# **Pander Society Newsletter**



Compiled and edited by P.H. von Bitter and J. Burke

DEPARTMENT OF NATURAL HISTORY (PALAEOBIOLOGY SECTION), ROYAL ONTARIO MUSEUM, TORONTO, ONTARIO, CANADA M5S 2C6

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#### CHIEF PANDERER'S REMARKS

Dear Conodont Colleagues:

A year has gone by since I last communicated like this, and I'm pleased (and relieved) that another Pander Society Newsletter is ready to 'go'. Thank you for having sent in your reports and questionnaires; without your willingness to going through a bit of pain there would be no Pander Society Newsletter, and our communications would be the poorer. I am very grateful to compiler and editor Joan Burke (Toronto) and webmaster Mark Purnell (Leicester) for their dedication and ongoing interest; they have helped me greatly and continue to make me look better than I really am, particularly in a time of personal and professional transition

You, the Pander Society membership, continue to 're-invent' and apply conodonts in startling new ways. Some of this re-invention was seen at the Pander Society Symposium in Harrisburg, Pennsylvania, where on March 20-22, 2006 our (mostly) North American members focused on Conodonts & Sequence Stratigraphy. Looking ahead, the programme of ICOS 2006 on July 12-30/ 2006 in Leicester, England, promises not only to surprise and delight, but looks remarkably diverse and imaginative. Christian Pander, would, on the 150th anniversary of the publication of his major conodont study, no doubt be enormously impressed and pleased with the innovativeness and progress of his intellectual grandchildren.

My best wishes to all of you.

Peter

Peter H. von Bitter, Chief Panderer.

Department of Natural History, Royal Ontario Museum & Department of Geology, University of Toronto, Toronto, Ontario, Canada <peterv@rom.on.ca> May 31, 2006

#### Thank you

The Pander Society is indebted to the Department of Natural History, Royal Ontario Museum for its financial support, that made the assembly and production of this Newsletter possible; the Society is further indebted to Joan Burke for volunteering her time and expertise on the Newsletter, long after she retired from the ROM, and at a time in her life when she could be putting her feet up and taking it easy. Finally, the Society thanks the University of Leicester for permitting the Newsletter to continue to be distributed from the University server.

#### **Financial Matters**

Although Pander Society members pay no dues, and the Society has no budget, a small 'pot' of money, was somehow 'put together' and safely tucked away by our previous Chief Panderer, Dick Aldridge. This money was transferred to Toronto in 2004 and was put into a business bank account, one with minimal monthly charges. In 2005 some of the money was used to help in the assembly and production of the Newsletter; this year, some of the money purchased the most up-to-date version of EndNote. This programme has already made the entry of bibliographic data easier; it promises to help you, the membership, to retrieve old and new entries, and should help the Pander Society with more logical, long-term storage and management of bibliographic data.

The balance in the Pander Society coffers is about \$110.30 (Canadian); if anyone would like to help the Society financially with the production of the annual newsletter, or with other miscellaneous expenses, the Chief Panderer would be delighted to be approached.

### **Of Special Interest**

Retired. Budurov; Cheng-yuan; Meco; Norby; Önder; Paull; Poole; Perret Mirouse; Wang; Yoshida

Retired from Teaching. Bergström; Kirchgasser; Löfgren

F.Y.I. Nancy Stamm hosts most of the USGS conodont collections and their documentation, is actively working on compiling a digital database of all USGS fossil reports from the late 1800s, and is a contact for conodont studies by visiting scientists. Rob Stamm is still working on Carboniferous apparatuses and faunas from eastern and western North America, time permitting; his current USGS project does not involve conodont work. (Submitted by John Repetski)

Honours. Phil Donoghue became Vice President of the Palaeontology Association and received the Hodson Award from the PA; Chris Barnes received the Elkanah Billings Medal from the Geological Association of Canada; Godfrey Nowlan was the recipient of the J. Willis Ambrose Medal from the Geological Association of Canada; Peter MacKenzie is now the President of the Eastern Section of AAPG

Obituaries. It is with sadness that we record the passing of our Belgian colleague Michel Coen, by accidental carbon monoxide poisoning. Michel was a former Professor at the Catholic University of Louvain and was an accredited researcher with the National Science Foundation of Belgium (FNRS). He was a specialist in Devonian-Carboniferous conodonts and ostracodes. (Samuel Ellison's 1987 Conodont Bibliography suggests that Michel was most active in the Devonian [especially the Frasnian] and the Lower Carboniferous between the late 1960s and the early 1980s [PvB]). (Submitted by Eric Groessens)

We are also saddened to note that post-graduate student Anatoliy Pashnin, who studied Late Ordovician-Early Silurian conodonts at the Institute of Geology, Komi Science Centre, Russia, was killed in an automobile accident. (Submitted by Tatyana Beznosova)

"I'm sorry to have to inform the members of the Pander Society that our distinguished colleague Professor Jin Yugan (Lao Jin) passed away on the 26th of June, 2006. This will be a shock to many of you, and Jin Yugan will be missed by us all." (sent by Shuzhong Shen, Secretary of the Subcommission on Permian Stratigraphy & Director of the Nanjing Institute of Geology and Palaeontology, Chinese Academy of Sciences)

Relocated. Armstrong (note new Institutional address); Dopieralska (moved from Giessen, Germany to new isotope lab at Adam Mickiewicz University in Posnan, Poland); Dzik (dual responsibilities with Warsaw University & Polish Academy of Sciences); Gouwy (relocated from Belgium to Italy); (J.F.)Miller (note university, address & e-mail changes); Percival (office & lab relocated to Londonderry on the western outskirts of Sydney); Pyle (to Geological Survey of Canada); Stouge (to Geological Museum, University of Copenhagen, Denmark); Swift (to the "real" world); Trotter (although physically based at RSES, ANU in Canberra, has returned working full-time with CSIRO Petroleum in Sydney); Wickström (as of 2006 in charge of collections at Geological Survey of Sweden).

#### The Distribution of Conodont Publications:

### A) How to best distribute our conodont publications in this electronic age?

"Most colleagues have now stopped sending reprints. It is a big problem to keep up with what happens, even within such a limited field as Silurian conodonts. At the University we have a system that we can send a mail to everybody at the department by using only one address [webmaster's note: like con-nexus; see 'Becoming a Part of Con-nexus' below]. Perhaps somebody with good computer knowledge can find a way to send all specialists conodont reprints (we all get so much SPAM that it would only be a marginal increase if we also got all reprints about conodonts). Registering in such a system could be voluntary, just as it is now, when we fill in the 'box' on the Pander Society Newsletter Questionnaire, 'giving' permission to the Pander Society to distribute personal and professional information electronically". (Submitted by Lennart Jeppsson)

Lennart's proposal involves electronic distribution of reprints from a central server. A varient of this kind of 'central' electronic distribution was when Tom Uyeno of the Geological Survey, Canada, recently

advised that a paper: Wendte, J. and Uyeno, T. 2005. Sequence stratigraphy and evolution of Middle to Upper Devonian Beaverhill Lake strata, south-central Alberta. Published by the Bulletin of Canadian Society of Petroleum Geology (Bulletin v. 53, no. 3, p. 250-354), was available for a limited time at a specific electronic site.

The availability of a specific publication at particular site is probably already 'routine', and is thus implemented more easily. In any case, how we distribute conodont publications presently and in the future is an important subject, one that the Pander Society needs to consider. (PvB)

#### B) Collation and distribution of Pander bibliographic data

The annual bibliography of conodont publications has always been an integral part of the Pander Society Newsletter, but is it time to go beyond a simple listing of papers? In order to streamline the way in which bibliographic data is compiled, the Pander Society has invested in a copy of EndNote version 9, one of the industry standard bibliographic database packages. In addition to the ways in which this is smoothing the process of Newsletter productions, use of this software offers several advantages to Panderers: If you use EndNote (or similar bibliographic software) you will be able to directly import the annual bibliography into a library file, saving you lots of tedious typing. Files will be made available via www.conodont.net and the Pander Society website, complete with instructions for downloading and importing.

Next year, you will be able to submit your publications as an EndNote compatible library, hopefully making the editors' job of putting the Pander Society Newsletter together just that bit easier. (Submitted by Mark Purnell)

#### **Other Matters**

#### **Becoming a Part of Con-nexus**

To become a part of Con-nexus, a 'free' e-mail forum for the rapid exchange of ideas and information concerning conodonts and conodont research go to the following webpage and enter your details:

http://lists.le.ac.uk/mailman/listinfo/con-nexus

To post a message to all other members of con-nexus (only subscribers can post), address it to: con-nexus@lists.le.ac.uk

#### **Pander Society Medal**

The Pander Society Medal Committee consisting of John Repetski, Cristina Perri and Cheng-yuan Wang have come to decisions about awarding the Pander Society Medal. The Pander Medal will be awarded at ICOS 2006 in Leicester, England, in July, 2006. The Chief Panderer guarantees a surprise or two, and hopes that you will be there to join in the resulting celebrations. Thank you to you, the membership, for submitting nominations and to the members of the medal committee for a job well done.

#### A 'Junior' Pander Medal

The idea of a medal recognizing the work of young conodont researchers has not moved forward since this topic was raised initially in the 2003 Pander Society Newsletter (no. 35, p. 2) and again last year (no. 37, p.13). Only the availability of hard cash would allow us be to move on this; thus, if you have an interest, and the means, to help, please contact John Repetski or the Chief Panderer



A newly discovered, and as yet unnamed, conodont animal caught near the North Pole and stuffed and mounted just in time for the Geological Survey of Canada (Calgary) Christmas (2005) Door Decoration Competition. (Submitted by Godfrey Nowlan)

#### PAST CONODONT MEETINGS

A Pander Society Symposium was held in conjunction with the annual meeting of the North-Central Section of the Geological Society of America at Camp Hill/Harrisburg, Pennsylvania on March 20-22, 2006. Jeff Over, of the State University of New York (SUNY) at Geneseo, organized and chaired the symposium of seven papers entitled:

Sequence Stratigraphy and Conodont Bed Distribution in Mixed Siliciclastic-Carbonate Successions (Bartholomew, Brett & Baird)

Conodonts and Sequence Stratigraphy in the Upper Devonian Marine Clastic-Dominated Strata of the Northern Appalachian Basin (Over, Baird & Kirchgasser)

Upper Devonian (Frasnian) Goniatite and Conodont Marker Beds in the Harrell Shale (Appalachian Basin) of Central Pennsylvania (Kirchgasser & Baird)

Measured Sections to Track Various Stratal Architectures - A Key to Analyzing Conodont Morphogenesis (Lambert)

Carboniferous-Permian Stratigraphy of the Midcontinent (Wardlaw, Boardman & Nestell)

Environmental Gradient is Reflected in Faunal Composition and Distribution of Exceptionally Preserved Conodonts and Other Vertebrates from the Silurian Eramosa Lagerstätte, Bruce Peninsula, Ontario, Canada (von Bitter, Purnell & Stott)

Conodont Taphonomy: Traveling Through the Alimentary Canal of Modern Fish (Helms & Over)

While the symposium focused on Conodonts & Sequence Stratigraphy, the presentations covered a broad range of conodont subjects; of these, the presentation by student James Helms and his supervisor, Jeff Over, on experimentally determining what happens to conodonts when they pass through the digestive system of modern fish, created a great deal of interest and discussion.

Following the symposium, Chief Panderer Peter von Bitter led a discussion about the current state of the Pander Society in North America and asked for suggestions regarding venues and topics for future meetings. Several options were suggested but none received majority endorsement from the attendees, so Peter volunteered to assess future possibilities. He further encouraged those in attendance to give serious consideration to participation in the forthcoming International Conodont Symposium (ICOS 2006) meeting in Leicester, England, this summer.



Panderers pondering the Silurian-Devonian boundary beds in the Helderberg Group at (Eldorado, Pennsylvania, USA). Stop 2 of the Appalachian Field trip (above) led by John Repetski. Lance Lambert at far left, Jim Miller in center, Former Chief Panderer Ray Ethington at right. (Submitted by John Repetski)

(Please note that the 2007 meeting of the North American Panderers will be held in conjunction with the joint meeting of the North Central and Central sections of the South Geological Society of America at the University of Kansas in Lawrence, Kansas, April 10-16, 2007; A conodont symposium is being organized by Jim Miller and Stephen Leslie (for further details, please see their proposal to GSA on pages 8 & 9 [PvB]).

Following the meeting, most Panderers went as a group to lunch in Harrisburg - surprisingly perhaps, good Mexican cuisine is available that many miles north and east of the Rio Bravo, and thus far all of the Panderers have survived the experience.

On the Sunday prior to the meeting (above), John Repetski of the

USGS, led a field trip to central Pennsylvania. John introduced a small but enthusiastic collection of Panderers, including a group of Jeff Over'students from SUNY-Geneseo, to the Palaeozoic rocks of the Appalachian fold belt. The trip began on a chilly morning in a quarry near Roaring Springs, Pennsylvania, that exposes a section of Ibexian through Mohawkian strata. Later in the day, John Taylor (Indiana University of Pennsylvania) joined the party and supervised a visit to an exposure of Silurian and Devonian rocks along Interstate 99 near Altoona, Pennsylvania. The excursion concluded with a brief stop to see the Loyalhanna Limestone Member (Mississippian) of the Mauch Chunk Formation. (Submitted by Ray Ethington).

Members of the Society gathered in the Welsh Borderlands in December for the annual Pre-PalAss get together, under the auspices of the Microvertebrate Group of The Micropalaeontological Society. A crisp and sunny day in the field looking at some classic Silurian sections was followed by an evening of talks and discussion in the comfortable surroundings of the Malvern Hills Hotel. Thanks to Rob Raine for organising the meeting.



A group of conodont and microvertebrate workers from the British Isles enjoying some early morning champagne in the December sunshine of Gullet Quarry, near Malvern, to celebrate Dick Aldridge's 'significant' birthday.

#### **FUTURE CONODONT MEETINGS**

### ICOS 2006 The First International Conodont Symposium; University of Leicester, Leicester, U.K. July 12 - 30, 2006

Following from the highly successful series of meetings held under the ECOS banner, ICOS 2006, the first International Conodont Symposium, will be held in Leicester, UK, in July 2006.

#### **Summarized Programme**

July 12 - 16, Excursion 1 - The Carboniferous of Ireland

July 17 18, Technical Sessions

July 19, Day Excursions (see below)

July 20, Technical Sessions, Conference Banquet

July 21, Morning - Technical Sessions; afternoon - Palaeobiology Workshop

July 21 - 27, Excursion 2 - Iapetus - from coast to coast



#### **Symposia**

Pander's legacy, 150 years on. 2006 marks the Sesquicentennial of Pander's monograph in which conodonts were described for the first time. This symposium will consider Pander and his scientific contribution, including his work on conodonts, other fossil vertebrates, and developmental biology. Keynote speakers in this symposium will include Dick Aldridge who will be speaking on Pander and the phylogenetic position of the conodonts - then and now; Simon Knell (Museum Studies, Leicester), on Pander's contributions in their historical context and subsequent work; Anthony Graham (Developmental Biology, King's College, London) on Pander's seminal work in developmental biology; Peter Forey (Palaeontology, Natural History Museum) on Pander 1856 and ostracoderm vertebrates - from bits of scale to living fishes

Conodont phylogenies - alternative approaches, implications, and applications. Hypotheses of conodont phylogeny underpin many areas of conodont research, including taxonomy, biostratigraphic zonation, evolutionary palaeobiology, and analysis of the quality of the fossil record. This session will explore alternative approaches to reconstructing conodont phylogeny, their assumptions, implications and applications. Keynote: Philip Donoghue.

Conodonts, Palaeobiogeography and Palaeoceanography. Convened by Dick Aldridge, this session will cover all aspects of global influences on conodont distribution and the uses of conodonts in the investigation of palaeocontinental configurations, eustatic sea-level changes, climate models and the ocean/atmosphere system. Topics will include conodont biogeography, conodont geochemistry and the relationship between conodont distribution and sequence stratigraphy. Investigations of major patterns of extinction, radiation and faunal turnover will also be relevant. Keynote: Chris Barnes.

**Triassic Conodonts: Taxonomy and Time Scales.** Convened by Mike Orchard. Conodonts play a primary role in Triassic biochronology and yet the taxonomic framework in which they are applied remains largely based on form taxonomic concepts. This symposium will explore both the variability of taxonomic approaches currently in use in the study of Triassic conodonts, including their Permian forebears, and their application in biostratigraphy and time scales. Keynote: Mike Orchard

'Coniform' Conodont Apparatuses and Architecture - Whence and Whither? Convened by Paul Smith and John Repetski. The last two decades have seen a major leap forward in the interpretation of more derived conodonts, with the elucidation of apparatus architectures using natural assemblages and the use of these architectural models as templates for apparatus reconstruction in taxa unrepresented by natural assemblages. In contrast, primitive conodonts with apparatuses composed of coniform elements are poorly represented by natural assemblages and it is clear that the record is replete with partial reconstructions, and limitations created by the unknown extent of morphologically similar elements within the apparatuses of individual conodonts. Even simple questions regarding the apparatuses of these taxa have uncertain answers. How many elements were there in conodonts with apparatuses of this type? How similar was the architecture to that of primitive prioniodontid conodonts? How much variation in architecture is there

within primitive conodonts? Can consistent architectural models be developed with the available assemblage data? If so, can these be used to guide apparatus reconstruction in taxa represented only by collections of isolated elements? If the phylogeny of primitive conodonts, and other aspects of their palaeobiology, are to be investigated in a secure, reproducible and testable manner, then better constrained apparatus models are essential.

