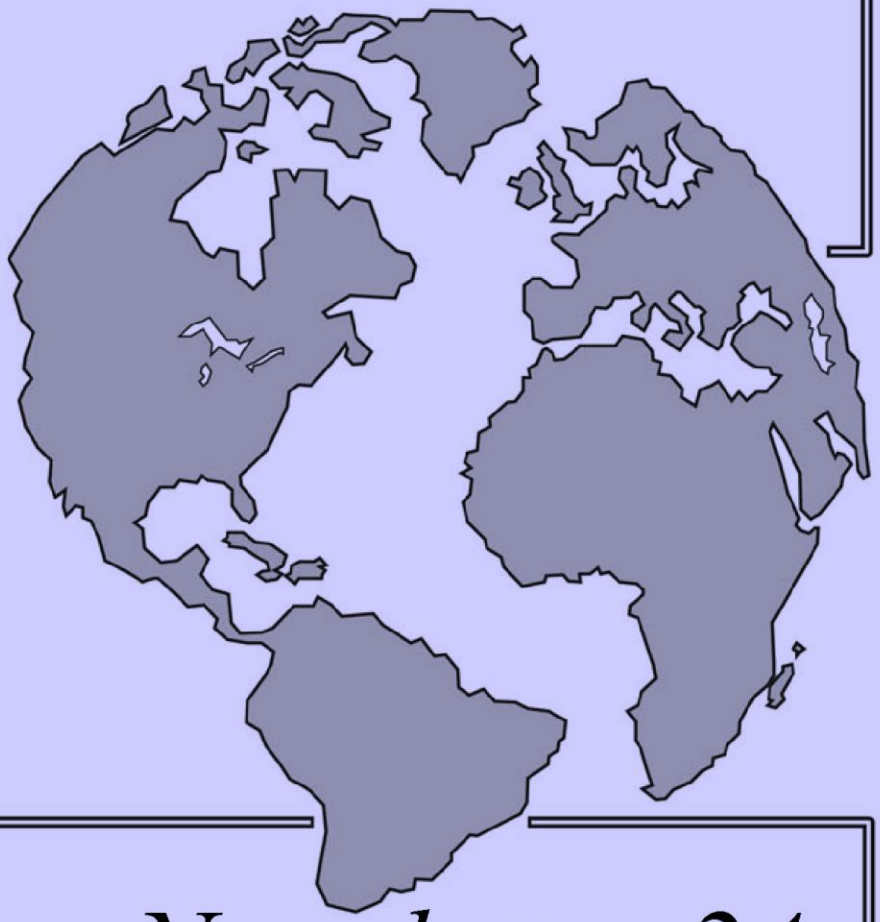
Chitinozoan Newsletter

CIMP

Subcommission on Chitinozoans



Chitinozoan Newsletter 24

Commission Internationale de Microflore du Paléozoïque
Subcommission on Chitinozoans

Contents

EDITORIAL

Hello all. Another year has swept by with alarming speed and the chitinozoan newsletter is here again. Many thanks to those of you who have submitted articles this year. Along with the reports from individual members from around the world, we have a summary of the IPC meeting in Granada. Viiu Nestor has sent in a good photograph showing an aberrant *Rhamochitina* from upper Wenlock of the Kaugatuma core of Estonia. News from Florentin Paris says that chemical anaysis of a single chitinozoan specimen has been completed and that a multi-author paper is prepared for publication. Finally, it is good to see that chitinozoans have made it in to the public realm at the new museum extension at the University of British Columbia.....enjoy!

Gary Mullins

MESSAGE FROM THE PRESIDENT

Research on chitinozoans continues to thrive, despite acute underfunding of palynology and palaeontology, as well as general underfunding within the geological sciences. The CIMP chitinozoan subcommision provides a forum for scientific exchange via the newsletter, website and conferences. The website has been updated recently, though it could perhaps do with some further information on what chitinozoans look like, what they might be, as well as their utility in stratigraphy, palaeoenvironmental interpretation and palaeogeography. This year the Chitinozoa made a small start on the Wikipedia online encyclopedia, and I have added the links to the relevant CIMP websites. Perhaps something could be pulled together for the CIMP website that will cover the basic facts about the chitinozoans, comparable in some ways to those included in the Chitinozoa chapter of the recently published Encyclopedia of Geology. Another achievable project that could be undertaken is to document the first and last appearance of chitinozoan genera, similar to those presented in the Fossil Record 2, where the fossil records of the Chitinozoa were seemingly overlooked. Please let me know if you wish to contribute to this. This year several chitinozoans workers met at the IPC in Granada and we can look forward to meeting again at the CIMP general meeting in Prague in September 2006.

Ken J. Dorning, Sheffield, December, 2004. k.j.dorning@sheffield.ac.uk

FUTURE MEETINGS

Geologic problem solving with microfossils. Rice University, Houston, USA, 6th–11th March 2005.
http://www.sepm.org/microfossils2005.htm

North American Palaeontological Convention (NAPC2005), Dalhousie University, Halifax, Canada, 19th–26th June 2005.
http://meguma.earthsciences.dal.ca/napc/napc.htm

American Association of Petroleum Geologists Convention, Calgary, Canada, 19th–22nd June 2005.
http://www.aapg.org/calgary/index.cfm

Field meeting of the Subcommission on Silurian Stratigraphy 2005, Gotland, Sweden, August 15th–22nd, 2005.
http://www.geol.lu.se/events/silconf.htm

6th Baltic Stratigraphic Conference, St. Petersburg, Russia, 22nd–26th August 2005. Contact Alexander Ivanov aoi@AI1205.spb.edu

American Association of Stratigraphic Palynologists Annual Meeting, St. Louis, USA, September 18–21st, 2005. http://www.palynology.org/meetings.html

49th Palaeontological Association Meeting, Oxford, UK, December 18th–21st, 2005. http://www.palass.org/

CIMP General Meeting, Prague, 4th–6th September 2006. Contact Jiri Bek mrbean@gli.cas.cz or Odrich Fatka fatka@natur.cuni.cz

CONCRETE CHITINOZOANS

Chitinozoans are beneath our feet in more ways than one. Stuart Sutherland (University of British Columbia, Vancouver, Canada) has sent in a couple of photos that show the new extension to the UBC museum.

It looks like a very pleasant space to stop and have lunch, but if you have a closer look at one of the slabs you should be able to recognize something that is very familiar.....

