

International Organisation of Palaeobotany



IOP NEWSLETTER 115

February 2018

CONTENTS

Letter from the president

India's Regional Student Representative

Meeting reports

Climatic and Biotic Events of the Paleogene 2017, Snowbird, U.S.A.

Palynology Specialist Group Meeting, Linnean Society, London, UK

Palaeobotany Specialist Group Meeting, Linnean Society, London, UK

New database: Arctic Plant Fossils Online Catalogue

Short communications

New book: The Illustrated Japanese Jurassic Flora

Upcoming meetings

Letter from the president

Hi everyone,

The coming months offer a variety of international as well as local conference opportunities for paleobotanists to gather and share information, with details indicated on our home page.

Paraná, Argentina; Paris, France; and Dublin, Ireland are among your choices. We thank the organizers of these events for promoting Palaeobotany and Palynology worldwide and appreciate the efforts of all those contributing to the symposia and workshops.

The IOP website continues to serve our needs although we are still without a dedicated webmaster. Announcements of paleobotanical employment opportunities are presented on the lower 1/3 of our home page, palaeobotany.org, as they are made known to us. With the help of Terry Lott we recently uploaded "at-a-glance" content summaries for all IOP newsletters in our archives from no. 1 (1976) to present. The full pdf for each entry may be viewed online or downloaded from the same page-- <https://palaeobotany.org/newsletter/> We have been adding paleobotany blogs and video links as encountered, but are surely missing those produced by some of our members. If you have a blog or video that you would like to feature with a link on our website, send me the link and it will be added at <https://palaeobotany.org/page/links/paleobotanical-blogs/>

With best regards, Steve

Steve Manchester (Gainesville, FL, USA), IOP President

India's Student Regional Representative

Deepak Ramteke

Deepak is active in research on study of fossil flora of the Cretaceous-Paleocene from the Deccan Intertrappean sedimentary sequences of Maharashtra and Madhya Pradesh in India since last 10 years.

There he explores and collects many plant fossils to understand the evolution of paleovegetation and paleoclimate of central India during the Cretaceous-Paleocene event and its correlation with floristic extinction. For scientific work he not only collects fauna and flora but also has setup his own paleobotanical laboratory. Besides, Deepak assists several researchers working on Deccan flora as well as on Gondwana flora. He interacts with paleobotanists from India and from other countries and shares his findings for collaboration on investigations on the Cretaceous-Paleogene flora of India.

Deepak published several research papers in the field of paleobotany and biological sciences and thus contributes to the knowledge of fossil flora from the Deccan Intertrappean sedimentary beds of India. Deepak completed his post-graduation in the field of botany, Master of Philosophy in paleobotany and he submitted his doctoral thesis for the award of Ph.D.



Deepak Ramteke during field and lab work, discussions and conferences (images provided by Deepak Ramteke)

Meeting reports

Climatic and Biotic Events of the Paleogene 2017 – Snowbird, Utah, September 3-8th, 2017.

The early Paleogene is the focus of a diverse set of geoscientists, climate modellers and paleobiologists, including paleobotanists. The CBEP group meets every 2-4 years at different settings around the world, first meeting in Albuquerque, New Mexico in 1989, and most recently in Ferrara, Italy in 2014 and in Snowbird just outside of Salt Lake City in Utah in 2017. The Snowbird meeting was smaller than some of the recent meetings, with about 125 delegates that included a healthy number of graduate students and postdocs, with delegates from the Americas, Europe, and many other parts of the world. To borrow from the CBEP2017 website:

“The world of the Paleogene was characterized by climatic conditions largely unfamiliar to us today but saw the rise of essentially modern continental configurations, biotic communities, and biogeochemical regimes. Understanding the function of these systems under global greenhouse conditions that may approximate Earth's climatic future is intriguing both for what it can tell us about our past and for the hints it may provide about our future.” <http://cbep2017.utah.edu/index.html>



CBEP 2017 in Snowbird, Utah: group photo.

Presentations were restricted to a single series of talks each day, commencing with a communal breakfast in the room where posters were displayed, with lunch also served in the poster display area. As no talks were held at the same time, all talks were well attended. A dedicated poster session followed the last talks each day, which when combined with the breakfast and lunch arrangements, ensured that all poster presenters had plenty of people drop by.

An innovative and highly successful feature was for each of the posters presenters to give a one minute 'lightning talk', with one PowerPoint slide at the start of the talks to encourage delegates to come by their posters later in the day. Great exposure for students and other poster presenters.

Each day's presentations were divided into two themes: Understanding the Paleogene from an integrated, Earth-systems perspective, and Planetary Boundaries. A particular focus across the meeting were the series of hyperthermal events – geologically short duration warming events that typically occurred on top of already globally warm climates – that characterize the early Paleogene, and especially so the early Eocene. Significant shifts in the character and geographical distribution of global biomes resulted from these hyperthermals, recorded in the plant macrofloral and palynological records of terrestrial vegetation in both terrestrial archives and in marine sediment cores. Plant fossils such as *Ginkgo*, further provide an archive of past high CO₂ levels through stomatal counts and other proxies, a key point of discussion in understanding the causes of these hyperthermals. Subthemes of interest to paleobotanists included: Biological diversity & biotic change; Biogeochemical consequences of ecological changes during climate events and transitions; Advances in paleo-proxies: Mechanisms, interpretations, and uncertainty; Paleobiology & Paleoclimate. The following presentation titles provide a sample of paleobotanically relevant presentations:

