

SILURIAN TIMES

No. 19

(Year 2011)

Newsletter of the International Subcommittee on Silurian Stratigraphy



Year 2011
(Published March, 2012)

INTERNATIONAL SUBCOMMISSION ON SILURIAN STRATIGRAPHY (ISSS)

INTERNATIONAL COMMISSION ON STRATIGRAPHY (ICS)

INTERNATIONAL UNION OF GEOLOGICAL SCIENCES (IUGS)

**SILURIAN TIMES
THE NEWSLETTER OF THE
INTERNATIONAL SUBCOMMISSION ON SILURIAN STRATIGRAPHY (ISSS)**

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for the year 2011 (published March 2012)

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INTERNATIONAL UNION OF GEOLOGICAL SCIENCES

President: Prof. Alberto C. Riccardi (Argentina)

Secretary General: Dr. Peter T. Bobrowsky (Canada)

<http://www.iugs.org/>

INTERNATIONAL COMMISSION ON STRATIGRAPHY

Chairman: Prof. Stanley Finney (USA)

Vice-Chairman: Prof. Shanchi Peng (China)

Secretary General: Prof. Paul R. Bown (UK)

<http://www.stratigraphy.org>

1. INTERNATIONAL SUBCOMMISSION ON SILURIAN STRATIGRAPHY (ISSS)

Subcommission officers

Chairman (sept. 2008-2012): Michael J. Melchin, Professor, Department of Earth Sciences, St. Francis Xavier University, P.O. Box 5000, Antigonish, Nova Scotia B2G 2W5, Canada, email: mmelchin@stfx.ca.

Vice Chairman (sept. 2008-2012): Peep Männik, Senior researcher, Institute of Geology at Tallinn University of Technology, Buildings 4C and 4A (3rd floor), Ehitajate tee 5, EE-19086 Tallinn, Estonia, email: mannik@gi.ee.

Secretary (2005-2012): Jacques Verniers, Research Unit Palaeontology, Department of Geology and Soil Science, Ghent University, Krijgslaan 281 building S8 WE13, BE-9000, Gent, Belgium, email: Jacques.Verniers@ugent.be.

List of Task Groups and their officers

Base of Silurian: Mike Melchin, Canada: mmelchin@stfx.ca (final report accepted in 2009)

Base of Wenlock: David Loydell, England: david.loydell@port.ac.uk

List of Titular Members (2012) (n=18)

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EDITOR'S NOTES

I wish to thank again all of those who contributed to this issue and apologize to anyone whose contributions I may have inadvertently left out. We have received the current projects and recent publications of the titular or corresponding members. The list of Silurian workers who showed an interest to receive Silurian Times contains close to about 250 persons. Possibly still more researchers want to inform the Silurian community about their current projects and publications. I could include all the references on Silurian publications that you sent me.

Jacques Verniers, Secretary (March 2012)

THE WEB SITE FOR THE SILURIAN SUBCOMMISSION

All members can check the website for the ISSS (<http://www.silurian.cn>) prepared by Fan Juanxuan and Zhao Hui at the Nanjing Institute of Geology and Palaeontology, with input from the ISSS executive.

INTERNATIONAL SUBCOMMISSION ON SILURIAN STRATIGRAPHY (ISSS)

List of the corresponding members (situation end of 2011 n= 70)

(with year of election. Without date: corresponding members from before 1995)

Aldridge (UK)
Antoskhina (Russia)
Baarli (USA) 2002
Barnes (Canada)
Bassett (UK)
Bjerreskov (Denmark)
Blieck (France)
Bogolepova (UK) 2002
Boucot (USA)
Butcher (UK) 2011
Calner (Sweden) 2005
Caputo (Brazil)
Chen Xu (China)
Cocks (UK)
Corradini (Italy) 2007
Cramer Brad; (U.S.A.) 2009
Einasto (Estonia) 1996
Eriksson (Sweden) 2005
Fan Junxuan (China) 2005
Ferretti (Italy)
Fu Lipu (China) 1996
Geng Liangyu (China)
Gutierrez-Marco (Spain) 1995
Hansch (Germany)
Hints (Estonia) 2007
Histon (Italy) 2008
Holland (Ireland)
Huang Bing (P.R.China) 2009
Jell (Australia)
Jeppsson (Sweden) 1995
Kaljo (Estonia)
Kozłowska (Poland)
Larsson (Sweden)
Lenz (Canada)
Legrand (France)
Maletz (USA) 2002
Märss (Estonia) 1999
McLaughlin (USA) 2008
Modzalevskaya (Russia) 1999
Musteikis (Lithuania)
Nestor H. (Estonia)
Norford (Canada) 1995
Paris (France)
Piçarra (Portugal)
Radziadicius (Lithuania) 2007
Ray (U.K.) 2009
Robardet (France)
Rong Jiayu (China)
Schonlaub (Austria)
Sennikov (Russia) 1999
Serpagli (Italy)
Sherwin (Australia) 2009
Simpson (Australia) 2002
Slavik (Czech Rep.),
Storch (Czech Rep.)
Strusz (Australia)
Su Wenbo (China)
Suyarkova (Russia) 2007
Tang Peng (China) 2005
Teller (Poland)
Tesakov (Russia)
Vandenbroucke (France) 2011
Wang Jian (China) 2011
Wang Nianzhong (China) 1999
Wang Li (China) 2011
Wang Yi (China) 2005
Zhang Yuandong (China) 1999
Zhao Wenjin (China) 2009
Zhu Min (China) 2003
Zigaite (Lithuania) 2007

2. Chairman's Corner

Dear Silurian Colleagues,

Undoubtedly, the main event for the ISSS for 2011 was the very successful Siluria Revisited meeting in Ludlow. I particularly wish to thank the organizers of the Ludlow meeting: David Loydell, Anthony Butcher and their students, and also to the organizers of the pre-conference excursion Jerry Davies and Dick Waters and of the post-conference excursion David Ray and many co-authors, plus a special thanks to Brad Cramer. Thanks to you all for putting together a great program for a new generation of Silurian researchers to see and discuss most of the GSSPs that form the foundation of the Silurian time scale.

Besides the excellent talks and field trips, I think that the ISSS is once again moving forward well on the restudy of the GSSPs, particularly the Aeronian, and I look forward to progress on that over the next couple of years.

Also of importance was the launching of our involvement with IGCP 591: The Early –Middle Paleozoic Revolution. The ambitious program of meetings and publications is now well under way and I look forward to full involvement of ISSS members in the IGCP 591 meetings for 2012: the EGU General Assembly in Vienna in April; GSA North Central Symposium and Pander Society Meeting also in April; IGCP 591 Annual Meeting in Cincinnati in July; and the International Geological Congress in Brisbane in August.

I wish to thank Mikael Calner and Matts Eriksson for agreeing to take on the hosting of the 2013 Silurian Field meeting, together with the IGCP 591 Annual Meeting, in Lund. I am certain that it will be another productive meeting with the opportunity to visit Silurian exposures in Sweden and Norway.

Finally, I am pleased to announce that four new titular members have been added to ISSS: Anna Antoskina (Russia), Anna Kozłowska (Poland), Carlo Corrandini (Italy), and Wang Yi (China). Many thanks to them for their willingness to serve, and also to the selection committee for providing these names for election by ICS.

Mike Melchin



International Commission on Stratigraphy

Subcommission on Silurian Stratigraphy

ANNUAL REPORT 2011

1. TITLE OF CONSTITUENT BODY

International Subcommission on Silurian Stratigraphy ISSS

Submitted by:

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2. OVERALL OBJECTIVES, AND FIT WITHIN IUGS SCIENCE POLICY

Mission statement

The objectives of the Subcommission relate to three main aspects of IUGS policy:

- (1) The development of an internationally agreed scale of chronostratigraphic units, fully defined by GSSPs at Series and Stage levels and related to a hierarchy of units (Substages, Standard Zones, Subzones etc.) to maximize relative time resolution within the Silurian Period;
- (2) Establishment of frameworks and mechanisms to encourage international collaboration in understanding the evolution of the Earth during the Silurian Period;
- (3) Working towards an international policy concerning conservation of geologically important sites (such as GSSPs, global and regional stratotype sections, etc.).

Goals

- Rationalization of global chronostratigraphical classification.
- Intercalibration of fossil biostratigraphies, integrated zonations, and recognition of global datums.
- Establishment of magneto- and chemo-stratigraphic scales.
- Definition of Stage boundaries and restudy of global stratotype sections.
- Correlation of Silurian rock successions and events, including marine to non-marine.

3. ORGANIZATION

The ISSS is a Subcommission of the Commission on Stratigraphy. The Subcommission is organized by an Executive consisting of Chairman, Vice-Chairman and Secretary, who are all Voting Members of the Subcommission. In the Subcommission elected for 2008-2012 there are twelve other Voting Members. The network of Corresponding Members have first of all a responsibility for communication in both directions between the Subcommission and researchers on Silurian topics in their region. Secondly they represent a broad spectrum of specialized stratigraphical disciplines from those

countries or regions where Silurian rocks are extensively studied in relation to fundamental and/or applied geological research.

Officers for 2008-2012:

Chair: Michael Melchin, Antigonish, Canada.

Vice-Chair: Peep Mannik, Tallinn, Estonia

Secretary: J. Verniers, Ghent, Belgium

Current research activities and future plans are communicated through publication of an annual ISSS newsletter, *Silurian Times*, distributed by both email attachment and as a web release.

Websites: <http://www.silurian.cn/home.asp> contains newsletters, meeting announcements, discussion posting-boards, bibliography of Silurian articles, links to related sites, and other information.

4. INTERFACES WITH OTHER INTERNATIONAL PROJECTS

Collaboration on an IGCP Project N° 503 entitled “*Ordovician Palaeogeography and Palaeoclimate*”. This project ended in 2009 and two special volumes of the journal *Palaeogeography, Palaeoclimatology, Palaeoecology* were published in 2010 containing the contributions of ISSS and ISOS members to this project. Members of the ISSS have spearheaded a collaboration with ISOS and ISDS members in the proposal of a follow-up project proposal for IGCP 503. This new project IGCP Project 591, “The Early to Middle Paleozoic Revolution”, was approved and began its work in 2011.

5. CHIEF ACCOMPLISHMENTS AND PRODUCTS IN 2011

Silurian Times No 18 was edited by the secretary in May, 2011, posted on the web site for the ISSS, and circulated as an email attachment to all titular, corresponding and interested members of the Subcommittee. It contained the reports on previous meetings, announcement of upcoming meetings and publications, and the latest news and recent publications on Silurian research.

The International Symposium on the Silurian System “*Siluria Revited*” took place July 9-15, 2011, in Ludlow, England. There were two days of oral presentations focusing on a wide range of Silurian topics and many of the presentations were also contributions to IGCP 591. Of particular significance were the pre- and post meeting field trips that toured the type areas for the Llandovery Series in Wales and the Wenlock and Ludlow series in England. These trips gave the opportunity to a new generation of Silurian researchers to view the GSSPs for all of the Llandovery, Wenlock and Ludlow series and stages (except the base of the Llandovery, which is in Scotland). This meeting resulted in the publication of a program and abstracts volume, a field guide, which includes many new observations and interpretations of the localities, including the GSSPs visited. This field guide is available for download at: <http://www.igcp591.org/books.php>. In addition, a conference volume of submitted papers, to be published as a special issue of *Bulletin of Geosciences*, is in preparation. The ISSS thanks the organizing committee for producing an excellent meeting and set of field trips: David Loydell, Anthony Butcher and their students, and also to the organizers of the pre-conference excursion Jerry Davies and Dick Waters and of the post-conference excursion David Ray and many co-authors, plus a special thanks to Brad Cramer. ISSS also thanks the sponsors of the conference: The Palaeontological Association, The Geological Society, Neftex, Natural England, IGCP project 591. We also thank the persons who volunteered to organize the meeting in Sub-polar Urals (Russia), the late Tania Koren’,

Peep Männik, Anna Antoshkina, and Anna Suyarkova, which could not take place and which was replaced by the Siluria revisited meeting in Ludlow.