WORLD WIDE WEB

CIMP Homepage
http://www.shef.ac.uk/~cidmdp/

Chitinozoan database
http://www.geosciences.univ-rennes1.fr/ENG/data/nsp/Default.htm

CIMP Chitinozoan Subcommission
www.shef.ac.uk/~cidmdp/cimpsubc.html

CIMP newsletters
http://www.shef.ac.uk/~cidmdp/archnews.html#ch

11th INTERNATIONAL PALYNOLOGICAL CONGRESS GRANADA, SPAIN, JULY 2004

Over 500 delegates, 800 contributions and an abstract volume that runs to 600 pages. The IPC is certainly a big congress. With talks covering the whole range of palynology, from its modern forensic applications to its use in palaeoclimatology and understanding evolution, there was something for everyone including a number of talks on chitinozoans. Ken Dorning discussed their use in determining Palaeozoic marine productivity. Aïcha Achab (with Paris, Nõlvak and Asselin) presented the

results of research into Ordovician chitinozoan biodiversity. Later, Aïcha (with Rubinstein and Astni) also talked about the chitinozoans recovered from an Ordovician, peri-Gondwanan volcanic arc in NW Argentina. The joint CIMP/Saudi Aramco session saw Florentin Paris (with many co-authors) discuss the acritarchs and chitinozoans recovered from the Ordovician of Turkey. The stratigraphical application of chitinozoans was also covered, with Thijs Vandenbrouke and Jan Vanmeirhaeghe presenting talks on the Upper Ordovician chitinozoans of the UK and Belgium respectively. Further talks came from Marioara Vaida and Jacques Verniers, who presented a data on the Early Devonian chitinozoans of Romania. Jacques Verniers (with A.T. Nielsen) and Gary Mullins (with R. J. Aldridge), also highlighted the distribution of chitinozoans in two of the Silurian global stratotype sections (Dob's Linn and Hughley Brook respectively).

To complement the scientific sessions there were great meals and a visit to Granada's stunning Alhambra. Being Andalucia, we were of course treated to the regional dance Flamenco (and that's all the excuse I need to put flamenco dancers in the newsletter). It was good to see many friends at the meeting and good to see that chtinozoans still maintain a high profile.

For those of you who missed the meeting the abstracts can be found in the June 2004 CIMP newsletter (http://www.shef.ac.uk/~cidmdp/cimpn65.pdf).

Gary Mullins

Olé! Flamenco dancers at the Andalucian dinner, 11th IPC Granada (photo G. Mullins)

ADDRESS CHANGES

Since October 4th, the INRS–ETE and GSC–Quebec offices have relocated to a new building in downtown Quebec City at 490, rue de la Couronne, Québec (QC) G1K 9A9, Canada.

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NEW MEMBERS

My name is **MAIRY KILLING** (Institute of Geology at TTU). I'm an M.Sc. student and involved in a project that deals with frequency patterns of Early Palaeozoic microfossils including chitinozoans. In cooperation with Olle Hints and Viiu Nestor the study of chitinozoans in the Llandovery/Wenlock boundary of some Estonians boreholes is currently in progress.

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SUSANA DE LA PUENTE. I am beginning my Ph.D. in the Palaeopalynology Unit (IANIGLA–CRICYT, Mendoza) under the direction of Claudia Rubinstein. My subject concerns the Ordovician chitinozoans from the Central Andean Basin, northwestern Argentina.

<u>I will be very grateful if you could send me papers dealing with this topic.</u>

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M.Sc. Thesis Abstract

On April 12th this year, **Kariny de Amorim Gaugris**, a student of Yngve Grahn, successfully defended her masters thesis entitled "Quitinozoários da Formação Ponta Grossa: uma Análise Bioestratigráfica, a partir de furus de sondagem das regiões Norte e Sul da Bacia do Paraná" at Universidade do Estado do Rio de Janeiro in Rio de Janeiro.

Abstract. This work is the result of a biostratigraphic analysis, based on chitinozoans, which aims to contribute to the stratigraphic refinement of the Devonian of the Paraná Basin. The biostratigraphic analysis was carried out with samples from five boreholes: RSP-1 and RVR-1, situated in the Alto Garças Sub-basin, and 9-PPG-2-PR, 9-PPG-6-PR and 9-PPG-7-PR, located in the Apucarana Sub-basin. The data obtained seem to confirm that the sediments studied from the Alto Garças Sub-basin are from the Devonian, and that the lower Devonian rocks yield a low amount of preserved chitinozoans. The diversity of chitinozoan species in the middle–upper Devonian in the northern part of the Paraná Basin is larger than that of the lower Devonian in both Sub-basins. In all 48 chitinozoan species was encountered, of which 19 are undescribed in the literature. *Ancyrochitina* dominates with 53% of the species. *Ancyrochitina* n. sp. 1, *Ancyrochitina* n. sp. E and *Ancyrochitina* cf. *A. parisi* seems to be the only Lower Devonian species in common for both Sub-basins. A new biozone is suggested, the Zone of *Ancyrochitina* n. sp. 2 (Late Pragian – Early Emsian), which is situated between the *Ramochitina magnifica* Zone and the hiatus below the *Ancyrochitina parisi* biozone. The co-occurrence of *Alpenachitina eisenacki*, *A. matogrossensis* and *A. petrovinensis* only some tens of meters above the Eifelian–Givetian boundary, represents a distinct interval within the early Givetian.

MEMBERS REPORTS

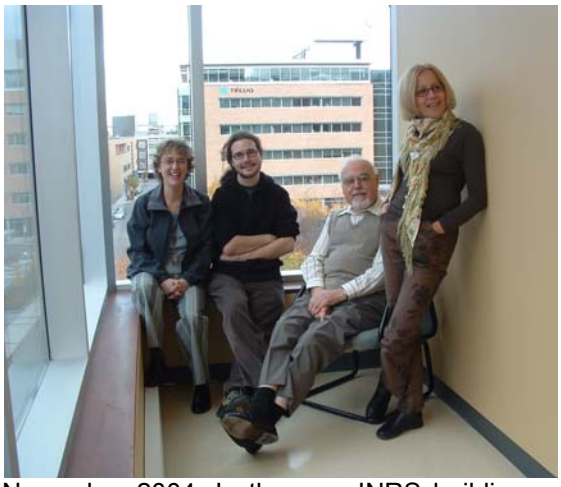
AÏCHA ACHAB (INRS–Eau, Terre, Environnement).

Ordovician chitinozoan diversity

Following our participation in the documentation of the Ordovician chitinozoan diversity, we have tried, in collaboration with Florentin Paris and Jaak Nõlvak, to compare the Laurentian, Gondwanan and Balto-scandian diversity curves and relate the main bioevents or variations to global or regional paleogeographic, paleotectonic and paleoenvironmental conditions. The results were presented at the IPC in Granada and at the first meeting of the IGCP 503 Project held at Erlangen, Germany.

