# Pander Society Newsletter



### **INTRODUCTORY REMARKS**

NOTHER year, another Newsletter. Actually, this has been an eventful year for the Pander Society in many ways, as will be evident from the reports below. The highlight for many of us was the ECOS VIII meeting and the associated field trips, and your editors particularly enjoyed meeting so many old and new friends at these events. Since the last Newsletter, formal Pander Society meetings have also been held in Lexington and in Kansas City, and several conodont enthusiasts were among those present and active at the first International Palaeontological Congress (IPC2002) in Sydney. Many thanks indeed to the teams of organisers for all these meetings. Smaller, more informal, gatherings also continued to take place, including the annual pre-Christmas get-together of the microvertebrate group of the Micropalaeontological Society. This year, about 15 of us slithered around in the post-conodont Oxford Clay (Jurassic) looking for bits of fish and marine reptile before moving on to Ely (near Cambridge) for talks, discussions and curry.

More sadly, conodonts lost some good friends in 2002. The major blow was the death of Willi Ziegler, who was a major figure in international conodont studies for some 50 years (see Obituary below), and we also said farewell to Michael House, another leading specialist in Devonian geology who always held a regard for and an interest in conodonts. On a more positive note, the contribution made by another eminent conodontologist, Klaus Müller, was celebrated by the presentation of a Pander Society Medal in February 2003.

We look forward to a quieter year before the next Newsletter, at least insofar as formal meetings of the Society are concerned. But it won't be long before we have to start thinking about the next big international meeting. After discussion at ECOS VIII, it was decided that the name of these meetings should be changed from ECOS to ICOS (International Conodont Symposium), to reflect better the international nature of the meetings and to broaden the geographical scope of possible venues. It was also thought that the term 'International' may help more people to obtain funding to attend the meetings. The suggested venue for the first ICOS is Britain, and it will be held in 2006, so pencil the year in your diaries!

Dick Aldridge	Mark Purnell
Chief Panderer	Pander Society Webmaster

#### PANDER SOCIETY MEDAL - AWARD

The Pander Society Medal is awarded at irregular intervals to palaeontologists who have made a significant and, usually, sustained contribution to the study of conodonts. Most Panderers will be aware from the announcements on con-nexus that a medal has been awarded to Herrn Prof. Dr. Klaus J. Müller, who most certainly fulfils those criteria. Klaus is Emeritus Professor für Mikropaläontologie und angewandte Paläontologie at the Institut für Paläontologie of the Rheinischen Friedrich-Wilhems-Universität Bonn, and the formal presentation was made at the Institute on 11 February 2003 at a meeting timed to be as close as possible to Klaus's 80<sup>th</sup> birthday.

About 50 of Klaus's friends and colleagues attended the celebrations, at which short speeches were made by Prof. Dr M. Langer, Director of the Institute, Prof. Dr M.



Klaus Müller receiving the Pander Society Medal from Chief Panderer, Dick Aldridge, in Bonn earlier this year (photo: G. Oleschinski)

Winiger, Dean of the Faculty, and Prof. Dr. W. v. Koenigswald, President of the Paläontologicschen Gesellschaft. An address on the topic of "Conodont palaeobiology: retrospect and prospect" was given by the Chief Panderer, followed by the presentation of the medal, and an acceptance speech by Klaus. Everybody then moved to the Goldfuss-Museum in the Institute for a reception at which good food and good wine were consumed.

Several palaeontologists were involved in providing nominations for the award of this medal, and the outline of Klaus's achievements given below is compiled from the various nomination documents:

Klaus J. Müller has worked on conodonts continuously for over half a century and has never lost his interest in this field of research even during times of intense research and publication on other topics, such as the Swedish "Orsten". During this period he has published many papers and articles on conodonts, several of which were highly innovative during their time and are of lasting importance today. His conodont research has been based on very large teaching and research collections he has put together from numerous localities worldwide, and covering the full range from Cambrian to Triassic. For students and advanced conodont workers alike, this collection is still highly valuable and completely accessible, accompanied by extremely well organized notes and remarks concerning localities, stratigraphy, sampling horizons etc. As in other fields, his collecting was exemplary and universal. Klaus Müller also initiated and supervised production of impressive large conodont models, which are still being used in teaching at the Institute of Palaeontology in Bonn.

Müller has published several monographic works on conodonts (e.g. Müller 1956 on Palmatolepis, Müller & Hinz 1991 on Cambrian conodonts), plus several contributions for the conodont *Treatise*, to which he was invited to contribute as one of the leading international conodont workers. The subjects of these contributions (including the internal structure of elements and the zoological affinities of conodonts) give a good indication of the breadth of his interests in conodont research. He has always tried to find material in particular preservation states that offered deeper insights into palaeobiology and systematics. Many of his publications are characterized by the search for a "natural system" in conodonts. As well as researching on conodont apparatuses (Schmidt & Müller 1964, Müller & Andres 1976), Müller was among the first to use the SEM to carry out comparative studies of growth, construction, fine structure and micromorphology of conodonts, through which he addressed systematic, evolutionary and paleobiological questions. His papers are of lasting importance in clarifying the microstructural composition and growth of different conodont tissues (Müller 1968, 1969). All his papers are characterized by high quality illustrations, valuable technical remarks, presentations of the status quo of research on the particular subject, general conclusions and stimulating discussions mentioning future prospective fields. Among his key collaborators was Yasuo Nogami, who shared Müllers interest in Cambrian conodonts, and to whose skill in preparation we owe the unique microscopic slides and photographs on conodont histology published by Müller & Nogami (1971).

As a pioneer and inspirational figure in many areas of conodont research, it is eminently fitting that Klaus J. Müller should be awarded the Pander Society Medal.

# PANDER SOCIETY MEDAL - COMMITTEE AND PROCEDURE

The procedure for the award of a Pander Society Medal is that a nomination, with a short supporting statement, may be made by any member or members of the Society to the Chief Panderer, who then consults a medal committee of international conodont workers. The membership of the committee is currently in transition: John Repetski was appointed during the ECOS VIII meeting to replace Willi Ziegler, and Cristina Perri has agreed to take over from Godfrey Nowlan. Wang Chengyuan continues for the present as the third committee member. The members of the committee review any nomination independently and report back to the Chief Panderer. If the nomination receives the support of the committee and the Chief Panderer, a medal is struck and engraved for presentation at an appropriate occasion.

Klaus Müller came through this procedure with total and unequivocal support. The roll of honour of Pander Society medallists now stands as:

William Furnish
Heinz Beckmann
Willi Ziegler
Maurits Lindström
Gil Klapper
Stig Bergström

#### NEW PANDER AWARD

During the Pander Society business meeting at ECOS VIII it was decided that we should institute a new award for young conodont workers. This will probably be awarded on the basis of papers published within five years of completion of a PhD thesis or equivalent. The judging committee will be the members of the Pander Medal Committee plus the Chief Panderer. The precise details of the terms of the award and the nature of the prize are yet to be worked out, but the committee will discuss these and report to you all in due course; any suggestions would be welcome. Donations are sought in order to help fund this award, if anyone out there would like to help encourage young conodont specialists.

#### NEW CONODONT WEB SITE

The sharper eyed among you will have already noticed the new url on the front cover of this newsletter. **www.conodont.net** is intended to serve as a stable point of entry to conodont related web pages, so that rather than having to bookmark or try to remember the rather cumbersome urls of the Pander Society pages, con-nexus, ECOS, ICOS etc., **conodont.net** will get you there.

#### PEOPLE

**Dick Krejsa** reports that he was placed 10<sup>th</sup> in the world in the 2001 World Harmonica Championships, in the 'Blues, Folk, Rock & Country" category. Several of us will remember being serenaded at various times by Dick's harmonica, especially at the Walcott Quarry in the Burgess Shale in 1991.

#### OBITUARY

#### Willi Ziegler (1929 - 2002)

Karsten Weddige writes: Professor Dr. Willi Ziegler fulfilled a rich life – rich in creative research, generating numerous scientific results and advances, and rich in influential activity in science management and politics. He was successful in many ways: as a pioneer conodont biostratigrapher, as a mega-publisher, as a dynamic director of the Frankfurt Senckenberg Museum and Research Institute, as a major protagonist in saving the Tertiary Fossillagerstätte Messel, and as a vital figure in various national and international scientific committees, commissions and corporated into the history of science and will outlast us, the surviving community of conodontologists.

At the instigation of Heinz Beckmann (the first in Germany to point to the potential stratigraphic value of conodonts), Willi Ziegler, together with Günther Bischoff, started the fundamental systematic and biostratigraphical studies of conodonts that were to become a major research feature of Marburg Univeristy, Germany. Their work was directed at the Devonian and Carboniferous conodonts of the Rheinisches Schiefergebirge, and they were followed by Dieter Stoppel, Otto H. Walliser, Hans Wittekindt, Peter Bender and others to form the "Marburger Schule" with its remarkable conodontological output [1].

In 1958, Willi Ziegler moved to a regional Geological Survey (Krefeld), to become engaged in the mapping of the central parts of the Rheinisches Schiefergebirge, using conodonts as the primary dating method. Parallel to this job, he worked on his habilitation thesis until 1962 [2]. This established an Upper Devonian conodont zonation, which today is still the basis of correlations at this level. He decided to interrupt his Survey job from 1965 to 1966 to take up the position of "Visiting Full Professor of Geology" at the University of Texas in Austin; at this time he founded durable friendships with many American colleagues.

In 1968, Willi Ziegler was appointed as a permanent Full Professor at Marburg University where in 1971, together with Maurits Lindström, he organized an international "Conodont Symposium" (with its first decisions on multielement taxonomy), and thus introduced the tradition of the "European Conodont Symposia (ECOS)". The Symposium Proceedings were published in the Marburg journal "Geologica et Palaeontologica" which, thanks to Ziegler's involvement, subsequently became a major publication route for numerous fundamentally important conodont papers. During his time at Marburg, up to 1980, he supervised more than 30 diplomarands and 10 doctorands. In addition to this, he was an untiring motor, organizer, coordinator and chairman of various committees, e.g. of a working group of Devonian stratigraphers which in 1972 was officially named as the German "Subkommission für Devon-Stratigraphie", or, from 1976 to 1984, of the "Subcommission on Devonian International Stratigraphy". In the many meetings of these bodies, he convinced colleagues of his ideas by "conodont arguments" and thus - in his own words - "boxed" his way through. After 1980, when he had moved to Frankfurt in his new position as Senckenberg Director, he became Chairman of the German "Stratigraphische Kommission" (1984-1996) and first Vice-Chairman of the "International Commission on Stratigraphy (ICS) of the IUGS" (1984-1992). During this period, Willi Ziegler, saw through the calibration (using conodonts) of the "Global Stratotype Section and Point" (GSSP) for each of the seven Devonian stages.

During his time at Frankfurt (1980-1996), it is really admirable that, despite his numerous other responsibilities, he always found time to continue his primary research into the tiny conodonts and into the rather special Devonian(-Carboniferous) stratigraphy. There is no recognizable interruption in the stream of his publication output, which from 1956 totals more than 250 papers, including the five volumes of the "Catalogue of Conodonts". This total does not include some 10 further papers in preparation, about 60 publications on other research topics, 33 annual reports on Senckenberg Institute topics, nearly 20 prefaces, nearly 50 published reviews on monographs and books, not to mention his regular contributions to the review journal "Zentralblatt" regarding the latest conodont papers. With that record, Ziegler was indeed a "mega-publisher" in geology.

Moreover, he was a regular participant in numerous international congresses world-wide, where he was able to communicate his research advances. He rarely took normal "useless" recreation holidays, and even his convalescent trips were regularly directed to the annual meetings of the Geological Society of America where he met his American conodont colleagues, and/or – during the last decade – to his friend and collaborator Charlie Sandberg. Because of the high priority of conodont matters in his life, he regarded the 1988 ECOS V in his Senckenberg House, with its crowd of participants from abroad, as one of the highest points of his life. And the Pander Society Medal that he received during that event always shone more brightly to him than all the high official medals and honours that he was awarded in his position as Senckenberg Director [3].