- Barclay: Fossil Atmospheres: Improving Estimates of Ancient Atmospheric CO₂ Levels from *Ginkgo* Leaves
- Dunn: Forest Canopy Change During the PETM, Hanna Basin, Wyoming
- Flynn: Diverse Early Paleocene Fossil Flora from the San Juan Basin (New Mexico, USA) Documents Rapid Recovery Following the Cretaceous-Paleogene Boundary
- Greenwood: Palms as Paleoclimate Proxies: A new 'Palm-Line'
- Kowalczyk: Multiple proxy estimates of atmospheric CO₂ from an early Paleocene rainforest

- Lowe: Plant community and climate dynamics at the onset of the Early Eocene Climatic Optimum, McAbee Fossil Beds, British Columbia, Canada
- Patrick: The early Eocene San Juan Basin flora: An investigation into the early Cenozoic history of the U.S. Mountain West
- Pinheiro: Insect herbivory in the hothouse early Eocene Wind River Formation Floras, central Wyoming, USA
- Reichgelt: Fossil leaves record a short-lived disruption of the carbon cycle at the Paleogene-Neogene boundary
- Sudermann: A palynological investigation of the Arctic late Paleocene/early Eocene Margaret formation at Stenkul Fiord, Ellesmere Island, Nunavut, Canada
- West: Polar heat: evaluating the impact of an early Eocene hyperthermal event on Arctic forests from Ellesmere Island, Nunavut, Canada

In addition to the conference presentations, delegates were let loose on the afternoon of the 2nd day and encouraged to explore the mountain setting of Snowbird (a skiing resort in winter). In the evenings delegates were free most nights to mix and socialize to discuss their research and propose collaborations ... or play eight-ball over a beer. Being Utah, the beer was ... cold at least, if not hard to buy! A conference banquet capped off a very successful meeting, due to the hard work of the two conference organizers, Gabe Bowen and Pete Lippert of the University of Utah.

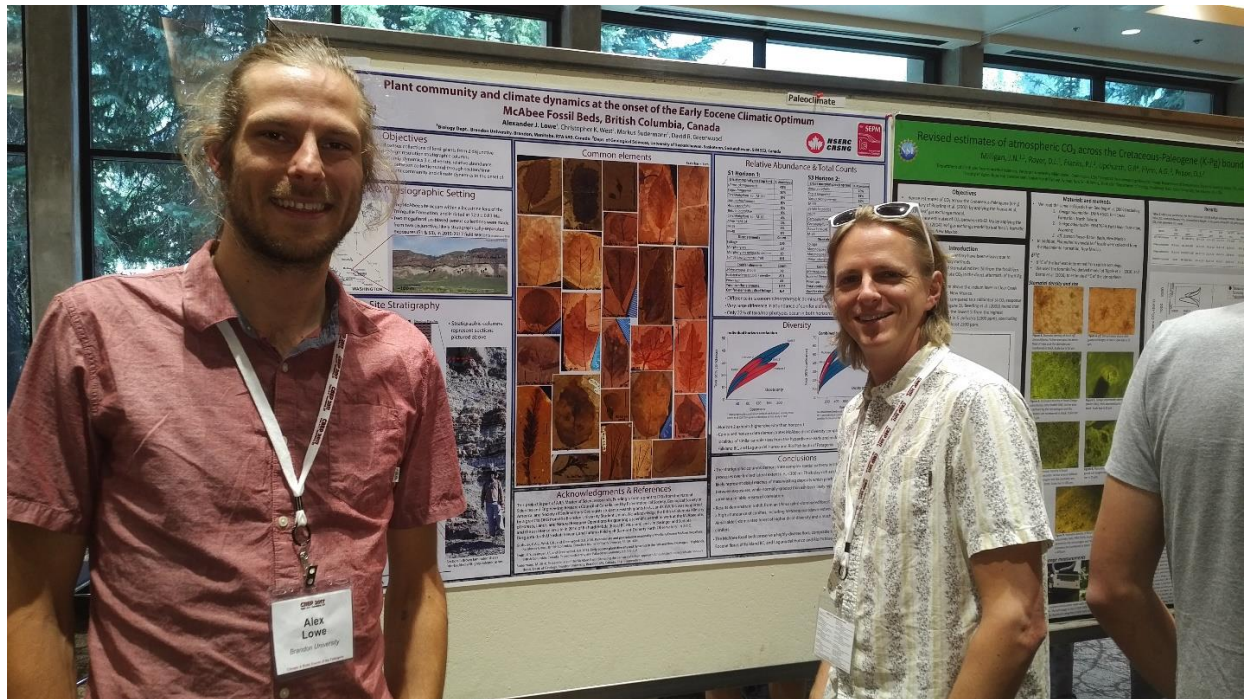
Two post conference field trips involved various aspects of the Eocene Green River Formation. I took in the one-day field trip to Fossil Butte National Monument near Kemmerer Wyoming, together with my three graduate students and about another 14 people. This field trip was ably led by Arvid Aase from Fossil Butte N.M., and one of the CBEP2017 organizers, Pete Lippert. We were treated to superb Great Plains scenery with sweeping grasslands and mesas, and were given a tour of two commercial quarries where the world famous Green River fossil fish – found in many rock and fossil shops and online – are quarried for sale. At the first of these quarries we saw an operation that is open to school groups and clubs and individuals who can rent time and space to quarry out their own fossils and each of us were able to quarry out our own fossil fish to keep. The other quarry was a high value commercial operation producing ‘fossil art’ pieces such as wall sized individual palm fronds or ‘shoals’ of fossil fish for expensive kitchens and corporate boardrooms. At the latter we were advised that if we had to ask the price, we probably couldn’t afford to buy anything! The superb end of the trip was a visit to the public offices and small museum at Fossil Butte National Monument, and a behind the scenes look at the

superb collection of Eocene plant fossils Arvid Aase and his team have been amassing. Paleobotanists such as myself were like kids in a candy shop!