Chitinozoan contributions to the NATMAP (Canadian National Mapping Program) project on the Appalachian foreland and the platform architecture of eastern Canada

Palynological studies in this project allowed the dating of some lithostratigraphic units and to better document the stratigraphic value and geographic distribution of some chitinozoan assemblages (Asselin, Achab, Soufiane; Lavoie, Asselin and Wilson et al. 2004).



November 2004. In the new INRS building, a meeting of Ordovician palaeontologists. From left to right: Esther Asselin, Thijs Vandenbrouke, John Riva (graptolites) and Aïcha Achab.

Lower Ordovician chitinozoans and acritarchs from Argentina

In collaboration with Claudia Rubinstein (CONICET, Unidad de Paleopalinología, Mendoza) and Ricardo Astini (CONICET, Universidad Nacional de Córdoba) a paper describing acritarch and chitinozoan populations from the Lower Ordovician Famatina Group of northwestern Argentina has been prepared and submitted to Review of Palaeobotany and Palynology.

Improvement of "CHITINOS"

“CHITINOS“, our palynological image and data acquisition system, is being improved thanks to the efforts of Sebastien Vignola. The improvements will permit an easier capture of paleontological and geological information.

Visit

Thijs Vandenbrouke of Ghent University, Belgium, spent 3 weeks in Quebec comparing the chitinozoans he is studying from Avalonia with coeval material from Laurentia.

TONY BUTCHER (University of Portsmouth) is close to finishing his Ph.D. thesis entitled “Chitinozoan biostratigraphy of the Rhuddanian of Illinois and Jordan.” Tony wishes to express his thanks to all of those who have helped him in his research.

KEN J. DORNING (Pallab Research, Sheffield and Palynology Research, University of Sheffield). Research continues on the examination and interpretation of Palaeozoic sequences worldwide, with a focus on palynology and palaeoenvironmental interpretation. Within the British Isles, research in the Welsh Basin includes work on the well preserved acritarchs, chitinozoans and other palynomorphs collected throughout the late Gorstian and Ludfordian succession from Woodbury Quarry, SO743637, Worcestershire, England, as well as the latest Llandovery – early Wenlock section at Domas, Shropshire, England.

YNGVE GRAHN. Earlier this year (April 12) Kariny de Amorim Gaugris successfully defended her masters “Quitinozoários da Formação Ponta Grossa: uma Análise Bioestratigráfica, a partir de furus de sondagem das regiões Norte e Sul da Bacia do Paraná” at Universidade do Estado do Rio de Janeiro in Rio de Janeiro. Later, in the beginning of November, Yngve Grahn submitted the last paper in a project aiming to achieve an Ordovician – Devonian integrated Chitinozoa – miospore (and sometimes acritarch) biostratigrapy of western Gondwana. As a result the pile of papers in press has now have grown to 8 papers, which I hope to tell more about when publish (most of them?) next year. New, more economical and grant-friendly projects, are planned for 2005 and onwards.

OLLE HINTS (Tallinn University of Technology). Although scolecodonts have remained my favourite group, I try to keep my eye on chitinozoans as well. Together with Jaak Nõlvak we recently recovered a diverse assemblage of chitinozoans and scolecodonts from the latest Tremadocian of North Estonia (abstract published, paper submitted for Review of Palaeobotany and Palynology), and we are seeking additional Early Ordovician material. Together with Viiu Nestor and Mairy Killing we have just started a project which aims at studying frequency patterns of various microfossil groups, chitinozoans included. We are currently focusing on the Llandovery – Wenlock boundary interval that has been sampled in several Estonian drill cores. The first results are expected in 2005.

GARY MULLINS (University of Leicester). I have recently published an article, co-authored by Dick Aldridge, on the chitinozoans of the global stratotype section and point for the base of the Wenlock Series, Silurian, at Hughley Brook, Shropshire, UK. At present I am also examining chitinozoans from the USA and from Pembrokeshire, Wales. Results will hopefully allow more acurate dating of the sampled sequences.

VIIU NESTOR (Institute of Geology at TTU). Re-examination of chitinozoans from the type section for the base of the Wenlock in Hughley Brook (Mullins and Aldridge 2004) stimulated me to restudy distribution of chitinozoans in the Llandovery–Wenlock boundary beds of some Estonian drill cores in order to find possibilities for more precise correlation with the boundary stratotype (a paper is submitted). The joint study with D. K. Loydell on the integration of the graptolite and chitinozoan biostratigraphy of the upper Telychian in the Ventspils core (Latvia) is completed and submitted to Geological Magazine. In collaboration with O. Hints (scolecodonts), P. Männik (conodonts) and other colleagues, a case study of frequency patterns of the Early Palaeozoic microfossils from drill cores has been started this year, for stratigraphical and palaeoecological purposes.

JAAK NÕLVAK (Institute of Geology at Tallinn Technical University). I continue my work on Ordovician chitinozoans and the biostratigraphy of the East Baltic sections, mainly from core material: one is under preparation, another (Runhu) was published. My co-working with Z. Modlinski and B. Szymanski continues, with material from Ordovician and Silurian boundary beds from two Polish sections. With D. Goldman we concentrate to the material (graptolites and chitinozoans together) from middle Ordovician from one Latvian core section. Descriptional work of Ordovician chitinozoans is in progress.

LEONARD OLARU. My news are to elaborate on the first study of the chitinozoan assemblage from the Upper Formation of the metamorphic Tulghes Group (Tg.4) of the East Carpathians of Romania, and correlate with the biozones of the East European Platform (trilobite, graptolite conodonts) of Lower Ordovician age. I consider that is important contribution about the biostratigraphic study of metamorphic formations.

New events forthcoming may be of interest the wider community are: the 5th Symposium of Paleontological Society of Romania (Bucharest, September 2005). The Geological Session of our Depatment of geology, University "Al.I.Cuza ", Iasi ,Romania (October, 2005). This session is

ordinary and repeated in each year around the Celebration Day of the University, October ,26th.

My research activity, (from the October, 1st, I was pensioned off and I continue as Consulting Professor) is to continue palynological studies of Paleozoic metamorphic formations of Romania, correlation and biozonation, make a synthesis, and guide of my Ph.D. students to the palynological research (Paleozoic and Tertiary ages), and preparate a Ph.D. thesis.

FLORENTIN PARIS. I am still actively working on chitinozoans, especially on their biodiversification through time and on the impact of the Late Ordovician glaciation on the group. Biostratigraphy is also an important topic of my research programme (investigations on Ordovician and Silurian chitinozoans from Oman, Saudi Arabia, Turkey, Algeria, Morocco, western Europe). The project concerning the biostratigraphy of Devonian chitinozoans from Bolivia continues (thesis of M. Perez-Leyton at Brest University).