**Devonian Conodont Biostratigraphy** Convened by Pierre Bultynck. The Devonian standard conodont zonation, mostly based on successions in deeper-water deposits, is widely used among conodont workers. However, some zones are not always easily accepted. This symposium will focus on the following topics: constraints on the Devonian standard conodont zonation; alternative zonations in deeper-water facies; alternative zonations/faunas in shallower-water facies; graphic correlation. Kenote: Sophie Gouwy

## Workshops and Day excursions Wednesday, July 19

Short Field Excursion: Lower Carboniferous, North Staffordshire. Leaders: Patrick Cossey (University of Staffordshire) and Mark Purnell. This trip will visit two or three localities which expose Lower Carboniferous sections on the margins of the beautiful Peak District National Park. Localities to be visited will include Brown End Quarry, of early Visean age, and Cauldon Railway Cutting, of Serpukhovian age. Both localities yield some rich conodont faunas; the Cauldon fauna (which also includes abundant micro-

remains of other vertebrates) was reported in Higgins (1975, Conodont zonation of the Late Visean-early Westphalian strata of the south and central Pennines of northern England. Bull. Geol. Surv. of Great Britain, 53, 1-90).

Day trip to the Natural History Museum, London. Leader: Giles Miller. A visit to one of the world's best known museums; an opportunity to go behind the scenes and examine conodont collections, including material deposited by Hinde, Higgins and large collections donated by Austin. For more information go to: http://www.nhm.ac.uk/research-curation/projects/conodonts/.

#### Friday July 21

**Workshop:** Conodont Bodies and Skeletons. An opportunity to examine and discuss specimens preserving conodont soft tissues and articulated skeletons, including much of the best material from around the world.

#### Excursions

### Pre-meeting Excursion: The Carboniferous of Ireland

July 12 – 16/2006

### Leader: George Sevastopulo

This field trip will focus on Mississippian (Carboniferous) rocks of the Dublin Basin and Hook Head, County Wexford. The Dublin Basin provides sections (mainly coastal) of the late Tournaisian (in a shelf/ramp setting) and all of the Visean (in both basinal and shelf settings). The basin/shelf margin is preserved and the sedimentology of both shelf and basinal carbonates (and less abundant siliciclastics) is exciting. Conodonts occur at many horizons together with foraminiferans and macrofossils. Current research activity includes identification of the Tournaisian/Visean boundary in both shelf and basinal settings. Hook Head provides a spectacular section from early Tournaisian redbeds and shallow marine carbonates and siliciclastics through progressively deeper water limestones and shales (youngest part of the Polygnathus communis carina Zone in the highest preserved beds). Conodonts from Hook Head were described by Johnston and Higgins (1981; Conodont faunas from the Lower Carboniferous rocks at Hook Head, County Wexford, Journal of Earth Sciences of the Royal Dublin Society, 4, 83-96).

# Post-meeting Excursion: Iapetus - from coast to coast July 22 – 27/2006

#### Leaders: Howard Armstrong, Robert Raine & Paul Smith

and

This fieldtrip will take the form of a transect across the Caledonide mountain belt of Scotland and northern England or, in palinspastic terms, a coastline to coastline traverse across Iapetus. The trip will commence by looking at the Ordovician-Silurian succession in the Lake District, including an examination of the Ashgill in its type area. It will then cross the Scotland-England border, marking the leap from Avalonian to Laurentian crust, with the next stops at deep water Ordovician localities in the Southern Uplands, where current controversies over the tectonic interpretation of the Southern Uplands and Midland Valley terranes will be discussed. Crossing the Midland Valley of Scotland, the Neoproterozoic Dalradian Supergroup will be traversed from the Highland Boundary Fault, where obducted Ordovician ocean floor and islands with shallow water Laurentian conodont faunas can be seen at Dounans, north to the Great Glen fault and Loch Ness. We will then continue northward across the Moine thrust belt, where Neoproterozoic metasediments are thrust over the Laurentian foreland, to end the trip on the shoreline of Laurentia at the classic Cambro-Ordovician sections in Durness. In addition to providing the opportunity to sample conodont localities described by Higgins, Bergström, Ethington, Lindström, Armstrong and Orchard, the trip will also consider the history of geological exploration in this region, together with current interpretations and controversies regarding the margins of Iapetus, its constituent terranes and the final closure of the ocean in the Silurian.

#### Mark Purnell

Department of Geology University of Leicester University Road Leicester LE1 7RH UK Tel +44 116 252 3645

#### Philip Donoghue

Department of Earth Sciences University of Bristol Wills Memorial Building Queens Road Bristol BS8 1RJ, UK Tel +44(0) 117 954 5440

# Topical Session, 2006 Annual Geological Society of America Meeting, Philadelphia, PA, U.S.A. October 22-25, 2006

Symposium On Geochemical Aspects of Conodonts to be a part of the 2006 Annual Meeting of the Geological Society of America Philadelphia, Pennsylvania

Sponsors: Pander Society, Paleontological Society, Geochemical Society

## Symposium Title: AN APPETITE FOR APATITE: CONODONT-BASED GEOLOGICAL INVESTIGATIONS IN THE 21ST CENTURY

Co-Chairs: J.R. Morrow, D.J. Over, M. Elrick

Conodont microfossils, a premier tool for high-resolution biostratigraphic correlation and biochronology, are becoming increasingly important in diverse geological and geochemical studies seeking to unravel the history of critical paleoceanographic, paleoclimatic, biotic, and paleotectonic changes from the Late Cambrian through the Triassic. This multidisciplinary session will highlight current research emphasizing new innovative and quantitative uses for conodonts in a wide variety of geological applications, including isotopic, trace metal, rare earth element, geochronologic, organicchemistry, paleotemperature, event stratigraphic, diagenetic, and tectonic research.

Any submission incorporating new or innovative uses of conodonts within the fields of geochemistry, biochronology, paleoceanography, paleoclimatology, event stratigraphy, or tectonics would be welcomed. The session will include both oral and poster formats. The GSA electronic abstract submission deadline is July 11/2006, and the meeting dates are October 22-25, 2006.

See also: http://www.geosociety.org/meetings/2006/index.htm

For more information, please contact Jared Morrow (jared.morrow@unco.edu), Jeffrey Over (over@geneseo.edu), or Maya Elrick (dolomite@unm.edu). (Submitted by Jared Morrow)

# Carboniferous Conference Cologne 2006 - From Platform to Basin. A Research and Field Conference in the Mississippian of Germany September 4-10/2006

sponsored by SEPM-CES

Please see: http://www.ccc2006.uni-koeln.de For further information, contact Hans-Georg Herbig Universität zu Köln, Institut für Geologie und Mineralogie AG Paläontologie und Historische Geologie Zülpicher Strasse 49a, 50674 Köln, Germany Tel. 0049-221-4702533; Fax 0049-221-4705080

Homepage of Palaeontology Group:

http://www.uni-koeln.de/math-nat-fak/geomin/palaeo.html

Homepage H.-G. Herbig:

http://www.uni-koeln.de/math-nat-fak/geomin/herbig.html (submitted by Hans-Georg Herbig)

# Proposal for Pander Society Symposium and Field Trip at Combined North Central — South Central GSA Meeting in 2007

The Pander Society would like to meet in April, 2007 with the GSA Sectional meeting in Lawrence, Kansas. The proposed agenda includes a symposium of oral presentations and a Friday Evening—Saturday field trip designed primarily for members of the Pander Society (conodont specialists), but other geologists might well be interested in the trip.

#### **Pander Society Symposium**

Proposed Title: Mixed-Up Conodonts: Extracting Useful Information from Stratigraphic Leaks and Redeposited Faunas

Presentations: Oral presentations preferred

*Timing*: Friday preferred. Depending on the number of submissions, papers would be presented on Friday morning and early afternoon, followed by a late Friday business meeting, after which we would leave for the field trip.

Session Description: The session theme will stress the special geological information that can be extracted from conodonts that were deposited, eroded, and redeposited into younger strata. Examples could be from strata above unconformities, karst deposits, turbidites and debris-slides, and deposits associated with impact structures. However, papers dealing with any topic related to conodont research are welcome.

Organizers: James Miller; Geography, Geology, & Planning Department; Missouri State University; Springfield, MO 65897 JimMiller@MissouriState.edu (417) 836-5447

Stephen Leslie, Earth Sciences Department, University of Arkansas at Little Rock, Little Rock, AR 72204-1099 <a href="mailto:sleelie@ualr.edu">sleelie@ualr.edu</a> (501) 569-8061

#### **Pander Society Field Trip**

Proposed Title: Redeposited Conodonts and Crinoids: Sorting Out the Ages of Breccias Associated With the Weaubleau and Decaturville Impact Structures in West-Central Missouri

Timing: Friday evening and Saturday

Field Trip Description: Drive to field area Friday evening and stay in motels in Clinton, MO. On Saturday visit undisturbed Lower Ordovician and Mississippian deposits near Osceola and Humansville, megabreccias and marine resurge breccias associated with the Weaubleau Impact Structure, and fallback breccias associated with the Decaturville Impact Structure. Trip emphasizes conodonts and other fossils found in impact-related breccias and age of impacts. Trip returns to Kansas City and Lawrence late Saturday evening for Sunday departure.

*Field Trip Leaders*: James Miller and Kevin Evans; Geography, Geology, & Planning Department; Missouri State University; Springfield, MO 65897 <u>JimMiller@MissouriState.edu</u> (417) 836-5447

# A Silurian Meeting in Cagliari, Sardinia, Italy - Time and Life in the Silurian: A Multidisciplinary Approach Late Spring 2009

A Subcommission on Silurian Stratigraphy meeting and field trip in the late spring of 2009 in Cagliari (Sardinia, Italy). Final dates are not yet fixed, but the most probable period would be the first half of June.A preliminary schedule includes three days of scientific sessions and the Subcommission business meeting. Main emphasis will be paid to integrated multidisciplinary studies in Silurian rocks and fossil biota. Scientific sessions will be followed by three days of field trip: relatively deep water limestone and black shale facies will be demonstrated in a selected number of outcrops and sections. The first circular can be expected in early 2007. (submitted by Carlo Corradini)

#### SUMMARY OF RESEARCH INTERESTS

Chief Panderer's Note: When, in last year's Pander Society Newsletter, I expressed dissatisfaction about how limited (and limiting) the Categories to be 'checked off' under Research Interests were, I had no idea about the veritable 'Pander's Box' that I was opening. Not defining or limiting research categories and letting you the members express yourselves freely, led to great inventiveness on your part, attributable to creativity and differences in personality, experience, language, and culture. Initially, I didn't know what to do, but once I 'settled' down, I decided to have a bit of fun and attempt to put like categories with like categories, without worrying about alphabetical order etc. If your interests are 'correctly' grouped with other similar and related interests, then please give me a passing grade; if I didn't succeed, and I have placed you and your research interests in strange, unrelated places, then please don't take it personally, but accept my apologies and 'fail' me. And, no, I don't know how we'll do it next year, but if you have suggestions do let me know. (PvB)

**Cambrian.** Albanesi; Bagnoli; Barnes; Donoghue; Lehnert; Miller (J.F.); Nakrem; Pyle; Repetski; Sansom; Smith (Paul)

Ordovician. Agematsu; Albanesi; Aldridge; Barnes; Donoghue; Ethington; Goncuoglu; Hall; Leatham; Lehnert; Leslie; Löfgren; Mannik; McCracken; Miller (J.F.); Percival; Pyle; Repetski; Rosales; Sansom; Simpson; Smith (Paul); Sokolova; Stouge; Sweet; Talent; Tarabukin; Viira; Wickström; Yong Yi Zhen; Shunxin Zhang

Silurian. Agematsu; Albanesi; Aldridge; Barnes; Benfrika; Cole; Corradini; Donoghue; Garcia-López; Goncuoglu; Jeppsson; Leatham; Lehnert; Mannik; McCracken; Mawson; Metzger; Miller; Nakrem; Norby; Purnell; Pyle; Sansom; Shunxin Zhang; Simpson; Slavik; Talent; Tarabukin; Viira; von Bitter; Wickström

Devonian. Belka; Bender; Benfrika; Bultynck; Castello; Corradini; Day; Donoghue; Dopieralska; Gholamalian; Herbig; Katarzyna; Kirchgasser; Kirilishina; Klapper; Kononova; Leatham; Liao; Matyja; McCracken; Mawson; Metzger; Miller; Nazarova; Over; Piecha; Pyle; Randon; Sandberg; Slavik; Sokolova; Spalletta; Stritzke; Szaniawski; Talent; Tarabukin; Uyeno; Valenzuela-Rios; Wang Cheng-yuan; Wankiewicz; Weddige; Woroncowa-Marcinowska; Zhuravlev

**Mississippian**. Kurka; Miller (J.F.); Rexroad; Sandberg; von Bitter; Zhuravlev **Irish Dinantian**. Jones (G.Ll.)

**Pennsylvanian**. Bright; Brown; Marshall; Merrill; Pieracacos; Rexroad; Rosscoe; Scomazzon; von Bitter

Carboniferous. Barskov; Belka; Bender; Gholamalian; Herbig; Kononova; McCracken; Mawson; Nakrem; Nazarova; Norby; Soo-In Park; Piecha; Randon; Reimers; Spalletta; Talent; Tarabukin; von Bitter; Zhuravlev

**Permian**. Aldridge; Hisaharu Igo; Jun Chen; Klets; Nakrem; Paull; Purnell; Reimers; Soo-In Park; Swift; Zhuravlev

Triassic. Aldridge; Bagnoli; Budurov; Goudemand; Hirsch; Hisaharu Igo; Hisayoshi Igo; Jun Chen; Katarzyna; Kilic; Klets; Kolar-Jurkovšek; Kovács; Márquez-Aliaga; Meco; Nakrem; Önder; Orchard; Paull; Plasencia-Camps; Purnell; Reimers; Rigo; Sudar; Swift; Valenzuela-Rios; Yao Jianxin; Zhao

Paleozoic. Bergström; Dusar; Kurka; Wang Cheng-yuan; Yao Jianxin

Cambrian through L. Ordovician. Xiping Dong Cambrian-Triassic. Dumoulin; Nicoll

Cambrian to lowermost Liassic. Kozur

Ordovician through Mississippian. Witzke Silurian-Devonian. Gouwy

**Devonian through Early Pennsylvanian**. Lane **Devonian-Triassic**. Alekseev; Beatty; Katvala **Carboniferous-Permian**. Orchard

Carboniferous-Triassic. Henderson; Hisayoshi Igo: Swift

**Permian to Triassic**. Kolar-Jurkovšek, Yoshida; Lai Xulong

Biostratigraphy. Albanesi; Alekseev; Bagnoli; Barnes; Barrick; Barskov; Bauer; Beatty; Benfrika; Blanco Ferrera; Brown; Bultynck; Capkinoglu; Corradini; Day; Ethington; Fordham; Gedik; Gholamalian; Goudemand; Gouwy; Groessens; Hairapetian; Hall; Heckel; Henderson; Herbig; Hisayoshi Igo; Ishida; Isozaki; Izokh; Jeppsson; Johnston (D.I.); Katarzyna; Katvala; Kirilishina; Klapper; Kleffner; Kolar-Jurkovšek; Kirchgasser; Kononova; Kovács; Kozur; Kurka; Lambert; Lane; Leatham; Leslie; Liao; Löfgren; MacKenzie; McCracken; Mastandrea; Matyja; Metcalfe; Metzger; Miller (J.F.); Morrow; Nakrem; Nemyrovska; Nicoll; Nowlan; Obut; Önder; Orchard; Over; Soo-In Park; Percival; Perez; Perri; Pevny; Pieracacos; Poole; Pyle;

Reimers; Repetski; Rexroad; Sanz-Lopez; Savage; Scomazzon; Simpson; Slavik; Smith (Paul); Stouge; Shuzhong Shen; Stritzke; Sudar; Sweet; Uyeno; Valenzuela-Rios; Varea; Viira; von Bitter, Weddige; Wickström; Witzke; Xiping Dong; Yao Jianxin; Yolkin; Yong Yi Zhen; Yoshida; Zhuravlev

**Integration of conodont biostratigraphy & stratigraphy**. Beatty; Nemyrovska

Correlations. Sweet Graphic Correlations. Sloan; Sweet

**Biochronology**. Orchard **Bio-Chronostratigraphy**. Nicora **Chronostratigraphy**. Kleffner

Bioevents. Mannik

Conodont Episodes/Events. Kleffner; Sandberg

Events. Bultynck; Lehnert; Simpson

**Event Stratigraphic Applications.** Morrow; Tarabukin

**Transgression-regression Events.** Mawson **Extinction Events.** Barrick; Jeppsson; Mawson; Sandberg

Boundaries. Albanesi; Beatty; Blanco Ferrera; Capkinoglu; Castello; Hairapetian; Henderson; Izokh; Katarzyna; Kirilishina; Kleffner; Lambert; Lane; Löfgren; MacKenzie; Mastandrea; Matyja; Mendez; Metcalfe; Nemyrovska; Nowlan; Obut; Paull; Perri; Pevny; Repetski; Rigo; Sanz-Lopez; Savage; Stouge; Stritzke; Uyeno; Viira; Woroncowa-Marcinowska; Yolkin; Zhao

