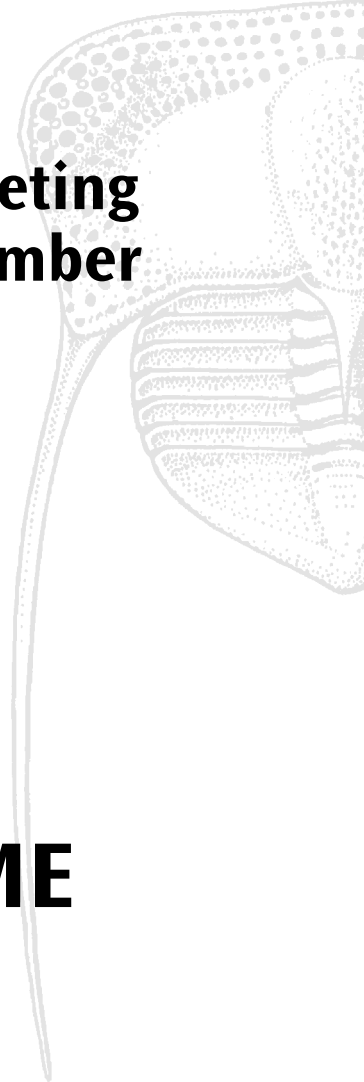


**The
Palaeontological
Association**

**60th Annual Meeting
14th–17th December
2016**

*Université Claude
Bernard Lyon 1
Lyon, France*

PROGRAMME

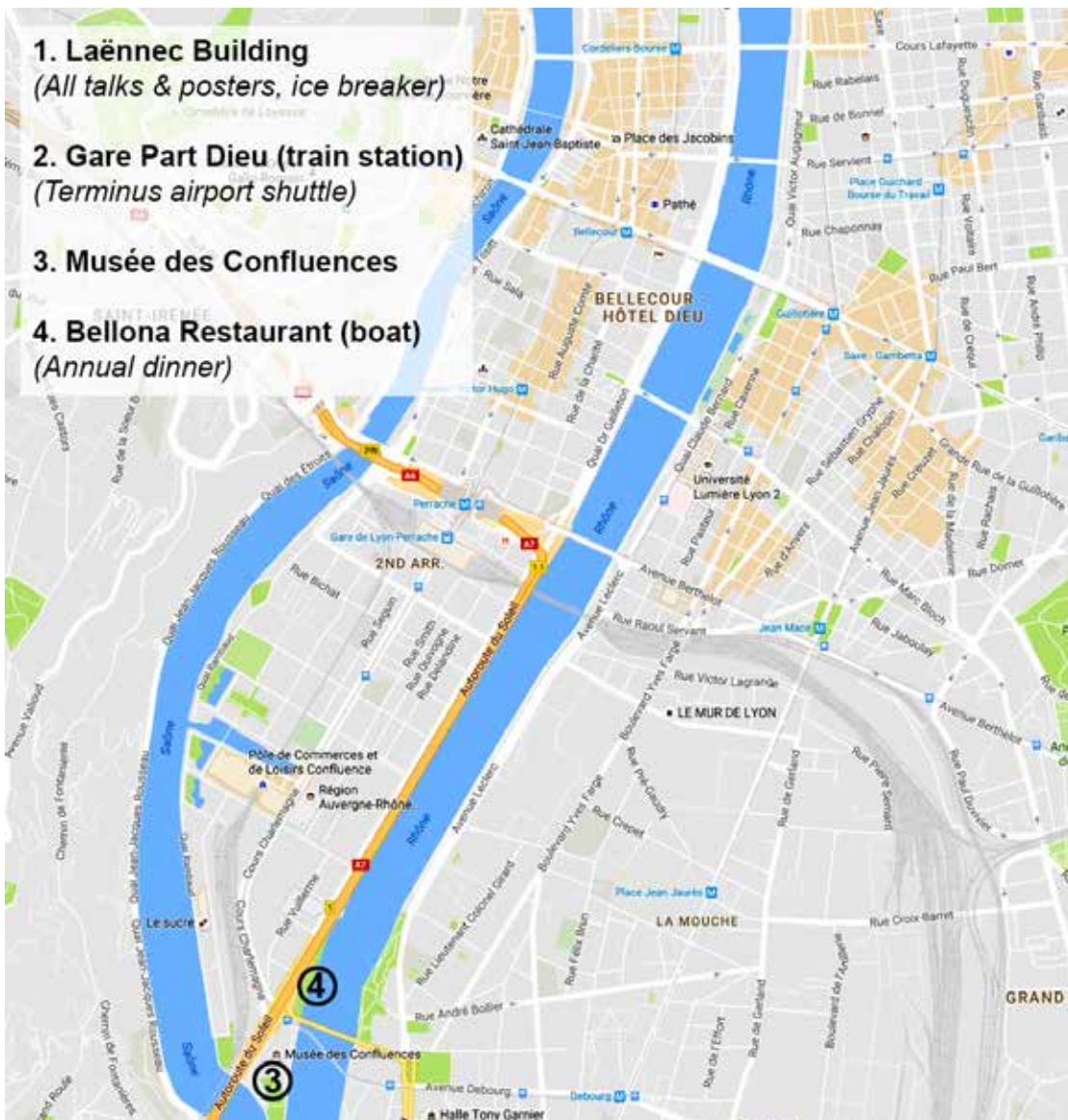


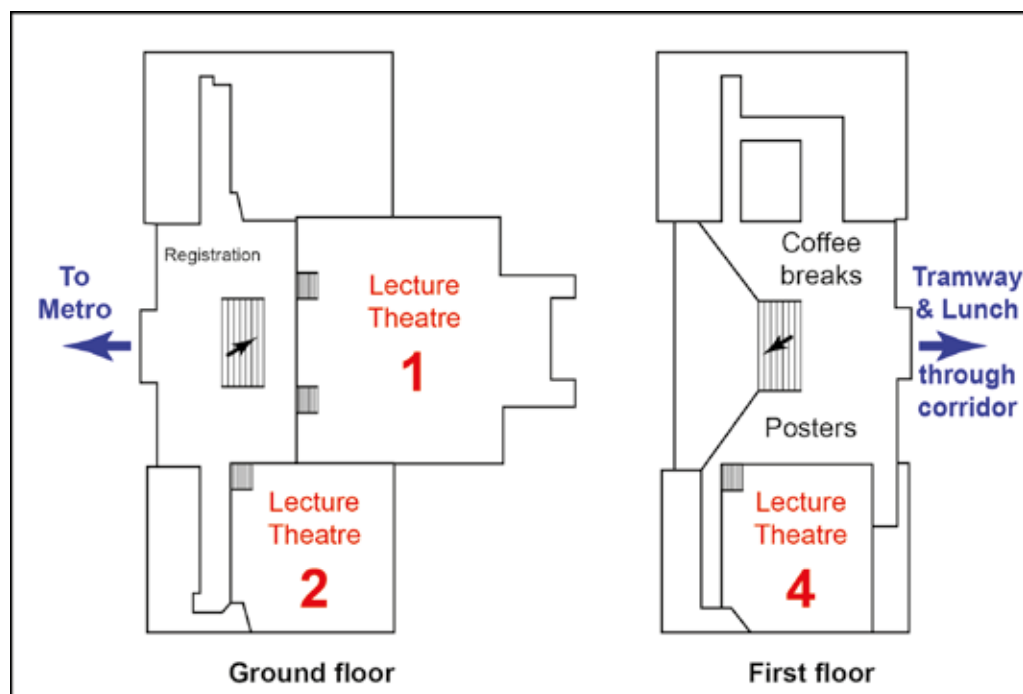
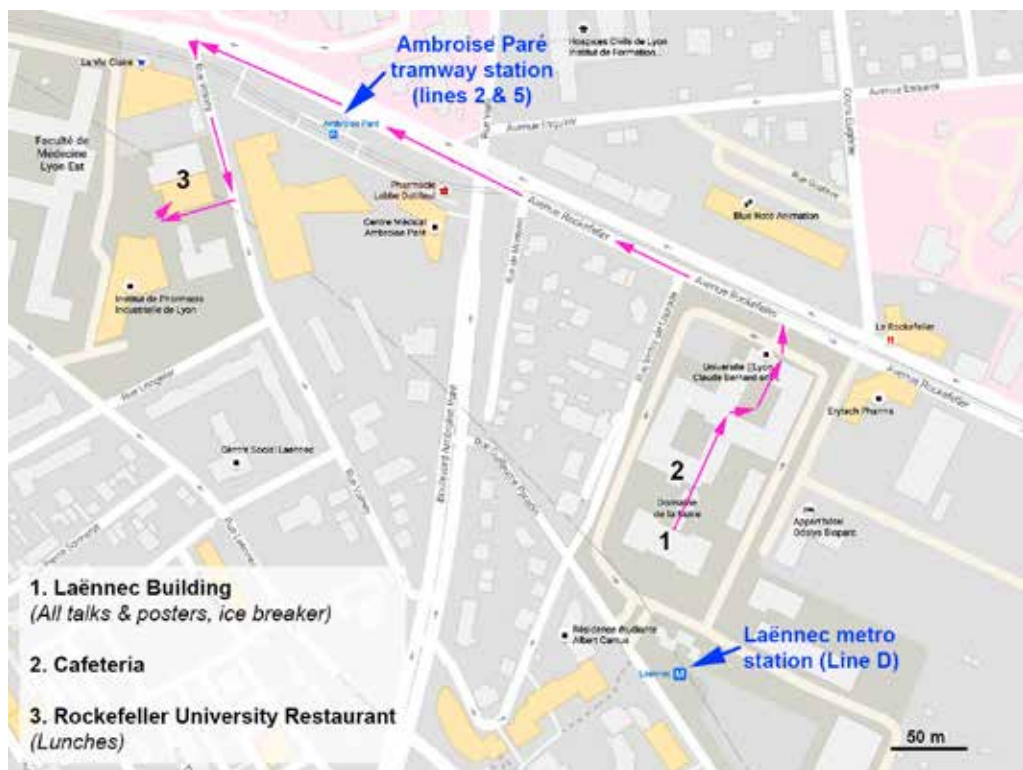
1. Laënnec Building
(All talks & posters, ice breaker)

2. Gare Part Dieu (train station)
(Terminus airport shuttle)

3. Musée des Confluences

4. Bellona Restaurant (boat)
(Annual dinner)







The Palaeontological Association

60th Annual Meeting

14th–17th December 2016

University Claude Bernard Lyon 1

The programme for the 60th Annual Meeting of the Palaeontological Association is provided after the following summary of the Meeting. An abstract booklet including details of the AGM will be distributed at the Meeting.