My new direction of research concerns the calibration of the sea level variations through the Ordovician, Silurian and Devonian in northern Gondwana regions (supervisor of the postdoc of Blaise Videt, on a grant of TOTAL Oil Company).

I prepared a set of chitinozoan photos for the "MacLeod / PaleoBase: Microfossils on CD-ROM" project directed by A. Henderson (Blackwell editor).

Because a lack of time, I failed to distribute reprints of my papers published the last 5 years. If you are interested to get these reprints, please have a look on my reference list (see my web page: http://www.geosciences.univ-rennes1.fr/ch/paris/paris.htm, and ask me for the titles you need. By the way, I have still a few copies of my publication of 1981 in Mem. Soc. géol. Minéral. Bretagne available!

Last minute information: finally, after years of unsuccessful tries, I succeeded to get a detailed chemical analysis of the wall of single chitinozoan specimens. A multi-author paper is prepared for publication.

HELGA PRIEWALDER. As there was not so much time to spend with the fossils, I only continued my extensive and detailed SEM-examinations on a great number (about 460) of very badly preserved chitinozoans and chitinozoan-like individuals of a slightly metamorphic sample from the Tyrolian part of the Alps.

CLAUDIA RUBINSTEIN. I continue working on biostratigraphy, paleobiogeography and paleoenvironments of Paleozoic palynomorphs (acritarchs, chitinozoans and miospores) from Argentina and South America. Current projects involving chitinozoans:

1. The Ordovician and Silurian of the Central Andean Basin, northwestern Argentina, particularly focused on the Cambrian – Ordovician, Tremadoc – Arenig and the Ordovician – Silurian boundaries, the Ordovician radiation, the effects of the late Ordovician glaciation and the Silurian biodiversification.
2. The lower – middle Ordovician volcanic arc of Famatina, northwestern Argentina, in collaboration with Aïcha Achab.
3. The Ordovician to Devonian palynology of the Precordillera Basin, in collaboration with Philippe Steemans.

4. The Devonian – Carboniferous boundary in marine sequences form northern Chile.

NIKOLAY V. SENNIKOV and OLGA T. OBUT . During field seasons of 2003–2004 we collected chitinozoan research samples from a number of sections in the Central-Asian Folded Belt: in Gorny Altai, Tuva and in the Minusa Depression. Samples were selected from thin terrigenous formations having the good paleontologic characteristic with exact chronostratigraphic dating, up to a stage and a zone on graptolites and conodonts, and also from sections which age is problematic (Cambrian – Devonian) which lack fauna, or yielded groups of wide stratigraphic range (algae, ichnofossils).

At present we are trying to specify Ordovician chitinozoan biozonation for Gorny Altai published earlier (Sennikov, Obut, 2002), and make efforts to create a similar scale for the Siberian Platform, Tuva and other regions of Siberia. Similar work is conducted in attempt of creation of a Silurian scale for Siberian regions.

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

JAN VANMEIRHAEGHE (3rd year Ph.D.) is continuing the study of the Ordovician chitinozoans from the Condroz Inlier and the Brabant Massif in Belgium. This year, I studied in the central part of the Condroz Inlier the lithostratigraphy and chitinozoans of the middle Ordovician at Dave and the Caradoc and pre-Hirnantian Ashgill at Faulx - les Tombes. I am also continuing the work on the Hirnantian (?) deposits (with two conglomeratic levels) of the western part of the Condroz Inlier, at Sart-Eustache, in collaboration with Johan Yans (isotopes, FtPMons), Alain Préat (sedimentology, UlB), Alain Herbosch (sedimentology, UlB), Oliver Lehnert (conodonts and isotopes, Lille) and Jacques Verniers (UGent). Furthermore, chitinozoan study of the Upper Ordovician of the Fauquez area (Brabant Massif, Belgium) allowed accurate dating by correlation with the UK sections (work of Thijs Vandenbroucke).

RYSZARD WRONA. I am continuing work on the chitinozoan palaeo-biogeography and biostrat-igraphy of the Ordovician up to Devonian deposits from the Holy Cross Mountains and from the boreholes of the Malopolska Massif. The results were presented at the Symposium on Early Palaeozoic Palaeogeography and Palaeoclimate in Erlangen, Germany. This presentation “Gond-wanan provenance of the Lysogóry block (Holy Cross Mountains, Poland)

supported by Upper Ordovician chitinozoans from the Pobroszyn section" was also a contribution to the IGCP Project 503 "Ordovician Palaeogeography and Palaeoclimate".

This year I joined a new project on the environmental changes at the Silurian/Devonian boundary in the Dnestr Basin of Podolia, in southern Ukraine.

RUSTEM YAKUPOV. I have prepared my thesis "Ordovician Stratigraphy and Chitinoans of the Zilair syncline (South Urals)" and shall defend it on December 22, 2004 in Ekaterinburg. Next year I hope the main results will be translated and ready for publication.

It is clear now that Ordovician chitinozoan biozones of the South Ural region can be correlated with Baltoscandia and the Russian Platform. The earlier chitinozoans collected from the late Arenig strata include: *Cyathochitina campanulaeformis* (Eisenack), *Cyathochitina hunderumensis* Grahn, Nõlvak and Paris, *Cyathochitina calix* (Eisenack), *Lagenochitina grossum* Obut, *Lagenochitina esthonica* Eisenack, *Conochitina primitiva* Eisenack, *Rhabdochitina gracilis* Eisenack, *Rhabdochitina magna* Eisenack, *Desmochitina* cf. *minor* Eisenack.

Next assemblage from the Llanvirn beds: *Cyathochitina* cf. *regnelli* Eisenack, *Cyathochitina hunderumensis* Grahn, Nolvak and Paris, *Lagenochitina* cf. *esthonica* Eisenack, *Lagenochitina* cf. *tumida* Umnova, *Cyathochitina* cf. calix (Eisenack). The Llandeil beds are characterized by: *Belonechitina micracantha* ex gr. *wesenbergensis* (Eisenack), *Belonechitina robusta* (Eisenack), *Conochitina* cf. *tuberculata* Eisenack, *Cyathochitina* cf. *calix* (Eisenack), *Conochitina* sp. aff. *acuminata* Eisenack, *Laufeldochitina* cf. *stentor* Eisenack, *Pterochitina* ? aff. *retracta* Eisenack, *Rhabdochitina* sp. In the Caradoc section we have assemblage: *Belonechitina cactacea* (Eisenack), *Belonechitina hirsuta* (Laufeld), *Cyathochitina calix* (Eisenack), *Desmochitina* ex gr. *minor* Eisenack.