The SSS Chair continued his interaction with scientists at the British Geological Survey in the development of collaborative research between BGS scientists and members of the Silurian Subcommission, particularly focusing on the restudy of the type areas for the GSSP's for the Silurian, all of which occur in the UK except for the base of the Pridoli. Such work is forming the basis of future refinement of the definition and correlation of the GSSP, particularly those in Wales and the Welsh borders, including the bases of Aeronian, Telychian, Wenlock (Sheinwoodian), Homeric, Ludlow (Gorstian), and Ludfordian. Each of these GSSP's can be shown to be in need of refinement or redefinition and these features were highlighted during the Siluria Revisited field trips. New research by the BGS has resulted in considerable refinement of the stratigraphic and structural framework for this region and this will form an important basis for future deliberations regarding the merits of these GSSP's and their possible need for reconsideration. As a result, a number of the BGS researchers were key participants and co-leaders of the Siluria Revisited field trips and made substantial contributions to the field guide for that trip.

As noted elsewhere in this report, the current GSSP for the base of the Wenlock Series has been shown not to correlate with the biostratigraphic level that was stated in its original definition. This has led many ISSS members to suggest that a new GSSP is required for this level. As part of the ongoing efforts to resolve this problem the ISSS voting member Dr. P. Štorch visited a relatively known Llandovery-Wenlock boundary section in Ziyang, China. The results of this and other recent investigations have shown that we are still lacking a strong candidate for a new GSSP for the Base of Wenlock. However, a PhD student, Alex Ayling, has begun study of a potential GSSP section for this interval in Wales under the supervision of Dr. D. Loydell. The results will be presented at a future ISSS meeting.

It was decided at the business meeting of the ISSS in Ludlow to strike a new stage boundary working group to restudy the base of the Aeronian Stage. This was decided after the field trip visit to the current GSSP and extensive discussion at the business meeting. Dr. P. Štorch has agreed to lead this working group.

Five of the ISSS Titular Members, including the Chair and Vice-Chair, were co-authors on a paper published in *Lethaia* in 2011, outlining a proposed, informal subdivision of the Silurian time scale into stage slices. The paper also presented a generalized carbon isotope curve for the Silurian as well as a updated proposed correlation of the North American regional stages with the global standard scale.

The ISSS Chair, with several colleagues, has been preparing the chapter on the Silurian System for the 2012 edition of *The Geologic Time Scale*. This chapter is now completed and has been submitted for publication.

Publication of a special volume of *Proceedings of the Yorkshire Geological Society* honouring the lifetime contributions of Dr. Barrie Rickards, a well known and respected Ordovician-Silurian graptolite paleontologist and stratigrapher is anticipated soon. Invited papers focus on current research in graptolites, including contributions from Silurian graptolite researchers.

6. CHIEF PROBLEMS ENCOUNTERED IN 2011

No major problems were encountered except for the old problem related to difficulties in obtaining grants for research on stratigraphical topics and travel to meetings of Subcommittee. Applications are often given low priority by national grant-awarding agencies. It would be helpful if IUGS emphasized to its member countries the importance it attaches to the GSSP programme and encouraged the relevant research funding bodies to give priority to funding relevant basic research.

7. SUMMARY OF EXPENDITURES IN 2011

Income		
	Carried forward from 2010	nil
	ICS Allocation	US\$4000
Total		US\$4000
Expenditure		
	Expenses for ISSS Executive members to attend annual ISSS meeting	US\$4000
<u>Balance</u>		<u>US\$0</u>

8. WORK PLAN, CRITICAL MILESTONES, ANTICIPATED RESULTS AND COMMUNICATIONS TO BE ACHIEVED NEXT YEAR (2012):

Regular updating the website for Silurian Subcommittee. We gratefully acknowledge the support of the Nanjing Institute of Geology and Palaeontology Academia Sinica for this work. It is planned that the ISSS web site will be migrated from the Silurian.cn domain to a .org domain, which also hosts the ICS web site.

Publication of Silurian Times Newsletter 19

Publication of Bulletin of Geosciences on current research on the Silurian System/Period. Although this volume emerges from the Ludlow meeting, contributions to the volume have not been restricted to papers presented at that meeting.

Publication of a special volume of papers entitled “Siluro-Devonian Studies”, to be published as a Memoir of the Association of Australasian Palaeontologists.

Continued progress on the refinement of our understanding of Silurian GSSPs, particularly in collaboration with the ongoing regional mapping programme of the British Geological Survey in Wales and the Welsh Borders. In particular, collaborative studies of the chemostratigraphy and palynology of the Llandovery sections are under way and planned for 2012, and much of the focus will be through the new working group on the restudy of the Base of the Aeronian Stage.

The ISSS is a key partner in IGCP 591 – The Early to Middle Paleozoic Revolution. The planned milestone for IGCP 591 for 2012 is “Reconstructing global sea levels, sequence stratigraphy and paleogeography”.

The planned activities for IGCP 591 for 2012 are:

EGU General Assembly - Vienna, Austria, April 22-27, 2012

Programme Group: SSP – Stratigraphy, Sedimentology & Palaeontology

Session: SSP2.2 Palaeozoic global sea level: linking stratigraphy, bioevents, and the stable isotope record, convener: Dr Ž. Žigaitė, co-Conveners: D. Ray, T. Vandenbroucke, B. Cramer

IGCP 591 Annual Meeting - Cincinnati, Ohio, USA, July 22-28, 2012

Organised by Cramer & Brett. Pre-conference excursion to Katian-Wenlock - Southern Appalachian Basin (KY, OH, IN); post-conference excursions to Wenlock-Lochkovian - Illinois Basin (IN, IL). Special volume in *Stratigraphy* (eds. Cramer & Melchin).

GSA North Central Symposium and Pander Society Meeting Dayton, Ohio, USA, April 22-24, 2012 - IGCP 591 special session will be organized by Kleffner and Bauer.

34th International Geological Congress, Brisbane, Australia, August 6-10, 2012

Symposium 3.7: Pre-Mesozoic climates and Global Change, organized by Histon, Tewari, & Melchin.

Focus of ISSS members on continued collaboration on the process of full integration of the various regional and global biostratigraphic, lithostratigraphic, sequence stratigraphic, and chemostratigraphic scales. This integration is essential for refinement of the Silurian time scale and high-resolution correlation of Silurian events. In addition, some ISSS members are focusing on generation of new, high-resolution radiometric dates that are well constrained within the Silurian time scale. This is essential to achieve better calibration of this scale, which has been a serious weakness for the Silurian System.

9. BUDGET AND ICS COMPONENT FOR 2011

Contribution toward transportation, accommodation & registration of the Chair, to participate in the IGC in Brisbane, Australia

\$3500.00

Financial support for field meetings to Silurian GSSPs, particularly for the working groups restudying the base of Aeronian and Wenlock.

\$6000.00

The ISSS has done pioneering work in the area of restudy of previously ratified GSSPs (see below). Recent work has shown that many of the Silurian GSSPs, all of which were ratified in the mid-1980s, have serious deficiencies in terms of their potential use as benchmarks for high-resolution global correlation. Two working groups are currently focusing on restudy of the base of the Aeronian Stage and the base of the Wenlock Series. Future working groups will study the other GSSPs

Total requested from ICS:

\$9,500.00

Potential funding sources outside IUGS

Most of the costs of Working Group newsletter, meetings and other activities will be met by local support from host institutions and participation by individuals by national research and travel grants from their own authorities.

10. CHIEF ACCOMPLISHMENTS OVER PAST FIVE YEARS (2007-2011)

Over the period of 2007-2011 the Subcommittee on Silurian Stratigraphy was active in several respects. The most recent of these activities are summarized above under the heading of "CHIEF ACCOMPLISHMENTS AND PRODUCTS IN 2011". In addition to those, the following are the most significant accomplishments of the past five years.

1) The restudy of the base of the Silurian System. A restudy of the GSSP for the Base of Silurian was prepared in 2002 by a working group under the leadership of Michael Melchin. After three years work, the working group has unanimously agreed that the current GSSP, at 1.6 m above the base of the Birkhill Shale, at Dob's Linn, Scotland, should be maintained as the GSSP, but the biostratigraphical definition of the boundary needs to be revised. The GSSP should be regarded as coinciding with the first appearance of *Akidograptus ascensus*, defining the base of the *A. ascensus* Biozone at that GSSP section. By the middle of March 2006 all titular members have voted in favour of the proposal of Mike Melchin for the base of the Silurian at Dob's Linn. It has now been ratified by ICS and IUGS and a final report has been published in the September, 2008 issue of Episodes.

2) Regarding the restudy of the base of the Wenlock Series. The working group to restudy the Base of the Wenlock Series (base of Sheinwoodian Stage) was led by David Loydell, looked at potential GSSP sections in the Czech Republic and Wales, as possible alternatives to the current GSSP in England. The primary marker for the base-Wenlock was a graptolite, but the GSSP in England is notably poor in allowing exact determination of their ranges. Recent evidence has shown that the current GSSP does not coincide with the base of the *Cyrtograptus centrifugus* Biozone, as was supposed when the GSSP was defined. It has been suggested to retain the GSSP location in England but revise the level of the GSSP to coincide with a conodont event -- the Ireviken conodont datum 2. The correlation between this level and the graptolite biozonation remains a matter of some controversy. It is either approximately correlative with the base of the lower *murchisoni* graptolite Biozone (instead of the current *centrifugus* graptolite zone), or else a level high within the *murchisoni* graptolite Biozone. Alternatively, another GSSP locality with a precise base of the *Cyrtograptus centrifugus* Biozone could be chosen (e.g., potential sections in Great Britain or the Czech Republic), but this process would be quite lengthy. The report of this work at the Silurian Field Meeting in Gotland, in August, 2005, was discussed over the winter and spring, 2006. Most voting members appreciated very much the amount of work by the working group and especially the leader of the group. But most felt that for the moment that no good alternative for the previous GSSP can be proposed. It was decided not to propose a new GSSP and stick for the time being to the old GSSP, although it had many shortcomings, until new studies can propose a better alternative. This time consuming study could however not be completed before the deadline of the ISC, ending at the International Geological Congress in Oslo summer 2008.

At the 2009 Silurian Field Meeting in Sardinia many of the ISSS members expressed their desire to continue to search for a new GSSP for the Base of Wenlock to replace the current one. Those members felt that it would be in the best interest of stability to find a new GSSP whose level coincides with the base of the *Cyrtograptus centrifugus* Biozone. Other members expressed the view that, with additional study, it may be that the current GSSP can be shown to provide a high level of biostratigraphic resolution based on its conodont faunas and that it would be in the best interest of stability to keep the

current location and level. This is a matter of ongoing research and discussion for the Subcommittee, including a new PhD thesis underway by Alex Ayling, supervised by Dr. D. Loydell at University of Portsmouth, studying a promising Llandovery-Wenlock succession in Wales.

3) An International Conference on the Silurian System was held in Nanjing, China, in June-July 2007, hosted by the Nanjing Institute of Geology and Palaeontology. 22 talks and posters were presented on the Silurian and three excursions to the extensive Silurian outcrop areas of South China with more than 70 participants impressed the participants by the good exposures and the extensive work that was done in these sections. Conference proceedings were published in a special issue of *Acta Palaeontologica Sinica*.

4) ISSS members participated in 19 conferences in which IGCP 503 held sessions or symposia and undertook collaboration on planning of a followup IGCP project proposal, IGCP 591.

5) The Silurian Field Meeting, called “*Time and life in the Silurian: a multidisciplinary approach*” was held between 4-11 June 2009 in Sardinia, Italy. The meeting (organized by Petr Storch, Enrico Serpagli and Annalisa Ferretti) consisted of three days of scientific communications followed by a four days field trip in southern Sardinia. More than fifty scientists from fifteen countries attended the meeting. The scientific sessions were filled with talks dealing on any aspect of Silurian stratigraphy and palaeontology; the poster session included 18 posters.

In connection with the meeting, three special volumes were published in the series of the *Rendiconti della Società Paleontologica Italiana*: A. The Silurian of Sardinia - Corradini C., Ferretti A. & Storch P. (Eds.), 170 pp. The volume is dedicated to Prof. Enrico Serpagli, to celebrate his more than 40 years of activity in the Lower Palaeozoic of Sardinia. The volume comprises contributions that include an historical overview of the studies already carried out on the Silurian faunas of Sardinia, a global overview of the palaeoenvironment and palaeogeography, and seven research papers that illustrate current knowledge of major fossil groups encountered in the Silurian limestones and shales of southern Sardinia. B. Time and Life in the Silurian: a multidisciplinary approach - Field Trip Guidebook - Corradini C., Ferretti A. & Storch P. (Eds.), 96 pp.