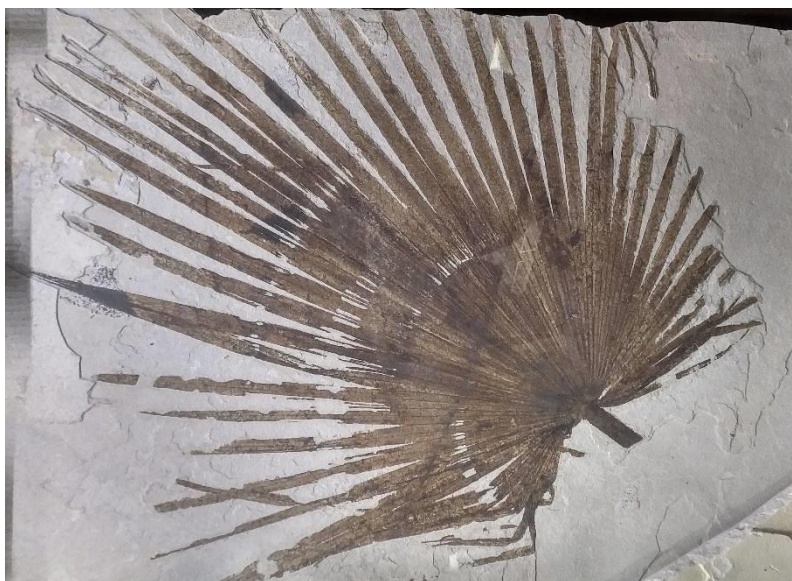
David R. Greenwood,

Dept. of Biology, Brandon University, Brandon, Manitoba, Canada

NB: all photos taken by D. Greenwood, and all people identified have agreed to the photos being used.



Alex Lowe (L), Masters student with D. Greenwood at his poster with Gabe Bowen (R), one of the CBEP2017 organizers.



Fossil palm specimen (*Sabalites* sp.) on display in the Fossil Butte National Monument museum.



The wall of paleobotanical treasures! Fossil Butte National Monument museum.



Fossil floating fern (*Salvinia* sp.), Fossil Butte N.M. museum.

Fossil dicot leaf (Lauraceae) from the fossil Butte N.M. collection.





Arvid Aase with Fossil Butte in the distance behind him.



Fossil Butte N.M. museum and shop, with Fossil Butte in the background, and field trip participants.

Report on Palynology Specialist Group Meeting, Linnean Society, London, 9th Nov. 2017

Barry Lomax (Nottingham) organized and, with Charles Wellman (Sheffield) chaired this annual autumn meeting at Burlington House in Piccadilly, London. It attracted around thirty people, with contributions from workers across the UK, Austria, China, Germany, Ghana, Holland, Russia and USA. Twelve illustrated presentations were given by students and established researchers, plus a poster in the library on an Eocene palynoflora from China. Topics ranged stratigraphically from aspects of Devonian spore studies to work on extant pollen. Lunch and mid-session breaks gave ample opportunities for ongoing discussions; the day concluded with a wine reception provided by the Linnean Society.

Charles Wellman spoke to present research by Martha Gibson (Sheffield) on palynomorphs and other plant fragments from the Upper Permian of NE England. Five evaporative cycles have been detected from the former Zechstein Sea that endured for about six million years. Quantitative analysis revealed mostly saccate pollen, with pieces of xylem and many cuticles. It seems this generally arid, equatorial zone was at times humid enough for conifer forest to grow along with rarer pteridophytes.

Stephen Stukins (Natural History Museum, London) reminded us of the great importance and value of the perhaps-underused palynological collections kept in the national collections at South Kensington. Article 42 of the ICN requires designated repositories for type material; Steve compared the type and figured collections at the NHM in London with those of the British Geological Survey, University of Sheffield and CENEX at Louisiana State University, USA. Dating back some forty years, the NHM houses palynomorphs, dinoflagellates, chitinozoa and acritarchs for much of the Phanerozoic Aeon. Moreover, the NHM Botany Dept. has over one hundred thousand slides of Recent pollen and spores. He praised the work of John Williams in drawing up a comprehensive “Index of Palaeopalynology” with its enormous potential to aid identification of *spora dispersa* once digitized.

Hannah Banks (RBG, Kew) presented three aspects of pollen from living legumes (Fabaceae). Taxonomically, the sub-families Caesalpinioideae and Mimosoideae are very diverse in their pore and colpus arrangements, their exine ornament and the presence of pectinose Zwischenkoerper. Genera such as *Senegallia* and *Acacia* often bear pollen in multiple tetrads (polyads), with sometimes 64 grains remaining together, but never in the huge aggregations of orchid pollinia. Regarding adaptations and functionality, it appears larger numbers of apertures per grain allow faster germination, whilst grains remain viable for longer when they have fewer pores from which to lose water. Ecologically, many legumes have ant associations that risk repelling potential pollinators. At times of pollen release, these plants temporarily release chemicals to deter ants that generally reduce herbivory.

The presence of a single legume megafossil, *Mimosites brownianus*, in the Eocene London Clay flora is supported by the discovery of polyads of Fabaceae pollen in that stratum.