Paleontology. Yong Yi Zhen

**Multi-element Taxonomy.** Beatty; Jun Chen; Lambert; Metzger; Miller; Orchard, von Bitter

**Taxonomy.** Bagnoli; Budurov; Bultynck; Ethington; Fordham; Klapper; Kozur; Löfgren; Mannik; McCracken; Matyja; Petrunova; Rosscoe; Sandberg; Smith (Paul): Sudar; Xiping Dong; Zhuravlev

**Apparatuses**. Dzik; Hirsch; Nicoll; Purnell; Repetski; Savage, von Bitter

Morphogenesis of elements. Dzik

Morphometry. Girard; Goudemand; Purnell

Ontogeny. Girard

**Cladistics**. Aldridge; Barnes; Smith (Paul); Wickström; Shunxin Zhang; Zhuravlev

**Evolution**. Budurov; Dzik; Fordham; Jones (D.); Mannik; Purnell; Simpson; Sudar; Lai Xulong; Zhuraylev

Phylogeny. Hirsch; Kirilishina; Kononova; Rigo

**CAI.** Barnes; Belka; Benfrika; Blanco Ferrera; Garcia-López; Johnston (D.I.); Katarzyna;

Königshof; Lehnert; Lopez; Mastandrea; Mawson; Nemyrovska; Nicoll; Nicora; Norby; Nowlan; Önder; Paull; Perri; Piecha; Pyle; Repetski; Sanz-Lopez; Smith (Paul); Spalletta; Sudar; Talent; Tarabukin; Zhuravlev

Thermal History. Dumoulin; Poole KI. Mastandrea; Königshof; Spalletta Paleothermometry. Albanesi Vitrinite Reflectance. Königshof

Conodont Biology. Nicoll

Conodont Nature. Weddige; Szaniawski

Conodont Animal. Katvala

**Paleobiology**. Aldridge; Armstrong; Buryi; Cole; Donoghue; Henderson; Perez Plasencia-Camps; Purnell; Sansom; Szaniawski; von Bitter; Wickström

Diversity. Purnell

Phospatized Embryos. Repetski; Nowlan

Function. Rosscoe

**Functional Morphology**. Jones (D.); Nazarova **Shape Analysis**. Girard; Goudemand; Sloan

Deformation of conodonts. Kovács Limestones. Kovács; Önder Metamorphism. Kovács Microfossil Analysis of Terrane. Ishida

Sr & Nd in conodonts. Scomazzon Isotope Excursions. Savage Isotope Geochemistry. Lehnert

**Taphonomy**. Johnston (D.I.); Kirchgasser; Purnell; Varea; Zhuravlev **Biostratinomy**. Hisaharu Igo; Hisayoshi Igo

Historical. Barskov; von Bitter; Zhuravlev

Geoinformatics. Lane

**Geochemistry**. Barnes; Belka; Bergström; Dopieralska; Leslie; Morrow; Nowlan; Rigo; Scomazzon; Trotter

Histology. Donoghue; Goudemand; Zhuravlev Histology of protoconodonts, paraconodonts & earliest euconodonts. Xiping Dong Ultrastructure. Barnes Proto- & Paraconodonts. Szaniawski

Biogeography. Barnes; Orchard; Smith (Paul); Yong Yi Zhen; Zhuravlev

**Paleobiogeography.** Kurka; Nemyrovska; Repetski; Sandberg; Stouge; Talent; Tarabukin; Varea

**Paleogeography**. Katvala; Lane; Mannik; Yong Yi Zhen Provincialism. Charpentier; Kozur

**Provinces**. Percival **Paleoclimate**. Lane

Paleoecology. Albanesi; Barnes; Bauer; Budurov; Bultynck; Capkinoglu; Charpentier; Gedik; Hairapetian; Henderson; Herbig; Johnston (D.I.); Jun Chen; Katarzyna; Katvala; Kirilishina; Königshof; Kononova; Kozur; Krahl; Lai Xulong; Lambert; Leatham; Leslie; Mannik; Matyja; McCracken; Mendez; Nemyrovska; Nicora; Perri; Petrunova; Pevny; Pieracacos; Repetski; Rexroad; Rigo; Rosales; Sandberg; Scomazzon; Slavik;

Stouge; Stritzke; Talent; Tarabukin; Varea; von

Bitter; Witzke; Yao Jianxin; Zhuravlev

Paleoenvironments. Dumoulin; Orchard; Sansom

Paleooceanographic proxy. Bright

Ecology. Purnell

**Biofacies**. Krahl; Piecha; Poole; Sandberg;

Tarabukin;

Sea Levels using conodont communities.

Shunxin Zhang

Water temperature of the Sea. Nicora

Eustasy. Barnes

### RESEARCH REPORTS

Sachiko Agematsu. Am a graduate student studying Ordovician and Silurian conodonts from Thailand and Malaysia.

Guillermo Luis Albanesi. Continues working on diverse projects involving Lower Paleozoic conodont faunas from west and northwest Argenine basins. An integrated conodont-graptolite biostratigraphic chart is being assembled for the Ordovician and Silurian systems of Argentina in cooperation with Gladys Ortega. Collaborating with colleagues from universities in Argentina, Spain, UK, USA and Canada, on related topics of Lower Paleozoic historical geology and paleontology. Our working group has prepared a proposal on a global stratotype for the base of the Middle Ordovician Series in the Argentine Precordillera. New supported projects on high resolution biostratigraphy, sequence stratigraphy, events, and paleothermometry on the Lower Paleozoic of the Eastern Cordillera and the Precordillera, Argentina began in the current year with participating colleagues from different universities, as well as two new graduate students under my supervision.

**Alexander S. Alekseev**. Investigations are on Devonian-Triassic conodonts from the East Europian Platform, Urals and Crimea. Now concentrating on Moscovian-Gzhelian conodonts from the Moscow Basin and South Urals. A new area of interest is the Arkhangelsk Region.

**Dick Aldridge**. A paper on the bromalites (coprolites and associated alimentary ejecta) from the Upper Ordovician Soom Shale (with S. Gabbott, L. Siveter & H. Theron) has been accepted by Palaeontology. The interest for conodont workers is that some of the bromalites contain fragmented conodont elements of the genus *Promissum*. Our group has also collected a few more complete apparatuses of a new icriodellid conodont from Soom Shale and now has enough to reconstruct the apparatus composition and architecture. Other conodont activities in 2005 have included some progress on a monograph on Silurian conodonts of South China (with Wang Cheng-yuan), a collaborative study of new collections across the Permian/Triassic boundary at Meishan (with Lai Xulong & his team), and re-invigoration of studies of Ordovician conodonts from Estonia (with V. Viira & S. Curtis) and Saudi Arabia (with P. Smith). A long-term cladistic study of complex conodonts with P. Donoghue, M. Purnell and Zhang Shunxin is at last nearing completion.

**Howard A. Armstrong**. Following the completion of the second edition of Microfossils, work largely (and by necessity!) turned away from microfossils for much of 2005. Projects on the earth system changes associated with the Ordovician glaciation are ongoing in Libya, Jordan and Wales (with Tom Challands). Collaboration with Geof Abbott (Univ. Newcastle) has expanded this work into Ordovician biomarkers and water column conditions during deglaciation, and Ordovician SSTs and pCO2 levels. A new Ph.D. student starts in May 2006 to work on GC-IRMS of Ordovician biomarkers. Conodont work resurfaced occasionally in 2005 with projects on bias and completeness, histology and functional morphology of *Panderodus* nearing completion.

Gabriella Bagnoli. Actively working on Cambrian conodonts from China and Lower Triassic conodonts from southern Italian Alps.

Chris Barnes. The final papers based on extensive field-based Lower Paleozoic stratigraphic and conodont studies in the Canadian Cordillera with Leanne Pyle either published or In Press. Work with Shunxin Zhang is using my extensive conodont database to evaluate conodont biostratigraphy, biofacies and biogeography to the pattern of eustasy and tectonism that affected northern Laurentia in the early Paleozoic. Several joint papers have appeared recently with others 'in press', which deal with Ordovician

(and Silurian) conodont taxonomy, evolution, paleoecology, cladistic analyses and the response of the conodont communities to eustatic change. Other studies just published include one on Late Ordovician conodonts from the Mithaka Formation, Georgina Basin, Australia (with T. Kuhn) and one on Cambro-Ordovician conodonts from the Famatina Terrane, Argentine (with G. Albanesi & M. Hünicken). The geochemistry of conodonts is being pursued further in collaboration with J. Trotter. Other work 'in press' includes Ordovician-Silurian conodonts from Hudson Bay (with Shunxin Zhang); Late Ordovician-Early Silurian conodonts from the Edgewood Group, Missouri-Illinois (with T. Kuhn and F. O'Brien); Late Ordovician-Early Silurian conodonts from the Kolyma Terrane, NE Russia (with Shunxin Zhang). Other work nearing completion includes Ordovician-Silurian conodonts from Hudson Bay (with Shunxin Zhang); Late Ordovician conodonts from southern Ontario (with Shunxin Zhang & G. Tarrant); Ashgill-Wenlock conodonts from the Canadian Arctic (with D. Jowett); and Ashgill conodonts from the Whitland section, south Wales (with A. Ferretti).

**James E. Barrick**. Continues work on various aspects of Silurian to Late Carboniferous conodonts. Mark Kleffner and I have received NSF funding to investigate conodont faunal events, stable isotope events, and stratigraphical sequences for the Wenlock-Ludlow (Silurian) interval across southern and central North America.

**Igor S. Barskov**. Continuing to work on the conodonts from Serpukhovian type section in the Russian Platform. Am also conducting an historical review of conodont research and researchers in the former Soviet Union.

**Jeff Bauer**. Continues to work toward completion of a manuscript on Joins and Oil Creek conodonts. Shawnee State University has just approved a concentration in geology; consequently, I will now be teaching future geologists.

**Tyler W. Beatty**. For the past two years has been working on Lower Triassic biostratigraphy and paleoenvironmental analysis in western USA, western Canada, Canadian Arctic, and South China, as part of my Ph.D. thesis. Work continues on M.Sc. research concerning conodont faunas from the Quesnel Terrane of the Canadian Cordillera.

**Zdzislaw Belka**. Working on Late Devonian conodont stratigraphy in the eastern Anti-Atlas, Morocco. Other projects include studies on REE isotope chemistry of conodont elements in the Variscan Europe and CAI studies in the Devonian of northern Africa.

**Peter Bender**. Continue to study Devonian and Carboniferous conodonts from the Rheinisches Schiefergebirge.

El Mostafa Benfrika. Working on Silurian and Devonian conodont biostratigraphy from northwestern Moroccan Meseta.

**Stig M. Bergström**. Although retired from teaching, I continue working in the Department essentially full-time and maintain my research program in North America, Baltoscandia, and China. However, much of my current research does not involve conodonts to a significant degree as shown by the fact that among many papers and abstracts published, only three papers deal with conodonts. The most significant was a study of middle Llandovery conodonts from Sweden (with P. Dahlquist). Although I am still involved in conodont projects, most of my time these days is spent on geochemical work (\frac{13}{2}C chemostratigraphy and the use of isotopes for assessing Ordovician sea water temperatures). This has led to exciting results, including new interpretations of the stratigraphy and depositional conditions during round the Ordovician/Silurian boundary in North America and Baltoscandia.

Camomilia Bright. Still on hiatus from conodont activity and exploring the world of foraminifera.

**Lewis M. Brown**. Working with Carl Rexroad on Pennsylvanian, primarily Desmoinesian conodonts. Three Illinois Basin projects are in the final stages of completion and we have begun a new project in New Mexico.

**Kiril Y. Budurov**. Although now retired I still continue to work at the Bulgarian Geological Institute where I am working on the conodonts from the Eastern Stara Planina Mountains and preparing a monograph on the Triassic conodont fauna.

**Pierre Bultynck**. Some progress in the study of Frasnian conodonts from sections in S. Morocco (with S. Gouwy) and in the study of conodonts of the Eifelian/Givetian boundary interval in the GSSP for the base of the Givetian in S. Morocco (with O.H. Walliser & K. Weddige). Also studying the *subterminus* conodont fauna in Europe and S. Morocco and correlation with N. America (with K. Narkiewicz).

Galina Ivanovna Buryi. Continuing research on main morphological structures of euconodont animal.

Senol Capkinoglu. Working on Devonian-Carboniferous conodont biostratigraphy of Turkey.

**Stephen Carey**. No longer working on condonts.

**Veronica Castelló.** Starting on Ph.D. studies involving the Frasnian-Fammenian boundary in the Pyrenees (Supervisor Dr. Jose Ignacio Valenzuela Rios).

Ronald R. Charpentier. Not presently active in conodont research.

David L. Clark. Nothing to report on the conodont front. Please note new e-mail address.

**Damian Cole**. Activities include continued sampling of limestones and cherts in the area surrounding Bungonia in southeastern NSW, Australia.

**Carlo Corradini**. Continuing research on Silurian and Devonian conodont biostratigraphy in Sardinia and in the Carnic Alps. Investigating the Ockerkalk facies limestones and a paper on graphic correlations based on sections in this unit in Sardinia is 'In Press' (with S. Gouwy); a revision of the Famennian-Tournaisian conodont biostratigraphy in the island is completed. Investigating the Silurian-Lower Devonian *Orthoceras* limestones in several areas of the Italian side of the Carnig Alps.

James (Jed) Day. Continuing field-based research (with Jeff Over, Michael Whalen) on integrated brachiopod-conodont biostratgraphy of Middle and Upper Devonian carbonate platform (carbonate ramp and detached reef platforms) and basin sequences in the Canadian Rocky Mountain outcrop in western Alberta and eastern British Columbia. Recent work in eastern B.C. appears to indicate that the initial Devonian marine transgression and flooding of the West Alberta Arch and Peace River Arch was likely much earlier (as old as Upper *varcus* Zone) than in areas to the east in Alberta (Upper *disparilis* Zone). Continuing work on the late Givetian-Frasnian Iowa Basin conodont-brachiopod sequences and will present results of continuous conodont sampling through the interval of the middle Givetian *varcus* Zone to early Frasnian Montagne Noire Zone 4. This sequence provided conodont apatites analyzed for the study of stable oxygen and carbon isotope chemostratigraphy through the late Givetian-early Frasnian transition in Joachimski et al. (2004). The basic features of the sequence will be presented in the guidebook for the 2006 Great Lakes Section of SEPM Fall Field Conference.

**Xiping Dong**. Continues to study Cambrian through Lower Ordovician conodonts from Hunan, Anhui, Zhejiang, south China and Liaoning, Shandong, north China, and Zinjiang, northwest China. Also has been collaborating with S. Bergström and J. Repetski on the Cambrian though Lower Ordovician conodonts from western Hunan. Since 2000, has been working with P. Donoghue on the histology and comparative histology of protoconodonts, paraconodonts and the earliest euconodonts from China.

**Philip Donoghue**. Dong Xiping and I have been continuing our work on Cambrian paraconodont and euconodont histology and evolution. Together with Mark Purnell, Dick Aldridge & Zhang Shunxin we have submitted manuscripts on the cladistic relations of "complex" conodonts.

**Jolanta Dopieralska**. Continuing studies on REE isotope chemistry of conodonts. Several studies on seawater geochemistry and circulation in the Variscan Sea during the Late Devonian are complete. Last year I moved from Giessen (Germany) to a new isotope laboratory at the Adam Mickiewicz University in Poland.

**Julie A. Dumoulin**. Have been working with Anita Harris for a number of years using conodonts to investigate the age, depositional settings, and thermal level of Cambrian through Triassic rocks in Alaska, especially Ordovician through Pennsylvanian strata in northern Alaska. My most recent research has focused on the Carboniferous-Permian Lisburne Group.

**Michiel Dusar**. Presently not working with conodonts but more generally with regional upper Palaeozoic stratigraphy.

**Jerzy Dzik**. Continuing studies on Late Devonian conodont apparatuses. Have submitted a monograph on Famennian conodonts from Poland (142 apparatus species) to Palaeontologia Polonica.

Raymond L. Ethington. Continue to compile a catalogue of the conodonts in the University of Missouri Collection, having finished with the Branson/Mehl/Ellison era and am well into the Ethington/Clark and fellow travellers portion. Work continues sporadically on several long-standing Ordovician projects, but I find that retirement provides just as many distractions as working. One of such has been assisting K. MacLeod & D. Bassett in their efforts to extract Ordovician temperature information from oxygen isotope ratios in conodonts.

**Silvia Blanco Ferrera**. I am working in conodont and stratigraphy from the Tournaisian to the Bashkirian of the Iberian Peninsula. CAI research is focusing in the Cantabrian Zone and the Pyrenees.

**Barry Fordham**. Working on Ordovician to Carboniferous conodonts from Queensland, Australia. Although I am now involved in sustainability science, I am still working on conodonts in my spare time.

**Susana Garcia-López**. Working on Silurian to Lower Carboniferous conodonts, mainly focusing on biostratigraphy and biofacies. Also actively working on projects dealing with CAI research in the Cantabrian Zone and Pyrenees (NW & NE of Spain).

Ismet Gedik. Life habits of conodonts and first occurrence of conodonts in earth history.

**Hossein Gholamalian**. I have finished a program on Late Devonian conodont biostratigraphy of some sections in north of Kerman province, SE Iran. Am now starting on Early Carboniferous conodont biostratigraphy of a section in Damghan area, northern Iran.