A brief geological and stratigraphical overview of the Silurian of Sardinia introduces to the excursion itinerary with locality descriptions. C. Time and Life in the Silurian: a multidisciplinary approach - Abstracts - Corriga M.G. & Piras S. The volume includes the forty-seven abstract of the talk or posters presented at the meeting. The pdf of the volume is available in the meeting web page (www.unica.it/silurian2009).

As noted above proceedings volume was published in a special issue of *Bollettino of the Società Paleontologica Italiana* in 2010.

6) All three of the ISSS executive participated in the ICS Workshop “The GSSP Concept”, in Prague, May 30-June 3, 2010. The ISSS chair made a brief presentation on the current state of understanding and some of the revisions and remaining problems associated with several of the Silurian GSSPs.

OBJECTIVES AND WORK PLAN FOR NEXT 4 YEARS (2012-2015)

In addition to the points listed above as “WORK PLAN, CRITICAL MILESTONES, ANTICIPATED RESULTS AND COMMUNICATIONS TO BE ACHIEVED NEXT YEAR”, many of which will extend into future years, the priorities (not in order of merit) proposed for the Silurian Subcommittee for the next four years include:

Silurian Field Meeting in 2013, the proposed location is Lund, Sweden, in association with a meeting of IGCP 591, organised by Calner & Eriksson. Pre-conference excursion to Katian-Wenlock – Mainland Sweden & Norway; post-conference excursion to Llandovery-Ludlow – Gotland. Special volume in *GFF* (eds. Calner & Albanesi)

The research objectives for IGCP Project 591 are to investigate the biological, chemical and physical evolution of the ocean-atmosphere-biosphere system during this dynamic interval of Earth history by addressing in detail the relationships between climate, sea level, tectonics, biology, oceanography, volcanism, and the stratigraphic record of Early to Middle Paleozoic global planetary change. This project is being conducted in collaboration with the International Subcommittees on Ordovician, Silurian, and Devonian Stratigraphy (SOS, SSS, SDS), and will be accomplished in successive steps over the five-year duration of the project (2011-2015).

2011 – Improving global biostratigraphic and chronostratigraphic correlation

2012 – Reconstructing global sea levels, sequence stratigraphy and paleogeography

2013 – Identifying biological, chemical and physical indicators of global planetary change

2014 – Addressing evolutionary paleoecology, paleobiodiversity and paleobiogeography

2015 – Oceanographic and climate modeling of Early to Middle Paleozoic events

International and regional conferences are planned for the five-year duration of the proposed projects, as well as special publications each year, and, as noted above some of those meetings will coincide with ISSS meetings.

As noted above, ISSS members are collaborating with the British Geological Survey in the remapping and stratigraphic reinvestigation of the GSSPs and surrounding type regions for the bases of the Aeronian, Telychian, Wenlock (Sheinwoodian), Homerian, Ludlow (Gorstian), and Ludfordian. It is our objective to complete integrated biostratigraphic, chemostratigraphic, and sequence stratigraphic of each of the GSSPs. At the present time, each of these GSSPs has a significant level of imprecision in its definition for the purposes of high resolution stratigraphic correlation, which was well demonstrated during the Siluria Revised field trips. It is our hope that these restudies will increase the precision with which the GSSPs can be defined and correlated, as has been the case with the restudy of the Base of the Silurian. If not, this work may provide a compelling rationale for seeking a replacement section and point for one or more of the current GSSPs.

We are working on the establishment of data-bases which would bring together and make available information from all sources associated with the Silurian researchers. One such database has been

created at the Nanjing Institute of Geology and Palaeontology by Dr. Fan Junxuan, who is also Webmaster for ISSS. This database, called Geobiodiversity Database (GBDB) is currently in the advanced development stage. Associated with this will be the development and expansion of the Thematic Working Groups: for example, searching for and interpreting data from all sources relevant to reconstructing the palaeobiogeography or the climate of one or more specific time-intervals.

Other related activities include participation in the production of a new volume synthesizing our current understanding of Palaeozoic Palaeobiogeography. This volume is being edited by D.A.T. Harper and T. Servais.

**APPENDIX [Names and Addresses of Current Officers and Voting Members, 2008-2012]
SUBCOMMISSION ON SILURIAN STRATIGRAPHY**

Subcommission officers

Chairman: Michael J. Melchin, Department of Earth Sciences, St. Francis Xavier University, Antigonish, NS, Canada, B2G 2W5; mmelchin@stfx.ca.

Vice Chairman: Peep Mannik, Institute of Geology at Tallinn University of Technology Ehitajate tee 5, 19086 Tallinn, Estonia; mannik@gi.ee.

Secretary: Jacques Verniers, Research Unit Palaeontology, Department of Geology and Soil Science, Ghent University, Krijgslaan 281 building S8, B-9000, Gent, Belgium,; Jacques.Verniers@ugent.be.

List of Voting Members in 2011

C.E. Brett, Cincinnati, USA, brettce@email.uc.edu
D. Holloway, Melbourne, Australia, dhollow@museum.vic.gov.au
Jin Jisuo, London, Canada, jjin@uwo.ca
M.E. Johnson, Williamstown, USA, Markes.E.Johnson@williams.edu
T.N. Koren, St. Petersburg, Russia, koren@vsegei.sp.ru
J. Kríž, Prague, Czech Republic, kriz@cgu.cz
A. Le Hérisse, Brest, France, alain.le.herisse@univ-brest.fr
D.K. Loydell, Portsmouth, UK, david.loydell@port.ac.uk
P. Mannik, Tallinn, Estonia, mannik@gi.ee
M.J. Melchin, Antigonish, Canada, mmelchin@stfx.ca
A. Munnecke, Erlangen, Germany, axel.munnecke@gzn.uni-erlangen.de
S. Peralta, San Juan, Argentina, speralta@unsj.edu.ar
P. Štorch, Prague, Czech Republic, storch@gli.cas.cz
J. Verniers, Ghent, Belgium, Jacques.Verniers@ugent.be
Zhan Renbin, Nanjing, China, rbzhan@nigpas.ac.cn

4. Report of the ISSS MEETING:

Siluria Revisited: International Subcommittee on the Silurian System Conference and Field Meeting 2011,



In early July 80 members of the Silurian community (from 16 countries) assembled in Ludlow, England for the 2011 International Subcommittee on Silurian Stratigraphy Field Meeting – *Siluria Revisited*, which also served as the 1st Annual Meeting of the International Geoscience Programme (IGCP) Project 591 – *The Early to Middle Paleozoic Revolution*. The meeting consisted of a two-day pre-conference field trip to the Type Llandovery area, two days of technical sessions at the Ludlow Assembly Rooms, and a two-day post-conference field trip to the Type Wenlock and Type Ludlow areas.

More than forty presentations given during the technical sessions covered a broad range of topics on the stratigraphy, paleontology, geochemistry, paleoceanography, and tectonics of the Silurian. These talks illustrated the ongoing work that the Silurian community has undertaken to investigate one of the most dynamic periods in Earth's history. After the first day of talks the ISSS held its annual business meeting, after which Michael Rosenbaum led a very informative geological and historical tour of Ludlow.

The fieldtrips for this conference provided an excellent opportunity to visit classic Silurian sections. Jeremy Davies, Richard Waters, and David Schofield led an excellent pre-meeting field trip highlighting the results of recent work by the British Geological Survey (and friends) on the classical

Silurian stratigraphy of the Welsh Basin. During this pre-meeting trip we visited the base Aeronian and base Telychian GSSPs as well as several other key outcrops in the region. Contributions to the re-study of the Welsh Basin and to the pre-conference field guide were made by Jeremy Davies, Richard Waters, Stewart Molyneux, Thijs Vandenbroucke, Jacques Verniers, Mark Williams, Jan Zalasiewicz, and David Schofield. David Loydell and David Ray led a superb post-meeting field trip to the classical areas of the Welsh Borders and English Midlands that included stops at the base Sheinwoodian, base Homerician, base Gorstian, and base Ludfordian GSSPs, in addition to several other key localities in the region. The post-meeting field trip also included an underground boat tour of the Seven Sister's Mine where we were regaled with a re-enactment of Murchison's speech to the town of Dudley that was graciously organized by the Black Country Geological Society and Dudley Museum. Contributions to the re-study of the Welsh Borders and English Midlands and the post-conference field guide were made by David Loydell, David Ray, Leslie Cherns, Alan Thomas, Sarah Veevers, Carly Marshall, Graham Worton, and Bradley Cramer.

Graham Worton and the Dudley Museum kindly provided access to specimens and the opportunity to visit the Museum during the post-meeting field trip. David Ray had the unenviable and Herculean task of serving as editor for the field guide and produced (along with Gavin Jones, design and layout) an incredibly useful document for many years to come. For those interested in a digital copy of the field guide, *Siluria Revisited*, it can be downloaded from <http://igcp591.org/>. David Loydell deserves extra-special thanks for breaking his thirteen-year sabbatical and organizing a wonderful international meeting! A host of others, including Anthony Butcher, Alex Ayling, Luke Hauser, and others which I have inadvertently neglected to include, also contributed greatly to making this meeting an overwhelming success.

Additional support was provided by NefteX Petroleum Consultants Ltd., the British Geological Survey, Natural England, the Palaeontological Association, The Geological Society, the Black Country Geological Society, the International Union of Geological Sciences (IUGS), the International Commission on Stratigraphy (ICS), and the International Geoscience Programme (IGCP).

A special volume of Silurian papers, edited by David Loydell and Bradley Cramer, will be published as a special issue of the *Bulletin of Geosciences*.

Hope to see many of you at the IGCP 591 2nd Annual Meeting and 1st Foerste Symposium this July in Cincinnati, Ohio, USA!

With warmest regards,
Alyssa M Bancroft
PhD Candidate
School of Earth Sciences at The Ohio State University



All of the above photographs were taken by Anthony Butcher.

5. Report of the ISSS Business Meeting, Ludlow, July 12, 2011 (16h05-16h55)

Present: Nine from the 15 voting members present at the meeting plus about 40 interested Silurian researchers: C.E. Brett, Cincinnati, USA/ D. Holloway, Melbourne, Australia/ D.K. Loydell, Portsmouth, UK / P. Männik, Tallinn, Estonia/ M.J. Melchin, Antigonish, Canada / A. Munnecke, Erlangen, Germany/ P. Štorch, Prague, Czech Republic/ J. Verniers, Ghent, Belgium / Zhan Renbin, Nanjing, China.

1. Words of thanks to conferences organizers.

The chairman expresses his sincere thanks to the organizers of this conference: David Loydell, Anthony Butcher and their students, and also to the organizers of the pre-conference excursion Jerry Davies and Dick Waters and of the post-conference excursion David Ray and many co-authors, plus a special thanks to Brad Cramer. He also thanks the sponsors of the conference: The Palaeontological Association, The Geological Society, Neftekh, Natural England, IGCP project 591. At last he also thanks the persons who volunteered to organize the meeting in Sub-polar Urals (Russia), the late Tania Koren', Peep Männik and Anna Suyarkova, which could not take place and which was replaced by the Siluria revisited meeting in Ludlow:

2. Report on ICS meeting Prague

At the ISSS business meeting, two years ago in Sardinia, when the revision of the GSSP for the base of the Wenlock was discussed, the question was raised if the ICS statutes or procedures allowed the possibility to suspend a GSSP, pending its revision. Our chairman placed this question on the agenda of the ICS business meeting of the chairpersons of the stratigraphical subcommissions in Prague in May 2010. However, no precedents existed and after discussions it was decided not to allow a suspension of GSSP.

At that meeting our chairman reported on the current state of the revision of GSSP's in the Silurian. The reexamination and redefinition of the base of the Silurian was shown to have been successful, although it did not imply a change of GSSP or change of chronostratigraphical name, but only a taxonomical induced better definition of the previously chosen index fossil. He also reported on the status of the other GSSP's in the Silurian and issues and problems associated to their revision or search of a convenient new stratotype.