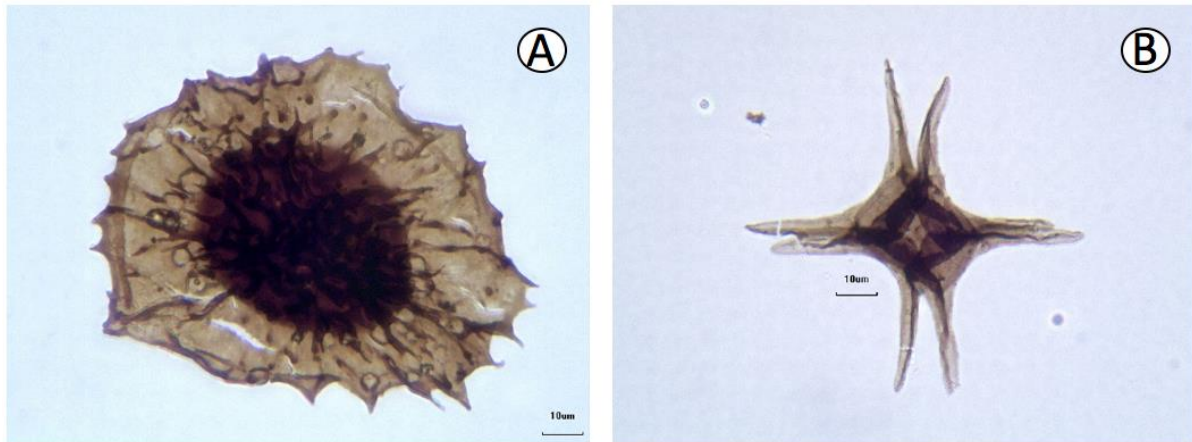
Emma Reeves (Southampton) spoke about the Tetrapod World Early Evolution & Diversification project which has involved the sinking of boreholes and examination of outcrops near the Anglo/Scottish border to examine earliest Carboniferous (Tournaisian) strata to help close Romer's palaeontological gap. Emma has examined these sediments for miospores and megaspores to compare these TWEED taxa with the well-known sequences from Belgium and Eire. She found contrasting palynofloras with *Prolycospora* dominant at Norham, but mainly *Anaplanisporites* at Burnmouth. Quantitative sampling and principal components analysis of data point to sedimentary cycles that might reflect climatic fluctuations following the End Devonian Mass Extinction. Richard Bateman suggested Emma look also at the associated megafossil plants; e.g. *Oxroadia*, *Paralycopodites/Anabathra* ("*Lepidodendron calamopsoides*" auct.).

Adele Julier (Open University) described the dispersal of pollen from living vegetation from habitats around Lake Bosumtwi in Ghana to make comparisons with what is known of dispersal at temperate latitudes. Tropical diversity of taxa makes their identification a major challenge, but Adele reported that pollen traps sampled annually 2011-2014 showed the two most abundant genera in the wet evergreen plots are indeed major components of the pollen rain there. As with *Corylus* in temperate European peats, it seems that pollen of Moraceae is disproportionately abundant in this tropical flora. Many of these Ghanaian plants are insect-pollinated; these show much greater variation between annual samples than do typically anemophilous families such as grasses.

After lunch, Barry Lomax (Nottingham) focused on the sporopollenin of palynomorph outer walls as a chemical treasure-trove awaiting plunder by the geochemist. In 1978 sporopollenin was called "the most resistant organic material from a living organism." He illustrated the effects of nitric and ethanoic acids over 100C to 350C temperature ranges on the translucence of the exine of *Lycopodium* spores. The effects of ultraviolet-B solar radiation on stratospheric ozone are well documented, but UV-B has been found to cause variation in sporopollenin in grass pollen from near Lake Bosumtwi, Ghana with pollen chemistry tracking orbital changes in total solar irradiance over the last ~150 kyrs. These observations give greater potential to fossil palynomorphs in considering their value as indicators of ancient solar activity and changes in the climate of the Earth.

Alex Askew (Sheffield) focused our attention on the Middle Devonian of Spain. At that time, what is now the Iberian Peninsula had separated from the Gondwanan super continent and appeared as islands in the Rheic Ocean. The monsoonal climate these islands experienced is reflected in their alternating beds of sandstones and limestones which yield rich Eifelian

spore assemblages comparable to those from the Orcadian Basin in Scotland. Images of some of Alex's palynomorphs can be seen below.



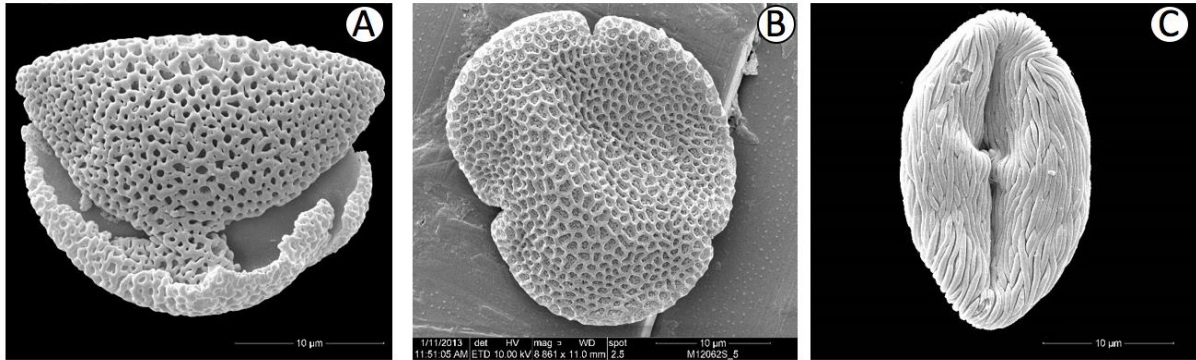
A selection of fossil palynomorphs from the Middle Devonian strata of northern Spain. A; is the spore '*Hymenozonotriletes*' *argutus* and B is the acritarch *Polyedrixium pharaone*. Scale bar in both images is ten microns. Images courtesy of Alex Askew.