We have indeed lost an energetic, untiring and eminent palaeontologist and biostratigrapher, a pugnacious and beneficial superior, an inspiring and indulgent teacher, and a warm-hearted, open and affable colleague and friend. Particularly on conodont taxonomy and Devonian biostratigraphy, Willi Ziegler has made such an impact that both have been diminished by his death.

Professor and Senckenberg Director Willi Ziegler, geologist, was born in Hungen-Villingen/Germany, in March 13, 1929. He died in Lich hospital on August 8, 2002, aged 73, and was buried in Hungen-Villingen on August 15, 2002 [4]. He is survived by his wife, Marianne, and his children, Michael and Anette.

[1] Ziegler, W. (1956): Die Conodonten-Chronologie vom Unter-Ems bis zum Unter-Givet. – Unpublished dissertation.

[2] Ziegler, W. (1962): Taxionomie und Phylogenie Oberdevonischer Conodonten und ihre stratigraphische Bedeutung. – Abhandlungen hessisches Landesamt für Bodenforschung, **38**: 1-166; Wiesbaden.

[3] Listing and specifying all his achievements and titles of honours is nearly endless, but will be undertaken in a more complete bio- and bibliography of Willi Ziegler (in preparation for "Paläontologische Zeitschrift").

[4] Weddige, K. (2002): Willi Ziegler (13. 3. 1929 – 8. 8. 2002). – In: K. Weddige & W. Ziegler (eds): Advances in Conodont, Devonian and Carboniferous Research. – Senckenbergiana lethaea, **82** (2): 373-374; Frankfurt am Main. – Funeral oration of the first pupil, Karsten Weddige (translated into English).

#### FROM THE ARCHIVE

The first and organizational meeting of the Pander Society was held in the rehearsal room of the Jubilee Auditorium in Calgary, Alberta, at 4 P.M. on Friday, September 8, 1967, attended by 25 conodont specialists and one guest. The meeting opened with a lively debate as to the author of the oldest conodont paper present which was quickly won by the presiding officer, John Huddle. Each member in attendance then arose in turn to relate briefly his affiliation, present research and papers in press.

A discussion of the problem presented by the I.C.Z.N. ruling affecting the gender of *Polygnathus* was concluded by general agreement among the group to abide by the ruling.

Collinson suggested patterning a new organization after the Ludlow Research Group with a secretary who publishes a newsletter at irregular intervals. He suggested the name Pander Society. Clark questioned what the society might do. Huddle and Ellison replied that it would arrange meetings of conodont specialists and promote better communication among them. Glenister spoke regarding a forthcoming meeting in Iowa City and Huddle noted the 1969 meetings of the P.S.N. Am. and the I.G.G at Prague. Clark reported on his IBM card file of conodonts and Collinson suggested this might be a good initial project for the new society. It was moved by Ellison, seconded by Weber, that John Huddle be made president for one year and that the organization be known as the Pander Society. There was no discussion and the motion was passed unanimously.

A short discussion of the trend toward the recognition and use of conodont assemblages followed. A plug to place all type specimens in the USNM was vigorously beat down by the members who felt that many reliable museums of long standing were available. The meeting adjourned at 5:10 P.M.

Respectfully submitted, Lawrence V. Rickard Temporary secretary As reported in previous editions of the Newsletter, we are trying to build as complete as possible an archive of the Pander Society. Can we again ask all members who have documentation relating to any major activities of the Pander Society to send copies to the Chief Panderer. Items of general interest, such as the minutes of the inaugural meeting above, will be included in future newsletters.

# PANDER SOCIETY MEETINGS 2002

#### LEXINGTON MEETING

Jim Barrick reports: Approximately 15 Panderers and associates attended the combined North-Central and Southeastern section meeting of the Geological Society of America in Lexington, Kentucky, April 3-6, arrangements for which were made by Jeff Bauer and Mark Kleffner. The Pander section consisted mainly of ten posters in one morning session, which attracted some interesting questions and comments from students attending the meeting. A couple of additional conodont oral presentations were scattered through other meeting sessions. Stig Bergström led a one day post-meeting field trip to Middle and Upper Ordovician conodont and ash bed localities in the Lexington area, which finished with a couple of Lower Silurian localities near the Ohio River.

# ECOS VIII PRE-SYMPOSIUM FIELD TRIP IN NORTHERN SPAIN

Carlo Corradini reports: About 25 conodont students from Europe and North America attended the pre ECOS VIII field trip in Northern Spain. The meeting point was Oviedo, Asturias, on June 13<sup>th</sup>, and participants were welcomed with an Espicha, a traditional cider party.

The first part of the excursion was dedicated to visiting several sections of Silurian to Carboniferous age in the Cantabrian Zone. The first day took in Silurian and Devonian outcrops along the northern Spanish coast, the second transferred us to the mountains between Asturias and Leon provinces, where there are great exposures of Devonian and Carboniferous rocks; then we moved on to the Picos de Europa National Park area, to visit Carboniferous localities. The following day we moved the South, to the high mountains of the Palentine Domain, where latest Silurian to lower Devonian limestones crop out.

The next day was spent on the bus, travelling to the Iberian Cordillera. However, the long journey was mitigated by some tourist stops and, moreover, by a visit to a wine cellar and a great lunch. In the Iberian Chain we were greeted by totally different weather, and the day in the field was very hot; we visited some Ordovician and Lower Devonian localities. Then the group moved to the Pyrenees for some Silurian and Lower Devonian sections. The last excursion day was spent high in the mountains, in beautiful landscapes and good sections of Emsian to Lower Carboniferous age.

In summary, the field-excursion in Spain was a good trip, very well organised, with great outcrops (always well explained), an exhaustive guide-book, nice cultural stops, excellent wine and meals, and a really friendly group of leaders.

# ECOS VIII THE MAIN MEETING TOULOUSE AND ALBI JUNE 22 - 25, 2002

Report from Steve Leslie: On the evening of Friday, June 21, 2002, the streets of Toulouse, France, were swarming with thousands of people of all ages celebrating ECOS VIII. OK. Maybe it was more like 120 of those thousands of people were there to celebrate and participate in ECOS VIII, and the rest were celebrating the annual Music Festival. Nevertheless, the first night of ECOS VIII started with a party in the south of France in a court yard filled with food and drink where Panderers from over 19 countries came together for what, we all found out later, was the "last ECOS meeting". (As you have read elsewhere in the Newsletter, it will now be ICOS.)

The formal meeting began with a welcome address by Mireille Polve, Président de la Société Géologique de France, in the venerable Grand Amphi that would be our home for the next few days. Chief Panderer, Dick Aldridge, followed the opening ceremony by demonstrating his venerability during his opening remarks as he led us on a wonderful personal tour down his memory lane of all previous ECOS meetings.

A marvellous diversity of papers and posters were presented in sessions that began with a potpourri of papers in "Contributions of General Interest". Subsequent contributions ranged in theme and time during topical sessions on "Ordovician Paleogeography" trough "Triassic Biostratigraphy and Taxonomy". The centerpiece of ECOS VIII was the symposium "Bias and Completeness in the Conodont Fossil Record". A wide range of opinions kept this section lively. Talks ranged from discussions illustrating what we know and think about the conodont skeleton, to forward looking discussions about what we don't know and ideas about how to sift though biases that dwell in our data. Underrepresentation of ramiform elements in the Late Palaeozoic continues to be an area of discussion that has no simple answer. Discussion of apparatuses and biases transitioned to discussions of interpretations that can be made based on these data regarding phylogeny and modes of speciation. Sea level change was identified as a major factor in controlling conodont distribution, and a strong case was made for the integration of stratigraphic, physical oceanic, and biotic investigations of conodonts

The ongoing discussion of cladistics and stratophenetics is alive and fruitful in the conodont world. Great strides are being made in our ability to "cladistify" conodont phylogentics. The results of efforts, primarily of our British Pander colleagues, are bringing the spectacular conodont biostratigraphic database into a new paradigm of phylogeny. This exercise is wrought with the fact that cladistic phylogenies at times collide head-on with the nearly unparalleled fidelity of conodont biostratigraphy. Although this merger of two robust sciences (biostratigraphy and evolutionary palaeobiology) at times causes a bit of friction, it appears that all of the elements are present, although at times there may be too many elements, for conodont characters to be coded and used in cladistic analysis.

There was, of course, plenty of conodont biostratigraphy discussed at the meeting. Much of this discussion was centered on the Devonian and Early Carboniferous. This focus was enhanced by parallel sessions of the Subcommission on Devonian Stratigraphy and IGCP 421 (North Gondwana Mid-Palaeozoic Bioevent/Biogeography Patterns in Relation to Crustal Dynamics). The inaugural meeting of IGCP 467 (Triassic Time and Trans Panthalassa Correlations) rounded out the parallel sessions at ECOS VIII.

We are grateful for the hospitality afforded all those that attended the meeting, and for the organizational efforts of Marie-France Perret and our other colleagues in Toulouse and Albi. From the icebreaker party in the small garden of the Université Paul Sabatier and Pander Society Dinner in the Hôtel Dieu Saint Jacques to the stroll through the historic city of Albi, ECOS VIII was a memorable experience for all who attended.

#### ECOS VIII POST-SYMPOSIUM FIELD TRIP

Jim Barrick reports: The post-meeting field trip for the ECOS VIII meeting in Toulouse, France, consisted of two related, but independent excursions. During both excursions we travelled well, stayed at comfortable and scenic lodgings, ate many delicious meals, and drank fine-tasting wines (see below).

The first four days were spent in the Montagne Noire region, where Raimund Feist and colleagues showed us the important stratotype sections for the Middle-Upper Devonian, Frasnian-Famennian and the Devonian-Carboniferous boundaries. The structural complications of nappes and olistholithic blocks in Carboniferous flysch tended to disorient those of us unfamiliar with Variscan deformation and created both chaoticappearing geology and scenery where the local structure and stratigraphy controls even the distribution of vineyards. Even though nearly all sections of the Devonian to Lower Carboniferous carbonates were overturned or otherwise structurally deformed, Raimund clearly presented the details of stratigraphy, depositional history, and conodont biostratigraphy of



The Canadian contingent (and friend) contemplate the aftermath of yet another jolly evening in the bar.

these carbonates that he and his colleagues have been able to resolve in this structurally complex region.

During the last three days of the field trip we travelled through the Central Pyrenees of southern France and north Spain, led by Marie-France Perret Mirouse and her colleagues. Here the scenic mountain scenic vistas, as well as cities like Carcassonne and Lourdes, attempted to draw our attention away from the conodont-bearing sections. The stops emphasized sections of Upper Devonian through Lower Carboniferous carbonates for which conodont biostratigraphy has been used to help decipher the stratigraphy in this region, where thrusting during both the Variscan and Alpine orogenies has occurred.

Dick Aldridge adds: I feel moved to note a couple of personal highs (pun intended) from the Pyrenees: the flypast by the squadrons of griffon vultures at Garcet (see photo) and the wonderfully productive sample from the synsedimentary dyke at the Plateau Saint André.



All eyes are on the section at Garcet, but the Chief Panderer (white hat towards rear) is momentaritly distracted by the griffon vultures.

#### PANDER SOCIETY MEETING 2003, KANSAS CITY

Jim Barrick reports: About 20 Panderers and friends attended the North-Central section meeting of the Geological Society of America in Kansas City, March 23-25. Phil Heckel led a one-day pre-meeting field trip to Pennsylvanian conodont localities in the Kansas City region. The trip included a stop near the original Lexington, Missouri locality from which Gunnell (1931) first described Pennyslvanian conodonts, as well as stops that covered most of the stratigraphic levels from which Gunnell (1933) and Ellison (1941) described many Pennsylvanian conodont species.

