IOP NEWSLETTER 119

June 2019

CONTENTS

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

Letter from the president

Dear Members,

In this newsletter we are happy to provide updates and announcements concerning the next quadrennial IOP Conference to be held in Prague, September 12–19 2020. Please find herein the call for symposium themes, due August 31, 2019. We also announce here the availability of IOP-sponsored travel awards to be made available to students attending the conference. To be eligible, students should become members of IOP (what a bargain---still just 10 dollars per year).

This has been a sad time for us with the death of several prominent paleobotanists. Herein are obituaries for Sid Ash, David Batten and Phillip Holmes. We also received news that Manfred Barthel, Berlin, Germany (†06.06.2019), Tom Phillips, Illinois, USA (†14.07.2018), and Philippe Gerrienne, Liège, Belgium passed away.

There is also some good news. I'm happy to note that new paleobotanical positions have been filled recently—Kelly Matsunaga, Assistant Professor at University of Kansas, Az (Ashley) Klymiuk, Collection Manager in Paleobotany at Field Museum of Natural History; Michael Donovan, Collection Manager in Paleobotany at Cleveland Museum of Natural History; Eva-Maria Sadowski, Postdoctoral researcher in Paleobotany at Museum of Natural History Berlin. Please inform me of other new recent positions, as likely have missed some others. Note, also, that we continue to advertise new paleobotanical position openings on the bottom of the home page on our website palaeobotany.org.

Recently, the GAR ROTHWELL CELEBRATION ISSUE has been published in the International Journal of Plant Sciences – Congratulations to all authors and Congratulations Gar!

With best regards, Steve
Steve Manchester (Gainesville, FL, USA), IOP President

Thank you Hans Kerp

From 1984 till 2018 Hans Kerp was editor-in-chief of the Review of Palaeobotany and Palynology. The first 5 volumes of the Review of Palaeobotany and Palynology (RPP) were published in 1967 with the proceedings of the second International Conference of Palynology held in Utrecht in 1966 (the IOP did not exist at that time, and Palaeobotany was included in the conference). In the beginning RPP was a 'Utrecht-based' journal with the first three editors-in-chief originating from the Laboratory of Palaeobotany and Palynology (Arie Manten, Wim Punt and Hans Kerp), but the editorial board itself was very international. In the early years, the journal mainly contained articles in the fields of systematic palaeobotany and palynology, with additional attention for stratigraphic

palynology and pollen morphology; marine palynology was not yet well developed during those years. During the 34 years that Hans Kerp was the editor-in-chief, the journal expanded into an international, highly regarded journal with an innovative and inter-disciplinary approach and papers ranging from marine palynomorphs to higher landplants. Subjects such as evolution, taphonomy, palaeoenvironment, and vegetation history became an integrated part of the journal as well. This resulted in the appointment of two extra editors-in-chief, as Hans could not deal with all these subjects. His main interest was with palaeobotany and he edited numerous contributions in that field. He sometimes spent days correcting language issues and he, being a very good photographer, was always very focused on excellent illustrations. The transition to a digital journal was in that respect also a problem that he managed to solve.
Hans, many thanks for all your work for this important journal in our palaeobotanical world.

Johanna van Konijnenburg-van Cittert (Leiden)

First announcement: IOP Student Travel Awards for IPC/IOPC 2020 in Prague

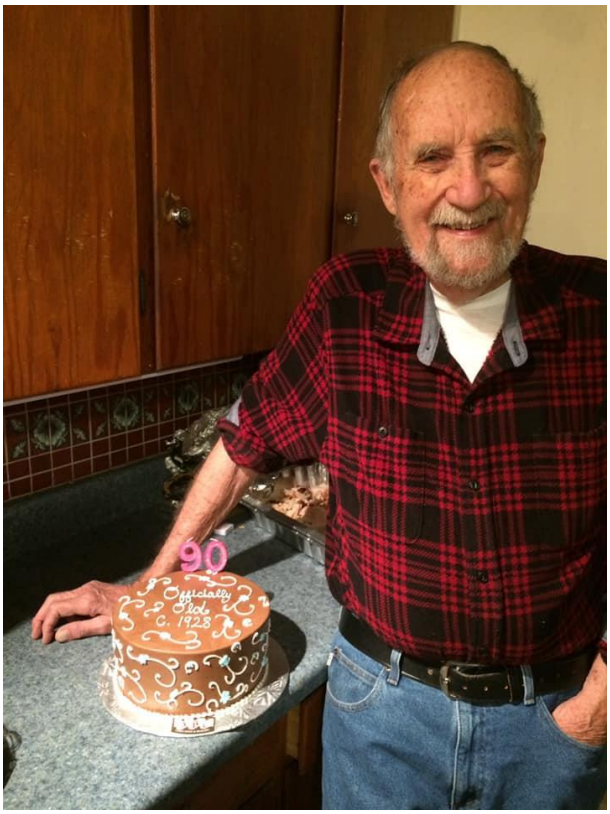
Following our decision during the IOP assembly held during the Dublin EPPC-2018 the International Organisation of Palaeobotany will financially support about 5 to 7 PhD or MSc students in order to enable them to participate in the conference and present their research results. Recent PhD graduates will also qualify for these awards, if their completion was less than nine months prior to the time of the conference. IOP will donate about 12.000 USD/EUR and depending on the location of the applicant's home institute the grant will be either 2.500 USD/EUR for non-Europeans or 1.500 USD/EUR for Europeans.