Annette Goetz (Portsmouth) spoke on the Permian stratigraphy of the Karoo basin in southern Africa. This was a time when the climate of Gondwana was changing steadily from the extreme Permo-Carboniferous “icehouse” phase to the opposite “hothouse” phase of Triassic times. Thus, for example, one finds a change from mostly monosaccates (ferns?) to bisaccate grains (cycadophytes?) as the climate warmed up. The extraction of miospores from an almost continuous period of sedimentation in this basin from the Pennsylvanian to the Lower Jurassic allows not only a very widespread stratigraphic zonation but it also offers detailed climatic signatures for a large part of Gondwana where floral provincialism differs from Laurussia. Annette made a plea for radiometric data to allow more absolute dating of these strata.

Back in the present day, William Harvey (Oxford) introduced the Global Pollen Project as an online platform for viewing and analysing data from extant spores and pollen grains. Recording morphological and chemical data on palynomorphs, the GPP aims to be very selective in what data are recorded-*e.g.* it avoids unpublished “dark data” such as from unpublished theses. It tries to incorporate data from herbarium sheet specimens to link pollen and spores back to field data on their parent plants' habitat, date of collection etc.

Christa Hofmann (Vienna) spoke about ericalean pollen from the Palaeogene of a number of European localities, including the Cobham Lignite of Kent, Brixton in London, Krappfeld near Klagenfurt in Austria, plus the Hainan Islands of China. She gave several fascinating SEM images of pollen (see some images below) of Ericace, Sapotaceae and Ebenaceae, comparing the fossil grains to those of their nearest living relatives. Christa considered

where these pollen taxa had been found stratigraphically, *eg* in relation to the Palaeocene/Eocene Thermal Maximum event, plus in a phytogeographical context. It is interesting that she recognised some South American affinities for some of these pollen taxa where the living relatives are typically montane species.



A selection of SEM images of fossil pollen grains from the Brixton PETM drill core. A; calamoid palm (today this is mostly found in SE Asia) B; is a tiloid *Mortoniodendron* (today found in Central America and northern South America), and C is *Anacardium* (PETM Brixton drill cores, today this plant has a neotropical distribution. Images courtesy of Christa Hofmann.

Luke Maunder (Open University) spoke on the diversity of pollen from tropical forests where today the lowest annual temperature is never below 18C and the rainfall always more than 2 metres *per annum*. He described the paucity of megafossils from rainforests (*e.g.* late Palaeocene of Columbia), but the laryngological record is much better, especially for the Neogene of South America, Africa and Indonesia. He suggested that evidence for a radiation of the Malpighiales in the mid-Cretaceous points to an origin for our present-day form of tropical rainforests about 100 million years ago. He agrees with Christa Hofmann that light microscopy of pollen should ideally be backed up with SEM for more secure identifications; in daily life, of course, time and money often dictate otherwise.

The final talk took us back down the column to the late Devonian. John Marshall (Southampton) described an early Frasnian locality of the progymnosperm tree *Archaeopteris* in Cottonwood Canyon, Wyoming, USA. The overwhelming predominance of *Geminospora* microspores and *Contagisporites* megaspores, along with the occurrence of *Callixylon* wood (including fusain), indicates a near monoculture in this primordial forest. John proposes this woodland grew near a stratified marginal lagoon with abundant microbial production. This locality at the NW corner of the American continent is important in mapping the distribution of the *Archaeopteris* plant whose deep roots played a major role in establishing the terrestrial carbon cycle.

Barry Lomax has organized a most interesting and productive meeting; all present will surely be looking forward already to next year's reunion of the Palynology Specialist Group at Burlington House which is planned to follow, as this year, a day after the Palaeobotany Specialist Group Meeting there. Our thanks go also to the staff and council of the Linnean Society of London for providing the premises, mid-session refreshments and concluding wine reception. Be sure to keep the right Thursday clear for the meeting in November 2018.

HL Pearson, EDF, UK. Hugh.pearson@edf-energy.com

Report on Autumn Meeting of the Palaeobotany Specialist Group, Linnean Society of London, Burlington House, Piccadilly, London; Wed. 8th Nov. 2017.

About forty people representing at least eight countries attended and made contributions to this long-established, annual event. The morning session was chaired by Paul Kenrick (London), the afternoon by Peta Hayes (London); Peta ably co-ordinated the meeting, with its various student and senior speakers covering topics mostly in stratigraphic sequence ranging from mid-Palaeozoic to the Recent. Mid-session and lunchtime breaks gave opportunities for on-going discussions and viewing of a poster by Christa Hofmann *et al.* (Austria, Russia & China) on an Eocene flora from Hainan, China.

Chrisine Strullu-Derrien (London) remarked upon the paucity of fossil evidence for fungal diversity in mid-Palaeozoic times when, alongside plants and animals, many fungi were moving from aquatic habitats onto drier land. Using such techniques as z-stack montage to enhance light microscopy and autofluorescence under confocal laser scanning, she has examined sections of the Lower Devonian Rhynie Chert of Scotland to disclose 3D structure for new fungal genera such as *Cultoraquaticus* and *Palaeozoosporites*. The former, a chytrid, is the only Rhynie fungus to have had a flagellate phase in its life cycle.

Luke Meade *et al.* (Birmingham, UK) has re-examined ovules of *Genomosperma* from the Lower Carboniferous of Scotland. 3D tomography of the type material plus new specimens indicate a single, polymorphic species, *G. kidstonii*, with variation in ovule number per cupule and the degree of integumental fusion perhaps related to taphonomic effects (*e.g.* desiccation) and/or ecophenotypes. The evidence this genus supplies on early seed plant evolution is certainly more complex than was apparent to some earlier researchers.