Venue

The Conference will take place at the Laënnec Campus, Domaine de la Buire, University Claude Bernard Lyon 1 (Metro line D, station 'Laënnec'; tram T2 or T5, stop 'Ambroise Paré') in the eastern part of Lyon.

Registration and booking

The final deadline for registration is **15th November 2016**. No refunds will be available after the final deadline. Registration and payment (by credit card) are via online forms available on the Palaeontological Association website (<<http://www.palass.org>>). Accommodation must be booked separately (see below). The cost of registration includes hot lunches on Thursday and Friday, the icebreaker reception on Wednesday evening, full registration package and tea/coffee from Wednesday through to Friday. The Annual Dinner costs €60 and will be held at a restaurant on the banks of the river Rhône. The evening will begin with an optional tour of the Musée des Confluences.

Oral Presentations

All speakers (apart from the symposium speakers) have been allocated 15 minutes. You should therefore prepare to present for only 12 minutes to allow time for questions and switching between speakers. We have a number of parallel sessions in adjacent theatres so timing is especially important. All of the lecture theatres have an A/V projector linked to a large screen. All presentations should be submitted on a memory stick and checked the day before they are scheduled. This is particularly relevant for Mac-based presentations as UCBL is PC-based.

Poster presentations

Poster boards will accommodate an A0-sized poster presented in **portrait** format only. Materials to affix your poster to the boards will be available at the meeting.

Travel grants to student members

The Palaeontological Association runs a programme of travel grants to assist student members (doctoral and earlier) to attend the Annual Meeting, in order to present a talk or poster. For the Lyon 2016 meeting, grants of up to €100 (or the euro equivalent) will be available to student presenters who are travelling to Lyon. The actual amount available will depend on the number of applicants and the distance travelled. Payment of these awards is given as a disbursement at



the Meeting, not as an advance payment. Students interested in applying for a PalAss travel grant should contact the Executive Officer, Dr Jo Hellawell (e-mail <executive@palass.org>) once the organizers have confirmed that their presentation is accepted, and before 1st December 2016. Entitle the e-mail "Travel Grant Request". No awards can be made to those who have not followed this procedure.

Lyon

Lyon (<www.onlylyon.com/en/visit-lyon.html>), capital of Gaul, is an ancient Roman city and a UNESCO World Heritage Site. It is also a capital of gastronomy with, among many others, Paul Bocuse Michelin-starred restaurants. It is situated near famous vineyards (e.g. Beaujolais, Côtes du Rhône). The world-renowned Fête des Lumières (festival of lights) will take place a few days prior to the Meeting (8–11 December).

Getting to Lyon

By Train:

The centre of Lyon is connected to all major French cities by the high-speed TGV trains via the three stations of Perrache, Part Dieu and Lyon-Saint Exupéry. Lyon Part-Dieu railway station is just two hours from Roissy CDG airport by TGV, and there is also a direct connection from London St Pancras to Lyon Part-Dieu, but only on Saturdays during December. For the rest of the week, you'll need to change train either in Lille or in Paris. It is easier to do so in Lille, as in Paris you need to change stations (from Gare du Nord to Gare de Lyon). For information see <<http://www.eurostar.com/>>.

By Coach:

Lyon is served by a few regular coach services from towns and cities across France; these are often cheaper than trains. For information see Starshipper Bus (<http://www.starshipper.com/en/destinations-map_p243>) and Flixbus (<<http://www.flixbus.com/>>).

By Car:

There is limited parking around the University, and almost none on campus, so driving to the meeting venue is not the best option. Lyon is two hours away from the Alps. Distances from other cities by road:

- Paris-Lyon: 465km (A6);
- Marseille-Lyon: 315km (A7);
- Genève-Lyon: 149km (A40);
- Montpellier-Lyon: 303km (A7-A9).

By Plane:

Lyon Saint Exupéry International Airport offers more than 115 direct connections, including regular flights to 68 international destinations, daily flights to 29 destinations in France, and low-cost airline connections to several European destinations. There are direct connections to Lyon for participants arriving at Paris CDG Airport by plane or by train.

An express tramway, Rhônexpress, links the Lyon Saint Exupéry airport to the central Lyon Part-Dieu railway station in 25 minutes, with departures every 15 minutes guaranteeing safe swift access to the heart of the city. Note that it is cheaper to buy tram tickets in advance on the Internet or at the station than inside the trams. Website: <<http://www.rhonexpress.fr/>>.



Public Transportation in Lyon

The network of metros, trams and buses of the TCL (Transports en Commun Lyonnais – Lyon Public Transportation) enables rapid and easy transport throughout the city and its suburbs via four metro lines, five tram system lines, two cabin transport lines and more than 130 urban bus lines.

The Domaine de la Buire is served by Metro D, two tram lines (T2 and T5), and six bus lines (C8, C13, C16, C22, C26 and 24), station 'Laënnec' or tram stop 'Ambroise Paré'. Website: <www.tcl.fr>.