**Catherine Girard**. Still working on Late Devonian conodonts, especially on the morphological response of the genus *Palmatolepis* to the Kellwasser crisis (Frasnian/Famennian boundary). New investigations involve sampling the entire Famennian, in order to study the phylogeny of the genus *Palmatolepis*, and studying how ontogeny can help us to better understand response to global environmental changes.

**Yakut Goncuoglu**. Continuing project work with C. Concuoglu on diverse Early Palaeozoic successions of the Taurides and Istanbul-Zonguldak Terrane.

Nicolas Goudemand. Working on Ph.D. thesis on Early Triassic conodonts.

**Sofie Gouwy**. Currently working on graphic correlation based on conodonts of some Givetian-Frasnian sections of the Eastern Anti-Atlas with P. Bultynck and on Silurian and Devonian conodonts of Sardinia (Italy) with C. Corradini.

Eric Groessens. Continuing studies on uppermost Devonian-Lower Carboniferous conodonts from Belgium, northern France and China.

**Vachik Hairapetian**. Actively working on Silurian Niur Fm. in Derenjal Mountains, east central Iran with Giles Miller (London). Numerous ostracods, conodonts and fish (thelodonts and a few acanthodians) have been collected. Work continues on Upper Devonian-Lower Carboniferous conodonts, collected from bone bed samples in central Iran and Armenia.

**Jack C. Hall.** The past year has been busy with administrative chores as I am still chair of the department. I am on leave this spring and had hoped to get into the field to get some collecting and research done, but with new positions to fill and building renovations this looks doubtful.

**Phil Heckel**. Studies involving Pennsylvanian conodonts continue. Thirteen coauthors and I published a cyclothem correlation framework across the Moscovian-Kasimovan and Kasimovan-Gzhelian boundaries based on conodonts, fusulines and ammonoids from sections in North America and Eurasia, in the 2005 Carboniferous Newsletter. This correlation is now being updated, and will be useful for defining stage boundaries.

Charles M. Henderson. Continuing work on sequence biostratigraphic research on Upper Paleozoic to Triassic strata from western and Arctic Canada and China primarily. A collaborative research program with the Nanjing Institute of Geology and Paleontology is underway with investigations of Kungurian, Lopingian and P-T boundary strata in South China. My research focuses on the development of refined biozonations by investigating evolutionary models for conodont speciation, the extent of conodont provincialism, and the recognition of geographic clines. As Chairman of the Subcommission on Permian Stratigraphy I am focusing on completing GSSP definitions for the Permian System. The new SPS website at hhtp://www.nigpas.ac.cn/permian/web/index.asp will be of interest to Permian researchers. Most of my nine graduate students in the Applied Stratigraphy Research Group are conducting sequence biostratigraphic/petroleum geology studies in the subsurface of southern Alberta to northeastern British Columbia on uppermost Devonian to uppermost Triassic rocks, as well as the dynamics of recovery from P-T extinction and Upper Paleozoic comparisons between the Wrangellia and Alexander terranes. One student is doing elemental mapping of conodont using a microprobe. Finally, David Johnston is working with me on Mississippian conodonts from the Exshaw and Banff formations.

Hans-Georg Herbig. No conodont research conducted for a few years, but now some projects are in progress or have been completed. Together with D. Stoppel a state-of -the-art review of Mississippian conodonts from Germany was finished (biostratigraphy, biofacies, CAI) and is 'in press'. Biostratigraphy of Late Devonian to Mississippian conodonts from the Betic Cordillera, southern Spain are being studied in a project with M. Piecha.

**Francis Hirsch**. Continue working on Triassic conodonts (with K. Ishida, Tokushima, Japan; Ali Murat Kilic, Turkey & P. Placensia, Valencia, Spain) on the reconstruction of some new or little known assemblages, their apparatuses, classification and phylogeny.

**Hisaharu Igo**. Finding and studying lower Triassic conodont natural assemblages (many are fused clusters) from the whetstone-type shale.

**Hisayoshi Igo**. Involved in describing Lower Triassic conodonts from Primore, Russia as well as Carboniferous to Triassic biostratigraphy and biostatinomy.

**Keisuke Ishida**. Currently working on Late Palaeozoic and Triassic conodonts in SW Japan and Shan-Thai. A preliminary report of the late Early Permian faunas (*M. bisseli-S. whitei* Zone) from the Triassic

basal conglomerate (in relation with the Triassic sealing of the post-accretionary Kurosegawa Terrane, Outer Zone of SW Japan) has been published (Ishida et al., 2005). Provenance of the Triassic conodont-bearing gravels in the Lower Jurassic cover formation of the Mae Sariang Zone was discussed with special respect to the sealing and erosional event of the Shan Thai Terrane (Ishida et al., 2005). The Triassic (Carnian-Norian) conodont biostratigraphy of the meta-chert succession in the Mino-Tamba Jurassic accretion terrane (Inner Zone of SW Japan) will now be studied (Mikami et al., 2006).

**Yukio Isozaki**. Currently working on detailed stratigraphy of the Guadalupian-Lopingian (=Middle-Upper Permian) boundary interval and the Lopingian/Induan (=Permian-Triassic) boundary interval in South China and in Japan.

**Nadezhda G. Izokh.** Study of conodonts from Ordovician, Silurian and Devonian of the Altai-Sayan folded area, West Siberia, Russia and South Tien Shan.

**Lennart Jeppsson**. Collecting and processing work on the Linde and Klev events, and on the recently discovered early Wenlock Ansarve event has yielded much new data. This is critical for achieving a high-resolution stratigraphy for these intervals, to identify localities for future work (on other major clades, isotopic and sedimentological changes), to judge the strength of these events, and, not least, to reveal how badly conodonts fared during these events. Manuscripts include papers now in the list of publications (see also Calner et al.), the submitted one and the subzones of the *O. s. rhenana* Zone. These can be followed across different facies belts in the Silurian sequence of Gotland. Application of them result in unexpected large revisions in the local stratigraphy, but also makes the range of other clades conform with those found elsewhere.

David Ian Johnston. A paper on disrupted conodont bedding plane assemblages from the Mississippian of western Canada by Charles Henderson and myself has been published. We also presented a poster on this topic at the AAPG meeting in Calgary this past June. I have also been doing some biostratigraphic service work involving conodonts this year as well. Working on another manuscript (with C. Henderson) concerning the conodont biostratigraphy and the implications for sequence stratigraphy for the upper Wabamun Group to lower Banff Formation interval in the surface and subsurface of southern Alberta. The work is based on the MSc thesis of C. Henderson's recent graduate student Michael Schmidt. I am now involved in non-conodont work by providing services in petroleum geology.

**David Jones**. Working on morphometric analysis of *Ozarkodina excavata* and *Pterospathodus* to examine taxonomy, population variation and evolutionary rates, patterns and processes.

**Gareth Ll. Jones**. Mineral exploration activities in Ireland only just begun to lift again, lagging behind the recovery in zinc prices. I look forward to working with conodonts (and foraminifers, algae, etc.) in 2006. Meanwhile geothermal exploration is keeping me warm!

**Jun Chen**. In order to know more about Late Permian-Early Triassic conodonts from Meishan Section (GSSP), South China, especially the evolutionary status of genera *Clarkina*, many samples have been collected and processed. Abundant specimens have been picked from these residues. Now working on my thesis (under Prof. Charles M. Henderson, Calgary, Canada) and hopefully will be completed by mid-2006.

**Tea Kolar-Jurkovšek**. Most of my projects on Triassic biostratigraphic studies in Slovenia and Croatia continue collaboratively with my colleagues. An intensive study of the P-T interval and Lower Triassic is in progress in many sections of the Dinarides in order to define the systemic boundary biostratigraphically. Micropaleontological study of two sections in the Raibl Beds (Carnian) of Slovenia have been published; 1) a conodont apparatus of *Nicoraella*? *budaensis* is demonstrated from the Belca section; and 2) some new gastropod taxa are recognized from the two assemblages of the Mezica area.

**Erik Cowing Katvala**. Most of my work to date has focused on using biostratigraphic, paleoecologic, and paleogeographic data from Mississippian through Triassic conodonts to help constrain paleontologic, stratigraphic and tectonic interpretations in the accreted terranes of western North America. I have also been working on element distributions in conodont elements on the electron microprobe.

**Ali Murat Kilic**. Working on the Triassic conodonts from the Kocaeli & Karaburun peninsulas, Taurids, Bulgaria and Japan with Profs. K. Budurov & F. Hirsch.

William Kirchgasser. Work continues on conodont and microvertebrate fossils of the 'Conodont Bed' (North Evans Limestone) around the Givetian/Frasnian boundary in western New York. A manuscript with G. Klapper on the Frasnian conodont sequence in New York is in prep. Work continues on the conodont-goniatite associations in the lower Frasnian of Pennsylvania, a project being conducted in collaboration with Gordon Bair (SUNY Fredonia) and Carl Brett (Univ. of Cincinnati).

**Elena M. Kirilishina**. Research on the conodonts from Frasnian-Famenian boundary interval of central regions of the Russian Platform.

**Gilbert Klapper**. Research continues on Frasnian and Famennian conodont taxonomy and biostratigraphy. In June 2005, completed a paper on the taxonomy of *Palmatolepis* species from the Frasnian of the Canning Basin, Western Australia. Accepted by Journal of Paleontology in 2005, it will not be published until May 2007.

**Mark A. Kleffner**. Continuing work on a variety of research projects with a number of colleagues. I am happy to report that NSF is supporting one of those projects, a collaborative effort with James Barrick, for the next three years. I also expect that at least one, if not several, of the projects that I have been working on with colleagues will be published in 2006, since one has already gone to press.

**Tatyana Vasilievna Klets**. My research on Permian and Triassic conodonts from northeast Asia continues. **Peter Königshof**. Continuing my work on endolithic organisms in conodont elements and also research on colour alteration with a special focus on comparison to KI and vitrinite reflectance. In the next few years my special interests will expand to cover topics related to the IGCP 499 (paleoecology, stromatoporoids, microfacies, sedimentology).

**Ludmila I. Kononova**. Continuing to study the Middle-Late Devonian and Early Carboniferous conodonts. Four new species of *Icriodus*, new genus and species of *Pseudobipennatus*, one new species of *Ctenopolygnathus*, and one new species of *Linguipolygnathus* are described from the Eifelian of Central Russian Platform.

**Sandor Kovács**. Working on Middle to Late Triassic conodont biostratigraphy in Hungary and taxonomy and evolution of Middle to Late Anisian Pa elements. One paper on metamorphism, recrystallisation and deformation of conodonts in anchizonal to epizonal metamorphosed limestones (with Milan Sudar) and another paper on colour alteration related to a half-graben structure has been submitted.

**Heinz W. Kozur**. Cambrian to lowermost Liassic conodont stratigraphy, Carboniferous to lowermost Liassic conodont taxonomy, palaeoecology and conodont provincialism.

**Jochen Krahl**. Permian to Triassic conodonts in high pressure metamorphic Phyllite Group, Crete, Greece. **Andrea Krumhardt**. Haven't done much with conodonts this year, other than help some students. Still very busy with Quarternary pollen and all that goes with processing sediment cores. Actually got to Belize this past year to collect peat cores in the mangrove swamps.

**Mira T. Kurka**. With a small processing lab in Nevada (USA) I occasionally educate mining geologists in applied micropalaeontology.

Lai Xulong. Actively working on Permian-Triassic conodonts. We have obtained several tens of thousands of conodonts by processing big samples collected from four P-T sections in South China during the past three years.

Lance L. Lambert. Continuing several collaborative Carboniferous and Permian projects, including Moscovian chronostratigraphic boundary studies with the respective task groups; Pennsylvanian studies with J. Barrick, P. Heckel and others; Early Permian biostratigraphy of the Sierra Diablo with S. Ruppel and others; and Middle to Late Permian studies with B. Wardlaw, M. Nestell, G. Bell, D. Rohr, and others.

**H. Richard Lane**. Conodont activities are still curtailed with my present job responsibilities.

**W. Britt Leatham**. Continuing biostratigraphic study of Paleozoic rocks of the western United States after salvaging rock collections and equipment damaged by fires in southern California and through relocation of processing and work labs.

Oliver Lehnert. Back in Erlangen working on a project supported by Deutsche Forschungsgemeinschaft with Werner Buggisch & Michael Joachimski on oxygen isotopes from Cambrian through Silurian conodonts (from different paleogeographic areas) to calculate sea-water tempratures. Goal is to get basic data about long-term temperature trends as background, get some idea of the gradient in sea-water temperatures from equatorial regions to high latitudes, and finally to focus on some event levels where we can observe strong paleoclimatic changes connected with faunal extinctions. Many friends & colleagues from different countries have agreed to cooperate. We hope to get more information about how changes in sea-water temperatures affected early Paleozoic faunas.

Stephen A. Leslie. My research interests continue in a variety of aspects dealing with Ordovician conodonts. This past year I have focussed efforts on looking for conodonts on shale surfaces with graptolites. This work began with Dan Goldman and the GSSP that we proposed at Black Knob Ridge based on graptolites, conodonts, chitinozoans (Jack Novak) and chemostratigraphy (Seth Young) that has recently been approved. We have expanded this project and are looking for tie points between graptolites and conodonts in Ordovian black shale successions in Idaho, New York, and Scotland. I am also part of a team (P. Sadler, C. Mitchell, S. Samson) using the Mohawkian as a proving ground for integrating conodonts, graptolites and K-bentonite beds in the "on-line electronic fossil record" that is a goal of

initiatives such as the Chronos System and the Palaeontological Database. The focus of this project is to improve the CONOP software used for the Chronos Web through decreasing problems faced when crossing facies boundaries between carbonate-dominated facies into shale-dominated facies.

**Jau-Chyn Liao** (aka Teresa). As a Ph.D. student I am working on Givetian and Lower Frasnian conodonts from the Pyrenees. My main point is to establish a fine biostratigraphical scale for the Givetian and to contribute to the current decisions concerning Givetian subdivision. Another important issue is the recognition of the Eifelian/Givetian and Givetian/Frasnian boundaries and to establish the origin and succession of the genus *Ancyrodella* in the Pyrenees. Two years ago I started to work on Givetian/Frasnian microfacies with P. Königshof & E. Schindler. Several presentations on biostratigraphy and interpretation on paleoenvironments (with Ph.D. advisor Nacho Valenzuela) at Siberian meeting in Novosibirsk.

Anita Löfgren. Continuing research on Lower and Middle Ordovician conodonts (with help from many friends). *Microzarkodina* is still in focus, as it is the topmost Cambrian cordylodid from Sweden, and the position of the base of the Middle Ordovician in Sweden. I am now officially retired from teaching, but still retain my office for research.

Friedrich W. Luppold. Conodont research activities in the Harz Mountains continue.

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

**Timothy R. McHargue**. No conodont research ongoing at moment, but I am hopeful that I will be returning to conodont work soon.

Peter MacKenzie. Passive conversations with Stig. I am now self-employed!

**Peep Männik**. Continuing to work on the evolution, ecology and taxonomy of Ordovician and Silurian conodonts from Baltic, Arctic regions and Siberia, as well as on conodont-based high-resolution stratigraphy.

Ana Márquez Aliaga. Iberian (western Tethys) Triassic paleobiology and biostratigraphy.

**Richard Marshall**. As an avocational conodont "researcher" and collector I have not been very active for the last several years, however, I am planning to be more active in my (almost exclusive) Pennsylvanian mid-USA interests.

**Adelaide Mastandrea**. Involved in biostratigraphic studies of the Carnian/Rhaetian conodonts in the Northern Calabria and Basillicata (southern Italy). I am still involved in a project dealing with Kubler Index (KI) and CAI.

Hanna Matyja. Administration dominated my last several years and half of 2005. Fortunately it is over and I have got a good chance to getting back to proper conodont research and to fulfilling some of my obligations to co-authors. Studies involving Devonian and Mississippian conodonts continue at various paces. The manuscript on the Devonian and Mississippian stratigraphy and facies development in NW Poland (Western Pomerania), including also a comparative study with adjoining areas (Lithuania, Latvia in the east and north-eastern Germany in the west), has been completed and a paper will be published this year. Several papers are in progress, with E. Turnau on the Middle Devonian and Frasnian conodont and palynomorph biostratigraphy, as well as on the Givetian/Frasnian boundary. I have also started work on Mississippian facies distribution in NW Poland. Work (with A. Tomas) has commenced on the tectonic and climatic controls on sedimentation and distribution of foraminifer faunas during the Famennian. With coauthors also engaged in integrated conodont-miospore-foram biostratigraphic, sedimentologic, event stratigraphic, and magnetic susceptibility study of the Middle and Upper Devonian in NW Poland. A new project on high resolution biostratigraphy and event stratigraphy close to the Devonian/Carboniferous boundary will begin this year.

**Ruth Mawson**. Concentrating on Early Devonian faunas from the Rockhampton area, NSW, central and western NSW and New Zealand and on Late Devonian conodont faunas from NW Xinjiang. At MUCEP four years ago we introduced a double degree (BSc with BA); the compulsory major is Palaeontology. This year 3 very bright students who enrolled in this degree are now doing Honours in Palaeontology!

S. Meco. Retired in 2005 but still working on Triassic conodonts.

**Carlos A. Méndez**. Working on Carboniferous (Pennsylvanian) conodonts in the Cantabrian Mountains (North Spain). The levels close to the Bashkirian-Moscovian and Moscovian-Kasimovian boundaries are my main points of interest.

