de Moncorvo (NE du Portugal): biostratigraphie et importance paléogéographique.Géobios, 32, 5: sous-presse (octobre 1999).

Sarmiento, G.N., Piçarra, J.M., Rebelo, J.A., Robardet, M., Gutiérrez-Marco, J.C., Storch, P. & Rábano, I. 1999. Le Silurien du synclinorium de Moncorvo (NE du Portugal): biostratigraphie et importance paléogéographique. Geobios, 32 (5), 749-767.

Schneider, K.A., and W.I. Ausich. 1999. Paleoecology and taxonomy of frame-building organisms in the Brassfield Formation (Llandoverian, Lower Silurian) Fairborn, Ohio. Geological Society of America Abstracts with Programs, 31:A466.

Schneider, K.A., and W.I. Ausich. 1999. Paleoecology and taxonomy of frame-building organisms in the Brassfield Formation (Llandoverian, Lower Silurian) Fairborn, Ohio. Geological Society of America Abstracts with Programs, 31:A466.

Schönlaub, H.P. & Histon, K. (1999) The Palaeozoic of the Southern Alps In Histon, K. (Ed.) V International Symposium Cephalopods – Present and Past. Carnic Alps Excursion Guidebook. - Ber. Geol. Bundesanst. 47, 6-30, 13 figs., Wien 1999

Serpagli, E. & Corradini, C., 1999. Taxonomy and evolution of Kockelella (Conodonta) from Silurian of Sardinia: in Serpagli, E. (ed), Studies on Conodonts, Proceedings of the Seventh European Conodont Symposium, Boll. Soc. Paleont. Ital., 37(2/3)(1998), 275-298

Serpagli, E. & Ferretti, A., 1999, L'Europa durante il Paleozoico. In: Alle radici della storia naturale. Seicento milioni di anni attraverso i grandi giacimenti paleontologici d¹Europa (a cura di G. Pinna), Associazione Paleontologica Europea, Jaca Book, 5 text-figs, 17-20.

Serventi, P., 1999, Some new Silurian cephalopods from the Italian side of the Carnic Alps. In: K. Histon (ed.), V International Symposium Cephalopods-Present and Past, Vienna. Abstract volume-Ber. Geol. Bundesanst. 46, 103, Wien.

Serventi, P., Gnoli, M. & Histon, K., 1999, Revision of Silurian nautiloid cephalopods from the Carnic Alps from various museum collections. In: K. Histon (ed.), V International Symposium Cephalopods-Present and Past, Vienna. Abstract volume-Ber. Geol. Bundesanst. 46, 104, Wien.

Simpson, G. A., Blake, P. R., Murray, C. G., Hayward, M. A., & Fordham, B. G. (1998). Evidence for mid-Paleozoic exotic terranes in the Yarrol Province, central Queensland. Abstracts, Geological Society of Australia, 49: 408.

Sliaupa S., Lazauskiene J., 1997. 1-D subsidence analysis along Lithuanian part of the Eurobridge profile (Vendian - Cretaceous). Eurobridge workshop Abstracts, Vilnius: 85-89

Sliaupa S., Lazauskiene J., 1997. Geology of the sedimentary cover. Major geological outlines of the Lithuania. Vilnius: 6-15

Sliaupa S., Poprawa P., Lazauskiene J., R.Stephenson, 1997. The Palaeozoic subsidence history of the Baltic Syneclise in Poland and Lithuania // Geophysical Journal. Kiev: 137-139

Stearn, C.W., Webby, B.D., Nestor, H. & Stock, C.W. 1999. Revised classification and terminology of Palaeozoic stromatoporoids. Acta Palaeontologica Polonica, 44(1): 1-70.

Stock, C.W. 1999. What is the age of the so-called Sequatchie Formation in Jefferson and Blount Counties, Alabama? Geological Society of America Abstracts with Programs, 31(3):A69. [The age could be Late Ordovician or Early Silurian.]

Stock, C.W. & H. Nestor. 1999. Distribution of stromatoporoid genera in the mid-Lower Silurian (Middle Llandovery: Aeronian) of the central United States. Geological Society of America Abstracts with Programs, 31(5):A74.