Accommodation

Accommodation is available within walking distance of the University and should be booked separately. Lyon has an accommodation capacity of more than 17,000 rooms in hotels and apartment hotels, which can be booked through the usual online resources (for example see <www.booking.com/lyon-hotels>).

Greater Lyon offers a choice between the charm and elegance of châteaux hotels and the dependable comfort of major international chains (Accor-Sofitel, Mercure, Best Western, Boscolo, Crowne Plaza, Hilton International, Holiday Inn, Louvre Hotels, Relais & Châteaux, Radisson BLU, Warwick).

The conference organizers have booked a block of rooms and studios (for up to four persons) at the Apart'hôtel Odalys Bioparc, near the Rockefeller Conference Centre. Prices range from approximately £22 GBP in a shared studio to £89 GBP per person per night. To make your reservation, e-mail <bioparc@odalys-vacances.com> using the code 'UCBL1'. Please mention the name of the Meeting. The deadline for reservations is **13th November 2016**. After this date, reservations will still be possible with the code 'UCBL1' depending on availability.



Schedule

Wednesday 14th December: Registration, symposium and reception

Registration will open at 12.00 in the entrance hall of the **Laënnec Building**.

The Annual Meeting will begin at 13.15 with the Annual Symposium in Lecture Theatre 1 of the building. The theme of the symposium is “Assessing palaeoenvironments and palaeobiology through geochemistry”.

Following the Annual Symposium there will be an icebreaker reception at 18.00 in the main hall of the Laënnec Building.

Thursday 15th December: Conference, AGM, Annual Address and Dinner

Registration will be open from 7.45 to 17.30 in the entrance hall of the Laënnec Building.

The conference will start at 8.45 in the **Laënnec Building** with a full day of talks and posters, followed by the Association AGM (at 16.15) and the Annual Address (at 16.45), which will be given by Prof. Manolo Gouy (University Claude Bernard Lyon 1). The morning sessions will be in Lecture Theatre 1. The parallel afternoon sessions will be in Lecture Theatre 2 and the nearby Lecture Theatre 4, both in the Laënnec Building. Posters will be on display throughout the meeting in the main hall of the Laënnec Building, where tea breaks will be held.

In the evening there will be a nocturnal visit to the **Musée des Confluences** (a new science centre and anthropology museum) at 18.30, followed by the Annual Dinner at 20.15 on the banks of the river Rhône (at the **Bellona Restaurant**, which is located on a boat). People wearing an orange University T-shirt will be there to help you during the transfer.

Friday 16th December: Conference

The registration desk will remain open from 7.45 until 12.00.

The second day of the Conference will begin with a poster session from 8.15–9.15 in the main hall of the **Laënnec Building**, where tea, coffee and cakes will be served. Oral presentations will start at 9.15, with parallel sessions in Lecture Theatre 2 and the nearby Lecture Theatre 4 in the Laënnec Building. The final session of the day will be held in the main lecture theatre of the Laënnec Building and will be followed by a wine and local products tasting session in the main hall of the building.

Saturday 17th December: Field-trip

Price €30 including transport and lunch in a local restaurant.

The field-trip starts at 7.00 at the front of the **Laënnec Building**, returning to Lyon by 19.30. The number of participants is limited to 45.

We will visit the **Natural History Museum in Autun** as well as the type localities for the **Autunian** in the area, which have yielded, among many other fossils, the temnospondyl *Onchiodon (Actinodon) frossardi*. Access to the collections of the Museum, which hosts the fossils from the Montceau-les-Mines Lagerstätte, can be arranged for those who are interested and who will not take part in the field excursion.



Schedule of events and timetable of presentations

Wednesday 14th December

Taylor and Francis workshop: “Publishing in Academic Journals: tips to help you succeed”

Lecture Theatre 1, Laënnec Building

11.00-12.00 Andrew Kelly (Managing Editor, Earth & Environmental Sciences, Taylor & Francis Group)

Annual Symposium: “Assessing palaeoenvironments and palaeobiology through geochemistry”

Lecture Theatre 1, Laënnec Building

Underlined author denotes designated speaker.

13.15 – 13.50 **Deep-sea barnacle shells: geochemical signal and microstructure**

Ana-Voica Bojar and Hans-Peter Bojar

13.50 – 14.25 **Reconstructing Ordovician (Floian) conodont ecology and Laurentian seawater temperatures using oxygen isotopes**

James R. Wheeley, Phillip E. Jardine, Robert J. Raine, Ian Boomer and M. Paul Smith

14.25 – 15.00 **Isotope perspectives in vertebrate palaeobiology**

Jeremy E. Martin, Théo Tacail and Vincent Balter

15.00 – 15.35 **Non-traditional isotopic approaches to study the physiology of biomineralizing organisms**

Robert A. Eagle

15.35 – 16.05 Tea/coffee break

16.05 – 16.40 **Isotopic aspects of dinosaur reproduction**

Romain Amiot, Christophe Lécuyer, Xiaolin Wang, Xing Xu, Jinyou Mo, Zhonghe Zhou, François Fourel, Shuo Wang and Jean-Michel Mazin

16.40– 17.15 **The foraging ecology of pterosaurs – implications from stable isotope analysis**

Thomas Tütken and David W.E. Hone

17.15 – 17.50 **Carnivoran resource and habitat use in the context of a Late Miocene faunal turnover episode**

Laura Domingo, M. Soledad Domingo, Paul L. Koch, Jorge Morales and M. Teresa Alberdi

Reception

Laënnec Building, main hall

18.00 – 21.00 Icebreaker reception



Thursday 15th December

Conference, Association AGM, and Annual Dinner

Underlined author denotes designated speaker.