The Late Ordovician strata are unknown here yet, I'll continue my research work to characterize South Ural Ordovician strata in future. I can send you abstracts of my work by e-mail (in Russian) for those who are interested. I'm engaged in a regional mapping and trying to find chitinozoans in slightly metamorphic rocks. I'll research Ordovician and Silurian chitinozoans in my region too.

NEW SPECIES

Ancyrochitina digitata Mullins and Aldridge 2004.

Ancyrochitina multibrachiata Grahn and Melo 2004.

Armigutta urubuense Grahn and Melo 2003.

Conochitina eustachensis Vanmeirhaeghe and Verniers, 2004. Ashgill, Ordovician.

Lagenochitina praeavelinoi Grahn and Melo 2004.

Pterochitina hughleyensis Mullins and Aldridge 2004.

Ramochitina autasmirimense Grahn and Melo 2004.

Ramochitina bjornsundquisti Grahn and Melo 2003.

Ramochitina herculesi Grahn and Melo 2004.

Ramochitina jutaiense Grahn, Loboziak and Melo 2003.

Saharochitina gomphos Grahn and Melo 2003.

Spinachitina fossensis Vanmeirhaeghe and Verniers 2004. Rawtheyan, Ashgill, Ordovician.

The Alhambra, 11th IPC Granada (photo G. Mullins)

ABSTRACTS & PUBLICATIONS

Asselin, E., Achab, A. and Soufiane, A. 2004. Stratigraphic significance of Lower Paleozoic assemblages from eastern Canada. Canadian Journal of Earth Sciences, v. 41, 489–505.

Achab, A., Rubinstein, C. V. and Astini, R. 2004. Chitinozoans and acritarchs of the Famatima System, northwestern Argentina: an Ordovician peri-Gondwanan volcanic arc. XI International Palynological Congress, Granada, Spain. Polen 14, 143. Abstract.

Achab, A., Paris, F., Nõlvak, J. and Asselin, E. 2004. Patterns in Ordovician Chitinozoan Biodiversity. XI International Palynological Congress, Granada, Spain. Polen 14, 139. Abstract.

Achab, A., Paris, F., Nõlvak, J. and Asselin, E. 2004. Patterns and driving factors of the chitinozoan diversification during the Ordovician. International Symposium on Early Palaeozoic Palaeogeography and Palaeoclimate, Erlangen, Germany. Abstracts and Field Guides, Erlangeer Geol. Abh. Sonderband 5, 17. Abstract.

Azevedo-Soares, H. L. C. and Grahn, Y. 2003. The Silurian – Devonian

boundary in the Amazonas Basin, northern Brazil. Terra Nostra.

Beckers, R., Debacker, T. N., Vanguestaine, M. and Verniers, J. 2004. Litho- and biostratigraphy with acritarchs and chitinozoans of the Abbaye-de-Villers Formation in its type area (Ordovician of the Brabant Massif, Belgium). Abstract Geologica Belgica Journée d'études, Mons (Belgium). Abstract.

Bergamaschi, S., Pereira, E., Rezende, M., Freitas-Brazil, F., Grahn, Y., and Rodrigues, R. 2004. High Resolution stratigraphy of Pragian and Emsian marine sections in the Ponta Grossa Formation, Paraná Basin, Brazil. 32nd International Geological Congress. Scientific Sessions, abstracts (part 1), 561. Abstract.

Bourahrouh, A., Paris, F. and Elaouad-Debbaj, Z. 2004. Biostratigraphy, biodiversity and palaeoenvironments of the chitinozoans and associated palynomorphs from the Upper ordovcian of the Anti-Atlas, Morocco. Review of Palaeobotany Palynology, v. 130, 17–40.

Díaz-Martinez, E. and Grahn, Y. 2004. Ordovician – Silurian boundary near La Paz (Bolivia): stratigraphy, sedimentology, chitinozoan biostratigraphy and regional palaeogeographic implications. Erlanger geologische Abhandlungen 5, 31. Abstract.

Dorning, K. J. 2004. Acritarch and chitinozoan evidence of Palaeozoic marine productivity. XI International Palynological Congress, Granada, Spain. Polen 14, 137–138. Abstract.

Grahn, Y. 2003. Silurian and Devonian chitinozoan assemblages from the Chaco-Paraná Basin, northeastern Argentina and central Uruguay. Revista Española de Micropaleontologia 35, 1–8 [cover to vol. 35 number 1 photo by Grahn, Y.].

Grahn, Y. and Azevedo-Soares, H. L. C. 2003. O limite Siluriano – Devoniano nas bacias do Solimões e Amazonas, Brasil setentrional. CD-Rom, VIII Simpósio de Geologia da Amazônia, Manaus.

Grahn, Y. and Melo, J. H. G. 2003. Silurian – Devonian chitinozoan biostratigraphy along the Urubu, Uatumã and Abacate rivers in the western part of the Amazonas Basin, northern Brazil. Bulletin of Geosciences, v. 78, 373–391.

Grahn, Y. and Melo, J. H. G. 2004. Integrated Middle Devonian chitinozoan and miospore zonation of the Amazonas Basin, northern Brazil. Revue de Micropaléontologie, v. 47, 71–85.

Grahn, Y., Loboziak, S. and Melo, J. H. G. 2003. Integrated correlation of Late Silurian (Přídolí *s.l.*) – Devonian chitinozoans and miospores in the Solimões Basin, northern Brazil. Acta Geologica Polonica, v. 53, 283–300.

Harris, M. T., Sheehan P. M., Ainsaar, L., Hints, L., Männik, P., Nõlvak, J. and Rubel, M. 2004. Upper Ordovician sequences of western Estonia. Palaeogeography, Palaeoclimatology, Palaeoecology, v. 210, 135–148.

Hints, O., Nõlvak, J., Mens, K. and Viira, V. 2004. New palaeontological finds from the Tremadocian of Kadriorg, Tallinn, North Estonia. In. Hints, O. and Ainsaar, L. (eds). WOGOGOB – 2004 Conference Materials. Tartu University Press, Tartu. 43–44.

Kaljo, D., Hints, L., Martma, T., Nõlvak, J. and Oraspõld, A. 2004. Late

Ordovician carbon isotope trend in Estonia, its significance in stratigraphy and environmental analysis. Palaeogeography, Palaeoclimatology, Palaeoecology, v. 210, 165–185.