3. Location of the next ISSS meeting – relationship with planned meetings of the IGCP 591.

No proposals to organize in 2013 the next (field) meeting of the ISSS have reached the chairman. The chairman asks the voting members their opinion to organize the next meeting in conjunction with the planned meeting of the IGCP 591 which will take place in the northern hemisphere summer of 2013 in Lund Sweden. All agree and no-one opposed. The chairman will approach Mikael Calner, the organizer of the Lund meeting, to consider the possibility to host the ISSS meeting in conjunction with the IGCP591 meeting. Peep Männik will ask the Russian colleagues if they are willing to organize a meeting in 4 years time.

4. Report on GSSPs

In 2000 it was decided to reevaluate the GSSP's for the base of the Wenlock. The latest research on the existing GSSP in Hughley brook will be given by David Loydell, at the section itself on the post-conference excursion, after the conference?). During the last business meeting in Sardinia in 2009 the results of the search for possible other candidates as a new GSSP for the base of the Wenlock were reported on (see Silurian Times 17). Since then, Mike Melchin & Petr Štorch examined in June 2010 possibly suitable sections in the Prague basin, but either they were not longer in existence or contained only poorly preserved graptolites or are situated too close to intrusive bodies. In China a roadside

section in Bajiaokuo, Ziyang was studied by Jian Wang and co-workers. The results were proposed during the afternoon session just prior to the business meeting. The identification of graptolite index species needs further study together with the potential for high level correlation to the other palaeocontinents.

David Loydell announces the start of a study on graptolites, chitinozoans, OM carbon isotopes and other fossil groups of two possible candidate sections in Wales. Alex Ayling, will look in the framework of his PhD thesis at both sections, continuous from the lapworthi to the murchisoni biozone. The Trannon river section, 6 km north of Llanifoe is 90 m long and the Dyfnant Forest section, 12 km north of Llangodfan, in an old quarry, is 250 m long. Both show good potential for biozonation with graptolites and chitinozoans. To continue the discussion for a new GSSP for the base of the Wenlock the subcommission has to wait for the results of these mentioned projects.

The next issue for discussion is the priority to be given on the reexamination of other GSSP of series or stages in the Silurian: creating several working groups or concentrating on one. From the floor there are no propositions to change the names of the chronostratigraphical divisions of the Silurian: only the GSSP's are under scrutiny.

Base of Telychian: The GSSP was visited during the pre-symposium excursion in the area around the city of Llandovery and also previously during the excursion organized in September 2010 by the Ludlow Research Group. It became clear, after the extensive field mapping by the Gerry Davies, Dick Waters and other BGS geologists, and after more biostratigraphical studies, that the base of the Telychian at the GSSP was not stratigraphically intact due to major slump contacts that were discovered close to the GSSP. Probably the GSSP does not correspond to a level equivalent to the FAD of the graptolite *guerichi*, but a level lower in the *sedgwicki* zone. Thijs Vandenbroucke mentions that the Rhyader Gorge section, a possible candidate for the base of the Telychian, is now under study for chitinozoans in Lille. Davies and Waters also mention that they are revising the lithostratigraphy, as well as is David Loydell.

Base of Aeronian: the GSSP was also visited during the pre-symposium excursion, and the GSSP proved not to be at the FAD of the *triangulatus*, but rather in the middle of it. The ongoing discussion concentrates on either maintaining the FAD of the index fossil *triangulatus* or look for all other aspects happening at that boundary and choose another fossil or physical parameter (as for example the end of the *sedgwicki* carbon isotope excursion).

After discussion from the floor and after a straw vote of the nine voting members present, it was decided to start only one working group (next to the existing one on the base of the Wenlock), on the reevaluation of the base of the Aeronian. Since no-one from the floor volunteered to lead the new working group, the chairman announced that he will chair this group. It can include voting members as well as corresponding or interested members whom have experience in this specific subject.

Stan Finney, chair of the ICS, comments after the discussion that there is no rush nor deadline for the reevaluation of the Silurian GSSP. (there is a time constraint for the first time definition of GSSP's by the other stratigraphical subcommissions). The issue should be looked at carefully, allowing enough time for study and evaluation. After the reevaluation of, or new proposal of a GSSP, also the aspects of correlation potential to other continents should be studied and presented to the ICS. Not only the choice of the index fossil, as the best approximation of a chronohorizon, should be looked at, but also the species of other taxa of the same or other fossil groups around the boundary should be mentioned in the proposal to allow correlation worldwide. He mentions that the ICS is willing to consider some small funding for participation to meetings of the working groups(s).

5. Nominations of new corresponding members: Petr Storch proposes Ladislav Slavik (Prague), Zhan Renbin proposes Wang Li (China) and Wang Jian (China), David Loydell proposes Anthony Butcher (Portsmouth) and Jacques Verniers proposed Thijs Vandenbroucke (Lille).

6. Nomination committee for renewal of Chairperson, Vice-chairperson and of new voting members – Markes Johnson, Rong Jiayu and David Holloway were asked to form a nomination committee to indicate the new chairman and vice-chairman of the ISSS for the period 2012-2016. Their conclusion was to keep the prolongue both chairperson and vice-chairman for a second and last term of four years as is usual in the ICS. Their task is now to replace two voting members for the late Tanya Koren and Alain Blicck who stepped down. The secretary, Jacques Verniers, asked to step down in 2012 after an eight year term and will be replaced by Zhan Renbin who accepted this task for the next four year term.

7. Silurian Times Update

The secretary reported in Silurian Times 18 activities on Silurian research of 65 members, while there are 82 voting and corresponding members. The chairman warmly requests that all members (voting, corresponding and interested) should report their activities and publications in Silurian Times. Every year in December the secretary calls for this information to about 260 email addresses.

8. Any other business.

No proposals

Brad Cramer gives a presentation of the new **IGCP 591** project and future activities (see Silurian Times 18 and website <http://igcp591.org/>)

End of business meeting at 16h55

6. Announcements of future meetings

6.1 Announcement of new IGCP project 591 The Early to Middle Paleozoic Revolution



The Early to Middle Paleozoic Revolution

Bridging the Gap between the Great Ordovician Biodiversification Event and the Devonian

Terrestrial Revolution

International Geoscience Programme (IGCP) Project 591

International Geoscience Programme (IGCP) Project 591
2nd Annual Meeting and 1st Foerste Symposium



Cincinnati, Ohio, USA
July 22nd-28th, 2012

Second Circular



United Nations
Educational, Scientific and
Cultural Organization

***NEW EXTENDED* DEADLINES**

Request for Support: **May 1st, 2012**
Registration Payment: **May 15th, 2012**
Abstract Submission: **May 15th, 2012**





August F. Foerste
(1862-1936)

August Frederick Foerste taught for 38 years at Steele High School in Dayton, Ohio (just north of Cincinnati), but as an undergraduate at Denison University had already begun describing the geology and paleontology of the Dayton area. Upon his retirement, he was offered a professorship at the University of Chicago, but instead chose to spend the remaining years of his life as a Research Associate at the Smithsonian Institute. As we will see during this meeting, the Dayton area is critical to connecting the Ordovician and Silurian stratigraphy of the Appalachian Basin with that of the Illinois Basin, and his published works over more than three decades have served as the foundation for the stratigraphy of the tri-state region of Ohio, Indiana, and Kentucky. Whereas his stratigraphy has undergone regular revision, recent re-evaluation of the region has begun to demonstrate that Foerste's detailed work was

truly incomparable, much like we saw with O.T. Jones' work in light of the recent efforts of the British Geological Survey last summer in Ludlow, England (at the IGCP 591 1st Annual Meeting). The aim of this meeting, hosted on the campus of the University of Cincinnati, is to bring the IGCP 591 community to this critical area for Ordovician and Silurian stratigraphy of the paleocontinent of Laurentia. Additionally, the ability to see multiple epicratonic basins in one meeting is ideal for the 2012 annual theme of IGCP 591: Global Sea Level and Sequence Stratigraphy. Two days of pre-excursion field trip, two days of presentations, and three days of post-excursion field trip are planned, in addition to a special volume following the meeting in *Stratigraphy*. Preliminary details are outlined below, and the important deadlines were listed on the first page. We hope to see you in Cincinnati!

Pre-Conference Field Trip - July 22-Monday, July 23: Katian-Wenlock: Southern Appalachian Basin of Kentucky and Ohio. Participant Limit: 30 People

Saturday, July 21: Participants arrive at Cincinnati Airport; check-in at Geology Department, University of Cincinnati. Participants gather in the evening at the Rathskeller.

Sunday, July 22: Leave 9:00 AM from circle on UC campus. Travel will be by three mini-buses so participation will be limited to 30 people maximum.

1) Georgetown, KY; cut on I-75: Lexington Fm. (lower Katian).

2) Clays Ferry, KY; cuts on I-75 and US 25 in Lexington and Clays Ferry/Kope Fm (Caradoc: Cincinnati: Edenian local stage).

3) Boonesborough (lunch): High Bridge Group (Sandbian); Lexington Ls. (Katian).

Afternoon:

4) Richmond, KY: cuts on Rte. 52; in Ashlock and Drakes Fm. (Katian (Caradoc/Ashgill: Cincinnati: Maysvillian-Richmondian).

5) Waco, KY: cuts on Rte. 52 near Drowning Creek: (Katian: (Ashgill, Richmondian) upward through Llandoverly to unconformable contact with Middle Devonian.

6) I-64 east of Mt. Sterling (optional stop, time permitting) – Drakes Fm. (Katian: upper Caradoc: Maysvillian-Richmondian).

Overnight: Super 8 Motel: Maysville, KY; dinner in Maysville

Monday, July 23:

Leave Super 8 at 9:00 AM

1) AA Highway cut east of Maysville: Upper Ordovician: “Bull Fork” (=Waynesville Fm. (Katian: Ashgill; Richmondian)

2) Cut on Rte. 10 at Tollesboro, KY: Ordovician-Silurian contact: Drakes Fm/Brassfield Fm. (Katian/Ashgill and Rhuddanian-Aeronian)

3) Cut on AA Highway at Herrin Hill: Silurian Wenlock (uppermost Estill Shale; Bisher Fm.) unconformably overlain by U. Devonian (Famennian) black shale;

Return to Maysville for rest stop and lunch

4) Maysville, KY; US Rte. 62/68. Overview of huge cut in Kope-Fairview-Grant Lake Fms. U. Ordovician Katian

Cross Ohio River on US 62-68

5) “Racetrack cut” at “Speedway” off Rte. 48: Oldham?/Waco/ Estill (Aeronian/Telychian)

6) Peebles, OH; Cut on Rte. 32 at Measley Ridge; Estill, Bisher, Lilly, “Lilly Shale”, Peebles Fm. (late Telychian-Wenlock)

Return to dorms at University of Cincinnati

IGCP 591 2nd Annual Meeting and 1st Foerste Symposium

Tuesday July 24:

Meeting at UC Geology Department

Presentations beginning at 9am, posters displayed throughout the meeting.

Conference Banquet: Catered dinner on a paddlewheel river boat/cruise on the Ohio River

Wednesday, July 25:

Meeting at UC Geology Department

Presentations beginning at 9am

Post-Conference Field Trip - July 26-28: Katian-Ludlow: Southern Appalachian Basin of Kentucky, Illinois Basin of Indiana and Illinois. Participant Limit: 30 People

Thursday, July 26: Leave 9:00 AM from circle on UC campus. Travel will be by three mini-buses so participation will be limited to 30 people maximum.

Take I-71/75 to I-71 toward Louisville, KY

1) S. of Carrolton, KY: I-71 at Trimble Co. line, KY: Bellevue-Corryville-Mt. Auburn (mid Katian: Maysvillian)

2) Rte. 32x; Buckner, KY: Drakes Fm., Saluda Dolostone (Katian: Richmondian)

3) Crestwood, KY; Rte. 329 "Park Lake": Saluda: Brassfield Fm. with sinkhole fills (Ordovician-Silurian unconformity); Lee Creek, Osgood, Lewisburg. Massie, Laurel Fms. (Llandovery-Wenlock)

Lunch stop at Rest Area off I-71

4) I-71 at rest stop near Pewee Valley: Laurel, Waldron, Louisville Formations (Wenlock)

5) Sellersburg, IN.; Sellersburg Quarry: Laurel, Waldron, Louisville, Wabash (Wenlock-Ludlow) overlain unconformably by Middle Devonian Jeffersonville Fm.