*Candidates for the President's Prize are marked with an asterisk.

07.30 – 08.45 Poster set-up.

Session 1 (Lecture Theatre 1, Laënnec Building)

08.45 – 09.00 **Opening of the Annual Meeting** by Marie-France Joubert, Vice-Président of formal and natural sciences at UCBL and Emanuela Mattioli, Director of the Geology Department.

09.00 – 09.15 **How good are your palaeodiversity measurements?**
Abel Barral, Bernard Gomez, Juan M. Zorrilla, José M. Serrano, Johan Yans, Véronique Daviero-Gomez and Christophe Lécuyer

09.15 – 09.30 **A fossilized birth-death model for the reliable estimation of speciation and extinction rates**
Rachel C. M. Warnock, Tracy A. Heath and Tanja Stadler

09.30 – 09.45 **Mass extinctions: towards an understanding of how, why and when ecosystems collapse**
David P. G. Bond

09.45 – 10.00 **Why we are looking at the wrong phase of life – palaeontology beyond the adult paradigm**
Joachim T. Haug

10.00 – 10.15 **Feeding in chelicerate arthropods – diverse and far from 'primitive'**
Carolin Haug

10.15 – 10.30 **The importance of fossils in dating the Tree of Life: from exceptional preservation to complete absence**
Joanna M. Wolfe

Laënnec Building, main hall

10.30 – 11.00 Tea/coffee break and posters

Session 2a (Lecture Theatre 4, Laënnec Building, in parallel with session 2b)

11.00 – 11.15 **The Weeks Formation fauna (Utah, USA) and the evolution of marine animal communities during the late Cambrian**
Rudy Lerosey-Aubril, Robert R. Gaines, Thomas A. Hegna, Bertrand Lefebvre, Javier Ortega-Hernández, Peter Van Roy, Carlo Kier and Enrico Bonino



11.15 – 11.30 **Preservation and phylogeny of Cambrian ecdysozoans tested by experimental decay of *Priapulius***
Robert Sansom

11.30 – 11.45 **Cambrian bivalved arthropods and the origin of mandibulates**
*Cedric Aria and Jean-Bernard Caron

11.45 – 12.00 **Can phosphatic microfossils constrain Cambrian climates?**
*Thomas W. Hearing, Thomas H. P. Harvey, Mark Williams, Sarah E. Gabbott, Philip R. Wilby and Melanie J. Leng

12.00 – 12.15 **Mineralogical insights into the tissues of Burgess Shale animals**
*Ross P. Anderson, Nicholas J. Tosca, Stuart L. Kearns and Derek E. G. Briggs

12.15 – 12.30 **Comparison of the postembryonic development in the family Paradoxididae (Trilobita)**
*Lukáš Laibl, Jorge Esteve and Oldřich Fatka

Session 2b (Lecture Theatre 2, Laënnec Building, in parallel with session 2a)

11.00 – 11.15 **Variable preservation of fruit flies in *Pinus* and *Wollemlia* resin**
*Victoria E. McCoy, Carmen Soriano, Arnoud Boom and Sarah E. Gabbott

11.15 – 11.30 **What can spores and pollen tell us about taphonomic bias at the Permian–Triassic boundary in the Eastern and Southern Alps?**
*Hendrik Nowak, Evelyn Kustatscher, Guido Roghi, Massimo Bernardi and Karl Krainer

11.30 – 11.45 **Recent new discoveries from the upper Ediacaran of western Mongolia**
Tatsuo Oji, Stephen Q. Dornbos, Hitoshi Hasegawa, Sersmaa Gonchigdorj, Keigo Yada, Akihiro Kanayama, Takafumi Mochizuki, Hideko Takayanagi and Yasufumi Iryu

11.45 – 12.00 **The (incomplete) Phanerozoic fossil record of major phytoplankton lineages**
Thomas Servais and Ronald E. Martin

12.00 – 12.15 **The effect of climate on equatorial late Palaeozoic floral transitions in the limnic Muse and the paralic Mengkarang Formations. Two sides of the same coin?**
Isabel M. van Waveren, Menno Booij, Christopher J. Cleal, Mike J. Crow, Fauzie Hasibuan, Pierre Pellenard, Mark D. Schmitz and Ellen Stolle

12.15 – 12.30 **The early aquatic angiosperm *Montsechia* from the Barremian of Spain**
Bernard Gomez, Véronique Daviero-Gomez, Clément Coiffard, Abel Barral, Carles Martin-Closas and David L. Dilcher