Six poster presentations on different aspects of conodonts were displayed on Monday morning and an afternoon session of seven talks conlcuded with a spirited discussion of Pennsylvanian conodonts and conodont specialists.

#### **OTHER MEETINGS**

#### FIRST INTERNATIONAL PALAEONTOLOGICAL CONGRESS (IPC2002), SYDNEY, AUSTRALIA, 6-10 JULY 2002 (AND ASSOCIATED PANDER SOCIETY MEETING)

Cristina Perri writes: The First International Palaeontological Congress (IPC2002), a landmark event in the history of palaeontology, was held at Macquarie University, Sydney, on 6-10 July 2002.

Why start mounting international palaeontological congresses at regular intervals? It is common at palaeontological meetings to hear an underground noise of palaeontologists lamenting the decreasing interest in their discipline. Increasingly frequently, palaeontological units are being closed in geological surveys, and permanent positions for palaeontologists are decreasing in public and private universities. "IPC2002" – as reported in the foreword to the abstract book penned by John A. Talent, the then President of the International Palaeontological Association – was "dedicated to demonstrating that the paleontologists are not only alive but burgeoning as new and ever more exciting linkages develop across an increasingly broad spectrum of the sciences."

As a conference, IPC2002 was one of the most perfectly organised, the cheapest and the most scientifically interesting that I have had the pleasure to attend. The event brought together about 450 palaeontologists from 35 nations. The opening of the scientific sessions were prefaced by a welcome from the Convenor of the congress, John A. Talent and from the Vice-Chancellor of Macquarie University, Prof. Di Yerbury. The inaugural address on *Palaeontology and kindred sciences face another century* was given by graptolitologist Tat'yana Koren' (Russia). 427 oral and poster contributions were presented, organised in four parallel sections. The topics embraced all the fields of palaeontology, from the most classic to the most futuristic, subdivided into 24 symposia:

- Global extinction events (abrupt, gradual or polyphase);
- Terrestrialization;
- Evolution of pelagic communities through time;
- "Black smoker" and "cold seep" faunas past and present;
- Organic-rich facies, faunas and genesis;
- Experimental taphonomy and unusual preservation;
- Environmental records in skeletal materials;
- Numerical palaeobiogeography and morphometrics;
- Palaeozoic vertebrate zoogeography;
- Palaeozoic communities revisited;
- High precision biostratigraphic alignments;
- Implications of advances in fossil plant anatomy;

- Palynomorphs as environmental indicators;
- Towards zonation of the Proterozoic;
- Spongiomorphs;
- Dinosaur evolution and biogeography;
- Early mammalian evolution;
- Cainozoic mammalian biogeography;
- Molluscan functional morphology and biogeography;
- Trace fossils;
- Living fossils;
- Fossils and museums in the 21<sup>st</sup> century.

Two of these symposia celebrated the pivotal contributions of the eminent palaeontologists, Geoffrey Playford and the late Jane Gray.

Nearly two dozen of the contributions focused on conodonts. The chronological proximity of ECOS VIII probably decreased the number of contributions on conodonts at Macquarie, but, for workers passionate about conodonts, IPC2002 could be viewed nevertheless as a full-blown conodont meeting. Papers given dealt mainly with biostratigraphic alignments (Ordovician to Triassic), conodont biogeography, and conodont data for global events compared with isotopic data.

Associated with the congress were the final meetings of the International Geological Correlation (IGCP) projects 410 "The Great Ordovician Biodiversity Event: implications for global correlation and resources" and 421 "North Gondwana mid-Palaeozoic bioevent/biogeography patterns in relation to crustal dynamics". The initial meeting of IGCP 471, "Evolution of western Gondwana during the Late Paleozoic: tectonsedimentary record, palaeoclimates and biotic changes" was also held.

A new IPA executive, with Chief Panderer Richard Aldridge (UK) as President and ostracodologist Rosalie Maddocks (USA) as Secretary-general, was inducted at a plenary meeting of IPA. The next International Palaeontological Congress will be held in China. Our Chinese colleagues presented a superb palette of symposia and excursions they will mount for IPC2006.

A broad spectrum of pre-, mid- and post congress excursions in Australia and New Zealand (11 major excursions, four one-day excursions and five half-day excursions) was offered. Many spectacular Proterozoic and Phanerozoic sequences were demonstrated to more than 200 participants during the splendid and enthusiastically well-guided pre- and post-Congress excursions on:

- Terminal Proterozoic–Cambrian of the Flinders Ranges, South Australia;
- Ordovician–Silurian graptolite succession of SE Australia;
- Ordovician–Devonian of NE Australia (Broken River region);
- Devonian reef complexes of the Canning Basin, Western Australia;
- Palaeozoic fish localities of SE Australia;
- Permian of the southern Sydney Basin;
- Palaeozoic to Quaternary floras and landscapes of SE Australia
- Cainozoic terrestrial faunas of Riversleigh, NW Queensland;
- Mesozoic and Cainozoic sequences of the north island of New Zealand;
- Cainozoic sequences of SE Australia;
- Contemporary reef dynamics (Heron Island).

Several initiatives embellished the event. Palaeographia, an art exhibition mounted at Macquarie in the Vice-Chancellor's Gallery, consisted of art pieces inspired by palaeontology, and scientific illustrations. These, incidentally, included conodont-based items by Dean Oliver. The exhibition was opened by Prof. Yerbury and famed artist John Wolseley. John provided the wonderful label (including the IPC2002 logo) for the IPC2002 wine, a "Palaeo Pinot". The superb and distinctive "Palaeo Pinot" was served at the IPC2002 dinner where IPA treasurer Roger Kaesler (USA) spoke on the tribulations of being Treatise editor and on personalities encountered — formidable, amiable, quirky and altruistic — among the giants of our science. During the "ice-breaker" party, kindly offered by the Vice-Chancellor, the guests, some unaware, could taste and appreciate delicacies prepared from elements of the Australian fauna and flora. The National Opal Collection and the Australian Museum also hosted receptions for Congress participants. The latter event was associated with a preview of an exhibition of dinosaurs from China. A simpatico and friendly Pander Society informal meeting took place at Bar Italia, one of the several Italian *caffé* (about 40 of them) in Norton Street, Leichhardt, where you can relish a good Italian *capuccino* and a delicious *gelato*.

The congress organizers, to whom we are extremely grateful for the enormous effort they put into organizing such a huge multi-faceted meeting, hoped that "IPC2002 would provide a unique opportunity for dialogue, for sharing information about positive and innovative programs that are helping expand the boundaries of our science, and giving the paleontologies greater cultural significance". They also hoped that "IPC2002 would be bright, multicoloured, and overflowing with imagination and humour". I think I speak on behalf of all IPC2002 participants when I assert that it exceeded their hopes. Wonderfully so!

# **FUTURE MEETINGS**

#### INTERNATIONAL SYMPOSIUM ON THE ORDOVICIAN SYSTEM AND ASSOCIATED MEETINGS, SAN JUAN, ARGENTINA, 18-21 AUGUST 2003

The Argentine Republic has been elected as the host country for the upcoming "9th International Symposium on the Ordovician System, 7th International Graptolite Conference, and Field Meeting of the Subcommission on Silurian Stratigraphy". Symposia are scheduled in conjunction to be held in San Juan City, located at the Andes foothill, western Argentina, on August 18-21, 2003. The meetings will include scientific sessions, workshops, and business sessions of the respective Ordovician and Silurian Subcommissions (ICS-IUGS), and the Graptolite Working Group (IPA). Proceedings volumes of short papers will be published.

Pre and post-symposia field trips are scheduled, visiting classical localities with highly-fossiliferous Ordovician carbonate and siliciclastic sequences in the Precordillera (August 13-17, San Juan and Mendoza provinces, west Argentina), and the Eastern Cordillera (August 22-26, Salta and Jujuy provinces, north west Argentina). These localities are framed by wonderful landscapes in the varied environments of both geological provinces. Typical folk events, including music, dance and gastronomy, flavoured by vineyards growing up from Ordovician rocks, will show diverse aspects of the rich Argentine culture. The first circular is now available at: http://www.cricyt.edu.ar/2003.htm

#### XVTH ICC-P (INTERNATIONAL CONGRESS ON CARBONIFEROUS & PERMIAN STRATIGRAPHY), 10-16 AUGUST 2003

This meeting will be held in Utrecht, The Netherlands, on August 10-16, 2003. More information on website www.nitg.tno.nl/eng/iccp.shtml

The following sessions may interest Panderers:

Session 2: Carboniferous stratigraphy, sedimentology and tectonics

Session 3: Permian stratigraphy and tectonics Session 4: Permian-Triassic boundary in Europe Session 5: Late Palaeozoic Paleontology and Paleobotany Session 7: Global correlations and Pangea

#### MICROVERTEBRATE GROUP OF THE MICROPALAEONTOLOGICAL SOCIETY – ANNUAL PRE-CHRISTMAS MEETING, DECEMBER 13-14, 2003

What has become the traditional winter meeting of Panderer's based in the British Isles and Northern Europe will take place immediately before the Annual Meeting of the Palaeontological Association, this year in Leicester. Although yet to be finalized, a field excursion to visit Lower and Middle Carboniferous localities (and an exceptional pub) in Derbyshire looks highly likely. For more details contact the Secretary, Henning Blom (hb269@cam.ac.uk) or the Chairman, Mark Purnell (map2@le.ac.uk) nearer the time.

#### NORTH AMERICAN PANDER SOCIETY MEETING

The 2004 North American Pander Society Meeting will be held in conjunction with Geological Association of Canada Meeting at Brock University in May 2004. More exact dates and details to follow in July/August to all Panderers.

### SUMMARY OF TOPICS MENTIONED IN RESEARCH REPORTS

A. Cambrian. Kozur, Lehnert, J. F. Miller, Nowlan, Obut, Percival, Repetski, Szaniawski

**B.** Ordovician. Albanesi, Aldridge, Barnes, Bauer, Dhanda, Dzik, Ethington, Fordham, Furey-Greig, Goncuoglu, Hall, Harris, Izokh, Kozur, Lehnert, Leslie, Löfgren, Männik, McCracken, McHargue, Metzger, J. F. Miller, Nicoll, Nowlan, Obut, Percival, Reimers, Repetski, Sanz-López, Savage, Serpagli, Smith, Stouge, Sweet, Szaniawski, Talent, Tarabukin, Trotter, Viira, Webby, Wickström, Zhang, Zhen

**C. Silurian.** Albanesi, Aldridge, Barnes, Barrick, Cole, Corradini, Fordham, Furey-Greig, García-López, Goncuoglu, Harris, Izokh, Jeppsson, D. Jones, Kleffner, Kozur, Lehnert, Männik, McCracken, Metzger, C. G. Miller, Molloy, Nakrem, Nicoll, Norby, Nowlan, Purnell, Sansom, Savage, Serpagli, Simpson, Talent, Trotter, Viira, von Bitter, Wang, Wickström, Zhang

**D. Devonian.** Alekseev, Belka, Bender, Boncheva, Bultynck, Castelló Corraliza, Corradini, Dopieralska, Dusar, Dzik, Fordham, Furey-Greig, García-López, Ghavam, Gholamalian, Girard, Hairapetian, Harris, Irwin, Izokh, Johnston, Kirilishina, Klapper, Kononova, Kozur, Lehnert, Liao, Luppold, Martínez-Pérez, Mathieson, Matyja, Mawson, McCracken, Metzger, C. G. Miller, Molloy, Morgan, Morrow, Myshkina, Narkiewicz, Over, Perri, Piecha, Repetski, Rogers, Sandberg, Sanz-López, Savage, Sedghi, Simpson, Slavik, Spalletta, Stoppel, Talent, Tarabukin, Uyeno, Valenzuela-Rios, Wang, Zhuravlev

