

**The  
Palaeontological  
Association**

**52<sup>nd</sup> Annual Meeting  
18<sup>th</sup> – 21<sup>st</sup> December  
2008**

**University of Glasgow**

**PROGRAMME**

# The Palaeontological Association

## 52<sup>nd</sup> Annual Meeting

18<sup>th</sup> – 21<sup>st</sup> December 2008

### Department of Geographical and Earth Sciences & Hunterian Museum, University of Glasgow

The programme and abstracts for the 52<sup>nd</sup> Annual Meeting of the Palaeontological Association are outlined after the following summary of the meeting.

#### *Venue*

The meeting will take place in the Sir Charles Wilson Building, 1 University Avenue on the main campus. Information on the University of Glasgow can be obtained from <http://www.gla.ac.uk/>. The Sir Charles Wilson Building is building E15 on the following map. [http://www.gla.ac.uk/media/media\\_1887\\_en.pdf](http://www.gla.ac.uk/media/media_1887_en.pdf)

#### *Accommodation*

Delegates must make their own arrangements for accommodation. Rooms were reserved for the conference in a variety of hotels at a range of prices and within easy reach of the University up until 17 October. Some may still be available in these establishments, although this can no longer be guaranteed. Rooms there and elsewhere can be booked through the University via the Annual Meeting pages on the Pal. Ass. website (<<http://www.palass.org/>>). Links providing information on cheaper, hostel-style accommodation are also provided on the website and there are many other hotels and Bed & Breakfast establishments in the West End of Glasgow, where the University is situated, and in the city centre.

#### *Travel*

The city has excellent rail and motorway links to the rest of the UK. The nearby international airports are served by a wide range of carriers, including budget airlines. Glasgow Airport is 7 miles (11 km) from the University and there is an airport bus to the city centre. Prestwick Airport is 22 miles (35 km) away and has a rail connection to the city centre. See the Glasgow University travel information page for more details.: <<http://www.gla.ac.uk/about/locationmapsandtravel/mapsandtravel/>>/. Please note that parking in the University area is scarce and expensive.

#### *Registration at the conference*

Registration will take place in the Sir Charles Wilson Building, 1 University Avenue. The registration desk will be open from 09.00 – 17.00 on 19<sup>th</sup> – 21<sup>st</sup> Dec. For those arriving on 17<sup>th</sup> December to attend the fieldtrip on 18<sup>th</sup> December, a registration desk will be available in the Gregory Building of the University of Glasgow should you wish to collect your conference pack then. The Gregory Building is on Lilybank Gardens and is building D2 on the campus map [http://www.gla.ac.uk/media/media\\_1887\\_en.pdf](http://www.gla.ac.uk/media/media_1887_en.pdf).

### *Symposium*

A special symposium entitled “Biomaterials – the hard part of palaeontology” will take place in the lecture theatre of the Sir Charles Wilson Building, beginning at 2pm on Friday 19<sup>th</sup> December. This will be followed by a Civic Reception at Glasgow City Chambers, George Square, Glasgow (close to Queen Street mainline station and Buchanan Underground station), commencing at 7pm.

### *Oral and poster contributions*

All oral and poster presentations will take place in the Sir Charles Wilson Building. At the conference, each poster will be assigned a number indicating the location of the poster board for each poster.

Posters will be available for viewing throughout the conference and there will be a dedicated poster session from 9.00 – 10.30 am on Sunday 21<sup>st</sup> December.

### *Annual Address*

The annual address will be given at 17.15 on Saturday 20<sup>th</sup> December by Prof. Jenny Clack on “The emergence of tetrapods: how far have we come in the last twenty years and where can we go in the next?”

### *Drinks Reception & Annual dinner*

There will be a drinks reception in the Hunterian Museum hosted by the Museum and the Geological Society of Glasgow followed by the Annual Dinner in the Bute Hall, the main ceremonial hall of the University. The wine served with the meal is funded by Wiley-Blackwell. The drinks reception will commence at 19.00 and dinner at 20.00.