University Restaurant Rockefeller

12.30 – 14.00 **Lunch**

**Session 3a (Lecture Theatre 4, Laënnec Building, in parallel with session 3b)**

- 14.00 – 14.15 **Modern brains and their Cambrian antecedents: evolutionary stability, genealogical correspondence and evolved loss**
Nicholas J. Strausfeld, Xiaoya Ma and Gregory D. Edgecombe
- 14.15 – 14.30 **Palaeoecology of an Upper Ordovician submarine cave-dwelling fauna in northern Kentucky, USA**
Caroline J. Buttler and Mark A. Wilson
- 14.30 – 14.45 **Freshly-moulted trilobites from the Fezouata Lagerstätte of Morocco**
*Harriet B. Drage, Thijs R. A. Vandenbroucke, Peter Van Roy and Allison C. Daley
- 14.45 – 15.00 **Modelling enrollment mechanism in Ordovician trilobites**
Jorge Esteve, Juan-Carlos Gutierrez-Marco, Pedro Rubio and Isabel Rabano
- 15.00 – 15.15 **Burgess Shale-type fossils in the Middle Ordovician of the Barrandian area (Czech Republic)**
Oldřich Fatka
- 15.15 – 15.30 **The diversification of early Asterozoa: resolving a palaeontological quandary**
Aaron W. Hunter
- 15.30 – 15.45 **Ecological fitting within sheet-forming skeletal metazoans and the Ordovician rise of reef ecosystems**
Björn Kröger, André Desrochers and Andrej Ernst
- 15.45 – 16.00 **Biostratigraphic assessment of the uppermost Ordovician in the central Anti-Atlas (Morocco)**
Enrique Villas, Jorge Colmenar, Juan C. Gutiérrez-Marco, Sofia Pereira, José-Javier Álvaro, Diego García-Bellido and Saturnino Lorenzo

Session 3b (Lecture Theatre 2, Laënnec Building, in parallel with session 3a)

- 14.00 – 14.15 **Revision of the imbricate eocrinoid *Vyscystis* from the Middle Cambrian of the Barrandian area (Czech Republic)**
Martina Nohejlová, Oldřich Fatka and Elise Nardin
- 14.15 – 14.30 **Is a 'one size fits all' taphonomic model appropriate for Mazon Creek?**
*Thomas Clements, Mark A. Purnell and Sarah E. Gabbott
- 14.30 – 14.45 **Preferential origin of calcitic cephalopod shell structures during calcite seas**
Kenneth De Baets and Munnecke Axel
- 14.45 – 15.00 **Prospects and limitations of ecological studies of a fossil reef community (Aferdou el Mrakib, Middle Devonian, Morocco) based on fore-reef talus**
Michał Jakubowicz, Jan J. Król, Mikołaj K. Zapalski and Blazej Berkowski



15.00 – 15.15 **Palaeoecological and palaeoenvironmental significance of Brigantian *Gigantoproductus* brachiopod beds, Derbyshire carbonate platform, UK**
*Leah Nolan, Lucia Angiolini, Giovanna Della Porta, Vanessa. J. Banks,
Sarah. J. Davies, Flavio Jadoul, Melanie. J. Leng and Michael. H. Stephenson

15.15 – 15.30 **Phylogenetic analysis implies early diversification of tetrapods in the Tournaisian**
Jennifer A. Clack, Marcello Ruta and Timothy R. Smithson

15.30 – 15.45 **Where to find the Carboniferous terrestrial fauna: recent discoveries in Romer's Gap point the way**
Timothy R. Smithson, Carys E. Bennett, Jennifer A. Clack, Neil D. L. Clark, Sarah J. Davies, Gregory D. Edgecombe, Timothy I. Kearsey, John E. A. Marshall, Dave Millward, Andrew J. Ross and Janet E. Sherwin

15.45 – 16.00 **The Capitanian biodiversity crisis among tetrapods**
Michael O. Day

Laënnec Building, main hall

16.00 – 16.15 **Tea/coffee break and posters**

Lecture Theatre 1, Laënnec Building

16.15 – 16.45 **Annual General Meeting (AGM)**

Annual Address

Lecture Theatre 1, Laënnec Building

16.45 – 17.45 **Molecular thermometers: ancestral sequence reconstruction uncovers the history of adaptation to environmental temperature along the tree of life**
Manolo Gouy

Museum Nocturnal Visit & Annual Dinner

Musée des Confluences

18.30 – 20.00 **Nocturnal visit to the Museum**

Restaurant Bellona

20.15 – 00.00 **Annual Dinner**



Friday 16th December

Conference & Poster session

Session 4 (Laënnec Building, main hall)

08.15 – 09.15 **Poster Session, with tea/coffee and cakes**

Session 5a (Lecture Theatre 4, Laënnec Building, in parallel with session 5b)

09.15 – 09.30 **Palaeopsychrospheric ostracods during the Late Palaeozoic–Middle Triassic: the key to surviving mass extinction events?**

Sylvie Crasquin, David J. Horne and Marie-Béatrice Forel

09.30 – 09.45 **Mass extinctions as drivers of increased faunal cosmopolitanism on the supercontinent Pangaea**

David J. Button, Richard J. Butler, Graeme T. Lloyd and Martin D. Ezcurra

09.45 – 10.00 **The enigmatic archosaurs *Mandasuchus* and *Teleocrater* from the Middle Triassic of Tanzania and their implications for archosaur evolution**

Paul M. Barrett, Sterling J. Nesbitt, Alan Charig and Richard J. Butler

10.00 – 10.15 **Ammonoids from the Griesbachian (Early Triassic) of northeastern Greenland: taxonomy and biostratigraphy**