Whether it be pernicious weed or fascinating "living fossil", Chris' Cleal (Cardiff) conceded that *Equisetum* is a truly successful survivor of a monofiliformopsid clade whose representatives extend back at least to Carboniferous times. He illustrated some of its Upper Palaeozoic relatives, *e.g.* *Annularia spinulosa*, *Palaeostachya wagneri*, *Asterophyllites*

taylorianus, to demonstrate the greater diversity of form shewn by articulate plants from localities in Britain and across mainland Europe. Such diversity allows taxonomic revision of seemingly wide-ranging species such as *Annularia stellata*. Chris also spoke about the importance of preserving historical Carboniferous coal-mining sites, like Brymbo near Wrexham (Wales), for their scientific and cultural importance.

Zhang Yingying *et al.* (Peking & Cardiff) reported upon the stem-root transition in a euphyllophyte from the Upper Devonian of southern China. Its primary xylem is three-lobed with mesarch protoxylem, with root traces passing out through the secondary xylem. Comparisons were made with the root anatomies of the progymnosperms *Protopitys* and *Callixylon*, whilst the root traces bear a closer resemblance to those of the cordaitan coniferophyte *Amyelon*.

The philosophical tone was raised and our vocabularies further challenged by Richard Bateman *et al.* (London & Moscow) on “Reductionism, holism and the earliest (recognisable) angiosperm”. Richard responded to a paper published earlier this year by Sauquet *et al.* on the hypothetical form of the original flower, particularly the helical or whorled layout of its major components. Whilst not condemning the paper *in toto*, Richard did focus on some errors concerning the supposed whorls proposed for the primitive gynaecium. Many palaeobotanists present were concerned too about the lack of reference by Sauquet *et al.* to the established evidence from undoubted early and mid-Cretaceous flowers. In the end, we are left with many equally parsimonious topologies for the cladograms of seed plants; the time for the basal node for the crown-group angiosperm being somewhere in the Triassic.

Leyla Syfullah *et al.* (Goettingen & Leeds) took our attention onto amber as a source of palaeoclimatic information. She described amber not as a gum or sap but rather as a toxic biological plastic, rarely found *in situ*, dating back with certainty at least to the Triassic. She has used Fourier transform IR and pyrolysis chromatography to examine a range of Recent and sub-fossil plant exudates, plus Palaeogene and Mesozoic ambers. Since amber is porous to oxygen isotopes, Leyla used C-12 and C-13 ratios as markers for palaeoclimatic information, particularly in connexion with past levels of UV which influence the rates of polymerization in certain plant exudates. It seems that the exact position along a plant axis where exudates arise and the altitude where the plant grows are major influences on this chemofossil.

Patricia Soffiatti *et al.* (Parana, Brazil & Montpellier) spoke essentially on living mosses-*viz.* *Polytrichum commune* from the Cevennes of France-but described their growth form in the biomechanical context of fossil bryophytes. She has made numerous measurements of physical (*e.g.* Young’s modulus and flexural stiffness) and chemical (*e.g.* presence of lignin) parameters along the shorter peripheral shoots and longer central shoots taken from the

diameters of these moss cushions. One trend she reported was that the tallest central shoots are broadest nearer their apices, but that this is owing more to additional sterome (cortex-like) tissue than to increases in hydroids.