Applications will require a copy of the conference abstract, a short CV, and letter(s) of support. The application becomes effective when the abstract is accepted by the scientific committee of IPC/IOPC-2020. IOP Membership is mandatory for applicants.

This pre-call tends to inform potential applicants as well as supervisors of potential applicants to be aware of this funding opportunity. An official call for application will be issued in autumn 2019 after the IPC/IOPC organizing committee has decided on scientific symposia.

For further information on IPC/IOPC-2020 including Call for Symposia see at the end of this newsletter.

In memoriam: Sidney (Sid) R. Ash (1928–2019)



Sid Ash on his 90th birthday. From Kathleen Ash-Milby.

Sidney Roy Ash, international expert on Mesozoic paleobotany, died 8 February, 2019, in Albuquerque, New Mexico, at the age of 90. Sid was well known for his work on the Late Triassic plant megafossils of the Chinle Formation of Arizona and New Mexico, USA, and as a friend and collaborator of the international paleobotany community.

A native of Albuquerque, New Mexico, Sid was born 25 November, 1928, to Oliver Knox and Ellen Rosena (Tavernier) Ash. He graduated from Albuquerque High School in 1946, and earned a BA in History from Midland University in Fremont, Nebraska in 1951. Ash served as a commissioned officer in active duty in the US Navy during the Korean conflict. He then returned to Albuquerque where he attended the University of New Mexico, earning a BS (1957) and MS (1961) in geology while working for the United States Geological Survey. He married Shirley Martha Arviso Ash in 1962 and they would go on to have a devoted life of 57 years together and two wonderful children, Kathleen Ash-Milby and Randolph Henry Ash.

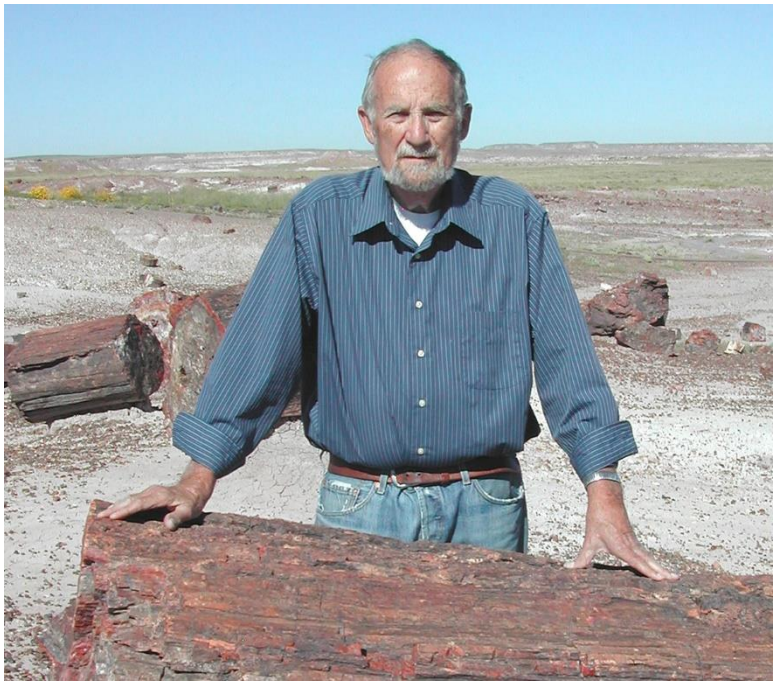
Sid's keen interest in Triassic fossil plants led him to England to study with Mesozoic plant expert Professor Thomas Maxwell Harris at the University of Reading. On receiving his PhD in 1966, Sid returned to the States where he taught at several schools, obtaining a position in the Department of Geology, Weber State College in Ogden, Utah in 1970. He remained in Ogden until his retirement in 1998, when he returned to Albuquerque and remained active in research up until the time of his death.