David Ware and Hugo Bucher

10.15 – 10.30 **Looking snappy: quantifying convergence in cranial morphology between phytosaurs and crocodylomorphs**

*Andrew Jones, Pedro L. Godoy and Richard J. Butler

Session 5b (Lecture Theatre 2, Laënnec Building, in parallel with session 5a)

09.15 – 09.30 **Early Cambrian ostracoderms and the trials and tribulations of total evidence dating**

*Joseph N. Keating, Richard Dearden and Philip C. J. Donoghue

09.30 – 09.45 **A new Burgess Shale polychaete from Marble Canyon (British Columbia)**

*Karma Nanglu and Jean-Bernard Caron

09.45 – 10.00 **Reconstructing anomalocaridid feeding appendage dexterity sheds light on radiodontan ecology**

Giacinto De Vivo, Stephan Lautenschlager and Jakob Vinther

10.00 – 10.15 **Appendicular nature of gnathobase-like structures in Cambrian radiodontans**

Peiyun Cong, Allison C. Daley, Gregory D. Edgecombe and Xianguang Hou

10.15 – 10.30 **Contributions to the ongoing work on the International Chronostratigraphy of the Cambrian: preliminary data from the Terreneuvian of Iran and Series 2 of Mexico**

Léa Devaere, Sébastien Clausen, Dieter Korn, Abbas Ghaderi, Ulrich Struck, Juan J. Palafox-Reyes, Blanca E. Buitrón-Sánchez and Daniel Vachard

**Laënnec Building, main hall**

10.30 – 11.00 **Tea/coffee break and posters**

Session 6a (Lecture Theatre 4, Laënnec Building, in parallel with session 6b)

11.00 – 11.15 **Testing niche versus neutral models of Ediacaran community assembly**

*[Emily G. Mitchell](#), Charlotte G. Kenchington, Alexander G. Liu, Simon J. Harris, Philip R. Wilby and Nicholas J. Butterfield

11.15 – 11.30 **The Chronicles of *Charnia*: developmental biology and phylogenetic inference from an Ediacaran rangeomorph**

*[Frankie Dunn](#), Philip R. Wilby, Philip C.J. Donoghue and Alexander G. Liu

11.30 – 11.45 **On the agglutinated nature of Ediacaran palaeopascichnids from northern Siberia**

*[Anton V. Kolesnikov](#)

11.45 – 12.00 **Critically accessing the depositional setting of the Ediacaran Mistaken Point biota**

*[Jack J. Matthews](#)

12.00 – 12.15 **The palaeobiology of Ediacaran rangeomorphs: reproduction, environmental sensitivity and ecological succession**

[Charlotte G. Kenchington](#) and Philip R. Wilby

Session 6b (Lecture Theatre 2, Laënnec Building, in parallel with session 6a)

11.00 – 11.15 **Vision in fossil polychelidan lobsters**

[Denis Audo](#), Joachim T. Haug, Carolin Haug, Sylvain Charbonnier, Günter Schweigert, Carsten H. G. Müller and Steffen Harzsch

11.15 – 11.30 **Synchrotron X-ray spectroscopy reveals burial conditions and fossilization in a Cretaceous freshwater Lagerstätte**

[Pierre Gueriau](#)

11.30 – 11.45 **Arms race or feeding competition? The mid-Palaeozoic origins of cephalopod and vertebrate jaws**

[Christian Klug](#), Linda Frey, Dieter Korn, Romain Jattiot and Martin Rücklin

11.45 – 12.00 **Within-guild niche partitioning in sympatric species: how ecologically sensitive is texture analysis of tooth microwear?**

[Mark A. Purnell](#), Christopher Nedza and Leszek Rychlik

12.00 – 12.15 **Macroevolution of Mesozoic lepidosaurs**

*[Jorge A. Herrera Flores](#), Michael J. Benton and Thomas L. Stubbs

University Restaurant Rockefeller

12.15 – 13.45 **Lunch**

**Session 7a (Lecture Theatre 4, Laënnec Building, in parallel with session 7b)**

- 13.45 – 14.00 **The pattern of ecological radiation of mammals across the K/Pg boundary**
**Gemma L. Benevento*, Matt Friedman and Roger B. J. Benson
- 14.00 – 14.15 **The death of dinosaurs and rise of mammals in the San Juan Basin of New Mexico, USA**
Stephen L. Brusatte, Thomas E. Williamson, Matthew T. Heizler, Daniel J. Peppe, Ross Secord, Adam Davis, C. Will Fenley, Andrew Flynn, Caitlin Leslie and Sarah L. Shelley
- 14.15 – 14.30 **Identifying patterns and drivers of coral diversity in the Central Indo-Pacific marine biodiversity hotspot**
Morana Mihaljevic, Chelsea Korpanty, Willem Renema and John M. Pandolfi
- 14.30-14.45 **Exploring the drivers of ecological and evolutionary turnover in the Caribbean**
Paola G. Rachello-Dolmen, Ethan L. Grossman, Kenneth G. Johnson, Jonathan A. Todd and Aaron O'Dea
- 14.45-15.00 **A new fossil *Bramoides* from the Eocene London Clay, re-aligned with the enigmatic modern genus *Gasterochisma* (Teleostei: Scombridae)**
Hermione T. Beckett, Zerina Johanson, Mark Graham and Matt Friedman