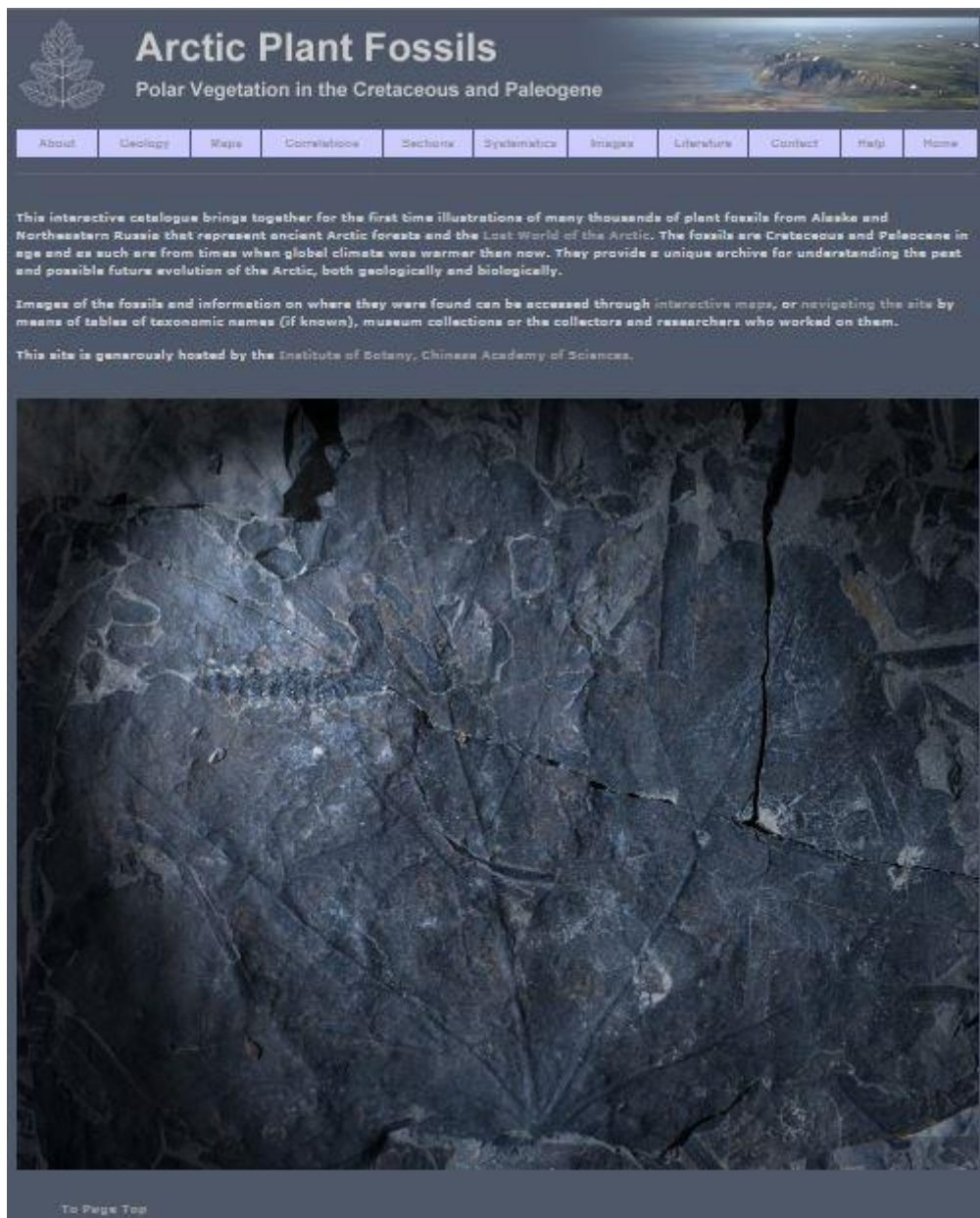
Nic' Rowe *et al.* (Montpelier & Kansas) described the distinctive, propeller-like xylem anatomy of the presumed glossopterid root *Vertebraria*. His specimens come from silicified Upper Permian peats from Skaar Ridge, Antarctica, where they are associated with *Glossopteris* foliage and *Australoxylon* logs. Unusually, the primary xylem develops radial lacunae; secondary xylem then is deposited only around the intact primary tracheids, not around the entire stele as typical elsewhere. Little additional cortex is produced during the enlargement of these roots. Nic' emphasized function over adaptation to suggest that this distinctive anatomy may have been related to helping the progress of the root tip through the substrate, rather than aeration tissue to facilitate respiration in a waterlogged soil.

Peta Hayes is to be congratulated for having organized another very successful Autumn Meeting of Palaeobotany Specialist Group at the Linnean Society. For an event taking place in mid-term for universities and in a city with so many other competing scientific meetings, the numbers attending here reflect positively on the long-term wellbeing for this gathering. During the breaks, some of the librarians and administrators of the Linnean Society commented to me on how active this Specialist Group is in comparison with certain other events held there. Peta has already booked 21 November 2018 for the next Palaeobotany Specialist Group Meeting, co-ordinating again to precede the Palynology Group Meeting at the Linnean Society, London, on 22 November 2018. If you were unable to attend this year, may I suggest you try to keep those days clear to come along to the two meetings next autumn.

HL Pearson. EDF, (UK). Hugh.pearson@edf-energy.co.uk

New database: Arctic Plant Fossils Online Catalogue

The Arctic is currently warming at a far greater rate than anywhere else on Earth and is on track to return to the kinds of conditions that dominated much of the past when polar ice was minimal. A notable episode of warm poles was in the late Cretaceous and Paleocene and during that time a vast archive of plant fossils, representing lush, highly productive near polar forests, was laid down in non-marine sediments distributed across Alaska and Northeastern Russia. A fully illustrated catalogue of these plant fossils, accessible through interactive maps and look-up tables, is now available online at <http://arcticfossils.nsii.org.cn/>.



This work documents collections made by Hollick, Samylina, Smiley, Filippova, Terekhova, and Wolfe, in addition to material collected over the last 40 years or so by Spicer and Herman. 'About' pages summarise the background to the catalogue, its authors, and how to navigate the site, while a section on 'Geology' introduces the regional geological background, stratigraphy etc. for both Northeastern Russia and Alaska. By clicking on localities shown on interactive maps further details of local geology and images of specimens found at those locations can be accessed. We have deliberately not incorporated search functions because these would involve a higher degree of maintenance.

A 'Correlations' section presents interactive phytostratigraphic correlation charts spanning the North Pacific Region and the concepts underpinning those correlations. A section on 'Systematics' explains the various schemes both formal and informal devised to catalogue

the specimens, while 'Images' presents a series of interactive tables that afford direct access to images of the fossils organised by age, taxonomic names, museum collections and collectors. A 'Literature' page lists all the works referred to in the catalogue, plus additional publications relevant to Arctic palaeobotany. Finally, a 'Help' page summarises many of the concepts and terminology used in the catalogue.

To assemble this catalogue, which includes over 137,000 links and illustrates nearly 7,000 specimens, has taken the past eight years, funded in part by a US Geological Survey (USGS) contract. The work has undergone peer review arranged by the USGS, but is now generously hosted by the Chinese Academy of Sciences as this facilitates future updating and development. Feedback from IOP members is welcome to help us improve the site.

Bob Spicer, Alexei Herman, Teresa Spicer and Jian Yang.

Short communications

New book: *The Illustrated Japanese Jurassic Flora* by Kazuo Terada (2017)

Abstract: This book is an illustration of the Kuruma-type flora reported by late Dr. Tatsuaki Kimura with reference to Kimura and Tsujii, 1980a, 1980b, 1981, 1982, 1983, 1984, Kimura et al., 1988 and is summarizes the Jurassic plant fossils in Japan including many photos, but the book is written in Japanese. Japanese paleobotanists are only a few and look like just endangered species. None may know the value and the significance of the specimens studied by the pioneer Japanese paleobotanists at some future time. I made up my mind to produce this book for next generations of Japanese paleobotanists. This book was published privately by Association for the study of the Mesozoic Plants.