Stock, C.W. & H. Nestor. 1999. Genus-level recovery of stromatoporoids following the end-Ordovician mass extinction. Geological Society of America Abstracts with Programs, 31(7):A471.

Stock, C.W. & J.A. Burry-Stock. 1998. Lower Silurian (Llandovery) stromatoporoids from the Brassfield Formation of southwestern Ohio. Geological Society of America Abstracts with Programs, 30(2):73.

Stock, C.W. & J.A. Burry-Stock. 1998. Two new genera of Upper Silurian actinostromatid stromatoporoids. Journal of Paleontology, 72:190-201.

Stock, C.W. & Nestor, H. 1999. Distribution of stromatoporoid genera in the mid-Lower Silurian (middle Llandovery: Aeronian) of the central United States. Geological Society of America Abstracts with Programs, 31(5): A74.

Stock, C.W. & Nestor, H. 1999. Genus-level recovery of stromatoporoids from the end-Ordovician mass extinction. Geological Society of America Abstracts with Programs, 31(7): A471.

Stock, C.W., C.J. Crow & M.R. Anderson. 1998. Unusual stromatoporoids from the Louisville Limestone (Middle Silurian, upper Wenlock) of Jefferson County, Kentucky. Geological Society of America Abstracts with Programs, 30(4):61.

Štorch, P. 1998. Biostratigraphy, palaeobiogeographical links and environmental interpretation of the Llandovery and Wenlock graptolite faunas of peri-Gondwanan Europe.- In Gutiérrez-Marco, J.C. - Rábano, I. (eds): Proceedings of the Sixth International graptolite Conference of the GWG (IPA) and the SW Iberia Field Meeting 1998 of the International Subcommission on Silurian Stratigraphy (ICS-IUGS). Temas Gológico-Mineros ITGE, 23, 126-129. Madrid.

Štorch, P. 1998. Graptolites of the *Pribylograptus leptotheca* and *Lituigraptus convolutus* biozones of Tmaň (Silurian, Czech Republic).- J. Czech Geol. Soc., 43, 4, 209-272. Praha.

Štorch, P. 1998. New data on Telychian (Upper Llandovery, Silurian) graptolites from Spain.- J. Czech Geol. Soc., 43, 113-141. Praha.

Štorch, P., and Gutiérrez-Marco, J.C. 1998. Silurian sections of the Castillian Branch of the Iberian Cordillera (provinces of Guadalajara and Teruel).- In Gutiérrez-Marco, J.C., and Rábano, I. (eds): Proceedings of the Sixth International graptolite Conference of the GWG (IPA) and the SW Iberia Field Meeting 1998 of the International Subcommission on Silurian Stratigraphy (ICS-IUGS). Temas Gológico-Mineros ITGE, 23, 326-335. Madrid.

Štorch, P., Gutiérrez-Marco, J.C., Sarmiento, G.N., and Rábano, I. 1998. Upper Ordovician and Lower Silurian of Corral de Calatrava, southern part of the Central Iberian Zone.- In Gutiérrez-Marco, J.C., and Rábano, I. (eds): Proceedings of the Sixth International graptolite Conference of the GWG (IPA) and the SW Iberia Field Meeting 1998 of the International Subcommission on Silurian Stratigraphy (ICS-IUGS). Temas Gológico-Mineros ITGE, 23, 319-325. Madrid.

Szymański, Bronisław and Teller, Lech. 1998. The Silurian Stratigraphy of the Zawiercie – Żarki area (NE margin of the Upper Silesian Coal Basin. Geological Quarterly). V. 42 (2):183 – 200

Taylor, W.L. and Brett, C.E., 1999, Middle Silurian Rochester Shale of western New York, USA, and Ontario, Canada. p. 87-92. In Hess, H., Ausich, W.I., Brett, C.E., and Simms, M.J., eds., Fossil Crinoids. Cambridge University Press, Cambridge, UK, 275 p.