### *Field excursion*

There will be a field excursion on Thursday 18 December to explore some of the fossiliferous Carboniferous rocks of the Midland Valley of Scotland. 09:00 Departure. Participants should assemble before then in the entrance hall of the Gregory Building on Lilybank Gardens, Building D2 on the campus map available at: [http://www.gla.ac.uk/media/media\\_1887\\_en.pdf](http://www.gla.ac.uk/media/media_1887_en.pdf)

### *Acknowledgements*

We would like to express our appreciation to the following who provided generous financial support: Wiley-Blackwell, The Geological Society of Glasgow, Department of Geographical & Earth Sciences and the Hunterian Museum of the University of Glasgow, EDAX, Oxford Instruments, Gatan, FEI Instruments, Scottish Natural Heritage, The Royal Society, The Geological Society, Informa UK Ltd, Dunedin Academic Press, Thomas Tunnocks Ltd and the Paleontological Institute at the University of Kansas.

**Maggie Cusack, Alan Owen & Neil Clark**

# Schedule of events and timetable for presentations

## Thursday 18<sup>th</sup> December

9:00 Departure for Field Excursion to examine fossiliferous sites in the Carboniferous of the Midland Valley. Participants should assemble before then in the entrance hall of the Gregory Building on Lilybank Gardens (Building D2 on the campus map available at: [http://www.gla.ac.uk/media/media\\_1887\\_en.pdf](http://www.gla.ac.uk/media/media_1887_en.pdf))

## Friday 19<sup>th</sup> December

### Symposium

The meeting will take place in the Sir Charles Wilson Building at the University of Glasgow (E15 on University map: [http://www.gla.ac.uk/media/media\\_1887\\_en.pdf](http://www.gla.ac.uk/media/media_1887_en.pdf)) where registration will also take place, 09:00-17:00.

The speakers and their topics at the half-day symposium “**Biomaterials – the hard part of palaeontology**” on the afternoon of Friday 19 December will be:

- 14:00 Common mechanisms of biomineralization and the implications for the evolution of hard tissues**  
Prof. Steve Weiner (Weizmann Institute of Science, Israel)
- 14:30 The history of biocalcification in the sea: observations and experiments**  
Prof. Steven Stanley (University of Hawaii, USA)
- 15:00 Multiple origins of animal skeletons and dynamic adaptive evolution documented by molluscan shell matrix proteins**  
Dr. Kazuyoshi Endo (University of Tsukuba, Japan)
- 15:30 Coffee**
- 16:00 Isotope record of Phanerozoic seawater as recorded by fossil shells**  
Prof. Jan Veizer (University of Ottawa, Canada)
- 16:30 Trend in limestone formation from the Archaean to the Present**  
Prof. Peter Westbroek (University of Leiden, The Netherlands)
- 19:00 Civic reception in the Glasgow City Chambers**

## Saturday 20<sup>th</sup> December

Oral presentations

\* Candidates for the President's Award are marked with an asterisk

The meeting will take place in the Sir Charles Wilson Building at the University of Glasgow (E15 on University map: [http://www.gla.ac.uk/media/media\\_1887\\_en.pdf](http://www.gla.ac.uk/media/media_1887_en.pdf)) where registration will also take place, 09:00-17:00.

**8:45**    **Introductory remarks**

### *Preservation and Taphonomy*

- 9:00**    **Soft tissue preservation in Late Triassic lacustrine deposits from Solite Quarry, Virginia, USA**  
Patrick J. Orr, Stuart L. Kearns, Derek E. G. Briggs, Nicholas C. Fraser, Diane Johnson, Matt Kilburn and John Wade
- 9:15**    **Experimental degradation of vertebrates: taphonomy of keratinous tissues and implications for the fossil record**  
Maria E. McNamara \* and Patrick J. Orr
- 9:30**    **An experimental investigation of isotopic changes during early diagenesis: Implications for palaeontological studies**  
Jo Hellowell \*, Cris J. Nicholas and Robbie Goodhue
- 9:45**    **Earliest Cretaceous 'firestorm amber' with spiders webs, from the ~140 Ma dinosaur trackway beds of Bexhill**  
Martin Brasier, Laura Cotton and Jamie Hiscocks
- 10:00**    **Pyritized olenid trilobite faunas of upstate NY: Palaeoecology and taphonomy**  
Úna C. Farrell and Derek E. G. Briggs
- 10:15**    **Modes and distribution of exceptional preservation in the Builth Inlier (central Wales): the volcanic connection**  
Joseph P. Botting and Lucy A. Muir
- 10:30**    **Coffee and Posters**