(source:

https://www.researchgate.net/publication/321686985_Illustrated_Book_of_Japanese_Jurassic_Flora-the_Kuruma_Type_Flora)

Upcoming meetings

15th Midcontinent Palaeobotanical Colloquium, Athens, Ohio, June 1-5 2018



The 35th Midcontinent Paleobotanical Colloquium will be held at Ohio University in Athens, Ohio, June 1-3, 2018; the meeting is being hosted by Liz Hermesen, Gar Rothwell, and Zack Quirk. As usual, we will have a day-long session of presentations that focuses on student participation, social events, and a field trip/excursion to the scenic Hocking Hills State Park (<http://parks.ohiodnr.gov/hockinghills>). Information about the meeting schedule, traveling to Athens, and accommodations is available on the 35th MPC website (<https://www.ohio.edu/cas/plantbio/news-events/mpc.cfm>).



If you plan to attend, please take a moment to preregister. You can register and attend MPC without preregistering, but preregistration will help with planning. Regular registration and abstract submission will be available in mid-to-late March.

Plan to join us for this friendly paleobotanical meeting in scenic southeastern Ohio!

Elizabeth Hermesen, on behalf of the organizers

5th International Palaeontological Congress, Paris, 2018



„The FOSSIL WEEK“

On behalf of the Organising Committee, we are particularly pleased to invite you to France for the fifth edition of the International Palaeontological Congress, the IPC5. Under the auspices of the International Palaeontological Association (IPA) and with the participation of the whole French Palaeontological community, “the Fossil week” will be organized in 2018 in Paris, July 9th-13th.

This event is a unique opportunity for our community to present its new results and discuss all aspects of our discipline.

We propose here some possible symposia and sessions. Of course, the list is provisional and it is still completely open. We are waiting for your proposals.

Fieldtrips are planned before and after the congress throughout France, Belgium and Italy. They will give you the opportunity to discover our palaeontological, geological and gastronomic heritages.

We hope to welcome many of you in France in 2018.

Contact details:

1st Circular available: www.palaeontology.geo.uu.se/ISCS/IPC5_1stCircular.pdf

**XVIIth Argentine Symposium of Paleobotany and Palynology, Paraná, Argentina,
July 30 – August 5 2018**



We are pleased to invite you to participate in the ***XVII Argentine Symposium of Paleobotany and Palynology*** (SAPP 2018), ***TOWARDS NEW CHALLENGES***. This prestigious scientific event brings together the most recognized specialists both locally and worldwide, and its importance is reflected in the significant number of participants who have attended each one, which has risen in the last two symposia, 150 in Corrientes 2012 to 180 in La Plata 2015.

In this edition, it will be held for the first time in the city of Paraná, Entre Ríos province, between July 30 and August 5, co-organized by the Latin American Association of Paleobotany and Palynology and the *Universidad Autónoma de Entre Ríos*, declared of Institutional Interest (CS Res. N° 121/17).

We thank you for the diffusion of this invitation and we hope to have your valuable contribution.

<http://fcyt.uader.edu.ar/web/sapp2018>

10th European Palaeobotany Palynology Conference, Dublin, August 12-17 2018

On behalf of the organization committee we would like to extend a warm welcome and invite you to Dublin in August 2018 to attend the 10th European Palaeobotany and

Palynology Conference. The disciplines of palaeobotany and palynology are integrative and multidisciplinary by nature. As a community, we are constantly seeking new tools and techniques to answer both long-standing and new questions. Palaeobotanists and palynologists demonstrate a strong history of partnership with disciplines that are outside our core biological and geological fields of research such as with chemistry, physics, maths and computer science. Our community have been early adopters of state-of-the-art technology in visualization, experimentation and chemical analyses to name but a few.

The theme for EPPC 2018 'A Multidisciplinary Science' seeks to highlight multi- and inter-disciplinarity in palaeobotanical and palynological research, past, present and future. We aim to showcase disciplinary diversity in palynological and palaeobotanical research through themed and open sessions, via demonstrations of new technology platforms in a dedicated exhibition space and during post-conference field excursions.

We have planned exciting cultural activities and field trips for you to explore the great botanical, archaeological and geological richness that the island of Ireland has to offer. These include the famous karst landscapes and flora of the Burren in County Clare and two world heritage sites of immense geological and archaeological interest; The Giants Causeway in Northern Ireland and Skellig Michael, islands within the Atlantic Ocean off the west coast of County Kerry. Mid-conference day trips will showcase the Viking history and building stones of Dublin city and natural heritage of surrounding counties including blanket bogs and oak forests.

Céad Míle Fáilte! We look forward to welcoming you to EPPC Dublin in 2018.

Yours sincerely,

Jennifer C. McElwain

Chair, Organization Committee

All information for the EPPC are available on: <http://eppc2018.ie/>.

Registration is open on: <http://eppc2018.ie/registration/> EARLY BIRD FEES until May 11!



Disclaimer:

Newsletter edited by Lutz Kunzmann & Steven Manchester.

The views expressed in the newsletter are those of its correspondents, and do not necessarily reflect the policy of IOP.

Please send us your contributions for the next edition of our newsletter (115) until end of January 2018.
Contributions should be sent to Lutz.Kunzmann@senckenberg.de.

IOP Logo: The evolution of plant architecture (© by A. R. Hemsley)