**Glen K. Merrill**. Continuing work on *Gondolella* (with P.H. von Bitter) and also a large project on the Pennsylvanian rocks and faunas of southeast Ohio (USA).

**Ian Metcalfe**. Studies of conodonts from the Permian-Triassic transition continue (with Bob Nicoll, ANU). Papers on the evolutionary lineages and taxonomy of the genera *Isarcicella* and *Hindeodus* are currently being prepared. A study of conodonts from the P-T transition (subsurface) in the Perth Basin, Australia is underway. Studies of conodonts from southeast Asia and China continue, principally Permian and Triassic.

**Ron Metzger**. Planning to return to working on a project involving multielement taxonomy of collections from the Devonian State Quarry Limestone around Iowa City, Iowa.

**C. Giles Miller**. This year my conodont activities seem to have mainly been chasing Devonian specimens from Sub Polar Urals around slides and changing my mind about their multielemental relationships. After a year of pondering I have made some tentative reconstructions of *Ancyrodella*, *Mesotaxis* and several prioniodinids. In the meanwhile I've been to conferences in Armenia (where I collected more Devonian material), St. Petersburg and Oxford, UK where I presented various multielemental reconstructions. Now I just have to make some counts and stick my neck out and publish them. I've also started a project on Iranian Silurian conodonts with Vachik Hairapetian (Azak University, Iran).

James F. Miller. Still working on conodont biostratigraphy, sequence stratigraphy, and chonostratigraphy of Upper Cambrian and Lower Ordovician strata in western Utah and central Texas. A new project is studying conodonts from a series of meteorite impact structures of Mississippian age in Missouri. Associated breccias have mixed-age conodonts including Lower Ordovician, Upper Ordovician and Lower to Middle Mississippian faunas. Other Panderers have been involved, including Ray Ethington, Steve Leslie, John Repetski, Charles Sandberg and Tom Thompson. Last year our university was renamed, so please note new postal and e-mail addresses.

**Jared R. Morrow**. Current interests are Late Devonian (Frasnian-Famennian) conodont-based event stratigraphy, extinctions, biofacies, and sequence stratigraphy. I continue to work with C. Sandberg & A. Harris on conodont-based evidence for effects of the mid-Frasnian Alamo Impact Event, Nevada (USA) including documentation of conodonts ejected by the impact. I have begun work (with J. Krivanek) on a study of mid-Famennian carbonate buildups, west-central Utah, USA. I am also contributing to a geochemical study of conodonts by Poul Emsbo, US Geological Survey.

**Hans Arne Nakrem**. Processing Cambrian samples from the Oslo Region and Permian samples from Svalbard (Norwegian Arctic). Results hopefully to be reported on during 2006.

**Katarzyna Narkiewicz**. Have completed the first draft of my thesis "Middle Devonian conodonts from the Radom-Lublin area: taxonomy, biostratigraphy and biofacies". I am studying Frasnian conodont biostratigraphy in the shallow-water succession of SE Poland. Research (with P. Bultynck) on the European equivalents of the *subterminus* fauna continues. Also collaborating with S. Kruchek of the Institute of Geological Sciences, Belarus, on Devonian conodonts from Belarus.

**Valentina M. Nazarova**. Continuing work on Middle-Upper Devonian and Carboniferous conodonts from the Russian Platform. Also studying conodont functional morphology.

**Tamara I. Nemyrovska**. Currently working on Carboniferous conodonts of Donbas, Ukraine and the Cantabrian Mountains, Palencia, Spain. As a member of several Task Groups of the Subcommission on the Carboniferous Stratigraphy of the IUGS, I am concentrating on the Visean/Serpukhovian, Bashkirian/Moscovian, Moscovian/Kasimovian and Kasimovian/Gzhelian boundaries in Europe.

**Robert S. Nicoll.** Work with Permian-Triassic boundary faunas continues, as does work on Permian faunas of Western Australia. Ordovician faunas from central and Western Australia are also being examined. Also a study of Triassic faunas from Western Australia and Timor is 'in progress'.

**Alda Nicora**. Working on Permian (Iran, Oman) and Triassic conodont faunas from southern Italy (Pizzo, Mondello, Scicily).

**Rodney D. Norby**. Activities have slowed considerably but am still working with Don Mikulic on biostratigraphy within the Silurian of Illinois and adjacent area; working on organizing older collections and some CAI work with John Repetski and others. Since retirement a year ago, I retain an office with Illinois State Geological Survey and am still in charge of the ISGS Paleontological collections, including conodonts.

Godfrey S. Nowlan. My work on conodonts has been severely curtailed for the last three years as I continue to work on public geoscience eduction in northern Canada. I am working slowly on a few projects: 1) Conodont biostratigraphy and paleoecology of the Ordovician and Silurian rocky shoreline exposed on the shore of Hudson Bay near Churchill, Manitoba (with G. Young & R. Elias); 2) The Nd isotope ratios and Sm/Nd ratio and conodont paleoecology of late Ordovician strata in the subsurface of Saskatchewan (with C. Holmden & F. Haidl); 3) Early Cambrian embryos and small shelly fossils from the

Wernecke Mountains, Yukon (with L. Pyle & G. Narbonne); 4) Service reports for clients of the GSC Paleontology Laboratory.

Olga T. Obut. Current interest is in Ordovician conodont biostratigraphy.

**Fuat Önder**. Am now retired and working as an education advisor; student Ali Muarat Kilic's Ph.D. thesis on Triassic conodonts has been completed.

Mike Orchard. Recently completed a paper on late Paleozoic-Triassic conodonts from central Yukon, and a second on Lower Triassic conodont evolution. Attention turns to the conodonts and GSSP definition of:

1) Induan-Olenekian boundary (with Zhao in China, and Krystyn in Spiti); 2) Olenekian-Anisian boundary (with Gradinaru & Nicora in Romania, Lehrmann in China); 3) Ladinian-Carnian boundary in Nevada; 4) Carnian-Norian boundary in Canada. Also, Triassic multielements from Thailand (with Savage) and Japan (with Sashida); and Spathian conodonts from California (with Goudemand).

**D. Jeffrey Over**. Working on Middle and Upper Devonian conodonts from carbonates and clastics in the Americas: Bolivian conodonts with Sarah de la Rue and Peter Isaacson; western Canada with Jed Day and Michael Whalen; western Appalachian Basin and midcontinent basins with Carl Brett, Tom Algeo & Juergen Schieber; Eifelian-Givetian boundary in the northern Appalachian Basin; as well as with a student on conodont taphonomy, where he is feeding conodonts to fish.

**Susan Owen**. Not presently working on conodonts but rather am currently a GIS specialist with USDA Forest Service. I moved to North Dakota in 2004 and found a wonderful world of very large fossils; a real learning experience for this old lady.

Soo-In Park. Investigating conodonts from the Middle Carboniferous stata in the Gangwon Province, Korea.

**Rachel Paull**. Although I am now retired, still continuing my interests in Permian-Triassic boundary and early Triassic conodonts. The collections I made through the years are now at University of Wisconsin, Madison, WI (USA).

Ian Percival. Ordovician conodonts from New South Wales continue to be my research focus. During the past year, I again enjoyed a fruitful collaboration with Yong-Yi Zhen (Australian Museum, Sydney) supporting his studies on Early Ordovician conodonts from South China; he joined me in preparing a paper on latest Cambrian to Early Ordovician conodonts from the Koonenberry Belt of far-western New South Wales, and in cooperative work on a Late Ordovician fauna (including conodonts of Eastonian age) from the south-central part of the state. My own studies into the biostratigraphic zonation of conodonts in Ordovician cherts from the central and south coast (Narooma) regions of New South Wales also progress.

Carlos Martinez Perez. Working on my Master's thesis on Emsian conodonts from Pyrenees (Spain) under the supervision of Nacho Valenzuela-Rios. Also, I am interested in paleobiological aspects of conodonts.

**Lyudmila Petrunova**. Working on Triassic conodont faunas from Bulgaria and on the conodont fauna from the eastern Stara Planina Mountains with Prof. Kiril Budurov.

Marie-France Perret Mirouse. Although now retired, still going into the lab and working on completing ongoing conodont studies in the Pyrenees with colleagues (J. Kullmann, Javier Sanz Lopez & Silvia Blanco).

Maria Cristina Perri. Continuing research on Permian-Triassic and Devonian-Early Carboniferous conodont faunas. Most recent research is focused on events around the Permian-Triassic and Frasnian-Famennian boundaries in the Southern Alps. A paper with Enzo Farabegoli, University of Bologna and Renato Posenata, University of Ferrara on latest Permian-earliest Triassic litho- and bioevents in the Southern Alps has been submitted for publication.

**Jozef Pevny**. Studying Middle to Upper Triassic (Pelsonian to Cordevolian) conodonts from pelagic facies in western and central Slovakia.

**Matthias Piecha**. Working on Devonian and Carboniferous conodonts from the Rhenish Massif. Continued investigations on low temperature (CAI 1-2) Middle and Late Devonian conodonts from the Paffrath Syncline (Bergisches Land, Germany) and also investigations on conodont biofacies and hiatuses around the Frasnian/Famennian boundary on the Rhenish shelf of northwestern Germany.

**Pablo Plasencia-Camps**. Still working on my Master's thesis on Triassic conodonts from Spain (I hope to finish this yar). Ana Marquez-Aliaga and Nacho Valenzuela-Rios are my research directors, with additional supervision from Francis Hirsch. I am a biologist and intend to study biological aspects of conodonts, with a special interest in the Triassic genus *Pseudofurnishius* and also Triassic fishes.

**Forrest G.** (Barney) Poole. Although retired since 1995, continuing geologic studies in Sonora and Nevada as Geologist Emeritus with the USGS and am actively working on sedimentology and stratigraphy

of the Ordovician-Permian caronate-shelf, Permian foredeep, and Permian Sonora allochthon (consisting of deformed Ordovician-Permian strata deposited along the southern margin of Laurentia and thrust onto the Laurentian continental shelf in the Late Permian) in Sonora, Mexico (with R. Amaya-Martinez, A. Harris, C. Sandberg, C. Stevens, W. Berry & W. Page). This work includes detailed stratigraphic and paleontologic studies, utilizing conodont, graptolite, brachiopod, radiolarian, and fusulinid faunas and zonation. In addition, R. Amaya-Martinez and I are working on sedimentology and stratigraphy of the Mesozoic El Gameno Group in west-central Sonora. The El Gameno study involves mapping and detailed stratigraphic and paleontologic studies, utilizing bivalve, ammonite, crinoid, and rudist faunas and zonation, and plant floras and zonation of this intertonguing marine and continental sequence. Also, I am actively working on Devonian and Mississippian stratigraphy and sedimentology in the Antler foreland basin of Nevada (with C. Sandberg) utilizing conodont, radiolarian, and ammonite faunas and zonation to record foreland evolution and depositional history.

Mark Purnell. Since the publication of the volume dealing with the nature of the conodont fossil record (Spec. Pap. In Palaeo #73), most of my conodont-focused research has taken a backseat to projects on early vertebrate evolutionary patterns, the exceptionally preserved biota of the Eramosa Formation of Ontario, Canada (with P.H. von Bitter), and development of tooth microwear analysis as a tool for determining diet in living and fossil actinopterygian fishes. Having said that, conodont projects are still moving forwards. A long term project on cladistic analysis of relationships among complex conodonts (with P. Donoghue, D. Aldridge & Zhang Shunxin) was finally submitted for published, and morphometric analysis of temporal and spatial trends in Silurian conodonts (with D. Jones) has resulted in a manuscript (in press), with D. Jones' thesis progressing well. Other conodont projects which might bear fruit of some sort in time for ICOS in July include an assessment of the frequency of occurrence of wear and surface damage in well preserved conodonts, and exploratory investigation into the relationship between growth lamellae and element size, and work on a natural assemblage of coniform elements (with P.H. von Bitter).

**Leanne Pyle**. Currently working on Lower Paleozoic biostratigraphy, faunas and CAI patterns of the northern Canadian Cordillera (Mackenzie Mountains and Interior Plains). Please note new address with move to the Geological Survey of Canada.

**Carine Randon**. Now in process of finishing my Ph.D. on Upper Devonian-Lower Carboniferous conodonts from northern Thailand, Spain and France.

**Aleksey N. Reimers**. Working on Upper Carboniferous and Permian conodonts from Russian Platform and Arkchangelsk region. Continuing to investigate Triassic conodonts.

John E. Repetski. Most of my projects continue: CAI maps for the central Appalachian and other U.S. basins for energy-related projects; age-dating support for mapping in various Appalachian metamorphic and anchizone rocks; southern Midcontinent Cambrian to Middle Ordovician biostratigraphic studies; Cambrian and Ordovician systematic, CAI, and biostratigraphic studies from these and various other places. Numerous other projects, on aspects of Cambrian and Ordovician conodonts, some other phosphatic problematica, e.g., phosphatized embryos and larval arthropods, various biostratigraphic projects from many places, as well as some systematics, continue. Most of these latter efforts are collaborative with fellow Panderers and other colleagues.

Carl B. Rexroad. My work continues on the Mississippian and Pennsylvanian and includes a nearly completed multi-authored study of the boundary in west-central Kentucky using conodonts. A project on the Upper Mississippian in West Virginia is well along and one in the Illinois Basin with J. Devera continues. I am working with L. Brown on several Desmoinesian (Pennsylvanian) projects in the Illinois Basin, one of which is nearing completion, and one project in New Mexico.

Manuel Rigo. Working on Upper Triassic conodonts in southern Alps and southern Apennines (s. Italy).

Carla Rosales. Presently preparing taxonomic studies for my Ph.D. on Darriwilian conodonts from Argentina.

**Steven J. Rosscoe**. Currently working on Missourian (Upper Pennsylvanian) conodonts from the Midcontinent Region. After completing my M.Sc. at Texas Tech University, I continue my Ph.D. work there as well.

**Charles A. Sandberg**. Current interests are primarily Early to Late Devonian and Mississippian conodont event stratigraphy, extinctions, biofacies, paleoecology, paleobiogeography, and taxonomy. One of my major efforts is providing conodonts from my Devonian and Mississippian collections for laser-ablation and sulfur-isotope geochemical analyses by Poul Emsbo. In connection with this effort, with the help of Gil Klapper, I am re-identifying many older conodont collections and expanding my interests to new collections across the Lower-Middle Devonian boundary. In collaboration with Jared Morrow, I am adding

to these collections by new sampling to provide conodont evidence for the wide extent of Alamo Impact megatsunami distal uprush and backwash deposits. With Anita Harris, I continue to identify blast-fallout Silurian, Ordovician and Cambrian conodont faunas, redeposited in lapilli beds within the Alamo Impact Breccia in southern Nevada. For a geologic map with Barney Poole, I am making new conodont collections from the Devonian platform-to-basin transitional sequence and deep-water channels of the Alamo Breccia in southern Hot Creek Range, Nevada. Also, I am processing and identifying Ordovician, Devonian, Mississippian, Pennsylvanian, and Permian conodont samples collection by Poole from northern Sonora, Mexico. I am also studying conodont collections process by Jim Miller from the Mississippian Weaubleau Impact breccia in Missouri. As time permits, I am re-identifying my older conodont collections and adding them to the D/C Conodont Database. This database, a work in progress since 1991, quickly provides information on ranges and distribution of all Devonian and Mississipian taxa. Thus, my workload continues to expand in my twelfth year as an Emeritus!

**Ivan J. Sansom**. Currently in the midst of a project focusing on Ordovician vertebrates from Gondwana working with, among a whole cast of others, Guillermo Albanesi and Bob Nicoll.

**Javier Sanz-Lopez**. Working on conodonts and stratigraphy from the Tournaisian to the Bashkirian of the Iberian Peninsula. CAI research is focusing in the Cantabrian Zone and the Pyrenees.

**Norman M. Savage**. Devonian conodonts from SE Alaska; Ordovician, Silurian, Devonian, Permian & Triassic conodonts from Thailand. I am now teaching 2 classes at University of Oregon. Received financial support from Mahasarakham Universty, Thailand for conodont and brachiopod research.

Ana Karina Scomazzon. Having now completed my post-doctoral thesis, I am presently working on two different projects: one on the biostratigraphy and paleoecology of Pennsylvanian conodonts of Brazilian Paleozoic basins and the other analyzing Sr and Nd in conodonts and whole rocks of the Amazonas Basin, Brazil. I'm also co-supervising two Ph.D. students, one studying conodont biostratigraphy and the other studying taphonomy and stratigraphy of some Carboniferous deposits of the Amazonas Basin.

Shuzhong Shen. Conodonts from the Permian and Permian-Triassic in South China and Tibet.

**Andrew Simpson**. Unfortunately little time available for conodont research. Work with faunas for ongoing collaborative projects has been possible between other commitments. These include work on Late Silurian Lau event faunas with J. Talent & R. Mawson and L. Jeppsson and others, plus a project with D. Cole & J. Valentine on Silurian faunas from Murruin Creek in New South Wales, and finally work on abundant Early Silurian faunas from Boree Creek in New South Wales with P. Molloy. It is hoped that these collaborative efforts will see the light of day in 2006.

**Ladislav Slavik**. This year I completed a Humboldt Research Fellowship at the Technical University of Braunschweig, Germany. Together with P. Carls & N. Valenzuela-Rios we continue our work on Upper Silurian-Lower Devonian conodont faunas from the Barrandian area and the Frauenwald.