Return to University of Cincinnati

Friday, July 27:

Leave 9:00 AM from circle on UC campus.

1) Lawrenceburg, IN; large roadcut on Rte 48; nearly complete lower Cincinnati section

2) Madison Roadcut, IN: Brassfield, Lee Creek, Osgood, Lewisburg, Massie, Laurel, Waldron, Louisville Fms. (Aeronian-Gorstian?)

Lunch at Clifty Falls State Park

3) Anderson Falls, IN: Laurel, Waldron, (Sheinwoodian-Homerian) overlain unconformably by Middle Devonian Jeffersonville Fm. (due to presence of 'Ripley Island').

4) Kentland, IN (Kentland Impact structure: good section of Upper Ordovician Maquoketa Fm. with shattered blocks of Silurian)

Overnight near Thornton, IL

Saturday, July 28: Leave 9AM from hotel near Thornton, Illinois

1) Lehigh Quarry near Thornton: Upper Ordovician, Maquoketa Fm, Lower Silurian Wilhelmi, Kankakee Dol. , Brandon Bridge Fm.

2) Thornton Quarry: Joliet Fm., Racine Fm., Thornton Reef

3) (optional stop) Pipe Creek Jr. Quarry; Wabash Formation

Return to Cincinnati

Travel and Accommodations

- Many international flights fly directly to the Cincinnati airport. Participants will be required to arrange their own travel between the airport and university in Cincinnati. Taxi or shuttle-bus service is easily available at the airport.
- Many hotels are available in Cincinnati (some closer to the campus than others), and in addition there will be on-site university housing available at a discounted rate for those who are interested. There will be 20-30 beds available, so please email a request for discounted lodging as soon as possible to cramerbd@gmail.com.

- A meal plan will also be available at a discounted rate should participants want to take advantage of this offer. There are many options to eat in Cincinnati, but this will be the most cost effective. Again, please email cramerbd@gmail.com if you are interested.
- Final costings will be included in the third circular which will follow this one shortly.

Questions?

- Any further questions or concerns (including letters of invitation), please email cramerbd@gmail.com

Preliminary Costs:

Conference Registration: \$75

Pre-Conference Field Trip: \$150

Post-Conference Field Trip: \$150

Conference Banquet: \$50

Final costs (which are unlikely to change from those listed above), registration forms, and bank transfer information will be included in the third circular (to be sent out 2nd week of April).

You can always check the IGCP 591 website (www.igcp591.org) for the latest updates about the project and the meeting.

On behalf of the organizing committee:

Brad Cramer

Carl Brett

6.1 IGCP Project 591 *The Early to Middle Palaeozoic Revolution* 2012 Activities

Dear Colleagues,

As part of the activities for 2012 of **IGCP Project 591 *The Early to Middle Palaeozoic Revolution*** a special symposium is being organized at the upcoming 34th IGC to be held in Brisbane Australia under **Theme 3. Climate Change: Lessons from the Past; Implications for the Future**

Abstract submission is now open (Deadline 17th February) and information may be found on www.34igc.org

For those of you hoping to attend the congress we would like to invite you to participate in the IGCP 591 Special Symposium outlined below – both oral and poster presentations are welcome.

3.7 Pre-Mesozoic climates and global change [IGCP 591]

Conveners: Kathleen HISTON catherine.histon@unimore.it (Italy), Vinod TEWARI (India) and Michael MELCHIN (Canada)

The Earth's severe global palaeoclimatic cycles, from global icehouse to greenhouse conditions, witnessed in the Neoproterozoic recur also throughout the Palaeozoic Era. The proposed session will explore integrated approaches to palaeoclimate reconstructions (fossils, proxies, models), correlation of the stratigraphic record of climate change, and cause-effect relationships within the ocean-atmosphere-biosphere Earth System during the Palaeozoic and Neoproterozoic.

Keynote speakers: David HARPER (Denmark), Alain PREAT (Belgium), David RAY (U.K.)

A full list of the activities of IGCP 591 for 2012 can be found on the website

(www.igcp591.org)

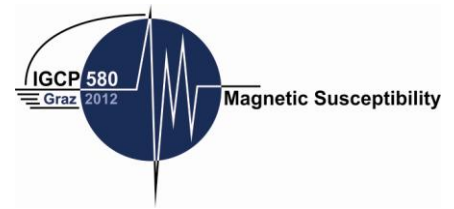
Looking forward to seeing you in Brisbane



Kathleen, Vinod and Mike

6.2. IGCP 580: *Magnetic Susceptibility and Gamma-Ray Spectrometry through time*

Graz, Austria; 24-30th June 2012



4th Annual Meeting 1st Circular

Venue

Within the frame of the 4th Annual Meeting of IGCP 580, we intend to bring together scientists that apply geophysical methods working on different time slices. Knowledge of problems appearing through the entire data-gaining-procedure (from application to interpretation) of Magnetic Susceptibility (MS) & Gamma-Ray Spectrometry (GRS) signals and possible ways how to deal with them is one of the major tasks of this meeting. In addition, we also invite participants of other disciplines in natural sciences to enhance the discussion with contributions regarding progress in environmental sciences and other areas.

On behalf of the IGCP 580 leaders and the on-site organizing committee, we are looking forward to see many of you in Graz!

Organization

This conference is organized by Thomas Suttner, Erika Kido, Werner Piller (Institute for Earth Sciences of the University of Graz c/o CPSA, Austrian Academy of Sciences, Austria), Anne-Christine da Silva (Department of Geology, Sedimentary Petrology of Liège University, Belgium) and Carlo Corradini (Dipartimento di Scienze della Terra of Università di Cagliari, Italy). For any questions please contact us via the official email address: igcp@uni-graz.at

Deadlines

Registration (and payment): **1st March 2012**

Abstract submission: **1st March 2012**

General Program

Sun, 24th June: Ice breaker party (Institute for Earth Sciences, University of Graz)

Mon, 25th June: Registration; Conference Sessions 1 (Talk & Poster)

Tue, 26th June: Conference Sessions 2 (Talk & Poster)

Wed, 27th June: Social Day & Conference Dinner

Thu, 28th - Sat, 30th June: Carnic Alps Field-Workshop (departing from Graz)

Sun, 1st July: Departure day (arrival back in Graz from Field-Workshop: Saturday approx. 20-21p.m.)

For further details please check the official IGCP 580 homepage or directly the conference webpage:

<http://www2.ulg.ac.be/geolsed/MS/>

<http://erdwissenschaften.uni-graz.at/aktuelles/veranstaltungen/igcp580/>

6.3 Announcement

“Paleozoic of Northern Gondwana and Its Petroleum Potential”.

The Turkish Association of Petroleum Geologists (TAPG) is pleased to announce a field workshop on **“Paleozoic of Northern Gondwana and Its Petroleum Potential”**. The meeting will be held on 9-14 September 2012 in Cappadocia-Kayseri, Turkey. The first two days of the meeting in Kayseri are foreseen for presentations. A complete Paleozoic section from Cambrian to Permian in the Sarız area will be studied during the field work in the last two days. For details please see the attached announcement.

The scientific program will include oral and poster presentations in the following topics related to Paleozoic of Northern Gondwana:

- Stratigraphic Frame & Paleogeography
- Sedimentary Basins
- Petroleum Systems
- Climate & Sea Level Changes
- Unconventional Resources & Hot Shales

See more information on : <http://www.paleopetrolgondwana.org/>



“New
Insights
into
Paleozoic”



www.tpjd.org.tr

09-14 September 2012
Cappadocia & Kayseri / TURKEY

“Paleozoic of Northern Gondwana and
Its Petroleum Potential – A Field Workshop”

“Paleozoic of Northern Gondwana and Its Petroleum” Potential – A Field Workshop

The meeting will be held on 9-14 September 2012 in Cappadocia and in Kayseri, Turkey. The first two days of the meeting in Kayseri are foreseen for presentations. A complete Paleozoic section from Cambrian to Permian will be studied during the last two days in the Sarız - Kayseri area.

The scientific program will include oral and poster presentations in the following topics related to Paleozoic of Northern Gondwana:

- › Stratigraphic Frame & Paleogeography
- › Sedimentary Basins
- › Petroleum Systems
- › Climate & Sea Level Changes
- › Unconventional Resources & Hot Shales



We extend a warm invitation to scientists and engineers working in these interesting topics and in this particular area to join the field workshop and to have the opportunity to exchange their new ideas and knowledge. The first circular including other details and committees will be available for downloading from the

conference website: www.tpjd.org.tr

M. Namık YALÇIN
Chairman



TÜRKİYE PETROL JEOLGLARI DERNEĞİ
TURKISH ASSOCIATION OF PETROLEUM GEOLOGISTS
www.tpjd.org.tr

Schedule

- 9 September 2012, Sunday: Arrivals, Registration, Ice-breaker Party
- 10 September 2012, Monday: Registration, Scientific Sessions
- 11 September 2012, Tuesday: Registration, Scientific Sessions
- 12 September 2012, Wednesday: Fieldtrip in Cappadocia
- 13 September 2012, Thursday: Field Workshop in Sarız
- 14 September 2012, Friday: Field Workshop in Sarız
- 15 September 2012, Saturday: Departures



Important Dates

- Deadline for the submission of four page extended abstracts: **March 30, 2012**
- Notification of Authors: **May 18, 2012**
- Advanced Registration and Hotel Reservation: **June 29, 2012**

Organizing Committee

- M. Namık YALÇIN (Chairman) Istanbul University
 - Nihat BOZDOĞAN (Vice Chairman) Turkish Petroleum Corporation (TPAO)
 - Ömer AKSU (Secretary) Turkish Petroleum Corporation (TPAO)
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- Demir ALTINER Middle East Technical University
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 - Nazif ŞAHİN Turkish Petroleum Corporation (TPAO)
 - Achim WEHRMANN Senckenberg Research Institute
- Contact Info:** Ömer Aksu (Secretary) oaksu@tpao.gov.tr +90 312 207 2148

7. Silurian Research 2011: news from the members.

Antoshkina, Anna (Russia): I am actively working on study of the Paleozoic reefs and Lower Paleozoic sedimentation of the north-eastern European Platform. The anoxia role in Paleozoic reef formation discontinuity on shelf margins of the European platform is shown. For the first time in the Subpolar Urals it is established that biotic Lau event was accompanied by the Late Ludfordian anoxic event. The obtained data are new and show that in northern paleolatitudes the Lau Event has been connected with sharp transgression and change of an arid climate by humid one.

Alyssa Bancroft (USA): I am currently a PhD student at The Ohio State University (under the tutelage of William Ausich) and I am continuing to study conodont faunas of the Lower Paleozoic (the Middle and Upper Ordovician and, most importantly, the Silurian). For part of my dissertation research I am working on the conodont biostratigraphy of the Guelph Formation in southern Ontario, Canada with Frank Brunton (Ontario Geological Survey, Sudbury, Ontario) and Candace Brintnell (University of Western Ontario). The use of conodont biostratigraphy, carbonate carbon isotope stratigraphy, and lithostratigraphy will provide time constraints to aid in the stratigraphic revision of the Guelph, as well as other stratigraphic units in southern Ontario (namely the Eramosa). If anyone is interested in hosting a conodonter who is eager to study and learn from all Silurian conodont collections, please call!

Chris Barnes (Canada) Work with Shunxin Zhang (Geological Survey of Canada, Iqaluit) continues using my extensive conodont database to relate conodont biostratigraphy, biofacies and biogeography to the pattern of eustasy and tectonism that affected northern Laurentia in the early Paleozoic. A recently published study involves Late Ordovician conodonts from southern Ontario (with Shunxin Zhang and Glen Tarrant). The geochemistry of Lower Paleozoic conodonts, particularly oxygen isotopes, is being pursued further in collaboration with Julie Trotter (University of Western Australia). I retired after a decade as Director of NEPTUNE Canada in June 2011 and am active in completing several Lower Paleozoic conodont studies as Emeritus Professor back in SEOS at the University of Victoria.

Denis Bates (U.K.): I am working on contributions to the forthcoming Treatise volume V Graptolites, and a manuscript on the Palaeoecology of the Graptoloidea, with Roger Cooper, Sue Rigby and D.K. Loydell has been accepted for publication. Further work on retiolitids and monograptids is in progress with Alf Lenz and Anna Kozłowska.