E. Carboniferous. Alekseev, Barrick, Barskov, Bender, Blanco-Ferrera, Boncheva, Brown, Corradini, Dusar,

Fordham, García-López, Hairapetian, Harris, Henderson, Ishida, Izokh, Johnston, G. Jones, Kononova, Kozur, Krumhardt, Kurka, Lambert, Mawson, Méndez, Merrill, Nakrem, Nemyrovska, Norby, Orchard, Purnell, Park, Perret Mirouse, Perri, Piecha, Rexroad, Sandberg, Sanz-López, Scomazzon, Spalletta, Stoppel, Swift, Talent, Tarabukin, Viira, von Bitter, Wang, Zhuravlev

**F. Permian.** Aldridge, Alekseev, Clark, Dusar, Harris, Henderson, Ishida, Klets, Kozur, Lai, Lambert, Mei, Metcalfe, Nakrem, Nicoll, Nicora, Orchard, Perri, Purnell, Reimers, Ruppel, Swift, Wang, Zhuravlev

**G. Triassic.** Aldridge, Alekseev, Budurov, Clark, Dusar, Harris, Henderson, Hirsch, Ishida, Kiliç, Klets, Kolar-Jurkovsek, Kovacs, Kozur, Lai, Marquez-Aliaga, Mastandrea, Mei, Metcalfe, Narkiewicz, Nicoll, Nicora, Orchard, Perri, Petrunova, Pevny, Plasencia-Camps, Purnell, Reimers, Swift, Valenzuela-Rios, Wang

H. Palaeobiology. Aldridge, Armstrong, Barnes, Bartlett, Buryi & Kasatkina, Dhanda, Königshof, Plasencia-Camps, Purnell, Sansom, Smith, Szaniawski, Wickström, Zhuravlev

I. CAI. Belka, Blanco-Ferrera, Boncheva, Budurov, García-López, Harris, Königshof, Lambert, Lehnert, Perri, Piecha, Pondrelli, Repetski, Sanz-López, Tarabukin, Zhuravlev

**J. Geochemistry.** Barnes, Belka, Dopieralska, Ghavam, Girard, Lehnert, Nowlan, Ruppel, Scomazzon, Spalletta, Trotter

K. Morphometrics. Girard, D. Jones, Klapper, Purnell.

### **RESEARCH REPORTS**

Guillermo L. Albanesi. I am working on projects dealing with Lower Paleozoic conodont faunas from the Argentine Precordillera, Famatina System, and NW Argentine basins. In particular, I am developing high resolution conodont biostratigraphy linked to graptolite records (studied by Gladys Ortega), and trying to assemble an integrated biostratigraphic chart for the Ordovician and Silurian Systems of Argentina. Other projects involve the participation of colleagues from different universities in Argentina, Spain, USA, and Canada, who are working on related topics in the historical geology of the Lower Palaeozoic. One of the goals we are pursuing in the current year is the proposal of a global stratotype for the base of the Middle Ordovician Series in the Argentine Precordillera. In addition, I am involved in the organization of the "9th International Symposium on the Ordovician System, International Graptolite Conference, and Field Meeting of the International Subcommission on Silurian Stratigraphy" and related field trips that will be held in San Juan, Argentina, on August 18-21 2003 (see web site: http://www.cricyt.edu.ar/2003.htm).

**Dick Aldridge.** 2002 was another year of administration, management and bureaucracy, alleviated by the excitement of ECOS VIII, ICP2002 and a visit to China. The latter was partly to further a collaborative project on Permian-Triassic conodont turnover (with Lai Xulong, Mark Purnell, Mike Orchard and Andrew Swift) and partly to visit the pre-euconodont Chengjiang biota. A five-week field trip to South Africa also produced another *Icriodella*-like bedding-plane assemblage from the Upper Ordovician Soom Shale. Progress on other projects continued to be sadly slow, and I am indebted to my collaborators for keeping most of these moving.

**Alexandr S. Alekseev.** My investigations continue on Devonian - Triassic conodonts from the East European Platform, Urals and Crimea. Now I am concentrating upon Moscovian - Gzhelian conodonts from the Moscow Basin and South Urals. The description of Moscovian conodonts was published recently.

**Howard A. Armstrong**. My research this year has focused largely on the palaeobiology and growth of euconodonts. The former has resulted in two papers. The

latter was presented at ECOS VIII and will appear during 2003. Attention is now focused on heterochrony in euconodont evolution.

Chris Barnes. I am winding up the extensive field-based Lower Paleozoic conodont studies in the Canadian Cordillera with a series of papers with Leanne Pyle, recently published or in press with others in preparation. They involve four detailed platform to basin transects that have been sampled in the southern, central and northern Rocky Mountains. Work with Shunxin Zhang is using my extensive conodont database to relate conodont biostratigraphy, biofacies and biogeography to the pattern of eustasy and tectonism that affected northern Laurentia in the early Palaeozoic. Several joint papers have appeared recently with others in press/preparation that deal with conodont taxonomy, evolution, paleoecology, cladistic analyses and the response of the conodont communities to eustatic change. The geochemistry of conodonts is being pursued further in collaboration with Julie Trotter (Australian National University). Other work completed, nearing completion or in process includes: Ashgill-Wenlock conodonts from the Canadian Arctic with David Jowett; Ashgill conodonts from the Whitland section, South Wales with Annalisa Ferretti; Nd isotope work with Cindy Wright and Stein Jacobsen with one paper published and one in preparation.

**James E. Barrick**. I continue working on several projects involving Silurian and Pennsylvanian conodonts with a number of colleagues.

**Igor S. Barskov.** My recent research is on conodonts from the Serpuchovian type section in the Russian Platform.

**Rod Bartlett.** I am researching the *Neogondolella* apparatus, and developing a physical model of a conodont animal.

**Jeff Bauer**. My research on Ordovician conodonts from the Simpson Group (South-central Oklahoma) continues.

**Zdzisław Belka.** I am 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.** I continue my research on Devonian and Carboniferous conodonts of the Rheinische Schiefergebirge.

**Silvia Blanco-Ferrera.** I am actively working on Carboniferous conodonts from the Cantabrian Mountains, particularly relating to biostratigraphical application and the determination of CAI values. At this moment I am preparing two articles concerning the Cares River geological section.

**Iliana A. Boncheva.** I work on Devonian and Carboniferous conodonts from Bulgaria and Turkey (taxonomy, biostratigraphy, stratigraphical and tectonic correlations; colour and textural alterations of the conodonts).

**Lewis M. Brown.** I continue to work with Carl Rexroad and Lake Superior State University undergraduate students on various Pennsylvanian projects.

**Kiril Y. Budurov.** My research is concentrated on the following main topics: continuation of my study on the colour of Triassic conodonts; working on a monograph of the Triassic conodonts of Bulgaria.

**Pierre Bultynck.** I finished a manuscript on Devonian Icriodontidae for the ECOS VIII volume of *Revista Espanola de Micropaleontogia*. I am preparing manuscripts on Emsian conodonts from southern Morocco and on Frasnian-Famennian conodonts from the Tafilalt (S Morocco).

**Galina I. Buryi** and **Alla P. Kasatkina.** We are working on a comparative histological study of the tooth apparatuses of conodonts and chaetognaths, and on a problematic tooth from a depth of 5000m in the Central Atlantic.

**Verónica Castelló Corraliza.** I am from Spain and I study at the University of Valencia (Spain). I am going to start my PhD in Frasnian-Famennian conodonts from the Central Pyrenees next February under the supervision of. Prof. José Ignacio Valenzuela Ríos (Nacho). At the present moment we are working on an evolutionary study of *Icriodus steinachensis* from the Pyrenees, with the purposes of: 1) trying to improve understanding of its evolutionary mode; 2) testing its biostratigraphical value and 3) evaluating its correlation potential for Pragian sequences.

**David L. Clark.** I am helping with some Permo-Triassic material from Nevada collected by Diane O'Connor and Walter Alvarez at Berkeley. Permian faunas from what has been described as Triassic, and some new Early Triassic genera are the most interesting finds. I still want to complete work on some early Permian faunas from northcentral Nevada, but spend too much time at the ocean and sampling the many gourmet restaurants in the Sonoma Valley to finish the job.

**Damian Cole.** I continue to work on conodonts from numerous small Silurian limestone bodies in the vicinity of Michelago and the Wombeyan Caves of New South Wales.

**Carlo Corradini.** I'm working on the Silurian and the Lower Devonian of the Carnic Alps, and on the Silurian to Lowermost Carboniferous of Sardinia.

**Rosie Dhanda.** I am continuing to use cladistic analysis to look at the origins of prioniodontid and prioniodinid conodonts through the second year of my PhD. I am also looking at a bedding plane assemblage of *Erismodus*.

Philip Donoghue. I have been working with Dong Xiping (Peking University) on the histology and phylogeny of Cambrian paraconodonts and euconodonts in general, based especially on Xiping's vast collections from Hunan, Wuhan and Liaoning; a number of papers have been submitted or are in advanced stages of preparation, including a reconsideration of the histological similarities and phylogenetic relationships between para and euconodonts (with Ivan Sansom and Paul Smith). A cladistic analysis of 'complex' conodonts (with Dick Aldridge, Mark Purnell and Zhang Shunxin) has been completed and is close to submission. I am also working with Linda Wickström (Birmingham) on the completeness of the conodont fossil record and the relationship between ontogeny, phylogeny and function in Kockelella. I am moving institutions, yet again, this

year, though deviating from the traditional oscillation between Birmingham and Leicester, for a position at the University of Bristol.

**Jolanta Dopieralska.** I have just completed my PhD thesis on neodymium and strontium isotopes in conodonts from Variscan Europe. Several papers on seawater geochemistry and circulation in the Variscan Sea during the Late Devonian are in preparation.

**Michiel Dusar.** Work continues on stratigraphy and structural geology of the Devonian to Triassic subcrop of north Belgium and the Netherlands.

**Jerzy Dzik.** I continue my work on Famennian conodont apparatuses, hoping also to complete a manuscript on conodonts from the Arenig of southern Poland.

Raymond L. Ethington. My report of activities reads much as last year. I have made some progress on a catalogue of the University of Missouri conodont collection — the part covering the contributions of Branson and Mehl and their students is approaching completion, but that leaves me with the additions contributed by my students and me. SEM photographs have been prepared for a joint paper with Jim Miller on Lower Ordovician conodonts from the shore of Lake Michigan and for illustration of the ultrastructure and fused clusters of Ptiloncodus (whatever it is) and of a fragmentary fossil of something that includes multiple occurrences of the doughnut-shaped structures that have been reported as *Phosphannulus* Muller *et al.* Much of the summer was devoted to re-examination of collections from Utah (Ibex area) and Nevada in an effort to clarify the concept of Tripodus Bradshaw. While not as definitive as I hoped, one or more older species than *T. laevis* can be recognized there in the upper Ibexian. SEM photographs of those forms have been prepared and, with luck, I hope soon to have a manuscript to accompany them.

**Barry Fordham.** I continue biostratigraphic studies of conodonts as part of the Geological Survey of Queensland's Yarrol Project - used in a recent discussion of the tectonics of the Yarrol terrane (Murray et al., in press, Australian Journal of Earth Sciences). I hope to find time to return to more efforts conodontological as I settle in to Canberra - I am now with CSIRO Sustainable Ecosystems as Group Leader, National Futures (who model the physical economy of Australia). I have also joined the ANU paleontology discussion group.

**Terry Furey-Greig.** I continue to work on Ordovician and Silurian conodont faunas from the Tamworth Belt of northeastern New South Wales, and (with Ruth Mawson and Andrew Simpson) on biogeographic implications of Late Ordovician to Middle Devonian conodont faunas globally.