Sid and Shirley Ash, graduation at University of Reading, 1966. From Kathleen Ash-Milby.

Sid will be best remembered for his work on the Late Triassic plants of the Chinle Formation in the Petrified Forest National Park (PFNP) of Arizona, USA and surrounding areas. His early studies were critical in fleshing out the systematics of this diverse, subtropical flora. These studies included detailed descriptions of the usual suspects of tropical ferns (e.g., *Phlebopteris*), conifers (*Pagiophyllum*), cycads, bennettitales (*Williamsonia*, *Zamites*), seed ferns and a surprising number of equisetophytes. Then there were the unusual plants: *Dechellyia*, *Chilbinia*, and his favorite mystery plant that he named for the Navajo (who call themselves the Diné), *Dinophyton*. He did important biogeographic comparisons of the Chinle plant megafossils and pollen records with other Late Triassic floras of North America, including the Dockum Group of the Southwest and the Newark Supergroup of the Eastern Seaboard and also contributed to the study of Jurassic and Cretaceous plants of North America. He recognized wider distributions for plants previously known from limited areas: he first recognized *Czekanowskia* in North America, the Gondwanan *Fraxinopsis* in Texas, and the controversial *Sanmiguelia* in Arizona.

Later, Sid became increasingly interested in paleoecological studies, and with Geoff Creber and others he published papers on the spatial distribution, wood and bark anatomy, charcoal, and burn scars of Triassic trees. He coauthored papers on the presence in the Chinle of amber, freshwater shark egg capsules and lobsters, and evidence of herbivory on the Chinle plants. He worked with longtime colleague Don Tidwell of Brigham Young University in nearby Provo, Utah, on osmundaceous ferns. Always, Sid contributed to numerous guidebooks. Although he spent his life in the North American Southwest, Sid

enjoyed worldwide travel and connections with an international community of scholars who became his lifelong friends, colleagues and coauthors. Among memorable times abroad were visits to Australia (1976-7) and South Africa (1983-4) with his family along, and fieldwork in the Arctic (mid-1980s). He contributed substantially to international overviews of the Mesozoic world.



Sid at the Petrified Forest National Park, Arizona. From Kathleen Ash-Milby.

I had the fun of coauthoring a paper on *Isoetities rolandi* from the Jurassic Hell Canyon of Idaho with Sid, because it happened to be sitting on a bench in his lab when I visited him in the early 1990s. Sid was a generous colleague who helped me in my early days at Arizona State University and was always willing to meet me and my paleobotany classes at the Petrified Forest, where we would stand, out on the windy outcrop, while he explained the deposition of the forest to my students. I enjoyed his kind, quiet presence and independent spirit. Sid exemplified for me the very best of what I have come to know of paleobotanical colleagues and of the Southwest.

Thanks to Kathleen Ash-Milby for permission to use photographs, and Margaret Collinson, Brian Axsmith, Evelyn Kustatscher, Carole Gee and others for helping with this compilation.

Kathleen B. Pigg, Arizona State University, Tempe, AZ

Contributions in memory of Sid can be made to the National Parks Conservation Association https://www.npca.org/.

Sid Ash and Kathleen Pigg, 2000. On BSA field trip in Oregon at Mel Ashwill's home.

Friends and colleagues remember Sid:

Han van Konijnenburg-van Cittert: I first met Sid Ash in April 1965 on a fieldtrip to the Yorkshire Jurassic, together with Tom Harris. Sid was doing a PhD with Harris at Reading at that time, and I started with the Yorkshire flora as part of my MSc thesis. We spent two weeks in the field together, collecting fossils at all the major localities in Yorkshire. His wife Shirley came over for a few days as well. For both Sid and me, collecting at coastal localities was a new experience; as one can only collect during low tide, one has to be very careful of the tides. One day, Harris misjudged it, and we had to walk back to Whitby through the upcoming sea. As Shirley could not swim, Sid carried her on his back through a difficult passage, while Harris took Sid's rucksack. Our rubber boots were full of water and pants soaked, but we made it safely home.