**Terry Sloan**. Continuing to work (slowly) on compiling graphic correlation of eastern Australian Devonian sections from data previously published by Mawson and Talent et al.

**Paul Smith**. Work is currently concentrated on the Ordovician of Greenland and NW Scotland (with Rob Raine & J.A. Rasmussen), on the paleobiology and phylogenetic analysis of primitive prioniodinid conodonts and their relatives (with R. Dhanda & P. Donoghue) and on an unusual fauna from the Darriwilian of Saudi Arabia (with R. Aldridge).

Luybov Sokolova. Post-grad student working on Upper Ordovician-Lower Devonian conodonts from the Subpolar Urals.

Claudia Spalletta. Research continues on Lower Devonian to Lower Carboniferous conodonts from carbonate units of the Carnic Alps (northern Italy) with main focus on sections at the Frasnian/Famennian boundary. A paper on Late Devonian-Early Carboniferous vertebrate micro-remains from the Carnic Alps (with C. Randon, C. Derycke, A Blieck & M. Cristina Perri) is about to be published. A study (with C. Brime, M. Cristina Perri, M. Pondrelli & C. Venturini) on thermal history of the Carnic Alps using CAI and KI (Kuebler Index) is in progress.

**Svend Stouge**. Working on Lower Palaeozoic successions with emphasis on Ordovician in northwest and south China, in Greenland, Scotland and Newfoundland. Also the Baltoscandia region is given serious attention and is compared in detail with conodonts from south China. Preparing working on conodonts from Australia together with other conodont workers. Involved with investigations of the base of the global mid-Ordovician Series boundary.

Ruediger Stritzke. Devonian biostratigraphy of the Rheinisches Schiefergebirge.

Milan N. Sudar. Continuing to work on Triassic conodonts (taxonomy, evolution, biostratigraphy, CAI) of Serbia.

**Walter C. Sweet**. Continue to assemblage data for a conodont-based Composite Standard section for the North American Ordovician System. I hope to have the data base, now rather large, in a form that will be accessible to others with similar interests. (Don't hold your breath!)

**Andrew Swift**. Although I left the Leicester University Geology Department last year to try my hand in the "real world", I retain an interest in all things conodont.

**Hubert Szaniawski**. Presently working on proto- and paraconodonts and on the biology of conodonts. With Daniel Drygant am studying the Early Devonian conodonts of Podolia, Ukraine.

**John Talent**. Present foci are primarily Devonian conodont faunas from northernmost Pakistan and eastern Australia; the Buchan Group (mainly Emsian) of eastern Victoria; the Pragian of Mt. Etna (Australia); and the Silurian of eastern Victoria.

**V.P. Tarabukin**. Continuing to study Ordovician, Silurian, Devonian and Lower Carboniferous conodonts from the Selenyakh Ridge (NE Russia) event stratigraphy, biofacies, paleoecology and paleobiography. Am also working on CAI of Ordovician-Carboniferous rocks in some areas of NE Asia. Together with A.N. Reimers, I am also busy with conodonts from xenoliths in kimberlite pipes from the Siberian Platform.

**Julie Anne Trotter**. Completion of my Ph.D. thesis is scheduled for early 2006; the thesis is focused on inorganic geochemistry (trace elements, Sr & O isotopes) using laser ablation and experiment in-situ applications. **Note**. Although I am currently physically based at RSES, ANU in Canberra I am again working full-time with CSIRO Petroleum in Sydney.

**Tom Uyeno**. Currently active in research on Middle and Upper Devonian conodonts from western District of Mackenzie and from subsurface of Alberta (Canada); also Middle Devonian conodonts from southwestern Ontario (Canada).

José Ignacio Valenzuela-Ríos. In collaboration with P. Carls & M. Murphy we are aiming at the establishment of a fine biostratigraphic scale for marine Early Devonian rocks that serves as a basis for international correlation. We are intensively working on sections in Spain, USA and the Barrandian. One of the more important tasks is to try to stablize taxonomic nomenclature for the studied interval. L. Slavik and I have started to collaborate in correlating Barrandian and Pyreneean Lower Devonian sequences, and also working on upper Silurian strata from Germany and Barrandian. P. Carls & I are specially engaged on the Pragian/Emsian boundary and on paleogeographical interpretations of southwestern Europe during the Lower Devonian. One student has finished Ph.D. on fish remains from Celtiberia and another 3 Ph.D. students are working on conodonts. We wish to biostratigraphically characterize (by means of conodonts) the whole Devonian of a part of the Pyrenees and try to establish an independent microichthyolith-based biozonation for Lower Devonian marine sediments in the Iberian Chains. The first results of the long-term Devonian research are the descriptions of the Givetian conodont sequence and study of the Givetian-Frasnian boundary in several Pyrenean sections that belong to two different basins. Also continuing collaboration with A. Marquez-Aliaga & P. Plasencia on Triassic rocks from Western Tethys Realm.

**Paula Medina Varea**. Have recently started working on my Ph.D. project on Mississippian conodonts from Sierra Morena (Spain) and the Central Massif of Morocco. My first paper on Serpukhovian conodonts from Sierra Morena was recently published, and includes the main results of my M.Sc. project.

Viive Viira. Research continues actively on Ordovician conodonts, and slowly on Silurian conodonts.

**Peter von Bitter**. Mostly focusing on finding and understanding more of the spectacular Silurian conodont skeletons from the Eramosa Lagerstätte of Ontario (with Mark Purnell and David Jones of Leicester); small *Gondolella* study (with G. K. Merrill) completed (in press); *Lochriea* (with Rod Norby and Rob Stamm) and *Diplognathodus* (with Glen Merrill and Rob Stamm), like Lazarus, need resurrection.

**Wang Cheng-yuan**. Involved in a research program on Mongolian Paleozoic conodonts with Mongolian geologists including a field trip to Mongolia each year. I am also compiling a monograph on "Devonian conodonts of China" with an anticipated completion date by the end of 2008. Although retired, I continue to work in the Nanjing Institute.

**Aleksandra Wankiewicz**. New Ph.D. student working on Late Devonian conodonts from Holy Cross Mountains, Poland.

**Karsten Weddige**. My activities continue with studies on Devonian stratigraphy; in cooperation with Wang Cheng-yuan, Nanjing & Igor Bardashev, Dushanbe working on Devonian conodonts from Mongolia and Tajikistan, and on conodonts of the Lower Devonian of Bohemia, particularly of the Zlichovian/Dalejan boundary in order to define a Global Stratotype Section and Point for inner-Emsian substage boundary. Much energy, however, is absorbed by compiling and editing annual issues of the "Devonian Correlation Table (DCT)".

**Linda M. Wickström**. At last, I completed my Ph.D. at the University of Birmingham (UK). The first paper from the thesis was published last year, and the others are waiting to be published. Please note that, beginning in 2006, I am in charge of the collections at the Geological Survey of Sweden.

**Brian J. Witzke**. Several Ordovician, Devonian and Mississippian projects are ongoing. A number of conodont assemblages, some with possible soft-bodied integument, were recently recovered from a new Lagerstätte in a shale unit within the St. Peter Sandstone near Decorah, Iowa (discovered by Liu, McKay & Young). This collection is currently under study; several remarkably-preserved coleodontid assemblages are of special interest.

**Tatiana Woroncowa-Marcinowska**. Working on Middle and Upper Devonian conodont biostratigraphy of the Holy Cross Mountains, and also on integrating conodont and goniatite biostratigraphy (Polish Geological Institute collections).

Yao Jianxin. Continuing to work with Late Paleozoic and Triassic conodonts from South China, Kunlun Mountains & Tibet.

**Evgeny A. Yolkin**. Continuing investigations on Devonian conodonts from West Siberia (Russia) and South Tien Shan (with N.G. Izokh).

**Takashi Yoshida**. The biostratigraphic study of the Ashio Mountains north of Tokyo (with S. Hayashi and others) has been discontinued because of discordance with radiolarian biostratigraphy. I am now officially retired.

**Zhao Laishi**. Commenced Ph.D. studies on Lower Triassic conodonts, especially Induan-Olenekian Boundary interval conodonts, GSSP on IOB, under the co-supervision of Tong Jinnan and Mike Orchard. Mainly interested in Lower Triassic conodonts from South China.

**Shunxin Zhang**. Studying Late Ordovician and Early Silurian conodonts from southern Ontario and Hudson Bay area. I am interested in studying Ordovician and Silurian sea level events using conodont community changes as a tool; also interested in conodont cladistics.

Yong Yi Zhen. Working on Ordovician faunas from Australia and China (with I. Percival & J. Liu).

**Andrey V. Zhuravlev**. Continuing studies on Upper Devonian-Lower Carboniferous conodonts of north Urals and south-western part of East European Platform (as part of geological mapping projects); Middle Permian conodonts and biogeographic aspects of the eastern part of East European Platform and Russian Far East. Investigation of morphological and histological trends and sequences in the Late Palaeozoic conodont elements is in progress.

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## CONTACT DETAILS OF PANDER SOCIETY MEMBERS

AGEMATSU, Sachiko Graduate School of Life & Environment Sci University of Tsukuba Ibaraki 305-8572, Japan Tel. 81 29 853 6139 agematsu@arsia.geo.tsukuba.ac.jp

ALBANESI, Guillermo L.
CONICET – Museo de
Paleontologia
Universidad Nacional de Cordoba
Av. Velez Sarsfield 299, Casilla de
Correo 1598
5000 Cordoba, Argentina
Tel. 54 (0)351 4719575
Fax 54 (0)351 4216350
galbanesi@arnet.com.ar

ALDRIDGE, Richard J. Department of Geology, University of Leicester Leicester LEI 7RH, U.K. Tel. +116 252 3610 Fax +116 252 3918 ra12@le.ac.uk

ALEKSEEV, Alexander S.
Department of Paleontology, Geol.
Faculty
Moscow State University
119992 Moscow GSP-2, Russia
Tel. 007 095 939 4924
aaleks@geol.msu.ru

AMARJARGAL, Altansukh Geologic Information Center, Mineral Resources, Authority of Mongolia, State Property Building #5 Builder's Square 13, Post office 13 Ulaanbaatar 211238, Mongolia Tel. 976 11 263920 Fax 976 11 317796 amaraa\_1976@yahoo.com

ARMSTRONG, Howard A. Palaeozoic Earth System Group, Science Laboratories, South Road, University of Durham, Durham DH6 5NN, U.K. Tel. 0044 0 191 3342320 Fax 0044 0 191 3342301 h.a.armstrong@durham.ac.uk

AUSTIN, Ronald L. 21 Bellevue Road Swansea SA3 5QB, U.K. Tel. 01792 404260

BAGNOLI, Gabriella Dipartimento di Scienze della Terra Universita di Pisa Via S. Maria 53 56126 Pisa, Italy Tel. (+39) 050 2215768 Fax (+39) 050 2215800 bagnoli@dst.unipi.it

BARDASHEV, Igor A.
Institute of Geology Academy of
Science RT
14 Naberzhnaya st.,
Dushanbe, 734 003 Tajikistan
Tel./Fax 992 372 24 91 44
paot@tajik.net (under 100Kb)
Aidrisova@biodiv.tojikiston.com
(over 100Kb)

BARDASHEVA, Nina P. Institut of Geology Academy of Science RT 14 Naberezhnaya st., Dushanbe, 734 003 Tajikistan Tel./Fax 992 372 24 91 44 paot@tajik.net (under 100 Kb) Aidrisova@biodiv.tojikiston.com (over 100 Kb) BARNES, Christopher R. NEPTUNE Canada, University of Victoria P.O. Box 1700, STN CSC Victoria, B.C. V8W 2Y2 Canada (Courier address: add 2300 McKenzie Rd., Room 155) Tel. 250 472 5350/5359 Fax 250 472 5370 crbarnes@uvic.ca

BARRICK, James E.
Department of Geosciences, Texas
Tech University
Box 41053 Lubbock, TX 79409,
U.S.A.
Tel. 806 742 3101
Fax 806 742 0100
jim.barrick@ttu.edu

BARSKOV, Igor S. Dept. of Paleontology, Geological Faculty Moscow State University 119992 Moscow GSP-2, Russia ibarskov@geol.msu.ru

BAUER, Jeff Shawnee State University 940 Second Street Portsmouth, Ohio 45662, U.S.A. Tel. 1 740 351 3421 jbauer@shawnee.edu

BEATTY, Tyler W. Department of Geology & Geophysics University of Calgary 2500 University Drive NW Calgary, AB T2N 1N4, Canada Tel. 403 220 6596 tbeatty@ucalgary.ca

BELKA, Zdzislaw

Institute of Geology, Adam Mickiewicz University ul. Makow Polnych 16, PL 61-606 Posnan, Poland Tel. 0049 61 829 6044 Fax 0049 61 829 6001 zbelka@amu.edu.pl

BENFRIKA, El Mostafa University Hassan II – Mohammedia, Faculty of Sciences Ben M'Sik B.P. 7955, Sidi Othmane Casablanca, Morocco Tel. 00212 677119905 benfrikael@hotmail.com

BERGSTRÖM, Stig Department of Geological Sciences The Ohio State University 155 S. Oval Mall Columbus, OH 43210-1397, U.S.A. Tel. (with voice mail) 614 292 4473 (o) 614 457 2588 (h) Fax 614 292 1496 stig@geology.ohio-state.edu

BLANCO-FERRERA, Silvia Dpto. de Geolog a. Universidad de Oviedo C/Arias de Velasco s/n 33005 Oviedo, Asturias, Spain Tel. 34 985 102884 Fax 34 985 103103 silvia.blanco@geol.uniovi.es

BRADLEY, Dwight U.S. Geological Survey 4200 University Drive Anchorage, AK 99508 Tel. 907 786 7434 Fax 907 786 7401 dbradley@usgs.gov

BRIGHT, Camomilia Iowa State University 253 Science I Ames, IA 50011, U.S.A. Tel. 515 275 2397 cabright@iastate.edu

BROWN, Lewis M. Lake Superior State University 650 Easterday Ave., Sault Ste Marie, MI 49783 Tel. 906 635 2155 Fax 906 635 2266 lbrown@lssu.edu

BUDUROV, Kiril
Department of Palaeontology,
Stratigraphy
and Sedimentology, Geological
Inst.,
Bulgarian Academy of Sciences
Acad. G. Bonchev Str., bl. 24, st. 409

Sofia 1113, Bulgaria Tel. 00359 2 9792287 k.budurov@yahoo.com

BULTYNCK, Pierre Royal Belgian Institute of Natural Sciences Vautierstraat, 29 B-1000 Brussels, Belgium Tel. 32 2 62744 486 Fax 32 2 627 41 74 pierre.bultynck@naturalsciences.be pierre.bultynck@belgacom.net

BURYI, Galina I. Far East Geological Institute Far East Branch Russian Academy of Sciences Prospect 100-letya, 159 Vladivostok 690022 – Russia Tel. (4232) 318 750 Fax (4232) 317 847 buryi@mail.ru

CAPKINOGLU, Senol capkin@ktu.edu.tr

CAREY, Stephen University of Ballarat P.O. Box 663, Ballarat, Vic 3353, Australia Tel. +61 3 5327 9268 Fax +61 3 5327 9144 s.carey@ballarat.edu.au

CASTELLO, Veronica Universitat de Valencia C/Doctor Molinell, 50.46100 veronica.castello@uv.es

CHARPENTIER, Ronald R. U.S. Geological Survey MS939 Box 25046, Denver Federal Center Denver, CO 80225, U.S.A. Tel. 303 236 5766 Fax 303 236 0459 charpentier@usgs.gov

CHEN, Jun
Nanjing Institute of Geology and
Palaeontology
39 East Beijing Road,
Nanjing, PRC
Tel. +86 25 83282184
Fax +86 25 83282131
chenjuncas@yahoo.com.cn

CLARK, David USA dlclarksr@sbcglobal.net

COLE, Damian Dept. of Earth & Planetary Sciences Macquarie University NSW 2109, Australia djcole@tpg.net.au

CORRADINI, C Dipartimento di Scienze della Terra Universita di Cagliari Trentino 51, 1-09127 Cagliari, Italy Tel. 39 070 6757744 corradin@unica.it

DAY, Jed Department of Geography-Geology Illinois State University Normal, IL 61790-4400, U.S.A. Tel. 309 438 8678 Fax 309 438 5310 jeday@ilstu.edu

DONG Xiping Peking University Beijing 100871, PRC Tel. 86 10 62753604 Fax 86 10 62751187 dongxp@pku.edu.cn

DONOGHUE, Philip C.J.
Department of Earth Sciences
University of Bristol
Wills Memorial Building, Queens
Road
Bristol BS8 1RJ, U.K.
Tel. +44 (0)117 954 5440
Fax +44 (0)117 925 3385
phil.donoghue@bristol.ac.uk

DOPIERALSKA, Jolanta Instit. of Geology, Adam Mickiewicz University ul. Makow Polnych 16, PL 61-606 Poznan, Poland Tel. 0048 61 829 6047 Tax 0048 61 829 6001 dopieralska@amu.edu.pl

DUMOULIN, Julie A. U.S. Geological Survey 4200 University Dr., Anchorage, AK 99508-4667, USA Tel. 907 786 7439 dumoulin@usgs.gov

DUSAR, Michiel Geological Survey of Belgium Jenner str. 13 B-1000 Brussels, Belgium Tel. +32 2 788 7632 Fax +32 2 647 7359 michiel.dusar@naturalsciences.be