**Susana García-López.** I am working on conodonts from the Silurian to the Lower Carboniferous, mainly focusing on biostratigraphy and biofacies. I also continue to work actively on projects dealing with CAI in the Cantabrian Zone and Pyrenees (NW and NE Spain).

**Z'hra M. Ghavam.** I am currently a rising International Baccalaureate senior in the NASA SHARP PLUS research program in Albuquerque, New Mexico. For my research project, I must work closely with a knowledgeable geologist (Dr. Maya Elrick) to collect and explore various Devonian conodont samples and determine their particular half-life and age.

**Hossein Gholamalian.** I am working on four Late Devonian sections in order to determine Frasnian/Famennian boundary and Kellwasser crisis effects in Central Iran.

**Catherine Girard.** My research interests focus on the use of morphometric methods for quantifying evolutionary patterns on the genus *Palmatolepis* across the Late Devonian anoxic events (Kellwasser, annulata and Hangenberg). I also use geochemistry on biological phosphates in order to constrain the palaeoenvironments during the same period.

**Yakut Goncuoglu.** Although retired from the Geol. Survey (MTA), I continue to work on the Lower Palaeozoic of the Taurides and the Istanbul Zone in Turkey. We are planning a correlation project with the Geological Institute BAS (Bulgarian Academy of Sciences) on the Palaeozoic of the Istanbul-Zonguldak and the Balkan terranes. I also continue to work with G. Sarmiento on Ordovician and Silurian conodonts in SW Turkey.

**Vachik Hairapetian.** I am actively working on Devonian and Early Carboniferous shallow water microvertebrates and conodonts from Iranian sections.

**Jack C Hall.** Conodont studies have slowed to a snail's pace. This year has been spent looking at Eocene arthropods, organizing teacher training workshops in earth and environmental science, and filming a TV show. I hope to get back to the Ordovician soon but it looks like it won't be until next summer.

Anita G. Harris. My involvement in Ordovician through Lower Carboniferous conodont biostratigraphy and lithostratigraphy in the North American Cordillera continues with sorties into younger Paleozoic and Triassic rocks as a consequence of consulting projects. I am also involved in producing relatively large-scale CAI maps for targeting areas of hydrothermal potential for gold and other types of mineralization.

Charles M. Henderson. I continue my sequence biostratigraphic research on Upper Paleozoic to Triassic strata from western and arctic Canada, Oman, and China. A major collaborative effort with the Nanjing Institute of Geology and Paleontology is underway with investigations of Kungurian and Lopingian strata in South China with global comparisons. 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. Most of my graduate conducting students are sequence biostratigraphic/petroleum geology studies in the subsurface of southern Alberta to northeastern British Columbia.

**Francis Hirsch.** My research on Triassic conodonts from Japan continues in collaboration with Keisuke Ishida.

**Steve Irwin.** I am Manager for GSC Vancouver conodont microfossil processing laboratory. Our laboratory is currently processing up to 600 carbonate samples per year using buffered acetic acid dissolution techniques and sodium polytungstate as a heavy liquid for density separation. Our facility includes a digital FEI/Philips SEM XL30. My own interest in Late Devonian conodont

platform elements simmers but is limited due to my managerial activities.

**Keisuke Ishida.** I am working on Carboniferous to Triassic conodonts from the accretionary terranes in Japan. With F. Hirsch, I have published a paper on the Izanami plateau, pre-accretionary origin of Japan's low latitude Triassic carbonates, which are characterized by Tethyan rather than Pacific conodont affinities with some specific endemism (Hirsch & Ishida, 2002). We also started magnetostratigraphic research on the Upper Triassic conodont sections.

**Nadya G. Izokh.** I continue active study of conodont collections from Ordovician (Tuva and Salair), Silurian (Gorny Altai), Devonian (Tuva, Altai and Salair) and Lower Carboniferous (Salair) localities.

Lennart Jeppsson. My researches on Silurian conodonts have now resulted in: (1) a revised, more detailed zonation for the 'middle' Homerian that will be published by Mikael Calner & Jeppsson in Geological Magazine in early 2003; Mikael did the sedimentology, I did the conodonts, including describing and naming a couple of stratigraphically important taxa; (2) a paper about the Mulde Event by LJ & MC to be published about the same time in the Transactions of the Royal Society of Edinburgh; conodonts, of course, occupy a prominent place, both for stratigraphy and as victims of the extinctions during the event. Further, correlations in these 2 papers permit a detailed correlation of the conodont and graptolite zonations in the mid Homerian. From a strict conodontological point of view more peripheral results include that our high resolution stratigraphy shows that both extinctions and sedimentological changes began well before any sea level change took place. Hence, the major, very brief sea level change did not cause the event. Next in line for study is the Lau Event (an interval spanning the end of the P. siluricus Zone), a joint project with 12 colleagues. The project starts with a revision of the zonation (range extensions and other discrepancies discovered over the years have made much of the previous zonation unreliable for identification of coeval boundaries), including definition of some subzones. Global correlations using a combination of conodont and 813C data result in considerably increased precision. The result is high precision range ends for the extinctions and appearances of conodonts and other taxa in this interval. Global data on range ends, isotopes and sediments can then be used for interpretations of the cause of the event and the cascade of effects. If all goes as planned, different manuscripts will be finished during 2003 and I can go on to finish revision of the local stratigraphy of the O. s. rhenana Zone. Better range end data permit recognition of several subzones, at least some of which should have a wider usefulness

**David I. Johnston.** After several years of relative inactivity, I am working in collaboration with Charles Henderson on Late Devonian to early Mississippian conodonts from western Canada. Topics of investigation include biostratigraphy, paleobiology, paleoecology and taphonomy. I have also resumed preparation of a manuscript on the paleoecology of Famennian conodonts from the Palliser Formation and Wabamun Group of western Canada.

**David Jones.** I have just started a PhD examining growth and intraspecific variation in the *Ozarkodina excavata* natural assemblages from the Eramosa Lagerstätte (Ontario) using morphometric analysis. After constraining variation here, I will use similar techniques to examine isolated *O. excavata* elements through the Silurian and determine whether or not the species represents a single lineage displaying stasis.

**Gareth Ll. Jones.** I continue to work actively on Dinantian conodonts from Ireland, mostly for commercial biostratigraphy. I also maintain an interest in ichthyoliths.

**Ali Murat Kiliç.** I am continuing my PhD researches on Triassic Conodonts from the Western Taurids and the Kocaeli Peninsula with Profs Onder and Gedik.

**Elena M. Kirilishina.** My recent interests are the Frasnian-Famenian conodonts from central regions of the Russian Platform. I am focussing on the biostratigraphy and phylogeny of *Palmatolepis*, *Polygnathus*, and *Ancyrodella*. I am also studying conodont biofacies, paleoecology, and paleobiogeography in the Late Devonian. The research will be included in my PhD thesis (supervised by Dr. L. I. Kononova).

Gilbert Klapper. A manuscript with Tom Uyeno, D. K. Armstrong, and Peter Telford, on the Frasnian-lower Famennian conodont sequence in the Onakawana B core, Moose River Basin, northern Ontario, was submitted to the Journal of Paleontology in October. Work on the taxonomy and biostratigraphy of the Frasnian-lower Famennian conodont succession in the Canning Basin of Western Australia is continuing. Manuscripts on the New York Frasnian (with Bill Kirchgasser), on the Frasnian-Famennian boundary sequence at Pramosio in the Carnic Alps (with Enzo Farabegoli, Cristina Perri, and Claudia Spalletta), and on shape analysis of Frasnian conodonts (with Catherine Girard and Sabrina Renaud) are in various stages of progress. I attended the ECOS VIII meeting and was impressed with the symposium organized by Mark Purnell and Phil Donoghue on "Bias and Completeness in the Conodont Fossil Record.'

**Mark Kleffner.** I continue to work on my joint project with James Barrick, a revision of a conodont-, graptolite-, and chitinozoan-based Silurian chronostratigraphy. I now hope that the manuscript text will be completed by the time this summary is printed. I am also currently working, or will soon begin working, on joint Silurian conodont projects with James Barrick, Lennart Jeppsson, Michael Murphy, and Christopher Stott and Peter von Bitter.

**Tatyana Vasilievna Klets.** My research on Permian and Triassic conodonts from northeast Asia continues.

**Tea Kolar-Jurkovsek.** After some time spent with Bogdan Jurkovsek on finishing the book 'Carboniferous Forest', I have now returned to conodont study and I am continuing my primary research on the Triassic biostratigraphy of Slovenia. A paper on dasyclad algae from the 'Raibl beds' of the Karavanke Mts. is in press and it contributes to the intercalibration of Upper Triassic conodont and algal zonations. Currently I am taking part, with two teams, in the preparation of two excursions (U. Triassic of Slovenia and L.-M. Triassic of Croatia) for the 22nd IAS Meeting of Sedimentology 2003 to be held in Opatija, Croatia.

**Peter Königshof.** In addition to non-conodont topics (e.g. microfacies of Devonian carbonates), I will continue my research on (1) microboring organisms in conodonts and (2) CAI in Palaeozoic strata in central Europe.

**Ludmila I. Kononova.** I am continuing to study Middle -Late Devonian and Early Carboniferous conodonts. I have published a paper (in collaboration with N.S. Ovnatanova) on polygnathids of Central Regions of the Russian Platform (2001). Recently I have been working with N.S. Ovnatanova on a monograph on Frasnian conodonts of the East Russian Platform (biostratigraphy, biofacies, morphology, ontogeny and phylogeny of conodonts).

**Sandor Kovacs.** I was involved in the meeting of the International Triassic Subcommission (Sept. 6-8, Hungary) on the Anisian/Ladinian boundary.

**Heinz W. Kozur.** My studies on Cambrian to Carboniferous conodonts of Europe and Asia and Permian-Triassic conodonts worldwide continue.

Andrea Krumhardt. I continue to work on Lisburne Group (Carboniferous) carbonates and associated conodonts. Contrary to popular thought, the continual rise of the eastern Brooks Range is not due to tectonics but rather to isostatic rebound from the massive removal of limestone for conodont analyses.

**Mira T. Kurka.** I am teaching at Great Basin College, Elko, NV. I have been fortunate to be able to teach a course in micropaleontology applied to mining, as well as general geology courses. I have resumed research in Paleozoic biostratigraphy in the Great Basin (I have a very small lab), particularly in conjunction with the University of Nevada, Reno. My main interest is still Carboniferous conodonts.

Lai Xulong. I am working on patterns of Permian-Triassic conodont turnover (with Dick Aldridge, Mark Purnell, Mike Orchard and Andrew Swift), and completed a year's stay in Leicester in 2002.

Lance L. Lambert. I am continuing various long-term Carboniferous and Permian projects, including: Moscovian chronostratigraphic boundary studies with the respective working groups; Midcontinent Pennsylvanian and phylogenetic studies with J. Barrick, D. Boardman, P. Heckel, and others; Early Permian biostratigraphy of the Sierra Diablo with S. Ruppel and others; and Guadalupian chronostratigraphic boundary studies with B. Wardlaw, M. Nestell, B. Glenister, and others. I have three graduate students beginning conodont M.S. research: Ben Boyer will study CAIs with regard to contact metamorphism in the Sierra Diablo; Jonas Harrell will study mid Carboniferous faunas in the Sierra Diablo; and Beth Scholl will study conodonts from the subsurface Caddo Limestone of North-Central Texas.