Since that spring in 1965, Sid and I have always stayed in contact – Sid mainly working on Triassic fossils from the USA and I on Triassic and Jurassic material from Europe. We exchanged papers but also discussed fossils and how to interpret them, and we often reviewed each other's papers.

Also on a personal level we stayed in contact, mainly exchanging news of our children (and later grandchildren). At the fieldtrip of the IOP conference in 1996, Shirley came over for an

evening to see my husband and me again. That was great, but one evening was too short for exchanging all the news. I also learned a lot from Sid on the Pueblo Indian culture.
Sid was a great colleague and I will miss him dearly.

Collecting fossils at Hasty Bank, UK with Tom Harris. 1965. From Han van Konijnenburg-van Cittert.

Jim Basinger (to Sid's daughter Kathleen): Sid and I first met many years ago, back in the 1970's, when I was a student and he would have been established but what I now think of as 'early career'. We would meet regularly at annual meetings, but that changed in the mid-1980's, when Sid and your uncle Hank joined my arctic field party to look into Triassic fossils that David Dilcher and I had recovered on Ellesmere Island. That field season was memorable, and we had what we call 'a blast' – do people still use that term? Sid and Hank had so much fun that it was infectious. They were hilarious, great senses of humour and they fed off each other. There were no hardships for them, only more adventures, as they helicoptered to new sites and wandered the tundra in search of fossils. The Geological Survey of Canada had a base camp on Ellesmere that enabled us to get about, as they stationed a helicopter at their camp. "Sid and Hank" became somewhat of an item at the GSC base, what with their sheer enjoyment in being there. Even years later, when I would happen to see Ashton Embry, the GSC camp chief at that time, Ash would ask, "and how are Sid and Hank?", and then he would recall how much he had enjoyed having them around camp.

Triassic fossils were never in my research sphere, and the field work and the publication that Sid developed from it were purely opportunistic for me. Sid and I never again had a chance to work together, but we maintained a kind of friendship that can only be established by weeks together in the field. And even though I seldom saw Sid over the past 20 years, I often thought of him, and the last time we communicated I had determined that I would take a trip south for a much overdue visit. As I near retirement, and look forward to the freedom that will bring, it seemed a fitting trip. And now it is too late. I will be among so many of his colleagues who will greatly miss him.

Lea Grauvogel-Stamm: Yes I knew Sid and his wife rather well but I have no more seen him (them) since a long time, since at least 1998, that makes twenty years ago. With him I achieved the obituary of Inna Dobruskina some years ago. I stayed in his home and his laboratory in Albuquerque when we studied the Triassic reproductive organ assigned to *Lycostobus chinleana* and demonstrated that in reality it was an equisetalean one and not a lycopsid one.

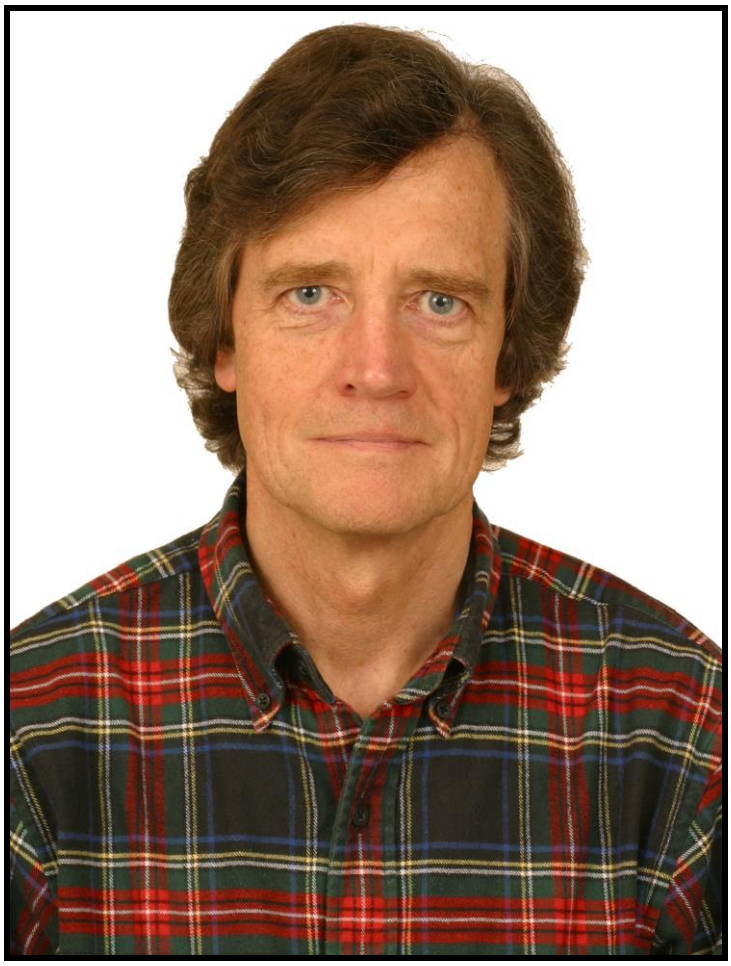
Field trip with IOPC Conference, 1996. From Lea Grauvogel-Stamm.