Teller, Lech and Boucot, A.J. 1999 Polish Ludlow – Lower Devonian Communities. In: Paleocommunities – a case from the Silurian and Lower Devonian (pp.350-354). Eds.A.J.Boucot and J.D.Lawson. World and Regional Geology Series 11. Cambridge University Press

Teller, Lech. 1999. Abnormalities in the development of monograptid colonies Geological Quarterly: V.43 (3) pp. 347 – 352.

Turner, S. 1999. Early Silurian to Early Devonian thelodont assemblages and their possible ecological significance. pp 42-78. In Boucot, A.J. and Lawson, J. (eds.). Palaeocommunities: a case study from the Silurian and Lower Devonian -International Geological Correlation Programme 53, Project Ecostratigraphy, Final Report. Cambridge University Press, Cambridge.

Turner, S. 1999. IGCP 406: Circum-Arctic Lower-Middle Palaeozoic Vertebrate Palaeontology and Biostratigraphy (1996-2000). The Australian Geologist no. 113, Dec. 31-32.

Turner, S. 1999b. Silurian thelodonts from Arctic Canada and related regions. In Luksevics, E., Stinkulis, G. & Wilson, M.V.H. eds. Lower-Middle Palaeozoic Events Across the Circum-Arctic, Jurmala, Latvia, September 27-October 2 1999. Ichthyolith Issues Special Publication 5, 46-47.

Turner, S., Kuglitsch, J.J. & Clark, D.L. 1999. Llandoverian thelodont scales from the Burnt Bluff Group of Wisconsin and Michigan. Jl Paleontology 73, 4, 667-676

Urbanek, A. 1998. Oligophyly and evolutionary parallelism: A case study of Silurian graptolites. Acta Palaeontologica Polonica 43, 549-572.

Van Grootel, G., Zalasiewicz, J., Verniers, J. & Servais, T. 1998. Chitinozoa and graptolite biozonation of the Aeronian and Lower Telychian in the Brabant Massif (Belgium). Proceedings of the 6th International Graptolite Conference (GWG-IPA) & 1998 Field Meeting, IUGS Subcomission on Silurian Stratigraphy (J.C. Guterriez-Marco & I. Rabano, eds). - Temas Geologico-Mineros ITGE, vol. 23, Madrid 1998, pp. 135-136.

Viira, V. 1999. Late Silurian conodont biostratigraphy in the northern East Baltic. In: Serpagly, E. (ed.), Studies on conodonts - Proceedings of the Seventh European Conodont Symposium. Bolletino della Societa Paleontologica Italiana, 37(2-3) (1998), 299-310.

Villas, E., Lorenzo, S. & Gutiérrez-Marco, J.C. 1999. First record of a Hirnantia Fauna from Spain, and its contribution to the Late Ordovician palaeogeography of Northern Gondwana. Transactions of the Royal Society of Edinburgh: Earth Sciences, 89 (for 1998), 187-197

Wang X. And Chen X. 1999. Palaeonbiogeography and palaeoclimatology of Ordovician in China. Professional Paper of Stratigraphy and Palaeontology, 27:1-27(in Chinese with English summary).

Wang X. Erdtmann B.-D. And Chen X. 1999. The “Hirnantian Stage” and the identification of the Ordovician/Silurian boundary .Geology and Mineral Resources of South China. 3:12-18 (in Chinese with English abstract).

Wang X., Ma D. and Chen X., 1999, Pre-cambrian geological evolution in the Yangtze Gorges area, China. Gondwana Research, 2(4): 621-626.

Wang X., Metcalfe I., Jian P., He L. And Wang C. 1999.The Jiangshajiang suture zone: Tectonostratigraphic subdivision and revision of age . Science in China(S.D), 29(4): 289-297(in Chinese).

Watkins, R. 1998. Silurian reef-dwelling pentamerid brachiopods, Wisconsin and Illinois, USA. Palaeontologische Zeitschrift, v. 72, p. 99-109.

Watkins, R. 1999. Silurian of the Great Lakes region, Part 4: Llandovery (Aeronian) brachiopods of the Burnt Bluff Group, northeastern Wisconsin and northern Michigan. Milwaukee Public Museum Contributions in Biology and Geology no. 92, 29 p.