**Oliver Lehnert.** My work on Cambro-Ordovician conodonts and associated microfossils from the dolomite successions of the south-western Great Basin still continues. However, currently I am also focussing on conodonts from the Ordovician and Silurian as well as on some soft body worm fossils from the Barrandian area together with Petr Kraft. The work in the Silurian there is combined with isotopic studies (with Jiri Kriz & Jiri Fryda; Czech Geol. Surv.). With Michel Vanguestine and Pierre Breuer (Univ. Liège ) I am studying Early Ordovician conodonts from greywackes in the Salm Group of Belgium. In co-operation with Jiri Fryda and Alex Nützel (Univ. Erlangen) molluscan faunas from his Early Palaeozoic residues will be documented. With Werner Buggisch and Martin Keller (Erlangen, Germany) a paper is in press dealing with C-isotopes in the Cambro-Ordovician succession of the Argentine Precordillera, another one with Petr Kraft on Ordovician chaetognaths and palaeoscolecidans. The publications with Godfrey Nowlan and Sandy McCracken (GSC Calgary) on the allochthonous conodont faunas from Cambrian-Devonian sections as well as with Carmen Lee and Godfrey on allochthonous faunas from carbonate pebbles in the Tertiary of Ellesmere Island (Canadian Arctic) and with Chris Harrison and Godfrey on the CAI data are almost completed. Together with Werner Buggisch and Michael Joachimski (Univ. Erlangen) I am planning a project on oxygen isotopes from conodont phosphate combined with C-isotope studies from several levels in the Early Palaeozoic and from locations in different palaeolatitudes.

Stephen A. Leslie. I am continuing to work on Middle and Upper Ordovician conodont faunas in northern Arkansas. This research focuses on the conodont biostratigraphy, sequence stratigraphy, and event stratigraphy along the southern margin of the Ozark dome using conodont graphic correlation as a means to determine the timing and duration of unconformities. I am also looking at the Sylvan Shale in Oklahoma for conodonts, but they are quite sparse in this unit. I have isolated a nice little scolecodont fauna from the Sylvan that Mats Eriksson is describing. A student of mine has just started looking at the potential for conodonts from the Blakely Sandstone in the Ouachita Mountains. Some of my attention this year has been on projects other than Ordovician conodonts. Among other projects, I am working with Loren Babcock on aspects of the Cambrian "explosion" and with Andy Karam on the effects of background radiation on the evolution of early life.

Liao Jau-Chyn. I am a PhD student working on Givetian and Lower Frasnian conodonts from the Pyrenees. My main objectives are 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. Last June, I gave a joint presentation with my PhD Advisor, Nacho Valenzuela, at the ECOS VIII meeting in Toulouse.

**Anita Löfgren.** My research on Lower and Middle Ordovician conodont biostratigraphy continues with a forthcoming paper on faunas from lower Middle Ordovician sections in Sweden. Several taxonomic questions have been addressed in this connection. Two such papers (one with T. Tolmacheva on *Drepanodus* and one with Zhang Jianhua on *Lenodus, Eoplacognathus* and *Yangtzeplacognathus*) are in press. Besides helping to solve some local stratigraphical problems by using conodonts, I hope to spend the next year studying a few more taxonomic enigmas and also to continue working with Viive Viira on Lower Ordovician sections in Estonia. Starting in 2003, I shall only be employed half time by my University, which means less money but far more time for serious research, I hope.

**Friedrich W. Luppold.** Middle and Upper Devonian conodont investigations of several sections in the Harz-Mountains are going on.

Peep Männik. I am actively working on the evolution, ecology and taxonomy of Ordovician and Silurian conodonts from the Baltic and Arctic regions and Siberia, and on conodont-based high-resolution stratigraphy. Several joint studies are in progress: composition, distribution and evolution of Silurian conodont faunas with Lennart Jeppsson; comparing Upper Ordovician-Lower Silurian carbonate platform in Estonia and Great Basin: a test of the synchrony of sequences and faunal changes - with Mark T. Harris from the Wisconsin-Milwaukee University and Peter M. Sheehan from the Milwaukee Public Museum; evolution and highresolution stratigraphy of the Early Palaeozoic sedimentary basins in the northern Baltica and Siberia palaeocontinents - with colleagues from Lund, Vilnius, St. Petersburg, Syktyvkar, Ukhta and Novosibirsk; taxonomy, distribution and evolution of Walliserodus with James E. Barrick; integrated conodont and graptolite stratigraphy - with David Loydell from Portsmouth University.

**Ana Márquez-Aliaga.** I am working on conodonts from the Middle Triassic of Spain.

**Carlos Martínez-Pérez.** I am starting my PhD, focussed on the study of Emsian conodonts from the Spanish Central Pyrenees, under the direction of Nacho Valenzuela-Ríos.

Adelaide Mastandrea. I am actively working on Norian-Rhaetian conodont biostratigraphy from Calabria and Basilicata (Southern Italy) and I continue to work on Ladinian-Carnian conodonts from the Dolomites (Northern Italy).

**David Mathieson**. My research on the small limestone intervals in the Cobar-Bourke region of western New South Wales has yielded unexpected and exciting Lochkovian conodont faunas.

**Hanna Matyja.** I am mainly concerned with Middle to Upper Devonian conodont event stratigraphy. I am currently collaborating with Elisabeth Turnau in a linked study of the Middle Devonian conodont and palynomorph biostratigraphy in NW Poland.

**Ruth Mawson.** I have recently completed documentation of small Early Carboniferous conodont faunas from northernmost Pakistan (with Maurizio Gaetani), and from Tirah near the Afghanistan-Pakistan border west of Peshawar, Pakistan (with Fazli-i-Rabbi Khan), and (with John Talent) am presently documenting Late Devonian (Famennian) conodonts from the Greybank Volcanics of east-central Queensland, the late Emsian–Famennian conodont faunas from the Tamworth Belt of northeastern New South Wales, and the late Pragian-Emsian conodont faunas from the Taemas-Wee Jasper area of southeastern Australia. Other work recently published, in press or in progress is listed under the entry for John Talent.

**Sandy McCracken.** I continue to work on Middle to Upper Ordovician, Silurian, and Devonian conodonts from various locations in Canada. A GSC website with images from the GSC photo archives has been created [www.nrcan.gc.ca/gsc/calgary/paleogallery/]

**Tim McHargue.** No current activity, but a continuing interest in Ordovician conodont evolution and biostratigraphy.

**Mei Shilong.** My research on Permian and lower Triassic conodonts from China, North America and South East Asia continues slowly. I have got a Masters Degree in GIS and am looking for a job related to GIS and Geology.

**Carlos A. Méndez.** I am working on Carboniferous (Upper Mississippian and Pennsylvanian) conodonts in the Cantabrian Mountains (North Spain). A project on the biostratigraphy of Upper Moscovian to lower Kasimovian strata is in its final step and part of the results (regarding conodonts) will be published next year. A future joint project is planned on the biostratigraphy of the Bashkirian-Moscovian boundary.

**Glen Merrill.** I continue the long-standing work on Pennsylvanian biostratigraphy and lithogenesis in southeastern Ohio as well as several projects with Peter von Bitter and others.

**Ian Metcalfe.** I continue work on conodonts from Permian-Triassic transition sequences in China with Bob Nicoll. Work on Malaysian (mainly Permo-Triassic) conodonts also continues.

**Ronald Metzger.** I continue to work slowly on Silurian faunas of eastern Iowa and on a collaborative project on Ordovician conodonts with Brian Witzke. With their completion, I hope to resume work on multielement reconstructions of some Givetian faunas from eastern Iowa.

C. Giles Miller. I have been continuing my collaborations with Tiiu Marss and Henning Blom. We published a long article on anaspid fish scales in the Transactions of the Royal Society of Edinburgh and I also submitted a long paper to Palaeontology with Tiiu Marss describing the lodont fish scales and their co-occurrence with conodonts (see two abstract titles). I also attended a Devonian symposium in Russia where I presented preliminary results of some multielemental reconstructions of Frasnian conodonts from Timan Pechora. Following that I collected a suite of 20 samples from the Devonian of the Kozhym River area, Sub-Polar Urals. Processing these samples as well as the Silurian, Gorstian-Ludfordian boundary samples I took last year has progressed very slowly due to closure of my labs during building refurbishment.

James F. Miller. My research on Upper Cambrian and Lower Ordovician conodonts continues. My main area of research continues to be the Ibex area of Utah, but I am also working on material from Texas. With other colleagues, including Ray Ethington, I am working on faunas from Wyoming and Montana, Michigan, and from the Minnesota-Wisconsin-Iowa area (partly based on core material). I am also writing manuscripts (with Lars Holmer and Leonid Popov) on phosphatic brachiopods recovered from conodont samples in Utah; somewhat surprisingly, they appear to have great potential for biostratigraphy.

**Peter Molloy.** A salient part of my research continues to be centimetre-by-centimetre sampling of a superb sequence through the Irevekin Event about the Llandovery-Wenlock boundary (Silurian) at Boree Creek, in the Orange district of NSW. I am also involved in investigation of conodonts from Silurian and Early Devonian sequences elsewhere in eastern Australia and northern Pakistan.

**Bob Morgan**. Results of my research on mid-Devonian conodont studies from the Moore Creek area in northern NSW are in press. I continue to be involved in collaborative work on conodont biostratigraphy (with Ruth Mawson and John Talent) on the Tamworth Belt of NSW.

Jared R. Morrow. Current interests are Late Devonian conodont-based event stratigraphy, extinctions, biofacies, paleoecology, and sequence stratigraphy. In collaboration with Charles Sandberg and Anita Harris, I am studying the conodont-based evidence for the distal and offshore effects of the mid-Frasnian Alamo Impact Event, Nevada. Also working with Charles Sandberg and Roland Dreesen, I am contributing to a revision of late Middle Devonian through Late Devonian conodont range charts.

**Klaus J. Müller**. When processing samples for conodonts, phosphatized small fossils with preserved soft integument, mainly of arthropods, occasionally occur, and can be picked together with the conodonts. In some cases they are hard to spot, but once you have seen them, it becomes much easier. Please contact me if you have such material, even if only a single specimen is available.

**Natalia V. Myshkina.** I study Frasnian and Famennian conodonts from the north and central parts of the Russian Platform.

Hans Arne Nakrem. My research on Carboniferous and Permian conodonts, with a project together with Jan Audun Rasmussen (Copenhagen) and Andrew Swift (Leicester) has progressed slowly, but a manuscript is to be finished this Winter. A bryozoan bioherm (Carboniferous, Moscovian) in Svalbard has been investigated, and the age determined by conodonts (see publication). New material from the Silurian (Wenlock) is being processed, in order to correlate the investigated rocks with rocks elsewhere. I hope that some thelodonts will also be found in the samples.

**Katarzyna Narkiewicz.** I am actively working on the paleogeography of the Muschelkalk conodonts from the Germanic Basin and I continue my research on Middle Devonian conodonts from SE Poland.

Tamara Nemyrovska. My research on early and late Carboniferous condonts continues. I am completing my conodont contribution to a paper with Beate Fohrer (ostracods), Katsumi Ueno (foraminifers) and Elias Samankassou (sedimentology) on the Moscovian of the Donets Basin, Ukraine; this is a part of our multidisciplinary study of the Donets Basin Carboniferous. I am completing a paper on the Viséan conodonts of the Cantabrian Mountains, Palencia, Spain together with M. van den Boogaard, who asked me several years ago to continue his work on this section. The rather deep-water section, with abundant conodonts including thousands of *Vogelgnathus* and diverse Gnathodus and Lochriea, spans the interval from late early Viséan through early Serpukhovian. I also study the conodonts from a section I sampled in Palencia a couple of years ago, which crosses the Mid-Carboniferous

boundary, and a section with the Moscovian/Kasimovian boundary beds. Together with Marie-France Perret and Marcel Weyant I am finishing a paper on the early-mid Viséan of the Bechar Basin, Sahara, Algeria. I continue my duties as a member of the Viséan/Serpukhovian, Bashkirian/Moscovian and Moscovian/Kasimovian Task Groups.

**Robert S. Nicoll.** I have continued working with Permian and Triassic faunas from China and Western Australia (and adjacent areas). Silurian and Ordovician material from the Carnarvon Basin still awaits completion. Two Ordovician papers on *Oepikodus*, one each with Ray Ethington and Ian Stewart, are still in press.