Ge Sun: Deep Condolence (Feb.15, 2019). I am deeply grieved to have the sad news that Dr. Sid Ash passed away on the last Friday. Dr. Ash is not only an outstanding and famous paleobotanist in the world, but also an old friend of Chinese paleobotanists. It was unforgettable time for me that he had warmly invited me to his lab in the Weber University in 1994 spring, living in his home for several days with his hospitality, when he was Professor and Head of the Department Geology of the University. Also, I was honor and pleased to receive him and his son to visit China, including Xinjiang and in Nanjing for co-working in the June of 1994. His contributions and advice in study of the Triassic plants had much benefited the progress for my professional career. His erudite, kind-hearted, noble character and friendship with the Chinese paleobotanists have been still remained in my memory.

The death of Dr. Ash has made us lose a nice advisor and friend from the States. I am deep in memory of him. His lofty spirit will hang forever! Please convey my greetings and sympathy to Dr Ash's family members.

Brian Axsmith: I owe my entrance into the field of paleobotany to Sid. I showed him Triassic plants that I had discovered in my native state of Pennsylvania and he encouraged me to study them. My career in paleobotany is all because of Sid's kindness and support.

In memoriam: Professor David J. Batten (1943–2019)



Professor David J. Batten passed away on February 14, 2019 after battling with cancer. He had for the past four years been living in a small village surrounded by the beautiful Herefordshire countryside, and the last weeks of his life were spent at St Michael's Hospice in Bartestree, Herefordshire, England. David was born in 1943 in Watford, England and was brought up in Croydon, South London within easy reach of the local countryside. After his 'O' levels David moved with his family and attended boarding school in Canada. He later graduated from Queen's University, Canada with a BA in Liberal Arts in 1964 and a BSc in Geology with a minor in Biology the following year. He was awarded an MSc in Micropalaeontology from University College London in 1966, and a PhD from the University of Cambridge in 1969 for research on British Wealden (Lower Cretaceous) palynomorphs and their facies distribution, under the supervision of Norman Hughes. David remained at Cambridge for two years before taking up employment in industry (Robertson Research and BP). He moved to the University of Aberdeen as a Lecturer in 1976, relocating to the University of Wales, Aberystwyth, in 1990 where he was promoted to a personal chair in 1992. With the closure of the Geology Subdepartment there in 2002, he became affiliated

with the University of Manchester. David is survived by his daughter Sarah and his son Alexander and one grandchild, Adelina who live in Canada and the USA respectively.

David is best known for his contributions to Mesozoic terrestrial palynology and palynofacies analysis, his research covering a wide range of palynological and paleobotanical topics including the Normapolles pollen group and phytogeographic provinces in the Mesozoic and Cenozoic, and Mesozoic and Tertiary megaspores. David's many publications on palynofacies, from the early 1970s onwards, were to shape the way palynologists have approached this important subject. Wealden palynology remained David's abiding passion, and his research incorporated pollen, microspores, megaspores, chlorococcalean algae, freshwater dinoflagellates, macropaleontology, and palynofacies analysis, setting new standards for rigorous documentation and thoughtful interpretation. The 780-page *English Wealden Fossils* published by the Palaeontological Association, London in 2011 and edited by David, with five of its 35 chapters authored or co-authored by him, has resulted in a masterly and beautifully illustrated synthesis of the Wealden biota. Its sobriquet 'the Wealden Bible' is richly deserved.

David served as Editor-in-Chief of *Cretaceous Research* (1988–2007, 2011–2012) and Editor-in-Chief of the Palaeontological Association which included editing its flagship publication *Palaeontology* (1999–2008), responsibilities he took very seriously and which benefitted enormously from his editorial vision and meticulous attention to detail. In spite of the premature curtailment of David's university career in 2002, he supervised or co-supervised eight MSc students and 14 PhD students. His publishing output included 193 refereed papers and chapters in books, very many as first or sole author, along with 12 edited books, special issues, and field guides. David collaborated with colleagues around the world, and is particularly fondly remembered by many friends and colleagues in China, having been appointed to a Distinguished Visiting Professorship for Senior International Scientists by the Chinese Academy of Sciences in Nanjing in 2011–2012.