Watkins, R. and McGee, P.E. 1998. Secondary tiering among Silurian epibionts in the Waldron Shale, Indiana, USA. PaleoBios, v. 18(4), p. 12-20.

Watkins, R., Walsh, K.A. and Kuglitsch, J.J. 1999. Silurian (Llandovery/Wenlock) Foraminiferida in carbonate environments of southeastern Wisconsin. Journal of Paleontology, v. 73, p. 540-546.

Westrop, S.M. and D.M. Rudkin 1999 Trilobite Taphonomy of a Silurian reef: Attawapiskat Formation, Northern Ontario. Palaios 14(4):389-397.

Westrop, S.M. and D.M. Rudkin. 1999 Trilobite Taphonomy of a Silurian reef: Attawapiskat Formation, Northern Ontario. Palaios 14(4):389-397.

Witzke, B.J., and Johnson, M.E., 1999, Silurian brachiopod and related benthic communities from carbonate platform and mound environments of Iowa and surrounding areas, in Boucot, A.J., and Lawton, J.D.,eds., Paleocommunities: A case study from the Silurian and Lower Devonian: Cambridge Univ. Press, p. 806-840.

Young, G.A. 1999. Colony type and growth form in fossil colonial corals. In, E. Savazzi (ed.), Functional Morphology of the Invertebrate Skeleton, John Wiley and Sons (London), p. 647-666.
Young, G.A. 1999. Fossil colonial corals: growth patterns and coral-substrate relationships. In, E. Savazzi (ed.), Functional Morphology of the Invertebrate Skeleton, John Wiley and Sons (London), p. 667-687.
Young, G.A., Elias, R.J., Nowlan, G.S., Dobrzanski, E.P., and Rudkin, D.M. 1999 Late Ordovician - Early Silurian events in a shoreline setting near Churchill, Manitoba. Canadian Paleontology Conference, Program and Abstracts No. 9, A.D. McCracken (Ed.). Calgary, Alberta, p. 32.
Zagorchev, I., Angelski, D., Goranov, E. Pemov, P. & Sachanski, V. 1998. New data on the tectonics of the Treklyano area, Krayshte region. Rev. Bulg. Geol. Soc., 59, 3, 109-118.
Zalasiewicz, J. & Williams, M. 1999. Graptolite biozonation of the Wenlock (Silurian) rocks of the Builth Wells district, central Wales. Geological Magazine, 136, 263-283.
Zalasiewicz, J.A. & Evans, J. 1998. The Amazing Mud Factory. Chemistry in Britain, 12, 21-24.
Zalasiewicz, J.A., Williams, M., Verniers, J. & Jachowicz, M. 1998. A revision of the graptolite biozonation and calibration with the chitinozoa and acritarch biozonations for the Wenlock succession of the Builth Wells district, UK. Proceedings of the 6th International Graptolite Conference (GWG-IPA) & 1998 Field Meeting, IUGS Subcomission on Silurian Stratigraphy (J.C. Guterriez-Marco & I. Rabano, eds). - Temas Geologico-Mineros ITGE, vol. 23, Madrid 1998, p. 141.
Zhang Yuan-dong and A.C. Lenz, 1999. Silurian Biostratigraphy of Mojiang area, Southern Yunnan, China. Journal of Stratigraphy, 23(3):161-169.
Zhang Yuandong, Lenz, A.C. and Zhang Wangbei. 1998. Advance in the research of the Early devonian strata in southwestern Yunnan, China. Journal of Stratigraphy, 22: 220-226. (Chinese with English summary)
Zhang, Y.-d., and Lenz, A.C. 1998. Early Devonian graptolites from southwest Yunnan, China. Journal of Paleontology, **72**: 353-360.
****

NEW NAMES, ADDRESS CHANGES

Guillermo L. Albanesi
CRILAR (CONICET)
Mendoza y Entre Ríos s/n
5301 Anillaco, La Rioja
ARGENTINA
Tel.: 54-(0)3827-494251
Fax.: 54-(0)3827-494231
E-mail: galbanesi@arnet.com.ar