Stig M. Bergstrom (U.S.A.): As in previous years, most of my research activities have been in the Ordovician but I have also been involved in Ordovician-Silurian boundary and Llandovery projects. Some of my Silurian work during 2011 have been the stratigraphy and $\delta^{13}\text{C}$ chemostratigraphy of the Borensult drillcore from southern Sweden that penetrates an interesting succession from the upper Rhuddanian to the upper Darriwilian. One paper was recently published and another is in press. A long-term study with Mark Kleffner and Birger Schmitz on the well-known Manitoulin Formation in southern Ontario, a unit always considered to represent the early Silurian, showed it to contain the Hirnantian $\delta^{13}\text{C}$ excursion (HICE), and accordingly it is of latest Ordovician age. The results of this study were recently published in the Canadian Journal of Earth Sciences. Another paper, on the chemostratigraphy of the Ordovician-Silurian boundary interval in the Upper Mississippi Valley has been in review since last summer. In cooperation with several others, I am also involved in the study of Llandovery successions in southern and central Sweden.

Specialevent: An unexpected but most pleasant experience this fall was that I received the Paleontological Society Medal 2011, the highest award in paleontology in America, at the annual meeting of the Geological Society of America in Minneapolis. As I stressed in my acceptance speech, to get this great honor would have been impossible without the scientific cooperation through the years of more than 100 co-workers, some of whom are or were Silurian specialists.

Alain Blicck (France): I am still interested in Silurian and other Palaeozoic vertebrates, from agnathans to tetrapods.

Carlton E. Brett (USA): In 2011, some 30 days in the field were devoted to Silurian stratigraphy in eastern North America and Britain. In early July, 2011, I attended the very interesting Silurian Subcommittee meeting in Ludlow and associated field trips. I presented results of some of the research we are currently working on, dealing with sequence stratigraphy and cyclostratigraphy, paleoenvironments of the Ireviken interval in eastern North America. Discussions associated with field trips provided further incentive to pursue more detailed comparative sequence stratigraphic studies between British and North American Silurian successions in conjunction with former PhD student, Dave Ray.

In earliest September I ran a nine-day field trip for several colleagues, including Jacques Verniers and his students from Ghent University, Belgium, Thijs Vandenbroucke, Lille University, France, Andre Desrochers from Ottawa University, Ontario, Paul Emsbo of the US Geological Survey in Denver, Don Mikulic from Illinois Survey, Brad Cramer and Alyssa Bancroft, Ohio State University, Pat McLaughlin, University of Wisconsin, and my own students. This was combined with an effort to make digital Three-D scans of Silurian outcrops in Kentucky and Ohio with Carlos Aiken and his students from University of Texas, Dallas. All told, we examined some 50 different localities, mostly Silurian, in Kentucky, Ohio, Maryland, Pennsylvania and New York State. In all, more than 30 sections were sampled for microfossils, despite sweltering heat in Kentucky and incredible rains in PA and eastern NY; samples are being processed hopefully to provide us some new insights into the correlations of Silurian in eastern North America. We intend to showcase several of these sections in the upcoming IGCP field trip in summer 2012 (see below).

My two graduate students, James Thomka and Nick Sullivan, have made excellent progress on Silurian of the Tristates (Ohio, Indiana, Kentucky) area. Doctoral student Thomka is continuing research on the detailed cyclostratigraphy, sedimentology and comparative taphonomy and paleoecology of the upper Telychian-early Sheinwoodian Osgood and Massie Shales and the Homerian Waldron Shale from Tennessee to central Indiana and their correlatives in Ohio. In his first year of field study James focused on faunal changes associated with the early Sheinwoodian (Ireviken) bioevents. Masters

student Sullivan has collected data on sequence stratigraphy, biostratigraphy, carbon isotopes, and magnetic susceptibility of the upper Llandovery Series in Ohio, Kentucky and in a comparative sense in the type Clinton area of New York State. Together with the anticipated results of better constrain the events and faunal changes associated with the Valgu and early Ireviken bioevents in eastern North America.

During the past year Pat McLaughlin and I have obtained more new data and have continued to generate several new carbon isotopic profiles that will provide significant insight in to Silurian correlations in eastern North America. We also continue to work with Brad Cramer on issues of geochronology and calibration of Silurian time scales.

In the upcoming summer, Brad Cramer and I will co-host the Annual Meeting: the Foerste Symposium, July 22-28, 2012 for IGCP 591: *The Early to Middle Paleozoic Revolution*, with a field conference, at the University of Cincinnati, Ohio, USA and a variety of field locations in Ohio, Kentucky, Indiana, and Illinois. The pre-conference excursion to Katian-Wenlock - Southern Appalachian Basin (KY, OH, IN) and the post-conference excursion to Wenlock-Lochkovian - Illinois Basin/Michigan Basin (IL, IN) will be organised by B. Cramer & C.E. Brett. Special volume in *Stratigraphy* (eds. Cramer & Melchin). For more details, visit the IGCP 591 website: <http://www.igcp591.org/meetings.php>.

Olga K. Bogolepova (U.K): I am currently working on several projects on the Early Palaeozoic sedimentary rocks from various locations in the Russian Arctic. In September 2011, during an expedition to the New Siberian islands, several Silurian sections were examined and sampled.

Carole J. Burrow (Australia): I continue to work on the Early to Middle Palaeozoic gnathostomes (particularly acanthodians) from, well, all the continents. I lost contact with 'Silurian Times' in 2004 when my email address changed, and I have since changed institutions from the University of Queensland to the Queensland Museum. My main Silurian activities since then have been further investigations on the rare occurrences of Silurian vertebrates in Australia, as well as (unpublished) comparative study of microremains from the long-known bonebeds of Saarema Island in the Baltic and the oldest known acanthodians, the tchunacanthids, from Russia. My most recent publication was on a partial articulated acanthodian from the Late Silurian of eastern Canada, the oldest known such specimen. (Specimens of *Onchus graptolitarum* Fritsch from the Czech Republic, based on articulated fish in concretions, were originally considered to be of Early Silurian age, but the lithology apparently indicates they are upper Pridoli). I continue to work with Sue Turner on Late Silurian microvertebrate assemblages from several regions in the maritime regions of North America, in particular from Nova Scotia and Maine.

Bradley D. Cramer (USA): I have just completed my National Science Foundation – Earth Sciences Postdoctoral Fellowship, and am continuing in the post-doctoral holding pattern as I continue to look for a permanent position. The Kansas Geological Survey has provided a one year post-doctoral appointment to keep me off the streets, for which I am grateful. We got lots of good stuff accomplished during 2011. Most importantly, IGCP Project 591 – The Early to Middle Paleozoic Revolution – was approved as many of you heard in either Madrid or Ludlow last year. The meeting for this year (2012) will be in Cincinnati, Ohio, USA, and the first circular for the meeting is included in this volume as well as being available online at the IGCP 591 project website (www.igcp591.org). The project website also provides the very useful conference volumes from the meetings last year in addition to lower Paleozoic community contact information. New U/Pb zircon age dates continue to come in and we are finally getting some real numbers with which to calibrate the Silurian chronostratigraphic chart. The first manuscript with new dates has recently been accepted and the work on the Silurian timescale will continue throughout 2012. A total of some 8-12 new dates (including the four in the first manuscript) should be available by the end of this year if all goes well (which of course it rarely does...). As for papers that came out this year, the composite Silurian C and Sr curves were finally published in *Lethaia* and *Journal of Geology*, respectively. I hope to see you all in Cincinnati in July!

Robin Cocks (U.K.): has had a busy year, partly working on Palaeozoic global palaeogeography with Trond Torsvik and partly continuing systematic work on Ordovician and Silurian brachiopods. Two palaeogeographical papers were published, one on Laurentia and the other on the central part of Gondwana, which included all of Africa and India and much of the Middle East, Antarctica and South America. Work is now in progress on eastern Asia between Siberia and Gondwana, which includes North and South China, Annamia, Sibumasu and Tarim, each of which had numerous adjacent microcontinents and island arcs – the eventual submitted paper is unlikely to be definitive! Brachiopod work included a small paper on Cambrian to Devonian genera helpful in analysing palaeogeography, and the acceptance of a paper (as third author) with Huang Bing and Rong Jiayu on the global earliest Silurian (Lower Rhuddanian) radiation after the Hirnantian setbacks. More substantial papers on the Late Katian and Hirnantian faunas of southwest Wales (solo) and of the Chingiz Terrane of Kazakhstan (with Leonid Popov) are well advanced. Attending the Silurian Symposium at Ludlow was a high point.

Paul Copper (Canada/France): I am active on Early Silurian and latest Ordovician (Hirnantian) faunas and stratigraphy of Anticosti Island, and elsewhere (e.g., eastern North America), in part with Jin Jisuo (Uni. Western Ontario). In final stage of preparation, for submission, is a large monograph (first author Ross McLean) on the Early Silurian rugose coral fauna of Anticosti Island, ca. 50 plates, 20 text-figures, to appear in *Palaeontographica Canadiana*, hopefully late 2012.

Priorities: (a) stratigraphic revision of the Aeronian section on Anticosti (Gun River and Jupiter formations, naming a new formation for the lower section), for 'Newsletters on Stratigraphy'
(b) stratigraphic revision of the Hirnantian nomenclature of western Anticosti with the naming of new members for the section, following confirmation with brachiopod, chitinozoan, acritarch and conodont data that the entire 65 m thick Ellis Bay Fm is Hirnantian
(c) revision of the brachiopod genera *Hindella* (Hirnantian) and *Cryptothyrella* (Aeronian) from their type localities and their significance across the O/S boundary transition
(d) taxonomy of the early Silurian atrypid brachiopod fauna of Anticosti (ca. 65 spp., 20 genera), as monograph,
(e) the Early Silurian athyrid faunas of Anticosti, a.a. (6 genera, ca. 14 spp.)
(f) the Early Silurian low diversity spiriferid fauna of Anticosti (the ree genera, *Striispirifer*, *Eospirifer*, *Cyrtia*)

Projects: With Jin Jisuo I am preparing a complete dossier of biodiversity changes at the species and genus level across the O/S boundary for the Anticosti section. Preliminary data confirm that Alroy's 2010 Phanerozoic diversity plots (from 'Palaeontology') are correct, and that the O/S mass extinction is far less severe than either the F/F and the P/T mass extinctions and that O/S recovery times were shorter.

Maria Giovanna Corrigan (Italy): I'm working on conodont taxonomy and biostratigraphy across the Silurian/Devonian boundary in Sardinia, the Carnic Alps and other North Gondwana regions. An updated conodont zonation for the Pridoli and the Lochkovian has been proposed (with C. Corradini). In the Carnic Alps I'm investigating the Silurian and Lower Devonian *Orthoceras* Limestones, mainly in the Italian side of the chain, and several sections are in study. Among them the S/D boundary interval was sampled in detail in the Cellon section (with H.P. Schönlaub and C. Corradini). Two upper Silurian-Lower Devonian sections in the Spanish Pyrenees were sampled together with J.I. Valenzuela Rios and J.-C. Liao.

Carlo Corradini (Italy): I'm working on Silurian and Devonian of North Gondwana, mainly in Sardinia and in the Carnic Alps. In the Carnic Alps I'm investigating the Silurian and Lower Devonian *Orthoceras* Limestones, mainly in the Italian side of the chain, and several sections are in study. The taxonomic and biostratigraphic study of the conodont fauna from several sections spanning the Silurian/Devonian boundary is in progress; this interval has been sampled in detail in the Cellon section (with H.P. Schönlaub and M.G. Corrigan). A project with the goal to achieve a formal lithostratigraphy of the pre-Variscan sequence of the Carnic Alps is in progress: it involves several colleagues from Italy, Austria and other countries. In Sardinia I'm studying calcareous sections (with M.G. Corrigan) and black shales outcrops (with S. Piras). A couple of uppermost Silurian-Lower Devonian sections in the Spanish Pyrenees have been sampled (together with J.I. Valenzuela Rios, J.-C. Liao and M.G. Corrigan). An updated conodont zonation for the Pridoli and the Lochkovian has been proposed (with M.G. Corrigan).