Those who knew David will remember a kind, rather reserved, deeply reflective and unassuming individual who held himself always to the highest standards. As a supervisor he led by example. In recognition of an outstanding career, David was awarded the T.M. Harris Medal of the Birbal Sahni Institute of Palaeobotany, India in 1998, the Jongmans Medal of the Royal Geological and Mining Society of the Netherlands in 2006, and an honorary life membership of The Palaeontological Association, London in 2011. He was awarded the prestigious Medal for Scientific Excellence of AASP–The Palynological Society in 2018. A broader account of David's life and career appears in the citation for this medal (by M.J. Head) followed by David's own detailed response, both appearing in the journal *Palynology* to be published later this year. A list of David's postdocs/research fellows, research students, and publications is given below.

Postgraduate/doctoral research fellows/associates

Dr Li Wenben, Chinese Academy of Sciences, Nanjing, China (1983–85);
Dr Michael Sandy, Aberdeen (1984–86);

Dr Warren L. Kovach, NATO Postdoctoral Fellow (1987–88) and research assistant (1989) in Aberdeen; research associate in Aberystwyth (1990–92);
Dr Eva B. Koppelhus, Geological Survey of Denmark (1990–91);
Dr Ana Maria Zavattieri, CONICET, CRICYT-PRIPIBA, Mendoza, Argentina (1993–95);
Dr Rita Dutta, University of Wales, Aberystwyth (1995);
Mr Li Jianguo, Chinese Academy of Sciences, Nanjing, China (2003–04);
Ms France Polette, University of Rennes (2015–16).

Research students (source of funding in brackets after title of project)

Brown, L.M. MSc, 1980. Dinoflagellate cyst biostratigraphy of the Hauterivian to Barremian boundary beds at Speeton, east Yorkshire. (Robertson Research International).

Barker, F.L. MSc, 1981. Stratigraphic distribution of the miospore genus *Trilobosporites* in the Lower Cretaceous of southern England. (Manpower Services Commission).

Burnhill, T.J. PhD, 1982. Mid-Cretaceous stratigraphy and micropalaeontology of the central North Sea. (British Petroleum plc.).

Marshall, K.L. PhD, 1983. Dinoflagellate cysts from the Cenomanian, Turonian and Coniacian of Germany and England. (NERC).

Partington, M.A. PhD, 1983. The stratigraphy, distribution and phylogeny of some Lower Cretaceous Circumpolles from southern England. (NERC).

Tocher, B.A. PhD, 1984. Palynostratigraphy of uppermost Albian to basal Coniacian (Cretaceous) sediments of the western Anglo-Paris Basin. (City of London Polytechnic; with co-supervisor T. Kilenyi, CLP).

Ewen, D.F. MSc, 1985. Palynological investigation of the Upper Delfland and Fourteen's Clay Formations of three wells in the Q/1 Block of the Dutch Sector, North Sea Basin. (Unocal).

MacLennan, A.M. PhD, 1985. Biostratigraphic and palynofacies analysis of selected Lower Cretaceous sections from Portugal. (NERC).

Barron, H.F. MSc, 1986. Dinoflagellate cyst biostratigraphy and palynofacies analysis of the Upper Jurassic strata at Helmsdale, N.E. Sutherland. (Robertson Research International).

Cutts, R. MSc, 1987. Middle Jurassic palynology of the Brora Outlier, Sutherland. (Robertson Research International).

Lister, J.K. MSc, 1987. Palynology of the Cretaceous (Barremian-Aptian) sequence in the Hurlands Farm Borehole, West Sussex. (Self-financing).

Mellanby, F. MSc, 1987. Ostracod assemblages as indicators of salinity in the Upper Jurassic and Lower Cretaceous of southern England. (Self-financing).

Uwins, P.J.R. PhD, 1987. Early to mid-Cretaceous palynology of the Cyrenaica Basin, Northeast Libya. (Jersey Education Authority).

Farr, K.M. PhD, 1988. Palynomorph and palynodebris distributions in modern estuarine sediments. (NERC).