Ol'ga K. Bogolepova
Department of Earth Sciences
Uppsala University, Norbyvagen 22
S-752 36 Uppsala
Sweden
tel. +46 18 471 27 48
fax. +46 18 471 27 49
e-mail: olga.bogolepova@pal.uu.se

Carlton Brett
Department of Geology
University of Cincinnati
Cincinnati, Ohio 45221-0013
phone: 513 556-4556
e-mail: carlton.brett@uc.edu

Chen, Xiaohong
Yichang Institute of Geology and Mineral Resources
PO Box 502, Yichang, Hubei 443003
China
Telephone number: 86-717-6338311
Fax number: 86-717-6331867
E-mail: haoling@126.com

Alexander Gubanov
Historical Geology & Palaeontology
Department of Earth Sciences
Uppsala University
Norbyvagen 22
S-752 36 Uppsala
SWEDEN
Tel.: (+46)18 471 27 40
Fax: (+46)18 471 27 49

Annette Högström
Paleontological Research Institution
1259 Trumansburg Road
Ithaca, NY 14850-1398
USA
Tel; (607) 273-6623 ext 23
Fax; (607) 273-6620
E-mail; ahogstrom@hotmail.com

Magdalena Iordan
Institutul Geolo

gic al Romaniei
Str. Caransebes 1
78344 Bucuresti 32
Romania
e-mail: antoneta@ns.igr.ro

David M.S. Jowett
School of Earth and Ocean Sciences
University of Victoria
P.O. Box 3055
Victoria, B.C. V8W 3P6
CANADA
wk. (250)-380-4920
djowett@uvic.ca

Oliver Lehnert
Institut für Geologie und Mineralogie
Universität Erlangen
Schlossgarten 5
D-91054 Erlangen
Germany
Phone: +49-9131-8522632
Fax: +49-9131-859295
e-mail: lehnert@geol.uni-erlangen.de

Leanne Pyle
School of Earth and Ocean Sciences
P. O. Box 3055
University of Victoria
Victoria, BC V8W 3P6
phone (250) 721-6181
fax (250) 721-6200
e-mail: leanne@uvic.ca

Gladys Ortega
Museo de Paleontología
Universidad Nacional de Córdoba
Casilla de Correo 1598
5000 Córdoba
ARGENTINA
Tel. 54 (0)351 4332098 (in. 56)
54(0)351 4718655
E-mail: gcortega@arnet.com.ar

Claudia V. Rubinstein
IANIGLA - CRICYT
C. C. 131
5500 - Mendoza
ARGENTINA
fax: 54-261-4285940

tel: 54-261-4287029/4274011
email: rubicaro@supernet.com.ar

Wang Chuanshan
Yichang Institute of Geology and Mineral Resources
PO Box 502, Yichang, Hubei 443003
China
Telephone number: 82-717-6338510
Fax number: 82-717-6331867
E-mail: haoling@126.com

Xiaofeng Wang
Yichang Institute of Geology and Mineral Resources
PO Box 502, Yichang, Hubei 443003
China
Telephone number: 86-717-6331107, 6338286
Fax number: 86-717-6331867
E-mail: wxfeng@public.yc.hb.cn

E-Mail Addresses

Guilermo Acenolaza	insugeo@unt.edu.ar
Aicha Achab	achab@NRCan.gc.ca
Dick Aldridge	RA12@leicester.ac.uk
Fernando Alvarez	fernando@asturias.geol.uniovi.es
Anna Antoshkina	Antoshkina@geo.komi.ru
H.A. Armstrong	h.a.armstrong@durham.ac.uk
Esther Asselin	EAsselin@nrcan.gc.ca
R.A. Astini	rastini@com.uncor.ar
William Ausich	Ausich.1@osu.edu
C.R. Barnes	crbarnes@uvic.ca
J.E. Barrick	ghjeb@TTACS.TTU.EDU
Jim Basinger	jim.basinger@sask.usask.ca
Michael Bassett	bassett@cardiff.ac.uk
Richard Batchelor	rab@st-andrews.ac.uk