Killing, M. 2003. Distribution of chitinozoans related to the with facies of Adavere stage. In. The Fourth World Meeting of Estonian Geologists. Estonian Geology in the Beginning of the New Century. Conference Materials and Excursion Guide. In. Plado. J. and Puura, I. (eds). The Geological Society of Estonia and Institute of Geology, University of Tartu, Tartu, 28–30. [in Estonian].

Lavoie, D. and Asselin, E., 2004. A New stratigraphic framework for the Gaspé Belt in Southern Quebec: implications for the pre-Acadian Appalachians of eastern Canada. Canadian Journal of Earth Sciences, v. 41, 507–525.

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

Le Hérissé, A., Perez-Leyton, M., Paris, F., Morales, R. and Racheboeuf, P. R. 2004. Marine palynomorphs from the Siluro–Devonian In the Boomerang Area, Bolivia. XI IPC Granada, Abstracts (oral presentation). Polen, 14, 146. Abstract.

Loydell, D. K. and Nestor, V. (in press). Integrated graptolite and chitinozoan biostratigraphy of the upper Telychian (Llandovery, Silurian) of the Ventspils D-3 core, Latvia. Geological Magazine.

Mendlowicz Mauller, P., Pereira, E., Grahn, Y. and Steemans, P. 2003. Biostratigraphic analysis of the Llandovery in the Paraná Basin, Paraguay, boreholes 269-R1 and 269-R2. XVIII Congresso Brasileiro de Paleontologia. Boletim de Resumos, 186.

Mohiuddin, U., Molyneux, S. Paris, F. and Penney R. A. 2004. Haima Supergroup of Oman: biostratigraphy and palaeoenvironments. XI IPC Granada, Abstracts (poster presentation). Polen, 14, 440. Abstract.

Molyneux, S. G, Mohiuddin, U., Penney, R, and Paris, F. 2004. Turnover of acritarch and chitinozoan species, endemism and sequence stratigraphy in the Lower Palaeozoic of Oman. XI IPC Granada, Abstracts (oral presentation). Polen, 14, 132. Abstract.

Mullins, G. L. and Aldridge, R. J. 2004. Chitinozoan biostratigraphy of the basal Wenlock Series (Silurian) Global Stratotype Section and Point. Palaeontology, v. 47, no. 3, 745–773, 8 pls.

Nestor, V. (in press). Chitinozoans of the *Margachitina margaritana* Biozone and the Llandovery – Wenlock boundary in the West Estonian drill cores. Proc. Estonian Acad. Sci. Geol.

Nõlvak, J. 2003. Distribution of Ordovician chitinozoans. In. A. Põldvere (ed.). Estonian Geological Sections. Bull. 5. Ruhnu (500) drill core. Geological Survey of Estonia, Tallinn, 23–25, app. 22, 23 on CD-ROM.

Nõlvak, J. 2004. Ordovician chitinozoan distribution in the different areas of Baltoscandia. In. A. Munnecke (ed.). Early Palaeozoic Palaeogeography and Palaeoclimate. IGCP 503. Abstracts and Field Guides, Erlanger Geologische Abhandlungen, Sonder-

band 5, Erlangen, Germany. 56. Abstract.

Olaru, L. and Apostoae, L. 2004. Arenigian chitinozoans from the Tulghes Group, Upper Formations (Tg.4) from Balan Zone, Eastern Carpathians, Romania. Acta Palaeontologica Romaniae, vol.IV, Cluj - Napoca, Romania. 4th Romanian Paleontological Society Symposium Proceedings (Cluj - Napoca, 2002). Abstract.

Paris F. and Servais, T. (in press). Ordovicien. Ann. Soc. géol. Nord.

Paris F. and Verniers, J. (in press). Microfossils: chitinozoans. In. R. C. Selley, L. R. M. Cocks and R. Plimer. (eds). Encyclopedia of Geology, Elsevier, Oxford.

Paris F. and Webby B. D. 2004. Aims, achievements and lessons learnt from six years of IGCP Project n° 410. In. A. Munneke, T. Servais and C. Schulbert (eds). International Symposium on Early Palaeozoic Palaeogeography and Plalaeoclimate. Erlangen September 1–3, 2004. Abstract and Field Guides, Erlanger geol. Abh., 5, 156, 59. Abstract.

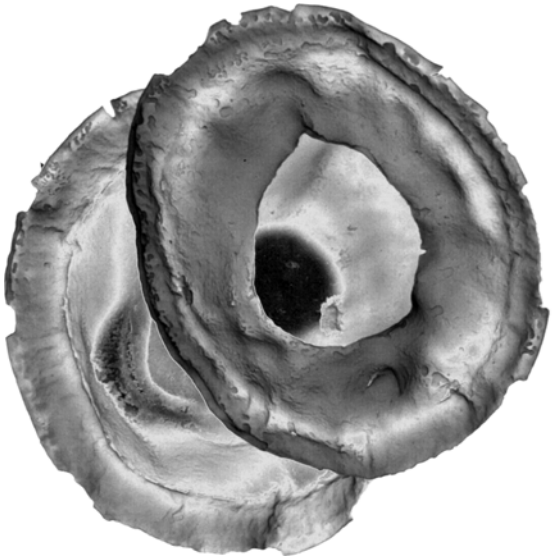
Paris, F., Droser, M. L., and Percival, I. G. (eds). The great Ordovician biodiversification event, 294–311. Columbia University Press, New York.

Paris F., Boumendjel K., and Henniche M. 2004. Biostratigraphie des chitinozoaires et paléoenvironnements du Siluro – Dévonien dans la région de Tin Fouyé (SE du Sahara algérien). Résumé, SGP5, Alger, 18–20 Janvier 2004.

Paris, F., Achab, A., Asselin, E., Nõlvak, J., Wang, X.-F., Chen, X., Grahn, Y., Sennikof, N., Obut, O., Samuelsson, J., Vecoli, M., Verniers J. and Winchester- Seeto, T., 2004. Chitinozoa. In. B. D. Webby, M.L. Droser, F. Paris and I. Percival (eds). The Great Ordovician Diversification Event, Columbia University Press, 294–311.

Pereira, E., Bergamaschi, S., Freitas-Brazil, F., Grahn, Y., and Rodrigues, R. 2004. Devonian High Resolution stratigraphy of the Paraná Basin in central South America. 32nd International Geological Congress. Scientific Sessions, abstracts (part 1), 560–561. Abstract.

Paris, F., Le Hérissé, A., Vecoli, M., Monod, O., Ghienne, J. F., Dean, W. T., Kozlu, H. and Günay, H. 2004. Northern Gondwana chitinozoans and acritarchs from the Ordovician of Turkey. XI IPC Granada, Abstracts (oral presentation). Polen, 14, 163. Abstract.