Head, M.J. PhD, 1990. Dinoflagellate cysts and other marine palynomorphs from lower Eocene through lower Pliocene sediments of the Labrador Sea and Baffin Bay. (NERC).

Dutta, R.J. PhD, 1994. Ultrastructure of Mesozoic spores and pollen. (NERC).

Chryssi, M. PhD, 1996. Palynology of Early Tertiary sections in NW Germany. (Republic of Greece, State Scholarships Foundation).

Harris, A.J. PhD, 1997. Palynology of Cenomanian–Turonian successions in the Western Interior of the USA (AASP Consortium; with co-supervisor B.A. Tocher).

Prince, I.M. PhD, 1997. Palynology of the Upper Cretaceous succession of the Anglo-Paris Basin. (AASP Consortium; with co-supervisor B.A.Tocher).

Lydon, S.J. PhD, 2000. Distribution of dispersed plant cuticles in the English Wealden with systematic revision of the Ginkgoales and allied gymnosperms (NERC; with co-supervisor J. Watson, University of Manchester).

Li Jianguo, PhD, 2004. Palynology of Late Cretaceous – Early Miocene sediments of the southern margin of the Laurasian continent in Xigaze, Xizang (Tibet). (Chinese Academy of Sciences; with co-supervisors Zhou Zhiyan, Zhang Yiyong of Nanjing Institute of Geology and Palaeontology, Chinese Academy of Sciences and M. Banerjee of University of Calcutta).

Lukaye, J. MPhil, 2007. Biostratigraphy and palynofacies of four petroleum exploration wells from the Albertine Graben, Uganda (Dept. of Petroleum Exploration and Production, Ministry of Energy and Mineral Development, Uganda; with co-supervisor D. Stead, Wellstrat Services Ltd)

Polette, F., PhD candidate 2016 to date. French Cretaceous palynology. (University of Rennes, France; with co-supervisor D. Néraudeau, University of Rennes).

Students who graduated from the University of Wales, Aberystwyth with an MSc in palynology

1991: D.T. Stead, P.D. Roberts

1992: M.A. Brimble, P.S. Dibble, C.J. Matthews, V. Persson, P. Winrow

1993: S.P. Murphy, C.J. Payne, J.D. Rees

1994: R.C. Chiverrell, R.J. Coates, F. Henchley, R.C. McGee, D. Patterson

Refereed papers and chapters in books

1. Batten, D.J. 1968. Probable dispersed spores of Cretaceous *Equisetites*. *Palaeontology* **11**, 633–642, pl. 123.

2. Batten, D.J. 1969. Some British Wealden megaspores and their facies distribution. *Palaeontology* **12**, 333–350, pls 62–67.

3. Batten, D.J. 1972. Recognition of the facies of palynologic assemblages as a basis for improved stratigraphic correlation. *Proceedings of the 24th International Geological Congress*, Montreal (1972) **7**, 367–374.

4. Batten, D.J. 1973. Use of palynologic assemblage-types in Wealden correlation. *Palaeontology* **16**, 1–40.

5. Batten, D.J. 1973. Recognition of the facies of British Early Cretaceous palynomorph assemblages for stratigraphic purposes. In *Palynology of the Mesophyte*, Chlonova, A.F.

(ed.). *Proceedings of the 3rd International Palynological Conference*, Novosibirsk 1971. Publishing House “Nauka”, Moscow, 127–131.

6. Batten, D.J. 1973. Palynology of Early Cretaceous soil beds and associated strata. *Palaeontology* **16**, 399–424.

7. Batten, D.J. 1975. Wealden palaeoecology from the distribution of plant fossils. *Proceedings of the Geologists' Association* **85** (for 1974), 433–458, pl. 13.

8. Batten, D.J. 1977. Wealden of the Weald – a new model: written discussion of a paper previously published. *Proceedings of the Geologists' Association* **87** (for 1976), 431–433.

9. Batten, D.J. 1978. Early Cretaceous to Middle Jurassic miospores and palynofacies of the Northwest European continental shelf. In *Distribution of biostratigraphically diagnostic dinoflagellate cysts and miospores from the Northwest European continental shelf*, Thusu, B. (ed.). *Continental Shelf Institute, Publication* **100**, 97–101.

10. Lock, B.E., Pickton, C.A.G., Smith, D.G., Batten, D.J. & Harland, W.B. 1978. The geology of Edgøya and Barentsøya, Svalbard. *Skrifter, Norsk Polarinstitutt* **168**, 64 pp.