Desrochers André (Canada): I am actively working on Upper Ordovician to Lower Silurian strata exposed on Anticosti Island (eastern Canada) with contribution from two graduate students (Wickson, Clayer) at uOttawa and collaboration from Aicha Achab and John Riva (INRS-ETE) and Esther Asselin (GSC) in Quebec City. By integrating sequence sedimentology with chitinozoan species-based biostratigraphic packages and carbon isotopic profiles, we are now able to produce high-resolution stratigraphic models. Our recent studies indicate that the Ellis Bay Formation records one of the thickest, if not the most complete, Hirnantian successions known globally. Together with J.-F. Ghienne (Strasbourg), we are working on a sequence stratigraphic correlation of two distant Hirnantian sections, one from the Anti-Atlas (southern Morocco), the other from Anticosti (eastern Canada) representing a high and a low latitude sedimentary record respectively

Annalisa Ferretti (Italy): I am involved (with K. Histon, P. McLaughlin and C. Brett) in editing a "Paleogeography, Palaeoclimatology, Palaeoecology" Special Issue on "Time-Specific Facies: The Colour and Texture of Biotic Events", where several papers dealing with the Silurian are included. In that volume I have completed (with B. Cavalazzi, R. Barbieri, F. Westall, F. Foucher and R. Todesco) a study on the significance and nature of peculiar colours in some Silurian sequences from N Gondwana that has revealed a distinct signal of microbial activity. A comprehensive study on the significance of black shales throughout the Phanerozoic has been recently completed with M. Melchin and A. Negri.

M.Cemal Goncuoglu (Turkey): I am actively working with V. Sachanski and H. Kozlu on E. Silurian black (hot) shales in regard to their bio- and lithostratigraphy and geochemistry.

Kathleen Histon (Italy): I continue to work on various aspects of the nautiloid cephalopod fauna from the Silurian successions in the Carnic Alps (Austria) in order to document faunal recovery and exchange during the Silurian and response to eustatic changes on a local scale.

David Holloway (Australia): David Holloway (Australia): A large paper with Phil Lane (Keele University, UK) on scutellid trilobites from Wenlock to Ludlow limestones in central western New South Wales will be published this year in *Palaeontology*. Also in press (*Journal of Paleontology*) is a short paper with Juan José Rustán (Universidad Nacional de Córdoba, Argentina) on the occurrence of the phacopid trilobite *Reedops* in the Pragian of Argentina. I am presently working on a proetid trilobite related to *Tropidocoryphe*, from the Wenlock to Ludlow of New South Wales, and continue work with Phil Lane on scutellid and illaenimorph trilobites from a late Llandovery allochthonous limestone from north-eastern Queensland. Editing the 'Siluro-Devonian Studies 2' volume together with John Laurie (Geoscience Australia, Canberra) will also occupy a good deal of my time this year. The volume will be published around October as a Memoir of the Association of Australasian Palaeontologists.

Helen Hughes (U.K.): I continue as a Research Officer at Plymouth University. I have received a Palaeontological Association Research Grant for a project entitled 'Biotic responses to Silurian global environmental change'. This study will investigate the effects of the Ireviken Event on benthic faunas, within the UK. Fieldwork on classic early Wenlock sections on the Midland Platform has commenced, in collaboration with Dave Ray.

Markes E. Johnson (USA): I am currently working in co-operation with Rong Jia-yu (Nanjing Inst. Geology and Palaeontology) to update information on the fossil fauna associated with rocky shores around Bater Island from the Upper Silurian of Inner Mongolia, China. During my sabbatical in 2009-2010, we also initiated a project on paleoshores from the Upper Silurian near Qujing in Yunnan Province. Similar research is in progress on Devonian rocky shores from the Oscar Range in Western Australia, from the Miocene of Porto Santos in the Madeira Archipelago, and the Pleistocene of the Santiago Island in the Cape Verde Islands (North Atlantic Ocean). I am assembling data on the evolution of rocky-shore faunas through time.

Dimitri Kaljo (Estonia): I am still working on the Ordovician and Silurian bio- and chemostratigraphy of Baltica and elsewhere for comparison. A team work on the Pridoli of Podolia and East Baltic was discussed at 8th Baltic Stratigraphical Conference in Riga, August 2011. A refined paper about the topic written together with T. Martma, V. Grytsenko, A. Brazauskas and D. Kaminskis is in press in *Estonian Journal of Earth Sciences* (www.eap.ee/earthsciences).

Comment by Dimitri Kaljo (Estonia):

Writing a manuscript about the upper Silurian chemostratigraphy as reported above I met two “problems” that are brought to you in order to learn about opinions of colleagues.

The first – orthography of local and unit names is rather simple and well guided by international rules and good practice. This “problem” is rather usual for territories where political rule has been changing several times. In our paper we used in the Podolian part the unit names by Tsegelnyuk et al. 1983 (as in Kaljo et al. 2007), but their orthography followed the recommendations by the International Stratigraphical Guide (Salvador 1994, chapter 3, B. 3). This means that the Ukrainian language is taken as a primary basis for spelling of names even if some cases seem arguable (e.g. Dzwinogorod, Dzv(w)enygorod or Zvenigorod).

The second is more “technical” but nevertheless also of principle. A correct spelling of name of the uppermost Silurian series is “Přídolí” and so it appears in the Global Standard for the Silurian System edited by C.H. Holland & M.G. Bassett, 1989. In my manuscript I wrote “Přidoli” and one of reviewers (D.K. Loydell) corrected all my misspelled unit names. Thanks, but I remember clearly that Charles Holland consulted with Czech colleagues, when finalising the first draft of classification, and J. Kříž responded, that “they will not protest if somebody did not follow exactly a proper lettering” (or it was something like that).

Computer era has made correct typing much easier and therefore I accept reviewers corrections with pleasure and as an author I wish to follow in full international recommendations, no problem with that. However, IUGS ICS website and several leading SSS people (Cramer et al. 2010, Lethaia) spell the term as “Pridoli”. This is also some kind of recommendation. As an editor I would like to support keeping rules and developing of a good practice among the geological community, but current situation needs to be discussed first.

Erika Kido (Austria): I am working on the Silurian-Devonian rugose corals especially from Japan and the Carnic Alps. In 2011, I started second postdoc project (accepted by the Austrian Science Fund) belonging to the Austrian Academy of Sciences, which focus on the Middle Devonian climate perturbations and effects on tropical coral communities. A paper where T. Suttner and I reviewed global events and biodiversity during the Ordovician and Silurian was published.

Mark Kleffner (USA): I am presently actively involved in six projects: (1) a revised conodont-, graptolite-, chitinozoa-, and event-based Gorstian-Lochkovian (Silurian-earliest Devonian) chronostratigraphy (with James Barrick); (2) $\delta^{13}\text{C}$ chemostratigraphy of Ordovician/Silurian boundary strata of the North American Midcontinent (with Stig Bergström); (3) conodont biostratigraphy, oceanic episodes, and $\delta^{13}\text{C}$ chemostratigraphy of Silurian/Devonian boundary strata in New York; (4) Ireviken Event and Ireviken $\delta^{13}\text{C}$ excursion (with Brad Cramer and many others); (5) oceanic episodes, ^{13}C chemostratigraphy, and updated Homerian, Gorstian, and Ludfordian (Silurian) conodont biostratigraphy of the North American Midcontinent Basins and Arches region of southern Laurentia; and (6) Silurian high-resolution stratigraphy on the Cincinnati Arch (with Brad Cramer, Pat McLaughlin, and Carlton Brett).

Jiří Kříž (Czech Republic): I am working on the systematic of the giant Silurian bivalve *Pycinodesma* Kirk, 1927 from Alaska. In winter 2011 I systematically studied a new Silurian Bivalvia of Alaska discovered at the Chichagof Island in July 2010 by R. Blodgett and D.M. Rohr.

Upcoming project, etc. Together with Nigel Hughes from University of California, Riverside we are preparing a new project “The Homeric (*Testograptus testis* Biozone) interval of volcanic quiescence in the Prague Basin (Perunica) and its litho- and biofacies development”. I am retired and I work for the Czech Geological Survey just for 25%. I almost completed transfer of my collection of Silurian bivalves from Bohemia and abroad (almost 20.000 specimens) to the Czech Geological Survey Museum.

Alain Le Hérisse (France) My research interests are focused on biostratigraphy and environmental interpretations in the Paleozoic, using Organic-Walled Microphytoplankton (acritarchs and other microalgae). Currently I am conducting a biostratigraphic study of Ordovician-Devonian series in subsurface in the basins of North Brazil in collaboration with colleagues of Petrobras, Rio. The aim is to develop a correlation scheme and biozonation, as a complement of the studies on miospores and chitinozoa. Several studies are also concerning revision of greenhouse-icehouse transition, and particularly in the upper Ordovician, and the Ordovician/Silurian boundary, using organic-walled microphytoplankton as paleoenvironmental and biostratigraphical indicators. The recent results concern the North Gondwana (Algeria, Chad), and the middle East (Saudi Arabia). Understanding of the paleoenvironmental significance of OWM, can contribute efficiently to the reconstruction of paleoclimatic and paleoceanographic conditions (cf. Le Hérisse et al., 2009).

Alfred Lenz (Canada) I'm continuing to work on graptolites from Arctic Canada. A large monograph on mid Wenlock flattened and uncompressed graptolites of that region, authored by Sherrill Senior, Anna Kozłowska, Mike Melchin and me, is now at the “in press” stage in *Palaeontographica Canadiana*. This work includes some new and unusual taxa, and considerably refines the biostratigraphy of the interval. I am involved in two projects for the Treatise revision of the graptolites: a General Morphology chapter in progress by Jörg Maletz and me, and a chapter on retiolitids, authored by Denis Bates, Anna Kozłowska and me, the latter being essentially completed. Work on a diverse fauna of isolated, uncompressed Llandovery retiolitids is being carried out by Anna Kozłowska, Mike Melchin and me, and should lead to a much better understanding of early retiolitid morphology and evolution. Minor contributions have been made in studies of Early Devonian gastropods and Silurian brachiopod assemblages, both northern and Arctic Canada.

Steve LoDuca (U.S.A.): Steve LoDuca (U.S.A.): I continue to work on the taphonomy, systematics, functional morphology, paleobiogeochemistry, and evolution of early Paleozoic macroalgae, especially dasyclads. Work also continues on the stratigraphy of Silurian units within and adjacent to the Michigan Basin. Current collaborators include Filippo Barattolo (Italy), Heroen Verbruggen (Belgium), Denis Tetreault (Canada), and Ernie Behringer (USA).

David Loydell (U.K.): Much of the first half of 2011 was spent preparing for the Siluria Revisited meeting. North African graptolite and palynological projects dominated research activities. In 2012 I look forward to completing the work (with Petr Štorch and Juan Carlos Gutiérrez-Marco) on the graptolites from Aeronian-Telychian sections around the El Pintado reservoir, Spain.

Alex Ayling's (Ph.D. student) work on the Llandoverly/Wenlock boundary has indicated that the lowest bed in the most accessible part of the Trannon river section contains *Cyrtograptus centrifugus*, so the focus of his research will now shift to the Dyfnant forest section which we hope will yield *insectus* Biozone assemblages.

Rhian Llewellyn (another Ph.D. student, jointly supervised by Tony Butcher) has started work on early Sheinwoodian palynology in eastern mid Wales, whilst Luke Hauser (also a Ph.D. student) is working on all aspects of a bone bed above the Ludlow Bone Bed in the Ludlow area.

Other continuing projects are on the Measley Ridge section, Ohio (with Mark, Kleffner, Tony Butcher and others) and on various Graptolite Treatise chapters.

Peep Männik (Estonia): I am actively working on evolution, taxonomy and palaeoecology of conodonts, conodont-based high-resolution stratigraphy, bioevents and palaeogeography. I am also interested in sequence stratigraphy and evolution of sedimentary basins. My studies will continue under projects: "Changes in the Telychian and lower Sheinwoodian conodont faunas as a proxy for basin evolution in northern Baltica"; "Ordovician and Silurian biodiversity in Baltica: evolution and impact of the changing environment" and "Quantitative stratigraphical approach to early Palaeozoic chitinozoans and conodonts of the Baltic area: high-resolution time scales and palaeobiodiversity". Additionally, a small project dealing with conodont faunas from base Aeronian and Telychian GSSPs is in progress. Also, joint studies together with colleagues from Estonia, Germany, Iran, Russia, Sweden, U.K. and USA on evolution and high-resolution stratigraphy of the Early Palaeozoic faunas and sedimentary basins on different palaeocontinents are going on.