## ***Biominerals***

- 11:00 Spikey bivalves: intra-periostracal crystal growth in anomalodesmatans**  
Antonio G. Checa and Liz Harper
- 11:15 Pachythecalids, the rugosan origin of the Scleractinia**  
Jean-Pierre Cuif
- 11:30 Using skeletons of extinct and extant bryozoans to test the calcite-aragonite seas hypothesis**  
Marcus M. Key, Abigail M. Smith and Dennis P. Gordon
- 11:45 Determining the microstructure of the lenses in the schizochroal eyes of trilobites**  
Clare Torney\*, Martin R. Lee, Alan W. Owen, Robert W. Martin and Paul R. Edwards
- 12:00 Mineralogy of coleoid cephalopod shells: evolution or diagenesis?**  
Y. Dauphin
- 12:15 Isotopic analysis of the life history of the enigmatic squid *Spirula spirula*, with implications for studies of fossil cephalopods**  
G. D. Price, R. J. Twitchett, C. Smale and V. Marks
- 12:30 Lunch**

## ***Proterozoic – Early Cambrian life***

- 13:30 Taphomorphs and taxonomy of the Ediacara Biota in Avalonia**  
Alexander G. Liu \*, Duncan McIlroy, Jonathan B. Antcliffe and Martin D. Brasier
- 13:45 Making ‘census’ of Ediacaran communities in Charnwood Forest**  
Phil Wilby, John Carney, Mike Howe and Helen Boynton
- 14:00 Doushantuo fossils are not giant bacteria, but bacterial pseudomorphs of animal embryos**  
Elizabeth C. Raff, Kaila L. Schollaert, David E. Nelson, Philip C. J. Donoghue, Ceri-Wyn Thomas, F. Rudolf Turner, Barry D. Stein, John Cunningham, Xiping Dong, Stefan Bengtson, Therese Huldtgren, Marco Stampanoni, Yin Chongyu and Rudolf A. Raff
- 14:15 A Lower Cambrian radiolarian from Australia with entactinarian affinities: Implications for the emergence of the Rhizaria**  
Taniel Danelian and Stefan Bengtson
- 14:30 Review of bradoriid and phosphatocopid arthropods from the Early Cambrian of South Australia**  
Timothy P. Topper, Christian B. Skovsted, Glenn A. Brock and John R. Paterson

**14:45 New insights into early animal diversity, evolution and ecology from the Lower Cambrian fossil archive of South Australia**  
Glenn A. Brock, Christian B. Skovsted, John R. Paterson, Lars E. Holmer and Timothy P. Topper

**15:00 Coffee and Posters**

*Functional Morphology*

**15:30 Trilobite eyes and their visual systems**  
B. Schoenemann and E. N. K. Clarkson

**15:45 The function of forks: The asaphid-type hypostome**  
Thomas A. Hegna

**16:00 Fossil evidence for the origin of spider spinnerets, and a new arachnid order**  
Paul Selden

**16:15 3-dimensional analysis of dental complexity in high fibre plant feeders**  
I. Corfe, S. Zohdy, A. Evans, P.C. Wright, G. Wilson and J. Jernvall

**16:45 Annual General Meeting**

**17:15 Annual Address: The emergence of tetrapods: how far have we come in the last twenty years and where can we go in the next?**  
Jennifer A. Clack

**19.00 Reception at the Hunterian Museum**

**20.00 Annual Dinner in the Bute Hall (opposite the Hunterian Museum) (including post-dinner bar)**

The Hunterian Museum and Bute Hall are located in the Gilbert Scott Building, University of Glasgow (A15 and A13 on University map:  
[http://www.gla.ac.uk/media/media\\_1887\\_en.pdf](http://www.gla.ac.uk/media/media_1887_en.pdf))

## Sunday 21<sup>st</sup> December

Oral\* and poster presentations

\* Candidates for the President's Award are marked with an asterisk

Sir Charles Wilson Building at the University of Glasgow (E15 on University map:  
[http://www.gla.ac.uk/media/media\\_1887\\_en.pdf](http://www.gla.ac.uk/media/media_1887_en.pdf))