Alda Nicora. I continue my primary researches on Permian and Triassic conodont biochronology and taxonomy. At present I am working on Anisian-Norian conodonts from sequences from Lombardy, Dolomites (northern Italy) and Sicily (South Italy) and on the Permo-Triassic succession of Anatholya (Turkey).

**Rodney D. Norby.** I am still working on Silurian and Mississippian conodonts, primarily from Illinois, when I can, and usually as small parts of other ISGS sponsored projects.

Godfrey S. Nowlan. I am facing a change of career for 2003 because I have been asked to head up a GSC-wide geoscience outreach program in northern Canada. Therefore my contribution to the conodont world is going to be severely curtailed. I am going to try and sustain the following activities: 1, Conodont biostratigraphy and biofacies related to neodymium and carbon isotope signatures and Samarium/Neodymium ratios (with Chris Holmden and Kerrie Fanton, University of Saskatchewan and Fran Haidl, Saskatchewan Geological Survey), with the objective of tracking sea level on the North American craton during the Middle to Late Ordovician. The work has been extended to a new subsurface section in Saskatchewan; 2, Ordovician-Silurian rocky shoreline section on Hudson Bay near Churchill, Manitoba (with Bob Elias and Graham Young). This study involves detailed biostratigraphy as an aid to mapping the rocky shoreline; 3, Working jointly with Oliver Lehnert (University of Erlangen) on a study of clasts in a Tertiary conglomerate on eastern Ellesmere Island; 4, Conodont biostratigraphy of Cambrian to Silurian strata of eastern Ellesmere Island in support of geological mapping by K. Dewing and U. Mayr.

**Olga T. Obut.** I continue working on conodonts from the transitional Upper Cambrian - Lower Ordovician siliceous deposits of the Gorny Altai.

**Mike Orchard.** I continue to work for the most part on Triassic conodonts - their apparatuses, a meaningful suprageneric taxonomy, and multielement based phylogenies; intra-Triassic stage boundaries and their definition (Triassic Subcommission); refinement of Triassic time scale (IGCP project 467); application of conodont biostratigraphy in the Canadian Cordillera (largely Carboniferous, Permian, and Triassic).

**Jeffrey Over.** I continue work on Upper Devonian conodonts in the clastic facies of eastern North America and pursuit of ash horizons that can be dated. New projects include work with Day and Whalen on Frasnian

strata of the Alberta Platform and investigation of strata across the Eifelian-Givetian boundary.

**Soo-in Park.** My research on Middle Carboniferous continues.

Ian Percival. I have continued a very active interest in conodonts from New South Wales in 2002, concentrating on those of Ordovician age from the Koonenberry Belt in the far-western part of the state (a monograph-size manuscript on the Early Ordovician conodont fauna from the region, with co-authors Yongyi Zhen and Barry Webby, has been accepted for Records of the Australian Museum). The other area of focus has been the Ordovician of the Lachlan Fold Belt in central and southern New South Wales, where conodonts occur in cherts associated with deep-water turbiditic successions. A paper documenting a small but biostratigraphically significant fauna from cherts of the Jindalee Group (Lyons and Percival) was published late in the year. Work commenced during the year on a project with Richard Glen (NSW Geological Survey) and Ian Stewart (Monash University) to complete remapping of the exotic Narooma Terrane (far south coast of New South Wales) using Late Cambrian to Early Ordovician conodonts in cherts to constrain the stratigraphy. At the First International Palaeontological Congress at Macquarie University in July 2002, I presented (on behalf of my colleague Dr Zhen) a paper reconsidering existing models of Ordovician conodont biogeography; the manuscript was subsequently submitted for publication and is currently under review.

**Marie-France Perret Mirouse.** I am currently working on Carboniferous conodont faunas from the Pyrenees and Algeria in collaboration with Tamara Nemyrovska, Marcel Weyant, Amina Sebbar and others.

Maria Cristina Perri. I am continuing work on Devonian-Early Carboniferous sequences of the Southern Alps. Research on conodont biostratigraphy across the Frasnian-Famennian boundary in sections from the Carnic Alps is in progress in collaboration with Enzo Farabegoli, Gilbert Klapper, Monica Pondrelli and Claudia Spalletta. I am also involved in research on Permian-Lower Triassic conodonts from the Southern Alps with Enzo Farabegoli. The thermal evolution of Palaeozoic-Triassic sequences of the Carnic Alps utilising Kübler Index (KI) and CAI is under study with Covadonga Brime, Monica Pondrelli, Claudia Spalletta and Corrado Venturini.

**Lyudmila V. Petrunova.** My research is concentrated on the taxonomy, evolution and biostratigraphy of Triassic conodonts from Bulgaria. I work together with Prof. Kiril Budurov.

**Jozef Pevny.** I am working on Anisian to Carnian conodonts from pelagic facies in western and central Slovakia.

**Matthias Piecha.** I am working on Devonian and Carboniferous conodonts from the Rhenish Massif. I continue investigations on low temperature (CAI 1-2) Middle and Late Devonian conodonts from the Paffrath Syncline (Bergisches Land, West Germany) and I continue investigations on conodont biofacies and hiatuses around the Frasnian/Famennian boundary on the Rhenish shelf of north-western Germany especially on boreholes in the region of the city Aachen.

**Pablo Plasencia-Camps.** I am still working on my Master's Thesis on Triassic conodonts from Spain. 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 Triassic genus *Pseudofurnishius*. Also, I am starting to work on Triassic fishes.

**Monica Pondrelli.** My research on the thermal evolution of the Carnic Alps involves a comparison of CAI to KI, this study is collaborative with M.C. Perri, C. Spalletta, C. Venturini and C. Brime.

Mark Purnell. Natural assemblages and their implications remain something of a focus. Work (with colleagues from the British Geology Survey) on a partial skeleton of Distomodus kentuckyensis from Scotland is nearing submission, as is the first of a series of papers with Peter von Bitter dealing with aspects of the exceptionally preserved material from the Late Silurian of Ontario. Related to this, I am working closely with David Jones on morphometric analysis of the elements in apparatuses of Ozarkodina excavata. Projects on Ordovician and Carboniferous assemblages are also ongoing, as is a phylogenetic analysis of Permian and Triasssic conodonts with Dick Aldridge, Lai Xulong, Andrew Swift and Mike Orchard. I have recently started a project with a new research assistant investigating trends in element over- and under-representation. The volume on Bias and Completeness arising from the symposium in Toulouse last year should see the light of day as a Palaeontological Association Special Paper in Palaeontology before next year's Newletter appears.

**Aleksey N. Reimers.** I am continuing to study Permian, Triassic, and Ordovician conodonts from the Russian Platform, Urals and East Siberia. Recently I collected samples from Ordovician xenoliths from kimberlite pipes in East Siberia.

John E. Repetski. One of my major efforts currently is generating CAI maps for basins in the eastern U.S., based mostly on subsurface data from the Ordovician and Devonian. Of course, the major challenges are finding sufficient accessible drill hole material and then teasing enough conodonts from overly-small samples. Other current projects involve mapping-support in metasedimentary rocks of various ages in the Appalachians and elsewhere, and Midcontinent Cambrian-Ordovician biostratigraphy. Numerous other projects, on aspects of Cambrian and Ordovician conodonts, some other phosphatic problematica, various biostratigraphic problems from many places, as well as some systematics, continue forward (usually). Most of these latter efforts are collaborative with fellow Panderers and other good, patient, colleagues. It was really good seeing so many colleagues at ECOS VIII; many thanks to the organizers!

**Carl B. Rexroad.** Primary work is on the Pennsylvanian of the Illinois Basin (Indiana, Illinois, Kentucky, U.S.A.) with Lew Brown and associated students and includes work with Tim Lyons. Both outcrops and cores are being utilized. Upper Mississippian study continues with Joe Devera in the Illinois Basin and a new project has been started with Mitch Blake and Jack Beuthin in the West Virginia area. **Frederick Rogers.** In collaboration with Tom Uyeno, Jack Wendte, and Bob Cochrane I continue to work on conodonts from the Middle Devonian of Southwestern Ontario, and hope to formally report on the results of this research in the near future.

**Stephen C. Ruppel.** I am continuing my studies of the conodont and fusulinid biostratigraphy (with Lance Lambert), the sequence stratigraphy, and the strontium isotope chemostratigraphy of the Lower Permian (Wolfcampian, Leonardian) of West Texas in both outcrop (Sierra Diablo) and the subsurface (Permian Basin).

Charles A. Sandberg. Current interests are Middle to Late Devonian and Mississippian conodont event stratigraphy, extinctions, biofacies, paleoecology, paleobiogeography, and taxonomy. In collaboration with Jared Morrow and Anita Harris, I am gathering conodont evidence on deeper water crater-fill channels, and based on older, blast-fallout conodont faunas, for the depth of crater excavation of the Alamo Impact in Nevada. For a geologic map with Barney Poole, I am completing a study of conodonts from the Devonian platform-to-basin transitional sequence in the southern Hot Creek Range, Nevada. I am continuing preparation of revised late Middle Devonian through Late Devonian range charts in collaboration with Roland Dreesen and Jared Morrow. With Charlie Mason and Dave Work, I am preparing a monogaph on Early Mississippian conodonts and ammonoids of the Borden Delta Complex, northeastern Kentucky, southern Ohio, and southeastern Indiana.

**Ivan Sansom.** Work continues on several fronts: Description and documentation of Cambro-Ordovician vertebrate faunas from North America (with M. Paul Smith, Dave Elliott and Stephen Leslie amongst others); Ordovician fish from Australia (with Alex Ritchie, Bob Nicoll and Carole Burrow); Silurian conodonts from Langkawi Island (with Lee Chai Peng); and syntheses of the palaeobiogeographic distribution of Palaeozoic vertebrates and the origins and early evolution of the vertebrate skeleton (with Paul Smith and Phil Donoghue).

**Javier Sanz-López.** I am still working on biostratigraphy, CAI, biogeography, and systematics of Upper Ordovician, Devonian and Carboniferous faunas from the Pyrenees and also from the Cantabrian Mountains. I am now also involved in a project on the Carboniferous of the Ossa Morena Zone.

**Norman Savage.** I continue to work on Ordovician to Devonian conodonts from Alaska and Russia.

Ana Karina Scomazzon. I am doing my PhD on Pennsylvanian conodonts from the Amazonas Basin, Brazil. I am mainly working on the biostratigraphy and palaeoecology of the genera *Idiognathodus*, *Streptognathodus*, *Diplognathodus*, *Idiognathoides*, *Rhachistognathus*, *Neognathodus* and *Adetognathus*. From November 2002 through August 2003 I am a visiting scholar at the Geological Survey of Indiana, Bloomington, USA, as part of my PhD, working on the correlation of conodonts from the Amazonas Basin and the Illinois Basin. I have also done some preliminary <sup>87</sup>Sr/<sup>86</sup>Sr and <sup>143</sup>Nd/<sup>144</sup>Nd isotopic analyses on conodonts from the Amazonas Basin in an attempt to correlate these data with the Phanerozoic seawater strontium isotopic curve.

**Babak Sedghi.** I have been working on a thesis under the supervision of Dr M. Yazdi on conodonts in the formation khosh yeilaq in eastern Alborz. A middle Devonian (Givetian) age has been determined for the lower part of the section.

**Enrico Serpagli.** I am still involved with an early Ordovician association from Montaigne Noire (with A. Ferretti) and on Silurian material from Bohemia.