Denis Bates	deb@aber.ac.uk
J.H. Beck	beckj@wesds1.bc.edu
J.L. Bendetto	jbenedetto@com.uncor.edu
Michael Benton	mike.benton@bristol.ac.uk
Claes Bergman	bec@hkgemfs.hkr.se
Stig Bergström	stig@geology.ohio-state.edu
Bill Berry	bberry@uclink4.berkeley.edu
Merete Bjerreskov	MERETEB@savik.geomus.ku.dk
Alain Blieck	dir-labo-pal@univ-lille.fr
Robert Blodgett	blodgetr@bcc.orst.edu
Henning Blom	Henning.Blom@pal.uu.se
Olga Bogolepova	olga.bogolepova@pal.uu.se
Art Boucot	boucota@bcc.orst.edu
Pierre-André Bourque	bourque@ggl.ulaval.ca
Margaret Bradshaw	mbradshaw@geol.canterbury.ac.nz
P.J. Brenchley	july08@liverpool.ac.uk
Carlton Brett	brettce@email.uc.edu
Thomas Broadhead	broadhea@utkvx.utk.edu,
Frank Brunton	fbrunton@NICKEL.LAURENTIAN.CA
Edsel Brussa	ebrussa@ciunsa.edu.ar
Carole Burrow	CBurrow@zoology.uq.edu.au
Andy Butler	a.butler@amhess.co.uq
Mikael Calner	Mikael.calner@geol.lu.se
Robin Cantrill	rcantrill@postoffice.sandybay.utas.edu.au
M.V. Caputo	caputo@nautilus.com.br
Brian Chatterton	bchatter@gpu.srv.ualberta.ca
Xiaoheng Chen	haoling@126.com
Chen Xu	xuchen@jlonline.com
Lesley Cherns	cherns@cardiff.ac.uk
Ivo Chlupac	kachlik@prfdec.natur.cuni.cz
Alfrdo Cingolani	CCINGOLA@CIG.MUSEO.UNLP.EDU.AR
Gina Christodoulu	Gina.Christodoulou@Geol.lu.se
Euan Clarkson	EUAN@glg.ed.ac.uk
Robin Cocks	lrmc@nhm.ic.ac.uk
Paul Copper	pcopper@nickel.laurentian.ca
Carlo Corradini	ccorr@unimo.it
Peter Crowther	peter.crowther.um@nics.gov.uk
Alfredo Cuerda	Museo@ISIS.UNI.P.Edu.Ar
Tim de Freitas	defski@canuck.com
Enrique Díaz Martínez	ediaz@eucmax.sim.ucm.es
Richard Diecchio	rdiecchi@gmu.edu
Steven Driese	sdriese@utk.edu
Pavel Dufka	dufka@cgu.cz
Diane Edwards	d.edwards@cardiff.ac.uk
Greg Edgecombe	greged@amsg.austmus.gov.au
Rein Einasto	einasto@gi.ee