### *Poster Session*

*Coffee available from 10:00*

**9:00 Delegates are requested to stand by their posters**

### *Environment and Ecology*

**10:30 Patterns of shell damage and repair in Recent terebratulide and rhynchonellide brachiopods from Doubtful Sound (New Zealand)**  
Liz Harper, Miles Lamare and Daphne Lee

**10:45 Bivalve sclerochronology and climate change: evidence of global warmth and fluctuating oceanic heat supply from the Pliocene of the southern North Sea Basin**  
Andrew Johnson, Annemarie Bird, Jonathan Hickson, Bernd Schöne, Peter Balson, Tim Heaton and Mark Williams

**11:00 The Burning Question: New limits for combustion in low oxygen redefine palaeoatmospheric predictions for the Mesozoic**  
C. M. Belcher and J. C. McElwain

**11:15 Taphonomic controls on trilobite associations in the Silurian reefs of North Greenland**  
Helen Hughes and Alan Thomas

**11:30 Pioneering Carboniferous ostracods: their first non-marine colonisation**  
Carys E. Bennett \*

**11:45 Insect traces in antarctic fossil forests: a comparison with modern forests in Chile**  
Claire M. McDonald \*, Jane E. Francis, Steve G. A. Compton, Alan. Haywood, Allan C. Ashworth, Luis Felipe Hinojosa and John Smellie

**12:00 Experimental ichnology - now with crocodiles!**  
Jesper Milàn

**12:15 Using computer simulation to explain variation in fossil vertebrate tracks**  
Peter L. Falkingham, Phillip L. Manning and Lee Margetts

**12:30 Lunch**



### *Biodiversity Change*

- 13:30 A Gondwanan view on the diversity and ecology of Ordovician fish**  
Ivan Sansom, Neil S. Davies, Alex Ritchie, C. Giles Miller, Guillermo Albanesi and Robert S. Nicoll
- 13:45 The Ordovician Biodiversification: geologically or biologically triggered?**  
Thomas Servais, David A.T. Harper, Jun Li, Axel Munnecke, Alan W. Owen and Peter Sheehan
- 14:00 Recognising the Taghanic Event in the Devonian terrestrial environment and its implications for understanding land-sea interactions**  
J. E. A. Marshall, J. F. Brown and T. R. Astin
- 14:15 Growth rates and longevity in ‘Lilliput’ animals in the aftermath of the Late Permian extinction event**  
Brett Metcalfe \* and Richard J. Twitchett
- 14:30 Symbiont bleaching in fossil planktonic foraminifera and extinction in the latest middle Eocene**  
Bridget S. Wade, Nadia Al-Sabouni, Chioma Udeze, Richard K. Olsson and Christoph Hemleben
- 14:45 Unravelling the history of the Indo-West Pacific marine biodiversity “hotspot”**  
Laura McMonagle \*
- 15:00 Coffee and Posters**

### *Evolution and Phylogeny*

- 15:30 Evaluating phylogenetic hypotheses of carpoids using stratigraphic congruence indices**  
Imran A. Rahman \*, Mark D. Sutton and Mark A. Bell
- 15:45 Exploration of fossil floras on the volcanic oceanic islands of Macaronesia, as an important part of resolving complex botanical questions and biogeographical patterns**  
Cajsa Lisa Anderson, Alan Channing and Alba B. Zamuner
- 16:00 The deep evolution of Metazoan microRNAs**  
Alysha M. Heimberg, Benjamin M. Wheeler, Erik A. Sperling and Kevin J. Peterson
- 16:15 Hot spring ecosystems through time: Homes for endemics, hot spring specialists or widespread but pre-adapted generalists?**  
A. Channing, A. Zamuner, D. Guido and D. Edwards

**16:30 Unlocking character preservation before chordate skeletonization:  
decay of the cephalochordate *Branchiostoma***

Robert S. Sansom\*, Sarah E. Gabbott and Mark A. Purnell

**16:45 Dinosaur Origins and radiations: numerical approaches in  
macroevolution**

Michael J. Benton

**17:00 Announcement of prize winners and close of meeting**