Andrew Simpson. 2002 proved to be a very busy year at Macquarie with the onset of IPC2002, nevertheless some interstitial time was available for conodonts. Work continues on detailed analysis of the Late Silurian Lau Event through an interval in the Coral Gardens sequence of the Jack Formation in northern Queensland and comparisons with other synchronous sequences, principally Gotland. This will lead to a number of manuscripts over the next couple of years. It was a great pleasure to introduce 61 international colleagues to the delights of the Broken River region on one of the IPC2002 post-conference field trips. A short paper on the lost carbonate terrain in the nearby Georgetown region is close to seeing the light of day as is one on the Late Silurian to Early Devonian Nowshera limestone in Pakistan. Meanwhile the acid baths at Macquarie continue to yield an engaging array of Silurian conodont faunas for a variety of projects all of which are undertaken in close collaboration with Macquarie University Centre for Ecostratigraphy and Palaeobiology (MUCEP) staff and students. MUCEP is a veritable beehive of Middle Palaeozoic research activity in an otherwise fairly desolate Australian landscape. One entertaining and invigorating project was production of the hybrid science - art exhibition Palaeographia for IPC2002. This show included some beautiful conodont artwork by Sydney artist Dean Oliver. Dean also joined the field trip to Broken River; which provided more inspiration for further works on route.

**Ladislav Slavik**. I am currently working on Lower Devonian conodont biostratigraphy in the Barrandian area. Recently, I have finished a project on Pragian conodont zonation in this region and I have started studies on Lochkovian conodonts of the stratotype area of the Lochkovian stage.

**Paul Smith.** 2002 saw an active year on the conodont front, with work progressing on the phylogenetic relationships of prioniodontids and primitive prioniodinids and ozarkodinids (with Rosie Dhanda and Phil Donoghue) and the architecture of primitive conodonts (with Phil Donoghue, John Repetski and Rosie Dhanda). Together with Ivan Sansom, Phil and I have also been having a fresh look at the biogeography of Early Palaeozoic conodonts, particularly in relation to other primitive vertebrate groups.

**Claudia Spalletta.** I am continuing studies on Early Devonian to Lower Carboniferous conodonts from the Carnic Alps (Southern Alps, Italy). Special attention is focused on stratigraphic sections at the Frasnian/Famennian boundary. The study, including isotopic data, of the first of these sections, Pramosio A, is quite complete. I am also continuing to work on Famennian conodonts from the Montagne Noire. **Dieter Stoppel.** My research on Devonian conodonts of the north-eastern part of the Rheinisches Schiefergebirge (Rhenish Massif) continues slowly. I hope to finish the description of the Mississippian in Germany (with many co-authors) in some weeks.

**Svend Stouge.** My research on Lower Ordovician condonts from South China continues. A manuscript is beginning to look like a monograph and will be complete in 2003. Other activities include work on conodonts from Greenland and from Newfoundland. The latter work includes detailed collecting and integration of conodonts and graptolites across the base of the Middle Ordovician Series. *Tripodus* is also being investigated in detail from the Baltic area. Work on *Milaculum* based on large collections from the Ordovician strata in the Baltoscandian Region is in progress.

**Walter C. Sweet.** I continue to add sections graphically to a growing network that now involves some 400 conodont species and resolves the North American Ordovician into more than 1,000 composite-standard units. Bookkeeping on this project keeps me busy.

**Andrew Swift.** I maintain a main interest in Permian and Triassic conodonts, with a subsidiary interest in Carboniferous forms, but productivity has been relatively low this year.

Hubert Szaniawski. I continue my research on conodont biology, especially on the possible relationship between protoconodonts and true conodonts using collections of Cambrian and Early Ordovician conodonts from different regions. In co-operation with Prof. Klaus Müller, I continue systematic description of Middle Cambrian protoconodonts from the Georgina Basin, Australia.

John Talent. My period as president of the International Palaeontological Association, the umbrella group for palaeontological societies worldwide, concluded at the First International Palaeontological Convention (IPC-2002) held at Macquarie University, Sydney, in July 2002. At this meeting there were 26 oral and poster presentations on conodonts. Having IPC-2002 behind me, as well as IGCP 421, North Gondwana mid-Palaeozoic biodynamics (joint-leader with Raimund Feist, Montpellier) has enabled me to pick up the threads of several conodont-based projects with Ruth Mawson, Peter Molloy, Andrew Simpson and other colleagues. Principal among these projects are conodont correlations and chemostratigraphy in Gotland and Australia through the Lau Event (Late Silurian) (with Lennart Jeppsson), and stratigraphic alignments (conodontbased) connected with the Benambran Orogeny (earliest Silurian) in eastern Australia. A paper (with Eric Draganits, Ruth Mawson and Leo Krystyn) on Givetian-Tournaisian conodont faunas from the Lipak Formation of Spiti, northwest India, appeared early in 2002. Papers on correlations of the Silurian of Australia and New Guinea (with Ruth Mawson and Andrew Simpson), and of India and adjoining regions (with O.N. Bhargava, Chandigarh) appeared recently. Another (with Covadonga Brime and Ruth Mawson) on conodont CAI data and Kübler Indices for the Late Ordovician-Early Carboniferous sequences of the Townsville hinterland in northeastern Australia is in press.

**Vladimir P. Tarabukin.** I am continuing studies of Ordovician, Devonian and Lower Carboniferous conodonts, and investigate the biostratigraphy, paleoecology and biofacies of Ordovician conodonts of North-Eastern Asia. I am especially focused on diverse aspects of conodonts from sedimentary xenoliths in kimberlite pipes in the Nakyn region (Siberian Platform) with A.N.Reimers and I.V.Nefedova (MSU). I also undertake CAI studies of Ordovician-Carboniferous rocks in the same areas of N-E Asia.

Julie A Trotter. I am continuing PhD research on conodont geochemistry to clarify the geochemical stability of conodont apatite and the implications for diagenesis. Relationships between major, minor and trace element chemistry, growth structure, and the mineralised tissues of a suite of conodonts have been characterised by LA-ICPMS, electron and ion microprobe, and electron microscopy (TEM and SEM). Continuous, high-resolution compositional profiles through individual conodont elements have revealed systematic compositional differences between the component tissues. Work is continuing to better discriminate primary geochemical signatures from secondary effects and to determine compositional variations in seawater chemistry throughout the Ordovician and Early Silurian. Multiproxy techniques, focused on elemental and isotopic ratios, are being applied to key intervals within the context of geo- and bio-events (stasis, extinctions, radiations) to identify their potential relationships to climate cycles, tectonics and fluxes in ambient seawater chemistry.

**Tom Uyeno.** My collaborative study with Gil Klapper on the Upper Devonian of subsurface northern Ontario has been completed and submitted for publication. My second collaborative study with Jack Wendte on the Middle-Upper Devonian of subsurface central Alberta is progressing slowly.

José Ignacio Valenzuela Ríos. My collaboration with Peter Carls and Mike Murphy aiming at the establishment of a fine biostratigraphic scale for marine Early Devonian rocks that serves as a basis for international correlation continues. We are intensively working on sections in Spain, USA and Barrandia. One of the more important tasks is to try to stabilize taxonomic nomenclature for the studied interval. Peter and I are specially engaged on the Pragian/Emsian boundary and on palaeogeographical interpretations of southwestern Europe during Lower Devonian. Regarding Devonian activities, I have been focussed on the training of 4 PhD students. Three of them are working on conodonts and one in microichthyoliths. We want to biostratigraphically characterize (by means of conodonts) the whole Devonian of a part of the Pyrenees and try to establish an independent microichthyolithbased biozonation for Lower Devonian marine sediments in the Iberian Chains. The first results of this long-term Devonian research are the descriptions of the Givetian conodont sequence and the study of the Givetian/Frasnian boundary in two Pyrenean sections that belonged to two different basins. This work has been carried out in collaboration with Jau-Chyn Liao (aka Teresa). Concerning Triassic issues, I continue collaborating with Ana Márquez-Aliaga and Pablo Plasencia on Triassic rocks from the Western Tethys Realm. One of our main topics now is to better understand the variability of *Pseudofurnishius murcianus*, and to try to decide whether or not all the *Pseudofurnishius* species are valid. As most of you know, I was engaged in organising the last ECOS VIII.

**Viive Viira.** My research on Wenlock-Ludlow boundary beds of Saaremaa, Estonia is now finished and a manuscript completed (with Rein Einasto). A paper on Ordovician Kukruse Regional Stage conodonts (*A. tvaerensis* Zone) with Dick Aldridge and Steph Barrett is in progress. Co-operation with Anita Lofgren continues on early Arenig conodonts of Cape Pakri, Estonia.

**Peter von Bitter.** I am still working with Mark Purnell on the Silurian conodont assemblages from Hepworth, Ontario. The Bias in Conodont Element Recovery paper, that we presented at Toulouse, has taken a lot of effort this year. Glen Merrill and I finished, and submitted to the Journal of Paleontology, a paper on the restudy and reinterpretation of Stauffer and Plummer's Texas types of the Pennsylvanian conodont genus *Gondolella*. We are now planning to conduct the same revision on Frank Gunnell's Pennsylvanian conodont types, which are held at the University of Missouri at Columbia. Rod Norby, Rob Stamm and I still have a much belated paper on the apparatus composition of *Lochriea commutata* on the drawing boards. Perhaps 2003 will be the year of *Lochriea*.

**Wang Cheng-yuan.** My current work is on (1) Mongolian Paleozoic conodonts. Some Mongolian stratigraphic problems have been solved by conodonts. I have some papers that will be published in this year and next year. This year in August I will visit Mongolia again and I will collect Silurian and Devonian conodont samples from W. Mongolia. (2) Ordovician-Silurian conodont mass extinction and recovery in South China. This project is just beginning. (3) Some research work on Permian conodonts from S. China.

**Barry Webby.** I continue to work on various projects with Yong Yi Zhen, Ian Percival and others involving Ordovician conodonts from sequences in New South Wales.

Linda M. Wickström. I am now a third year PhD student at the University of Birmingham, UK. I have completed a cladistic analysis to resolve the phylogenetic relationships of the Silurian genus *Kockelella* and I have also evaluated its fossil record. Further work is also being undertaken focusing on functional morphology and the evolution of feeding strategies. I also study homologies and relationships of taxa previously assigned to Ordovician and Silurian members of the genus *Oulodus*.

**Evgeny A. Yolkin.** I am continuing investigations on Paleozoic conodonts from West Siberia and South Tien Shan together with N.G.Izokh.

**Zhang Shunxin.** I have been working with Dr Chris Barnes at the University of Victoria, Canada. My research interests have focused on Ordovician and Silurian conodont paleoecology, and I have used the development and replacement of conodont communities through time as a signal to reconstruct sea level history. All my studies are based on statistic analysis of Chris's huge conodont collection. Regionally my research has shifted from the Canadian Appalachians to the Canadian Cordillera.

Zhen Yongyi. I am currently working on Ordovician conodont faunas from New South Wales and China in collaboration with Ian Percival, Barry Webby, Jianbo Liu and others. A large joint paper with Ian Percival and Barry Webby documenting the Early Ordovician conodont faunas from the Mt. Arrowsmith and Koonenberry Gap areas of western New South Wales is in press in Records of the Australian Museum. A joint review paper with Ian Percival on Ordovician conodont biogeography, presented to the First International Palaeontological Congress in July 2002, is under the review process. A third joint paper with Ian Percival and John Farrell on the Late Ordovician conodont and brachiopod faunas from the allochthonous limestones in the Late Silurian Barnby Hills Shale of central New South Wales is also in press with the Proceedings of the Linnean Society of New South Wales.

Andrey V. Zhuravlev. I am working on Upper Devonian and Lower Carboniferous conodonts from the north of the Russian Platform, Urals, and Northeast Russia; Upper Permian conodonts from Trans-Caucasus and Far East of Russia. The main fields of interest are conodont histology, functional morphology, biostratigraphy, palaeobiogeography, and CAI. Study of histological features of conodont element regeneration and conodont biochemistry is in progress. Co-operation in these fields is welcome.

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