DZIK, Jerzy Instytut Paleobiologii PAN and Instytut Zoologii Uniwersytetu Warszawskiego Twarda 51/55 00-818 Warszawa, Poland Tel. (+48) 22 697 8738 Fax (+48) 22 620 6225 Dzik@twarda.pan.pl

ETHINGTON, Raymond L. Department of Geological Sciences University of Missouri-Columbia Columbia, Missouri 65211, USA Tel. 573 882 6470 Fax 573 882 5458 EthingtonR@missouri.edu

FERRETTI, Annalisa
Dipartimento del Museo di
Paleobiologia e dell' Orto Botanico,
Universit degli Studi di Modena e
Reggio Emilia, Via Universit 4
41100 Modena, Italy
Tel. ++39 059 205 6527
Fax ++39 059 205 6535
ferretti@unimore.it

FORDHAM, Barry CSIRO Sustainable Ecosystems GPO Box 284, Canberra ACT 2601, Australia Tel. +61 2 6242 1530 Fax +61 2 6242 1555 barry.fordham@csiro.au

FUREY-GREIG, Terry Dept. of Earth & Planetary Sciences Macquarie University NSW 2109, Australia

GARCIA-LOPEZ, Susana Dpto. de Geologia Universidad de Oviedo c/o Arias de Velasco s/n, 33005 Oviedo, Spain Tel. 34 985102884 Fax 34 985103103 sgarcia@geol.uniovi.es

GEDIK, Ismet K.T.U., Geology Department Trabzon-Turkiye Tel. 90 462 3772743 isgedik@ktu.edu.tr

GHOLAMALIAN, Hossein Department of Geology, Faculty of Sciences Hormozgan University, Bandar Abbas, I.R. of IRAN h\_gholam@yahoo.com

GIRARD, Catherine
UMR 5125 CNRS – UCB Lyon 1
Batiment Geode, Campus de la Doua
2 rue Raphael Dubois
69622 Villeurbanne Cedex, France
Tel. +33/4 72 43 15 44
Fax +33/4 72 44 83 82
catherine.girard@univ.-lyon1.fr

GONCUOGLU, Yakut Kafkas Sitesi, 411.Sok, No:65, 06520 Ankara-Turkey Fax 90 312 2191263 yakutg@hotmail.com

GOUDEMAND, Nicholas University of Zurich Palaeontological Institute & Museum Karl Schmid-Strasse 4 CH-8006 Zurich, Switzerland Tel. ++41 1 634 2337 Fax ++41 1 634 4923 goudemand@pim.unizh.ch

GOUWY, Sofie c/o Royal Belgian Institute of Nat. Sciences, Tweekleinewegenstraat 85/14 3001 Heverlee, Belgium sofiegouwy@yahoo.com

GROESSENS, Eric Chef de Travaux, Ins. Royal des Sciences Naturalles de Belgique Service Geologique de Belgique 13, rue Jenner, 1000 Bruxelles Tel. 02/78 87 614 Fax 02/64 77 359 eric.groessens@naturalsciences.be

HAIRAPETIAN, V. Department of Geology, Azad Univ., Khorasgan Branch, PO Box 81595-158 Esfahan, Iran Tel. 98 913 305 7517 hai@yahoo.com or

HALL, Jack C. University of North Carolina @ Wilmington Wilmington, NC 28403, U.S.A. Tel. 910 962 3488 Fax 910 962 7634 hallj@uncw.edu

vachik@khuisf.ac.ir

HARRIS, Anita G. U.S. Geological Survey Denver Federal Center, MS 973 Denver, CO 80225, U.S.A. Tel. 303 236 1815 ahcono@comcast.net

HECKEL, Phil Dept. of Geoscience, University of Iowa Iowa City, IA 52242, U.S.A. Tel. 319 335 1804 Fax 319 335 1821 philip-heckel@uiowa.edu

HENDERSON, Charles M.
Department of Geology &
Geophysics
University of Calgary
2500 University Drive
NW Calgary, AB, Canada T2N 1N4
Tel. 403 220 6170
Fax 403 284 0074
charles.henderson@ucalgary.ca
website www.geo.ucalgary.ca/asrg

HERBIG, Hans-Georg Institut fur Geologie und Mineralogie Universitat zu Koln Zulpicher Str. 49a D-50675 Koln, Germany Tel. ++(221) 470 2533 Fax ++(221) 470 5080 herbig.paleont@uni-koeln.de HIRSCH, Francis 159-23 Aza Hanamen-Satoura-Cho Naruto-Shi 772-0021 Tokushima-Ken, Japan Tel/Fax +81 (088) 686 7723 Mobile 090 1006 8977 francis-hirsch@mrj.biglobe.ne.jp

IGO, Hisayoshi Director, Institute of Natural History 3-14-24 Takada, Toshima-ku, Tokyo 171-0033 Japan Tel. +81 3 5992 9153 Fax +81 3 5992 9154 igohisa@mac.com

IGO, Hisaharu
Tokyo Gakugei University
Dept. Astronomy & Earth Sciences
4-1-1 Nukui Kitama-machi,
Koganei City, Tokyo 184-8501
Tel. 042 329 7531
Fax 042 329 7538
[o] igohisa@u-gakugei.ac.jp
[h] igokuro@mtj.biglobe.ne.jp

ISHIDA, Keisuke Laboratory of Geology, Faculty of IAS, University ofTokushima Minamijosanjima 1-1, Tokushima 770-8502, Japan Tel./Fax +81 88 656 7243 ishidak@ias.tokushima-u.ac.jp

ISOZAKI, Yukio University of Tokyo 3-8-1 Komaba, Meguro Tokyo 153-8902, Japan Tel. 81 3 5454 6608 Fax 81 3 3465 3925 isozaki@chianti.c.u-tokyo.ac.jp

IZOKH, Nadezhda G. Institute of Petroleum Geology Siberian Branch RAS Acad. Koptyug av. 3, Novosibirsk 630090, Russia Tel. (3832) 33 24 31 Fax (3832) 33 23 01 IzokhNG@uiggm.nsc.ru

JEPPSSON, Lennart Dept. of Geology, Geocentrum II Sölvegatan 12 SE223 62 LUND, Sweden Tel. +46 (0)46 222 7864 Fax +46 (0)46 2224419 Lennart.Jeppsson@geol.lu.se OR Dalslandsv. 3 SE 222 25 LUND, Sweden Tel. +46 (0)46 13 12 99 Lennart.Jeppsson@telia.se

JOHNSTON, David Ian 103 – 3017 Blakiston Dr. NW Calgary, AB, Canada T2L 1L7 Tel. 403 284 0405 Fax 403 284 5722 johnstda@shaw.ca

JONES, David University of Leicester Leicester LE2 1HB, U.K. Tel. 44 0116 252 3912, ext. 3632 doj2@le.ac.uk

JONES, Gareth, L. 7 Dundrum Business Park Windy Arbor Dublin 14, Ireland Tel. 00 353 1 296 51 51 Fax 00 353 1 296 46 76 conodate@mac.com

KATVALA, Erik Department of Geology & Geophysics University of Calgary 2500 University Drive NW Calgary, AB T2N 1N4, Canada Tel. 403 220 3271 erik.katvala@ucalgary.ca

KILIC, Ali Murat Cumhuriyet University C.U. Geology Dept. 58140 Sivas, Turkey Tel. +90 346 2191010 ext 1278 Fax +90 346 219 1171 mkilic@cumhurivet.edu.tr

KIRCHGASSER, William Professor of Geology, Emeritus SUNY Potsdam Potsdam, N.Y. 13676, U.S.A. Tel. 315 267 2296 Fax 315 267 2695 kirchgwt@potsdam.edu

KIRILISHINA, Elena M.
Dept. of Paleontology, Geological
Faculty, Moscow State University
119992 Moscow GSP-2, Russia
Tel. 007 095 939 4960
conodont@ok.ru

KLAPPER, Gilbert 1010 Eastwood Road Glencoe, Illinois 60022-1125, U.S.A. Tel. 847 835 1317 g-klapper@northwestern.edu

KLEFFNER, Mark A.
Department of Geological Sciences
The Ohio State University at Lima
4240 Campus Drive,
Lima, OH 45804-3576, U.S.A.
Tel. 419 995 8208
Fax 419 995 8091
kleffner.1@osu.edu

KLETS, Tatyana V. Department of Paleontology Novosibirsk State University Pirogova str. 2 6300090, Novosibirsk-90, Russia Tel. 383 339 7206 fossil@lab.nsu.ru

KOIKE, Toshio Tokiwadai 36-6-606 Hodogaya-ku Yokohama City, Japan 240-0067 Tel./Fax 045 335 6274 koike@ed.ynu.ac.jp

KOLAR-JURKOVEK, Tea Geological Survey of Solovenia Dimieva 14 SLO-1000 Ljubljana Tel. 01 2809 739 Fax 01 2809 753 tea.kolar@geo.zs.si

KÖNIGSHOF, Peter Forschungsinstitut und Naturmuseum Senckenberg, Senckenberganlage 25 Frankfurt am Main D-60325, Germany Tel. ++49 (69) 97075686 Fax ++49 (69) 97075120 Peter.Koenigshof@senckenberg.de

KONONOVA, Ludmila I. Dept. of Paleontology, Geological Faculty, Moscow State University 119992 Moscow GSP-2, Russia Tel. 007 095 939 4960 conodont@ok.ru

KOVACS, Sandor Geological Research Group of the Hungarian Academy of Sciences Pazmany Peter setany 1/C H-1117 Budapest, Hungary Tel. 36 1 381 2127 Fax 36 1 381 2128 skovacs@iris.geobio.elte.hu

KOZUR, Heinz W. Rezsü u. 83 H-1029 Budapest, Hungary Tel./Fax 0036 1 397 1316 kozurh@helka.iif.hu

KRAHL, Jochen Agnesstrasse 45 D-80798 Munich, Germany spectroworld@t-online.de

KRESJA, Richard J.
Emeritus Professor of Biological
Sciences
Cal Poly State University, 189 San
Jose Court
San Luis Obispo, CA 93495, U.S.A.
Tel. 805 544 3399
rkrejsa@calpoly.edu

KRUMHARDT, Andrea University of Alaska Fairbanks Department of Geology & Geophysics Fairbanks, Alaska 99775, U.S.A. Tel. 907 474 5313 Fax 907 474 5163 fnapk@uaf.edu or andyjon@acsalaska.net

KURKA, Mira T. Science Department Great Basin College 1500 College Parkway Elko, NV 89801, USA kurkam@gbcnv.edu

LAI Xulong
Faculty of Earth Sciences
China University of Geosciences
Wuhan, Hubei 430074, China
Tel. 86 27 6788 4710
xllai@cug.edu.cn or
xllaicug@163.com

LAMBERT, Lance L.
Department of Earth &
Environmental Science
The University of Texas at San
Antonio
6900 North Loop 1604 West
San Antonio, Texas 78249-0663,
U.S.A.
Tel. 210 458 5447
Fax 210 458 4469
lance.lambert@utsa.edu

LANE, H. Richard National Science Foundation 4201 Wilson Blvd., Room 789, Arlington, Virginia 22230, U.S.A. Tel. 703 292 4730 Fax 703 292 9025 hlane@nsf.gov

LEATHAM, W. Britt
Dept. Geological Sciences
California State University San
Bernardino
5500 University Parkway
San Bernardino, CA 92407, USA
Tel. 909 537 5322
bleatham@csusb.edu

LEHNERT, Oliver Institut für Geologie und Mineralogie Universität Erlangen Schlossgarten 5 D-91054 Erlangen, Germany Tel. +49 9131 852 2632 Fax +49 9131 852 9295 lehnert@geol.uni-erlangen.de

LESLIE, Stephen A.
Department of Earth Sciences
University of Arkansas at Little
Rock
2801 South University
Little Rock, Arkansas 72204-1099,
USA
Tel. 501 569 8061
Fax 501 569 3271
saleslie@ualr.edu

LIAO, J.-C. (Teresa)
Dpt. de Geologia, Universitat de
Valencia
C/ Dr. Moliner 50
E-46100 Burjassot, Spain
Tel. 34 96 354 4396
jau.liao@uv.es

LØFGREN, Anita Department of Geology GeoBiosphere Science Centre II Lund University Solvegatan 12, SE-22362 Lund, Sweden Tel. +46 46 222 7868 Fax +46 46 222 4419 anita.lofgren@geol.lu.se

LUPPOLD, Friedrich W. Niedersachsisches Landesamt f. Bodenforschung P.O.Box 510153 30631 Hannover, Germany Tel. 04 0511 643 2514/2796 luppold@nlfb.de

MacKENZIE, Peter
MacKenzie Land & Exploration,
Ltd.
P.O. Box 166, 660 High St., Suite
201
Worthington, OH 43085, U.S.A.
Tel. 614 785 1682
pete@mackex.com

MÄNNIK, Peep Institute of Geology Tallinn University of Technology Estonia Ave 7, 10143 Tallinn, Estonia Tel. +372 6 454 189 Fax +372 6 312 074 mannik@gi.ee

MARQUEZ-ALIAGA, Ana Departament de Geologia Universitat de Valencia Dr. Moliner 50 46100 Burjassot Valencia (Spain) Tel. 96 354 4396 Fax 96 354 4372 Ana.Marquez@uv.es

MARSHALL, Richard T. 22944 Armadillo Road Garfield, AR 72732, U.S.A. Tel. 479 359 2104 mars@centurytel.net

MARTINEZ-PEREZ, Carlos Department of Geology University of Valencia C/Dr. Moliner 50 46100 Burjassot, Valencia, Spain Tel. 34 96 3544396 Carlos.Martinez-Perez@uv.es

MASTANDREA, Adelaide Dipartimento Scienze della Terra Universit della Calabria Ponte Bucci, cubo 15b, Arcavacata di Rende (CS), I-87036 Italy Tel. +39 984 493651 Fax +39 984 493566 a.mast@unical.it

MATHIESON, David Department of Earth & Planetary Sciences, Macquarie University NSW 2109, Australia dmath001@student.mq.edu.au

MATYJA, Hanna Polish Geological Institute Dept. of Regional & Petroleum Geology Rakowiecka 4 PL 00-975 Warszawa, Poland Tel. +48-22 849 5351, ext. 499, 370 Fax +48-22 849 5342 hanna.matyja@pgi.gov.pl

MAWSON, Ruth MUCEP, Environmental & Life Sci., Macquarie University NSW 2109, Australia Tel. 61 2 9850 8336 rmawson@laurel.ocs.mq.edu.au

McCRACKEN, Alexander (Sandy) Geological Survey of Canada 3303-33rd St. NW Calgary, AB T2L 2A7, Canada Tel. 403 292 7130 Fax 403 292 4961 samccrac@NRCan.gc.ca

McHARGUE, Tim ChevronTexaco ETC, D1174, 6001 Bollinger Canyon Rd San Ramon, CA 94583, U.S.A. Tel. 925 842 6255 Fax 925 842 6284 timmchargue@chevron.com

MECO, Selam Universiteti Politeknik Fakulteti Gjeologji-Miniera Labinoti Tirana, Albania Tel. ++355 437 5246 ++355 437 1607 (private) Fax ++355 437 5246 smeco\_2001@yahoo.com

MEDINA-VAREA, Paula Departamento de Paleontologia Facultad de Ciencias Geologicas Universidad Complutense de Madrid Jose Antonio Novais, No. 2, Madrid 28040, Spain pmvarea@geo.ucm.es

MENDEZ, Carlos A. Department of Geology (Paleontology) University of Oviedo Campus de Llamaquique 33005 Oviedo, Asturias, Spain Tel. 34 985 103136 Fax 34 985 103103 cmendez@geol.uniovi.es

MERRILL, Glen Department of natural Sciences University of Houston-Downtown 1 Main Street Houston, TX 77002, U.S.A. Tel. 713 221 8168 Fax 713 221 8528 merrillg@uhd.edu

METCALFE, Ian Asia Centre, University of New England Armidale, NSW 2351, Australia Tel. +61 2 67733499 Fax +61 2 67732978 imetcal2@une.edu.au

METZGER, Ronald Southwestern Oregon Community College 1988 Newmark Avenue Coos Bay, Oregon 97420-2912, U.S.A. Tel. 541 888 7216 Fax 541 888 7196 rmetzger@socc.edu

MILLER, James F. Geography, Geology & Planning Missouri State University Springfield, MO 65804-0089, U.S.A. Tel. 417 836 5447 Fax 417 836 6006 iimmiller@missouristate.edu

MILLER, C. Giles Department of Palaeontology Natural History Museum Cromwell Road, London SW7 5BD, U.K. Tel. 0044 20 7942 5415 Fax 0044 20 7942 5546 G.Miller@nhm.ac.uk

MOLLOY, Peter Department of Earth & Planetary Sciences Macquarie University NSW 2109, Australia

MORROW, Jared R.
Department of Earth Sciences
University of Northern Colorado
Greeley, Colorado 80639, U.S.A.
Tel. 970 351 2483
Fax 970 351 1269
jared.morrow@unco.edu

MURPHY, Michael A. 2324 Oakenshield Road Davis, California 95696, U.S.A. Tel. 916 758 0289 Fax 918 752 0951 mamurphyD@adelphia.net NAKREM, Hans Arne Natural History Museum (Geology) University of Oslo, P.O. Box 1172 Blindern NO-0318 Oslo, Norway Tel. 0047 22851732 Fax 0047 22851800 h.a.nakrem@nhm.uio.no