Alexander (Sandy) D. McCracken (Canada): I continue to work on Middle to Upper Ordovician, Silurian and Devonian and conodonts from various locations in Canada.

Michael J. Melchin (Canada): I am currently working on several projects related to graptolite biostratigraphy and biodiversity through the Late Ordovician and Early Silurian, particularly in North America, Europe, and China. I am collaborating with Charles Mitchell, David Sheets, Petr Storch and Stan Finney, on the study of Late Ordovician–Early Silurian faunas in Nevada and Bohemia, Scotland, and Fan Junxuan and Chen Xu on the study of Rhuddanian–Aeronian graptolites from South China. I am working on project with Dan Goldman, Chuck Mitchell, Fan Junxuan and others on quantitative graptolite biogeography. We are also working together with Chris Holmden, MSc student Peter Bullock, and others on the stratigraphy and isotope chemostratigraphy of the same successions. My graduate student, Jason Loxton, is very near completion of a study of biodiversity dynamics through the late Katian to earliest Rhuddanian in Northern Yukon and the systematics of the Late Ordovician graptolites. I have been working with Alf Lenz and Ania Kozłowska on some isolated Llandoverly graptolites.

C. Giles Miller (U.K.): I continue to work on Silurian conodonts from Iran with Peep Mannik and Vachik Hairapetian. We submitted an article on conodonts from the Niur Formation in 2011 and have other Silurian collections to describe from the same area. Leicester University student Erin Sims is also working on a collection of non-palaeocene ostracods from the Canadian Arctic for a publication with myself, Mark Williams and various other co-authors. This is complementary material to the palaeocopes published in 2010 by Miller, Williams and Siveter in the Canadian Journal of Earth Sciences.

Axel Munnecke (Germany): My current Silurian- and Late Ordovician-related research includes studies on stable carbon isotopes from organic material from Gotland (together with Thijs Vandenbroucke, Lille, and Olle Hints, Tallin), and from limestones from China (together with Zhang Yuandong from NIGPAS, Nanjing). In collaboration with Brad Cramer (Geol. Survey, Kansas), Dave Boon (BGS), Carlos Aiken (Univ. of Texas) and Dave Schofield (BGS) I am working on the Digital Integrated Stratigraphy Project (DISP). Aim of this project is to produce precise 3-D digital renderings of stratigraphically important Silurian outcrops using Terrestrial Laser Scanning (TLS) LiDAR, Real-Time Kinematic (RTK) GPS, overlain digital photography, and GIS software.

Viiu Nestor (Estonia): I am finishing a summary paper of the East Baltic Silurian chitinozoan biozonation. In 2012 I take part in the grant "Quantitative stratigraphical approach to early Palaeozoic chitinozoans and conodonts of the Baltic area: high-resolution time scales and palaeobiodiversity", guided by Olle Hints.

Keith Nicholls (U.K.): I am gathering field data in North Wales and West Wales with respect to the end - Ordovician extinction and earliest Silurian recovery fauna - at the moment focussing on trace fossils and brachiopods. I hope to start some serious work soon on a historical review of the original eponymous "Hirnantian" sections which lie in my field area. I am also beginning to plan some summer fieldwork on the opposite side of the Iapetus Ocean, by visiting Scotland. I am also writing up some informal field notes on the Silurian outcrop in North Wales - in the Newsletter of the North Wales Geology Association – on a somewhat ad hoc basis

Godfrey Nowlan (Canada): I have been involved for almost all of 2011 in a management position within GSC. I continue to work on conodonts and complete reports on Cambrian - Silurian biostratigraphy, paleoecology, paleogeography and thermal maturity for samples submitted from projects taking place across Canada. I am also working on aspects of the Ordovician – Silurian boundary in cratonic settings in North America with Bob Elias and students (University of Manitoba) and Graham Young (Manitoba Museum).

Vincent Perrier (France): I am actively working on Palaeozoic ostracods (mainly Ordovician-Silurian). Since two years I am post-doc in Tartu University (Estonia) working on the impact of environmental changes on ostracod (Palaeocopes and Podocopes) biodiversity with Tõnu Meidla, Oive Tinn, Leho Ainsar and Karin Truver. I just finished a first work dealing with the recovery of ostracods after different Ordovician ash-falls and I'm currently beginning a project about ostracod recovery after the End-Ordovician extinction in Estonia. I am also still working on the Silurian Myodocopid ostracods in collaboration with David J. Siveter and Jean Vannier and we recently published two new papers. I am also treasurer of the Group of French Palaeozoists, see website below (in French): <http://sites.google.com/site/groupefrancaispaleozoique/home>

José Manuel Piçarra (Portugal): I'm working on the Lower Paleozoic stratigraphy of South Portugal (Ossa Morena Zone) and also on the Ordovician and Silurian graptolites from Portugal.

Project "Beja Public Geological Trail" (Portugal)(see "Trilho Geológico" in www.cm-beja.pt; facebook "Trilho Geológico")

David Ray (U.K.): My research activities over the past year have focused upon the Wenlock Series of the Midland Platform (England). Collaborations with Brad Cramer, Carly Marshall, Alan Thomas and others have focused upon intergrading sequence stratigraphy, $\delta^{13}\text{C}$ data and radiometric dates for the Homerian of the northern Midland Platform (Ludlow, Wenlock Edge and West Midlands). Additional collaboration with the Tom Richards has made available bentonite geochemistry data and radiometric dates for the Homerian at Whitman's Hill Quarry, Malvern. This data has been combined with a new sequence stratigraphic framework allowing for detailed correlation between Malvern and the northern Midland Platform. Finally ongoing collaboration with Helen Hughes has focused upon establishing depositional environments, sequence stratigraphy and $\delta^{13}\text{C}$ data for the Sheinwoodian of the southern Midland Platform (Tortworth and Woolhope). I hope that the results from many of these collaborations will be published over the coming year.

At Neftex Petroleum Consultants a detailed review of the Silurian portion of the Neftex Sequence Stratigraphic Model has been completed and was presented, as a synopsis, at EGU, Vienna. In addition I would like to thank Neftex as a sponsor of the 2011 ISSS meeting.

Valeri Sachanski (Bulgaria): I am actively working on Ordovician-Devonian stratigraphy of Bulgaria and Turkey and especially to Silurian-Lower Devonian graptolite biostratigraphy.

Desmond Strusz (Australia): The brachiopod fauna from the heritage site at Woolshed Creek in Canberra, where Silurian fossils were first recognized in Australia, has been described, and published on-line with the Linnean Society of New South Wales. The paper includes images of some of the corals and trilobites found in the fauna.

I have started work on a joint project with Ian Percival of the NSW Geological Survey, describing the brachiopod fauna of the Silurian Quidong Basin, near Delegate in the far south of the state. From a preliminary examination of the available material, we have recognised some 16-18 species, many of which have already been described from the Canberra-Yass region. We expect the project to take about 18 months to complete. I am also re-assessing the large Geoscience Australia collections from Canberra in the expectation of finding previously undescribed brachiopod species well enough preserved to be worth further study.

I have started transferring the unpublished material from my PhD studies on the Devonian Garra Formation held in Geoscience Australia to the NSW Geological Survey repository at Londonderry (western Sydney).

Thomas J. Suttner (Austria): I am actively working together with the team of the *Carnic Alps Working Group* on a new dataset of Magnetic Susceptibility across the Silurian-Devonian boundary of neritic and pelagic sections in the Carnic Alps (Austria and Italy). This research-topic is part of project IGCP 580 (related subproject: NAP0017), of which the 4th Annual meeting (June 2012) will be held in Graz (see Announcement by Erika Kido).

Jacques Verniers (Belgium): I still try to finish the manuscript on the chitinozoans around the Silurian-Ordovician boundary in two boreholes (Rostanga and Lönstorp) in Scania (Sweden), provided by Arne Nielsen, in which Tania Koren made a detailed graptolite biozonation around the Ordovician-Silurian transition. With Thijs Vandenbroucke we finished the study with chitinozoans of the type sections of the Llandovery, presented the excursion of the Silurian stratigraphical Subcommission meeting in Ludlow, UK, last July 2011. The article with Dr. Sinha (India) on Upper Ordovician chitinozoans from northern India was published. Together with Thijs Vandenbroucke and two B.Sc students we participated in a extensive sampling trip in Kentucky, Ohio, Maryland and New York State, organized by Brad Cramer and Carl Brett. The main aim was the Telychian and Sheinwoodian. The first results should be presented at the IGCP 591 meeting in Cincinnati in July 2012.

Jan Mortier (Belgium) continues his PhD study on the lithostratigraphy, biostratigraphy with chitinozoans and palaeoenvironmental reconstruction with isotope studies on organic carbon of the Silurian of the Condroz Inlier (Belgium). Steven Esselens finished his M.Sc. thesis on the dating with chitinozoans of volcanoclastic rich and some macrofossil units near Hennuyères, Brabant Massif, Belgium, as uppermost Ordovician Katian and Hirnantian). Jef Deckers described and dated with chitinozoans in two sections near Huy-sous-Huy (Wenlock and Lower Ludlow, Condroz Inlier, Belgium).

Olev Vinn (Estonia): I am actively working on the palaeontology of problematic calcareous tubeworms from the Palaeozoic (e.g. cornulitids, tentaculitids, microconchids etc.) and evolution of tubeworm biomineralization. I am currently also working on the evolution of bioerosion and biofouling of hard substrates in the Silurian of Baltica.

Wen-jin, Zhao (China): I am actively working on the Siluro-Devonian Vertebrate Paleontology, Stratigraphy, Paleogeography, and relative Paleo-environmental and Paleo-climatic changes. I continued to focus on the study of Silurian fishes and Silurian/Devonian boundary in China this year. Two publications were published. I went to Dallas of USA to attend the 12th Internal Symposium on Early and Lower Vertebrates held in June 11 to 14, 2011, and gave a talk on the research of Silurian fishes from Xinjiang, China. I also took part in the four-day post-conference excursion (June 15 to 18, 2011) in North Texas.

8. Publications on the Silurian in 2011 or from earlier not mentioned in previous newsletters.

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Alvarez Fernando, Modzalevskaya Tatyana and Covadonga Brime. 2011. Early Devonian diversification of athyridide brachiopods in the Cantabrian Zone (NW Spain) and their affinities, revisited. Special Symposium T2: Howard Brunton Symposium: Morphology, evolution and phylogeny.

Angelov, V., Sachanski, V. and Tanatsiev, S. 2010. Ogradishte and Romcha Formation – new lithostratigraphic units for the Upper Silurian and Devonian sediments in the Svoge tectonic unit. *Review of the Bulgarian Geological Society*, 71, 1-3, 2010: 5-15.

Antoshkina A. I. 2011. Lower Paleozoic reef formation in the north of the Urals as an example of its interrelation with geo-biospheric changes. In: S.V.Rozhnov (Ed.) Reefogenous formations and reefs in biosphere evolution. Moscow: Paleontological Institute of the Russian Academy of Sc.: 116-141 (in Russian). <http://www.paleo.ru/institute/files/rif.pdf>

Antoshkina A. I. 2011. Genetic types of carbonate psephytolithes in Lower Paleozoic in the north of the Urals: I. Composition and structure. *J. Lithosphaera*, 2: 31-41 (in Russian).

Antoshkina A. I. 2011. Genetic types of carbonate psephytolithes in Lower Paleozoic in the north of the Urals: II. Types, models and properties of formation. *J. Lithosphaera*, 3: 39-49 (in Russian).

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Blieck, A. 2011. The André Dumont medallist lecture — From adaptive radiations to biotic crises in Palaeozoic vertebrates: a geobiological approach. *Geologica Belgica*, 14 (3-4): 203-227, 13 fig.; Bruxelles.

Blieck, A. submitted. Palaeozoic biodiversity, ecosystems and evolution: from adaptive radiations to biotic crises in vertebrates. *Geologica Belgica*.

Blieck, A., Turner, S., Burrow, C.J., Schultze, H.-P., Rexroad, C.B., Bultynck, P. & Nowlan, G.S. 2011. Fossils, histology, and phylogeny: Why conodonts are not vertebrates. *Episodes*, 33 (4) [2010]: 234-241, 4 fig.; I. U. G. S.

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