Session 7b (Lecture Theatre 2, Laënnec Building, in parallel with session 7a)

- 13.45 – 14.00 **Exploring the morphological diversity and hydrodynamic performance of extinct jawless vertebrates**
Carlos Martínez Perez, Humberto G. Ferron, Imran A. Rahman, Victor Selles de Lucas, Philip C.J. Donoghue and Hector Botella
- 14.00 – 14.15 **The origins of colour patterns in fossil insects: insights from trace element chemistry**
**Nidia Alvarez Armada*, Maria E. McNamara, Sam Webb and Fiona L. Gill
- 14.15 – 14.30 **Testing turbulent waters: palaeoecological implications of the durability and preservation potential of soft-bodied organisms in sediment-density flows**
**Orla Bath Enright*, Nicholas J. Minter and Esther J. Sumner
- 14.30 – 14.45 **Using melanosomes to discriminate between tissues in vertebrate eyes**
**Christopher S. Rogers* and Maria E. McNamara
- 14.45 – 15.00 **The influence of taphonomic bias on Bayesian estimation of clade ages using morphological data**
Joseph O'Reilly and Philip C. J. Donoghue

Laënnec Building, main hall

- 15.00 – 15.30 **Tea/coffee break** (take down posters)

**Session 8 (Lecture Theatre 1, Laënnec Building)**

- 15.30 – 15.45 **Fossilized nuclei from the Ediacaran Weng'an Biota (Doushantuo Formation, South China)**
John A. Cunningham, Zongjun Yin, Kelly Vargas, Stefan Bengtson and Philip C. J. Donoghue
- 15.45 – 16.00 **Ultrastructure and chemistry of integumentary structures in an ornithischian dinosaur**
Maria E. McNamara, Pascal Godefroit, Danielle Dhouailly, Michael J. Benton, Sofia M. Sinitza, Yuri L. Bolotsky, Alexander V. Sizov and Paul Spagna
- 16.00 – 16.15 **Environmental partitioning and differential growth in species of the thyreophoran dinosaur *Stegosaurus* in the Upper Jurassic Morrison Formation, USA**
Susannah C. R. Maidment, D. Cary Woodruff and John R. Horner
- 16.15 – 16.30 **Diets of giants: the nutritional value of herbivorous dinosaur diet during the Mesozoic**
Fiona L. Gill, Juergen Hummel, A. Reza Sharifi, Alexandra P. Lee and Barry H. Lomax
- 16.30 – 16.45 **Reappraisal of *Compsognathus longipes* (Saurischia; Theropoda) skull anatomy and endocast shape by synchrotron imaging and virtual reconstruction**
Vincent Beyrand, Paul Tafforeau, Stanislav Bureš and Oliver W.M. Rauhut
- 16.45 – 17.00 **Phylogenetic diversity as a palaeobiodiversity metric: new evidence for a Cretaceous decline in Mesozoic dinosaurs**
Graeme T. Lloyd, David W. Bapst, Matt Friedman and Katie E. Davis

Closing of the meeting (Lecture Theatre 1, Laënnec Building)

- 17.15 – 17.30 **Presentation by London 2017 organizing committee**
- 17.30 – 17.45 **Presentation of the President's Prize and Council Poster Prize, followed by closing remarks**

Wine and local products tasting session (Laënnec Building, main hall)

- 17.45-19.00 **Wine and local products tasting session**



The organizers of the Annual Meeting gratefully acknowledge the support of the sponsors:

Cellule Congrès-Lyon 1



Frontiers in Earth Science



Groupe Français du Paléozoïque



Isoprime Ltd



Nature Ecology & Evolution



Région Auvergne-Rhône-Alpes



Siri Scientific Press



Taylor & Francis



The Paleontological Institute



Université de Lyon





Abstract of Annual Address

The Annual Address will be given on Thursday 15th December.

“Molecular thermometers: ancestral sequence reconstruction uncovers the history of adaptation to environmental temperature along the tree of life.”

Professor Manolo Gouy

Laboratoire de Biométrie et Biologie Evolutive, Université de Lyon, France

[<manolo.gouy@univ-lyon1.fr>](mailto:manolo.gouy@univ-lyon1.fr)

It has been recently recognized that the effects of environmental temperature on ancestral organisms have left genetic footprints that can be uncovered in extant genomes. These effects allow us to define “molecular thermometers” that relate ancestral environmental temperatures to the composition of ancestral molecules in nucleotides and amino acids. The accuracy of the reconstruction of ancestral molecular compositions is therefore crucial for an effective application of molecular thermometers. Recent progress in the definition of probabilistic models of the evolutionary process has improved the biological realism of these models by accounting for the variation of patterns of molecular evolution among lineages. These new non-homogeneous methods allow us to reconstruct ancestral molecular compositions more accurately than traditional homogeneous methods. Analyses of genomic data using these tools allow attempts to reconstruct the evolutionary history of the adaptation to environmental temperatures at the scale of the tree of life. The evidence supports a mesophilic lifestyle for LUCA, the last universal common ancestor, but hyperthermophilic lifestyles for LBCA and LACA, the last common ancestors of the bacterial and archaeal domains, respectively.