NARKIEWICZ, Katarzyna Polish Geological Institute Rakowiecka 4, 00-975 Warszawa, Poland Tel. (48-22) 849 53 51 329 Fax (48-22) 849 53 42 Katarzyna.Narkiewicz@pgi.gov.pl

NAZAROVA, Valentina M. Dept. of Paleontology, Geological Faculty Moscow State University 119992 Moscow GSP-2, Russia Tel. 007 095 939 4960 VM516@yandex.ru

NEMYROVSKA, Tamara I. Institute of Geological Sciences Nat. Academy of Sciences of Ukraine O.Gonchar Str. 55-b 01054 Kiev, Ukraine Tel. +380 44 221 07 96 Fax +380 44 219 93 34 tnemyrov@i.com.ua

NICOLL, Robert S. [Australian National University] Corresponding address: 29 Hooper Cres Flynn, ACT, Australia 2615 Tel. (h) 61 2 6258 4140 Fax (ANU) 61 2 6125 5544 bnicoll@goldweb.com.au

NICORA, Alda Societa Paleontologica Italiana Via Mangiagalli 34 20133 Milano, Italy Tel. 39 02 503 15543 alda.nicora@unimi.it

NORBY, Rodney D. Illinois State Geological Survey 615 East Peabody Drive Champaign, IL 61820, U.S.A. Tel. 217 244 6947 Fax 217 333 2830 norby@isgs.uiuc.edu

NOWLAN, Godfrey Geological Survey of Canada 3303-33rd Street NW Calgary, AB T2L 2A7, Canada Tel. 403 292 7079 Fax 403 292 6014 gnowlan@NRCan.gc.ca

OBUT, Olga T. Institute of Petroleum Geology Siberian Branch RAS Acad. Koptyug av. 3, Novosibirsk 630090, Russia Tel. (3832) 33 24 31 Fax (3832) 32 23 01 ObutOT@uiggm.nsc.ru

ÖNDER, Fuat Ipek Consaltancy Iller sok. 18/8 Mebusevleri-Tandogan Ankara, Turkey Tel. 90 312 2156000 Fax 90 312 2159191 fuat@bilkent.edu.tr

ORCHARD, Michael J. Geological Survey of Canada 101-605 Robson St., Vancouver, B.C. V6B 5J3, Canada Tel. 604 666 0409 Fax 604 666 112 morchard@nrcan.gc.ca

OVER, D. Jeffrey Department of Geological Sciences SUNY-Geneseo 1 College Circle Geneseo, N.Y. 14454, U.S.A. Tel. 585 245 5924/5291 Fax 585 245 5288 over@geneseo.edu

OWEN, Susan 2712 10 Ave SE Mandan, ND 58554, USA pangee3@hotmail.com

PARK, Soo-In Department of Geology Kangwon National University Daehakrogil 1, Chuncheon 200-701 Gangwon Province Republic of Korea Tel. 82 33 250 8554 Fax 82 33 242 8550 sweenp@kangwon.ac.kr

PARKES, Ross Department of Earth & Planetary Sciences, Macquarie University NSW 2109, Australia

PAULL, Rachel Tel. 303 948 6436 rocdox@comcast.net

PERCIVAL, Ian Geological Survey of New South Wales Department of Primary Industries Londonderry Geoscience Centre 947-953 Londonderry Road Londonderry NSW 2753, Australia Tel. 61 2 4777 4316 Fax 61 2 4777 4397 ian.percival@dpi.nsw.gov.au (w) ipercival@laurel.ocs.mq.edu.au (h)

PERRET MIROUSE, Marie-France

Observatoire Midi-Pyrnes L.M.T.G. 14 Avenue Edouard Belin 31400 Toulouse Tel. (0)5 61 33 26 45 perret@lmtg.obs-mip.fr

PERRI, Maria Cristina
Dipartimento di Scienze della Terra
e Geologico-Ambientale
University of Bologna
Via Samboni 67
40126 Bologna, Italy
Tel. +39 051 209 4560
Fax +39 051 209 4522
perri@gromin.unibo.it

PETRUNOVA, Lyudmila Department of Palaeontology, Stratigraphy and Sedimentology, Geological Institute Bulgarian Academy of Sciences Acad. G. onchev Str., bl. 24, st. 409 Sofia 11134, Bulgaria Tel. 00359 2 9792287 l\_pet@geology.bas.bg

PEVNY, Jozef Dionyza Stura State Institute of Geology Mlynsk dolina 1 817 04 Bratislave, Slovakia Tel. 421 2 59375 235 (o) 421 2 54432 327 (h)

PIECHA, Matthias Geologischer Dienst/Nordrheinwestfalen De-Greiff-Str. 195, 47803 Krefeld, Germany Tel. 02151 897575 Fax 02151 897505 piecha@gd.nrw.de

PIERACACOS, Nick EnCana Oil & Gas (USA) Inc. 14001 N. Dallas Parkway, Suite 1000 Dallas, TX 75240, U.S.A. Tel. 214 987 7134 njp@myrealbox.com

PLASENCIA-CAMPS, Pablo Departament de Geologia Universitat de Valencia Dr. Moliner 50 46100 Burjassot, Valencia (Spain) Tel. 96 354 4396 Fax 96 354 4372 Pablo.Plasencia@uv.es

POOLE, Forrest G. (Barney) Geologist Emeritus U.S. Geological Survey, MS-973 Box 25046, Federal Center Denver, CO 80225-0045, U.S.A. Tel. 303 236 5599 Fax 303 236 3200 bpoole@usgs.gov PURNELL, Mark
Department of Geology
University of Leicester, University
Road
Leicester LE1 7RH, U.K.
Tel. +44 116 252 3645
Fax +44 116 252 3918
map2@le.ac.uk
www.le.ac.uk/gl/map2/

PYLE, Leanne Geological Survey of Canada 9860 West Saanich Road Sidney, B.C. V8L 4B2, Canada Tel. 250 363 6385 lpyle@nrcan.gc.ca

RANDON, Carine
Universite de Sciences et
Echnologies de Lille
Laboratoire de Paleontologie et
Paleogeographie du Paleozoque
UMR 8014 du CNRS-UFR Sciences
de la Terre
F-59666 Villeneuve d'Ascq CEDEX,
France
carine.randon@ed.univ-lille1.fr

REIMERS, Aleksey Dept. of Paleontology, Geological Faculty Moscow State University 119992 Moscow GSP-2, Russia Tel. 007 095 939 4924/939 1283 areimers@geol.msu.ru

REPETSKI, John E.
U.S. Geological Survey
MS 926A National Center
Reston, Virginia 20192, U.S.A.
Tel. 703 648 5486
Fax 703 648 6953
jrepetski@usgs.gov (o)
jrepetski@cox.net (h)

REXROAD, Carl B. Indiana Geological Survey 611 N. Walnut Grove Bloomington, IN 47408, U.S.A. Tel. 812 855 1350 Fax 812 855 2862 crexroad@indiana.edu

RIGO, Manuel Dept. Geology, Paleontology & Geophysics University of Padova Via Giotto 1, 35137 Padova, Italy Tel. 39 049 827 2092 manuel.rigo@unipd.it

RIOS, Dr. Jose Ignacio Valenzuela Dpt. de Geologia, Universitat de Valencia C/Dr. Moliner 50 E-46100 Burjassot, Spain Tel. 34 96 354 4396 Jose.I. Valenzuela@uv.es ROSALES, Carla INGEO-Universidad Nacional de San Juan Cereceto y Meglioli 5400 San Juan, Argentina Tel. 54 0264 4251613 carlavrf@hotmail.com

ROSSCOE, Steven J. Texas Tech University Department of Geosciences Box 41053 Lubbock, TX 79409, U.S.A. Tel. 518 256 7743 stevenjrosscoe@yahoo.com

RUPPEL, Stephen C.
Senior Research Scientist
Bureau of Economic Geology
The John A. and Katherine G.
Jackson School of Geosciences
The University of Texas at Austin
University Station, Box X
Austin, TX 78713-8924, U.S.A.
Tel. 512 471 2965
Fax 512 471 0140
http://www.beg.utexas.edu/

SANDBERG, Charles A. U.S. Geological Survey Box 25046, MS 939, Federal Center Denver, CO 80225-0046, U.S.A. Tel. 303 236 5763 Fax 303 236 0459 sandberg@usgs.gov casandberg@comcast.net

SANSOM, Ivan J. Earth Sciences, University of Birmingham Birmingham, U.K. Tel. 44 121 414 6147 I.J.Sansom@bham.ac.uk

SANZ-LOPEZ, Javier Facultad de Ciencias de la Educacion Campus de Elvina, s/n E-15071 A Coruna, Spain Tel. 34 981167000 ext. 4684 Fax 34 981167115 jasanz@udc.es

SARMIENTO, Graciela N.
Departamento de Paleontologia
Facultad de Ciencias Geologicas
Universidad Complutense de Madrid
Antonio Novais, 2.28040 Madrid,
Spain
Tel. 34 913944853
Fax 34 913944849
gsarmien@geo.ucm.es

SAVAGE, Norman M.
Department of Geological Sciences
University of Oregon
Eugene, Oregon 97403, U.S.A.
Tel. 541 346 4585
Fax 541 346 4692
nmsavage@uoregon.edu

SCOMAZZON, Ana Karina UFRGS-Campus do Vale Instituto de Geosciencias Predio 43127, Sala 211 Av. Bento Goncalves 9500 Porto Alegre – RS, Brazil Tel. 55 51 33166391 akscomazzon@yahoo.com.br

SHAW, Tom H. Unocal 14141 Southwest Freeway Sugarland, TX 77478, U.S.A. Tel. 281 287 5875 Fax 281 287 9327 tshaw@unocal.com

SHEN, Shuzhong
Nanjing Institute of Geology &
Palaeontology
39 East Beijing Road
Nanjing, PRC
Tel. +86 25 832 82131
Fax +86 25 832 82131
szshen@nigpas.ac.cn

SIMPSON, Andrew Department of Earth & Planetary Sciences Macquarie University NSW 2109, Australia asimpson@els.mq.edu.au

SLAVIK, Ladislav Institute of Geology AS CR Rozvojova 135 Praha 6, CZ-16502 Tel. +420 220922670 Fax +420 220922670 slavik@gli.cas.cz

SLOAN, Terry School of Management College of Law & Business University of Western Sydney Building 11, Campbelltown Campus University of Western Sydney Locked Bag 1797 Penrith South DC, NSW, Australia 1797 Tel. +61 2 46 203239 Fax +61 2 46 203791 t.sloan@uws.edu.au

SMITH, Paul University of Birmingham Lapworth Museum of Geology Edgbaston, Birmingham B15 2TT, U.K. Tel. 44 121 414 4173 m.p.smith@bham.ac.uk

SOKOLOVA, Lubov Institute of Geology, Komi Science Centre, Uralian Division Russian Academy of Sciences 54 Pervomayskaya St. 167982 Syktyvkar, Komi Republic, Russia beznosova@geo.komisc.ru

SPALLETTA, Claudia Dipartimento di Scienze della Terra e Geologico Ambientali Universita di Bologna Via Zamboni 67 I-40126 Bologna, Italy Tel. +39 051 2094578 Fax +39 051 2094522 cspal@geomin.unibo.it

SPENCER, Lee A.
Biology Department
Southern Adventist University
PO Box 370
Collegedale, TN 37315, U.S.A.
Tel. 423 236 2997
Fax 423 236 1926
leespencer@southern.edu

STOUGE, Svend Geological Museum University of Copenhagen Oster Voldgade 5-7, DK-1350 Copenhagen, Denmark Tel. 45 353 22358 Svends@snm.ku.dk

STRITZKE, Ruediger Geologischer Dienst NRW D-Greiff-Str. 195 D-47803 Krefeld, Germany Tel. 492151 897263 ruediger.stritzke@gd.nrw.de

SUDAR, Milan N.
Institute of Regional Geol. & Paleont.
Faculty of Mining & Geology University of Belgrade
Kamenicka St. 6, P.O. Box 227
11000 Belgrade, Serbia and Montenegro
Tel. 381 11 26 32 166
sudar@eunet.yu

SWEET, Walter C. Ohio State University 3351 Mansion Way Columbus, Ohio 43221, U.S.A. Tel. 614 451 3555 wsweet@columbus.rr.com

SWIFT, Andrew Palaeobiology Unit, Dept. of Geology University of Leicester University Road Leicester LE1 7RH, U.K. Tel. 0116 252 3646 as48@le.ac.uk

SZANIAWSKI, Hubert Institute of Paleobiology Polish Academy of Sciences Twarda 51/55 00-818 Warszawa, Poland Tel. (48 22) 643 41 69 Fax (48 22) 620 62 25 szaniaw@twarda.pan.pl

TALENT, John A.
Professor of Earth & Planetary
Sciences
Dept. of Earth & Planetary Sciences
Macquarie University
NSW 2109, Australia
Tel. (61 2) 9850 8336
Fax (61 2) 9850 6053
jtalent@els.mq.edu.au
john.talent@mq.edu.au

TARABUKIN, V.P.
Institute of Geology Diamond &
Precious Metal
Russian Academy of Science
Siberian Branch
Lenin av. 39
Yakutsk 677891, Russia
Tel. (4112) 33 58 11
Fax (4112) 33 57 08
v.p.tarabukin@diamond.ysn.ru

TROTTER, Julie c/- Research School of Earth Sciences
Australian National University
Mills Rd., Acton, ACT 0200,
Australia
Tel. +61 2 61259968
Fax +61 2 61257739
Julie.Trotter@csiro.au
Julie.Trotter@anu.edu.au

UYENO, Tom Geological Survey of Canada 3303-33rd Street NW Calgary, AB T2L 2A7, Canada Tel. 403 292 7084 Fax 403 292 6014 tuyeno@nrcan.gc.ca VIIRA, Viive Institute of Geology Tallinn University of Technology Estonia ave. 7 10143 Tallinn, Testonia Tel. 372 645 4189 Fax 372 631 2074 viira@gi.ee

von BITTER, Peter H.
Senior Curator in Charge
Palaeobiology
Deputy Head, Dept. of Natural
History
Royal Ontario Museum
100 Queen's Park

Toronto, Ont., Canada M5S 2C6 Tel. 416 596 5502 Fax 416 586 5863 peterv@rom.on.ca

WANG, Cheng-yuan
Nanjing Institute of Geology &
Palaeontology
Chinese Academy of Sciences
E. Beijing Road 39,
Nanjing 210008, PRC
Tel. 025 83282236 (o)
025 57714223 (h)
Fax 025 83357026
cywang@nigpas.ac.cn

WANKIEWICZ, Aleksandra Warsaw University, Faculty of Geol. ul.Zwirki I Wigury 93 02-089 Warsaw, Poland Tel. 48 225 540488 a.wankiewicz@uw.edu.pl

WEDDIGE, Karsten Research Institute and Natural Museum of Senckenberg Senckenberganlage 25 Frankfurt am Main, D-60325, Germany Tel. 49 69 97075141 karsten.weddige@senckenberg.de

WICKSTRÖM, Linda M. Geological Survey of Sweden Box 670 75128 Uppsala, Sweden Tel. 0046 18 179313 linda.wickstrom@sgu.se

WITZKE, Brian J. Iowa Geological Survey 109 Trowbridge Hall Iowa City, Iowa 52242-1319, U.S.A. Tel. 319 335 1590 Fax 319 335 2754 bwitzke@igsb.uiowa.edu

WORONCOWA-MARCINOWSKA, Tatiana Polish Geological Institute, Geological Museum Rakowiecka St., 4 00975 Warszawa, Poland Tel. 48-22 849 5351, ext. 282 tatiana.woroncowa-marcinowska@pgi.gov.pl

YAO, Jianxin Institute of Geology, Chinese Academy of Geological Sciences 26 Baiwanzhuang Road Beijing 100037, China Tel. 86 010 68999706/86 010 68722915 Fax 86 010 68997803 yaojianxin@cags.net.cn

YOLKIN, Evgeny A. Institute of Petroleum Geology Siberian Branch RAS Acad. Koptyug av. 3 Novosibirsk 630090, Russia Tel. (3832) 33 24 31 Fax (3832) 33 23 01 YolkinEA@uiggm.nsc.ru

YONG, Yi Zhen The Australian Museum 6 College St. Sydney 2010, NSW, Australia Tel. 02 93206132 yongyi@austmus.gov.au

YOSHIDA, Takashi 43-3 Enokigaoka, Aobaku Yohohama, 227-0063 Japan Tel/Fax 045 983 8936 syoshi@rd6.so-net.ne.jp

ZHANG, Shunxin School of Earth & Ocean Sciences University of Victoria P.O. Box 1700, Stn CSC Victoria, B.C., Canada V9W 2Y2 Tel. 250 473 5378 Fax 250 472 5370 zhangs@uvic.ca

ZHAO, Laishi State Key Laboratory of Geological Processes and Mineral Resources China University of Geosciences Wuhan 430074, China Tel. 86 27 62024366 Iszhao@cug.edu.cn gemroffice@cug.edu.cn

ZHURAVLEV, Andrey V. St. Petersburg University Oranzhereynaya, Bd. 51, Ap. 40, Pushkin-8, St. Petersburg 189620 Russia Tel. +7 921 7919149 stratigr@mail.wplus.net