Rubinstein, C. V., Mángano, M.G. and Buatois, L. 2003. Late Cambrian acritarchs from the Santa Rosita Formation: implications for the Cambrian – Ordovician boundary in the Eastern Cordillera of northwest Argentina. Revista Brasileira de Paleontologia, v. 5, 47–52.

Rubinstein, C. V. and Toro, B. A, 2003. Palinomorfos del Llandoveriano medio (Aeroniano superior) de la Formación Lipeón, Cordillera Oriental, Argentina. Ameghiniana. Resúmenes. Tomo 40, no. 4. Suplemento, 91–92.

Rubinstein, C. V. and Vaccari, N. E., 2004 Cryptospore assemblages from the Ordovician / Silurian boundary in the Puna, North-West Argentina. Palaeon-tology, v. 47, no. 4, 1037–1061.

Saadre, T., Einasto, R., Nõlvak, J. and Stouge, S. 2004. Ordovician stratigraphy of the Kovel-1 well (Volkhov – Haljala) in the Volynia region, northwestern Ukraine. Bulletin of the Geological Society of Denmark, v. 51, 47–69.

Servais T., Blieck A., Caridroit M., Chen Xu, Paris F. and Tortello F. (in press). Use and utility of plankton and nekton for Ordovician palaeogeographical reconstructions. Bull. Soc. Géol. France

Servais T., Chen Xu, Lehnert O., Paris F. and Tortello F. 2004. Are some fossils better than others for inferring palaeogeography , An old question revisited. In. A. Munneke, T. Servais and C. Schulbert (eds). International Symposium on Early Palaeozoic Palaeogeography and Palaeoclimate. Erlangen September 1–3, 2004. Abstract and Field Guides, Erlanger geol. Abh., 5, 156, 65.

Toro, B. A., Rubinstein, C. V., Waisfeld, B. G. and Astini, R. A., 2003. Calibración de las asociaciones de palinomorfos y trilobites, con las biozonas de graptolitos del Ordovícico temprano del área de Parcha, Cordillera Oriental, Argentina. Ameghiniana. Resúmenes. Tomo 40, no. 4. Suplemento, 94–95.

Vaida, M. and Verniers, J. 2004. Early Devonian (Lochkovian) chitinozoans from the Moesian Terrane, SE Romania. XIth International Palyno-logical Congress, Granada 4–9 July 2004, Polen 14, p. 148. Abstract.

Vaida, M. and Verniers, J. 2004. New Palaeozoic chitinozoans from Moesia and their affinities. Abstract for the Avalonia-Moesia Symposium and Workshop on the Early Palaeozoic orogens of the Trans-European Suture Zone, Ghent – Ronse 9–12 October 2004, p. 34–35. Abstract.

Vaida, M., Seghedi, A. and Verniers, J. (in press). Northern Gondwanan affinity of the East Moesian Terrane based on chitinozoans. Tectono-physics.

Vaida, M., Verniers, J. and Seghedi, A. 2004. The biostratigraphy of new chitinozoans from the South of Romania. International Symposium on Early Palaeogeography and Palaeoclimate, 1–3 September 2004. Abstracts. A. Munnecke, T. Servais and C. Schulbert (eds). Erlanger Geologische Abhandlungen, Sonder-band 5, p. 70. Abstract.

Vandenbroucke, T. 2004. Chitinozoan biostratigraphy of the Upper Ordovician Fågelsång section, Scania, southern Sweden. Review of Palaeo-botany and Palynology, v. 130, 217–238.

Vandenbroucke, T. R. A. 2004. Chitinozoans from historical type areas and key sections in the UK: towards a biozonation for the Upper Ordovician on Avalonia. Abstracts for the Palaeontological Association 48th Annual Meeting, 17–20 Dec., Lille. Abstract.

Vandenbroucke, T. R. A. 2004. Upper Ordovician chitinozoan biostratigraphy in the U.K. Towards an Avalonian biozonation? XI International Palynological Congress, 4–9 July 2004, Granada. Polen, 14, 140–141. Abstract.

Vandenbroucke, T. R. A. and Williams, M. 2004. Upper Ordovician chitinozoan biostratigraphy of the Cardigan area, southwest Wales. Abstracts for the Palaeontological Association 48th Annual Meeting, 17–20 Dec., Lille. Abstract.

Vandenbroucke, T. R. A., Chen Xu and Verniers, J. (in press). Short note on the preliminary chitinozoan results from the Wangjiawan section, Yichang, China. Acta Palaeontologica Sinica.

Vandenbroucke, T. R. A., Chen Xu and Verniers J. 2004. Preliminary notes on the chitinozoans from the Wangjiawan section. Report for the ISOS Hirnantian GSSP. A discussion site is located at http://seis.natsci.csulb.edu/ord2/default.htm.

Vandenbroucke, T., Rickards, B. and Verniers, J. (submitted). Upper Ordovician chitinozoan biostratigraphy from the Type Ashgill Area (Cautley District) and the Pus Gill section (Dufton District, Cross Fell Inlier), Cumbria, Northern England. Geological Magazine.

Vandenbroucke, T., Van Nieuwenhove N. and Verniers, J. 2004. Towards an Upper Ordovician chitinozoan biozonation on Avalonia? Research on historical type areas and other U.K. key sections. Abstract for the Avalonia-Moesia Symposium and Workshop on the Early Palaeozoic orogens of the Trans-European Suture Zone, Ghent – Ronse 9–12 October 2004, p. 38–39. Abstract.

Vandenbroucke, T. R. A., Van Nieuwenhove, N. and Verniers, J. 2004 Towards an Upper Ordovician chitinozoan biozonation on Avalonia? Research on historical type areas and other UK key sections. International Symposium on Early Palaeogeography and Palaeoclimate, 1–3 September 2004. In. A. Munnecke, T. Servais and C. Schulbert (eds). Erlanger Geologische Abhandlungen, Sonderband 5, p. 70–71. Abstract.

Vanmeirhaeghe, J. 2004. Upper Ordovician chitinozoans from the central part of the Condroz Inlier (Belgium, Avalonia). XI International Palynological Congress, 4–9 July 2004, Granada. Polen 14, 141–142. Abstract.

Vanmeirhaeghe, J. (submitted). Chitinozoan biostratigraphy and dating of the Upper Ordovician of Faulx-les-Tombes (central Condroz Inlier, Belgium). Review of Palaeobotany and Palynology.

Vanmeirhaeghe, J. and Verniers, J. 2004. Chitinozoan bio- and lithostratigraphical study of the Ashgill Fosses and Génicot Formations (Condroz Inlier, Belgium). Review of Palaeobotany and Palynology, v. 130, 1–4, 241–267.