Maria Eriksson	mariae@geo.su.se
Mats Erikssson	Mats.Eriksson@geol.lu.se
Frank Ettensohn	fettens@pop.uky.edu
Robert Fakundiny	rfakundini@MAIL.NYSED.GOV
Annalisa Ferretti	ferretti@unimo.it
Stan Finney	scfinney@csulb.edu
Barry Fordham	bfordham@dme.qld.gov.au
Jiri Fryda	fryda@cgu.cz
Maurizio Gnoli	gnolim@unimo.it
Geng Liangyu	LPSNIGP@NANJING.JSPTA.chinamail.sprint.com
Yngve Grahn	grahn@uerj.br
Alexander Gubanov	Alexander.Gubanov@pal.uu.se
Juan Carlos Gutiérrez Marco	jcgrapto@eucmax.sim.ucm.es
Wolfgang Hansch	Wolfgang.Hansch.Mus.HN@t-online.de
Mark Harris	mtharris@csd.uwm.edu
William Harrison	william.harrison_iii@wmich.edu,
Jonas Hagstrom	jonas.hagstrom@geo.su.se
Rachel Heath	R.J.Heath@liverpool.ac.uk
Kathleen Histon	Cathleen.Histon@cc.geolba.ac.at
Anette Hogstrom	ahogstrom@hotmail.com
Charles Holland	hepwholl@tcd.ie
Alan Horowitz	horowitz@ucs.indiana.edu
M.P.A. Howe	mpah1@leicester.ac.uk
Jana Hutt	jolyonjana@btinternet.com
Magdalena Iordan	antoneta@ns.igr.ro
Mikael Jacobsson	Mikael.Jacobsson@Geol.lu.se
John Jell	johnj@sol.earthsciences.uq.edu.au
Lennart Jeppsson	lennart.jeppsson@geol.lu.se
A.J. Jeram	ajj@belumreg.demon.co.uk
Fredrik Jerre	fredrik.jerre@draco.se.astra.com
Jisuo Jin	jjin@julian.uwo.ca
Markes Johnson	Markes.E.Johnson@williams.edu
Paul Johnston	PJohnston@mcd.gov.ab.ca
David Jowett	David.Jowett@uvic.ca
Dimitri Kaljo	kaljo@gi.ee
Donatas Kaminskas	Donatas.Kaminskas@gf.vu.lt
Stephen Kershaw	Stephen.Kershaw@brunel.ac.uk
Guennadji Kisselev	anna@dean.geol.lgu.spb.su
Mark Kleffner	kleffner.1@osu.edu
Joanne Kluessendorf	jkluesse@uiuc.edu
Tania Koren	tkoren@dronov.usr.pu.ru
Anna Kozlowska-Dawdziuk	akozlows@julian.uwo.ca akd@twarda.pan.pl
Petr Kraft	Kraft@natur.cuni.cz
Jiri Kriz	kriz@cgu.cz
Jeff Kuglitsch	kug@globaldialog.com

A. LeHérissé	alain.le.herisse@univ-brest.fr
Oliver Lehnert	lehnert@geol.unierlangens.de
Pierre Lespérance	lesperap@MAGELLAN.UMontreal.CA
Steven LoDuca	GEO_LODUCA@ONLINE.EMICH.EDU
Darrel Long	dlong@nickel.laurentian.ca
David Loydell	david.loydell@port.ac.uk
Robert Lundin	robert.lundin@asu.edu
Peep Männik	mannik@gi.ee
Tiiu Märss	marss@gi.ee
Monika Masiak	masiak@twarda.pan.pl
Ruth Mawson	rmawson@laurel.ocs.mq.edu.au
Sandy McCracken	samccrac@NRCan.gc.ca
Donald Mikulic	mikulic@isgs.uiuc.edu
Mike Melchin	mmelchin@juliet.stfx.ca
Carl Mendelsohn	mendelsn@beloit.edu
Giles Miller	cgm@nsm.ac.uk
Charles Mitchell	cem@acsu.buffalo.edu
Tania Modzalevskaya	modz@IB2567.spb.edu
Stewart Molyneux	SGM@wpo.nerc.ac.uk
Mike Murphy	MamurphyD@aol..com
Petras Musteikis	Petras.Musteikis@gf.vu.lt
Heldur Nestor	hnestor@gi.ee
Viiu Nestor	vnestor@gi.ee
Paula Noble	noblepj@unr.edu
Brian Norford	norford@NRCan.gc.ca
Godfrey Nowlan	GNowlan@NRCan.gc.ca
James Ogg	jogg@purdue.edu
Gladys Ortega	gcortega@arnet.com.ar
Jeffrey Over	over@uno.cc.geneseo.edu
Florentin Paris	Florentin.Paris@univ-rennes1.fr
John Peel	John.Peel@pal.uu.se
Silvio Peralta	speralta@unsj.edu.ar
Daniel Phelps	phelps_d@nosgis.nr.state.ky.us
José Manuel Picarra	jose.picarra@igm.pt
Elzbieta Porebska	porebska@geos.ing.uj.edu.pl
Helga Priewalder	hpriewalder@cc.geolba.ac.at
Isabel Rabano	i.rabano@itge.mma.es
Jürgen Remane	jurgen.remane@geol.unine.ch
John Richardson	jbr@nhm.ac.uk
Barrie Rickards	sjl11@esc.cam.ac.uk
J. Keith Rigby	jamescrane@byu.edu
Susan Rigby	SUERIGBY@glg.ed.ac.uk
Michel Robardet	Michel.Robardet@univ-rennes1.fr
Rong Jia-yu	rongjy@pub.jlonline.com
June Ross	ross@biol.wwu.edu
Madis Rubel	RUBEL@GI.EE

Claudia Rubenstein	rubicaro@supernet.com.ar
David Rudkin	davidru@rom.on.ca
Jennifer Russell	jrussel@is2.dal.ca
Valeri Sachanski	valeri@geology.bas.bg
T.M. Sanchez	tsanchez@com.uncor.edu
Olof Sandström	Olof.Sandstrom@Geol.lu.se
Ivan Sansom	sansom@ERS.bham.ac.uk
Kate Saunders	kate.saunders@port.ac.uk
Hans Peter Schönlaub	schhp@cc.geolba.ac.at
C.T. Scrutton	C.T.Scrutton@durham.ac.uk
N.V. Sennikov	sennikov@uiggm.nsc.ru
Enrico Serpagli	serpagli@unimo.it
Peter Sheehan	sheehan@csd.uwm.edu
Lawrence Sherwin	Sherwin@minerals.nsw.gov.au
Andrew Simpson	simpson@earthsciences.uq.edu.au
David Siveter	DJS@leicester.ac.uk
Derek Siveter	derek.siveter@earth.ox.ac.uk
Rimma Sobolevskaya	HYDROTH@g-ocean.spb.su
Ken Soehn	markwilson@ualberta.ca
Constance Soja	csoja@MAIL.COLGATE.EDU
Asseddine Soufiane	ess-inrs-asoufiane@x1.nrcan.gc.ca
Colin Stearn	colinst@golden.net
Ronald Stieglitz	stieglir@uwgb.edu
Carl Stock	cstock@wgs.geo.ua.edu
Petr Storch	storch@gli.cas.cz
Sven Stridsberg	Sven.Stridsberg@Geol.lu.se
Paul Strother	StrotheP@wesds1.bc.edu
Des Strusz	dstrusz@geology.anu.edu.au
Stuart Sutherland	ses@nhm.ac.uk
John Talent	jtalent@laurel.ocs.mq.edu.au
Lech Teller	l.teller@twarda.pan.pl
Y.I. Tesakov	lab17@uiggm.nsk.su
A.T. Thomas	A.T.Thomas@bham.ac.uk
Judi Thorogood	jjt91@aber.ac.uk
P.D. Tsegelnyuk	ignnanu@geolog.kiev.ua
Simon Tull	SJT1008@hermes.cam.ac.uk
Susan Turner	s.turner@mailbox.uq.edu.au
Charles Underwood	cju@liverpool.ac.uk
Adam Urbanek	urbanek@space.ru
J.M.J. Vergoossen	J.M.J. Vergoossen@biol.RUG.NL
Jacques Verniers	Jacques.Verniers@rug.ac.be
Viive Viira	viira@gi.ee
Wang Xiaofeng	wxfeng@public.yc.hb.cn
Rodney Watkins	rw@mpm.edu
Brian White	bwhite@science.smith.edu
Brian Witzke	bwitzke@igsb.uiowa.edu

Mark Williams Mark.Williams@bgs.ac.uk
Mark Wilson mark.wilson@biology.ualberta.ca
A.D. Wright a.wright@qub.ac.uk
Tony Wright awright@uow.edu.au
Ryszard Wrona wrona@twarda.pan.pl
Evgeny Yolkin yolkin@uiggm.nsc.ru
Graham Young gyoung@cc.UManitoba.CA
Jan Zalasiewicz JAZ1@leicester.ac.uk
Matthew Zimmerman zimmer@mines.unr.edu