Vanmeirhaeghe, J., Van Noten, K., Van Grootel, G. and Verniers, J. 2004. Chitinozoans from the Upper Ordovician of the Fauquez area (Brabant Massif, Belgium). International Symposium on Early Palaeogeography and Palaeoclimate, 1–3 September 2004. In. A. Munnecke, T. Servais and C. Schulbert (eds). Erlanger Geologische Abhandlungen, Sonderband 5, p. 71–72. Abstract.

Vanmeirhaeghe, J., Storme, A., Van Noten, K., Van Grootel, G. and Verniers, J. 2004. Local chitinozoan biozonation of the Upper Ordovician of the Fauquez area (Brabant Massif, Belgium). Abstracts for the Avalonia-Moesia Symposium and Workshop, 9–11 October 2004, Ghent – Ronse, p. 41–42. Abstract.

Van Roy, P., Botting, J., Vandenbroucke, T., Van Damme, D and Van Damme, K. 2004. Konservat-Lagerstätten from the Arenig (Early Ordovician) of Morocco. Abstracts for the Palaeontological Association 48th Annual Meeting, 17–20 Dec., Lille. Abstract.

Verniers, J. and Nielsen, A. T. 2004. Chitinozoan biozonation around the Ordovician – Silurian boundary: comparison of the GSSP at Dob's Linn (Scotland, U.K.) with the graptolite dated Lönstorp core (Scania, Sweden). XI International Palynological Congress, Granada 4–9 July 2004, Polen, 14, p. 142–143. Abstract.

Verniers, J., Heuse, T. and Samuelsson, T., 2003. Organic-walled microfossils: part chitinozoans In. Heuse, Maletz, etc. (eds.) Glossary on the Silurian fossils of Germany, German Subcommission on Silurian Stratigraphy. 3 p. (B2). Abstract.

Verniers, J., Debacker, T., Vanmeirhaeghe, J., and Sintubin, M. 2004. Review of the Anglo-Brabant Deformation Belt: advances after the PACE network. Abstract for the Avalonia-Moesia Symposium and Workshop on the Early Palaeozoic orogens of the Trans-European Suture Zone, Ghent – Ronse 9–12 October 2004, p. 43–45. Abstract.

Verniers, J., Vandenbroucke, T. and Vanmeirhaeghe, J. 2004. Comparison of chitinozoans of the Ordovician / Silurian transition from Avalonia, Laurentia and Northern Gondwana. Résumes du 5eme Séminaire de Géologie Pétrolière, 18–20 Janvier, CRD Sonatrach, Algérie.

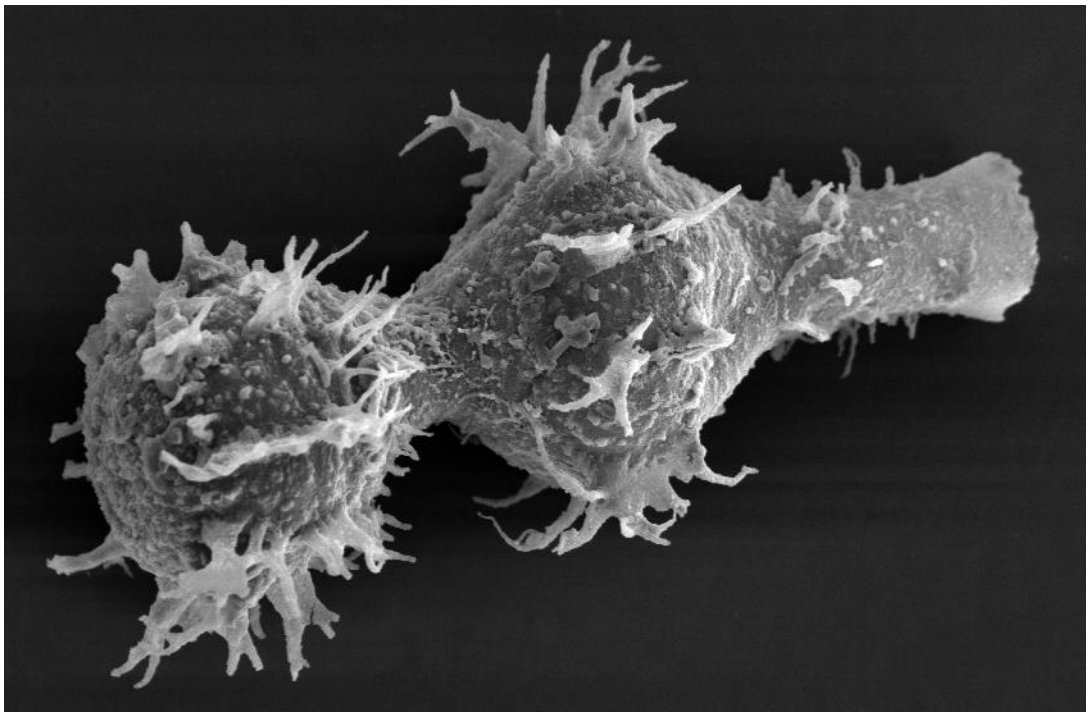
Webby, B. D., Cooper, R. A., Bergström, S.M. and Paris, F., 2004. Stratigraphic framework and time slices, p. 41–47. In. Webby, B. D., Paris, F., Droser, M., and Percival I. (eds). The Great Ordovician Diversification Event, Columbia University Press, New York.

Webby, B. D., Paris, F., Droser, M. and Percival I. (eds). 2004. The Great Ordovician Diversification Event. Columbia University Press, New York, 484 pp.

Webby B. D., Droser M. and Paris F. 2004. Final Report of IGCP Project 410 (1997 – 2002) "The Great Ordovician Biodiversification Event". Episodes, v. 27, 203–208.

Wilson, R. A, Burden, E., Bertrand, R., Asselin, E. and McCracken, A. D., 2004. Stratigraphy and Tectono-sedimentary Evolution of the Late Ordovician to Middle Devonian Gaspé Belt in northern New Brunswick: Evidence from the Restigouche Area. Canadian Journal of Earth Sciences, v. 41, 527–551.

Wrona, R. 2002. "Ordovician chitinozoans from the Małopolska and Łysogóry blocks (Holy Cross Mountains, Poland): implications for bio-stratigraphy and palaeobio-geography" [in Polish]. Przegląd Geologiczny, v. 50, no. 12, 1225–1226.



An aberrant specimen of *Ramochitina* from upper Wenlock of the Kaugatuma core (photo: V. Nestor)

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