11. Batten, D.J. 1979. Miospores and other acid-resistant microfossils from the Aptian/Albian of Holes 400A and 402A, DSDP-IPOD Leg 48, Bay of Biscay. *Initial Reports of the Deep Sea Drilling Project* **48**, 579–587.

12. Batten, D.J. 1980. Aptian and Albian palynomorph assemblages from southern England. *Proceedings of the 4th International Palynological Conference*, Lucknow (1976–77) **2**, 403–408, pl. 1.

13. Batten, D.J. 1980. Use of transmitted light microscopy of sedimentary organic matter for evaluation of hydrocarbon source potential. *Proceedings of the 4th International Palynological Conference*, Lucknow (1976–77) **2**, 589–594.

14. Batten, D.J. 1981. Palynofacies, organic maturation and source potential for petroleum. In *Organic maturation studies and fossil fuel exploration*, Brooks, J. (ed.). Academic Press, London, 201–223.

15. Batten, D.J. 1981. Stratigraphic, palaeogeographic and evolutionary significance of Late Cretaceous and early Tertiary Normapolles pollen. *Review of Palaeobotany and Palynology* **35**, 125–137.

16. Batten, D.J. & Christopher, R.A. 1981. Key to the recognition of Normapolles and some morphologically similar pollen genera. *Review of Palaeobotany and Palynology* **35**, 359–383.

17. Batten, D.J., Brown, P.E., Dawes, P.R., Higgins, A.K., Koch, B.E., Parsons, I. & Soper, N.J. 1981. Peralkaline volcanicity on the Eurasia Basin margin. *Nature* **294**, 150–152.

18. Batten, D.J. 1982. Note on the European-Turanian part of the Normapolles Province. *Review of Palaeobotany and Palynology* **36**, 379–380.

19. Batten, D.J. 1982. Palynofacies and salinity in the Purbeck and Wealden of southern England. In *Aspects of micropalaeontology*, Banner, F.T. & Lord, A.R. (eds). George Allen & Unwin, London, 278–308.

20. Batten, D.J. 1982. Palynofacies, palaeoenvironments and petroleum. *Journal of Micropalaeontology* **1**, 107–114.

21. Batten, D.J. 1982. Palynology of shales associated with the Kap Washington Group volcanics, central North Greenland. *Grønlands Geologiske Undersøgelse, Rapport* **108**, 15–23.

22. Batten, D.J. 1983. Identification of amorphous sedimentary organic matter by transmitted light microscopy. In *Petroleum geochemistry and exploration of Europe*, Brooks, J. (ed.). *Geological Society, London, Special Publication* **11**, 275–287.

23. Batten, D.J. & Morrison, L. 1983. Methods of palynological preparation for palaeoenvironmental, source potential and organic maturation studies. In *Palynology – micropalaeontology: laboratories, equipment and methods*, Costa, L.I. (ed.). *Norwegian Petroleum Directorate, Bulletin* **2**, 35–53.

24. Gaupp, R. & Batten, D.J. 1983. Depositional setting of middle to Upper Cretaceous sediments in the Northern Calcareous Alps from palynological evidence. *Neues Jahrbuch für Geologie und Paläontologie, Monatshefte* **1983**, 585–600.

25. Batten, D.J. 1984. Palynology, climate, and the development of Late Cretaceous floral provinces in the Northern Hemisphere; a review. In *Fossils and climate*, Brenchley, P.J. (ed.). *Geological Journal, Special Issue* **11**, 127–164.

26. Batten, D.J. 1984. Fossil plant remains and North Sea oil and gas. *Deeside Field* **18**, 52–56.

27. Batten, D.J. 1984. Geological reasons for the success of petroleum exploration in the UK offshore. *Deeside Field* **18**, 124–125.

28. Batten, D.J. & MacLennan, A.M. 1984. The paleoenvironmental significance of the conifer family Cheirolepidiaceae in the Cretaceous of Portugal. In *Third Symposium on Mesozoic Terrestrial Ecosystems; short papers*, Reif, W.-E. & Westphal, F. (eds). ATTEMPTO Verlag, Tübingen, 7–12.

29. Batten, D.J., Creber, G.T. & Zhou Zhiyan 1984. Fossil plants and other organic debris in Cretaceous sediments from Deep Sea Drilling Project Leg 80: their paleoenvironmental significance and source potential. *Initial Reports of the Deep Sea Drilling Project* **80**, 629–641.

30. Sladen, C.P. & Batten, D.J. 1984. Source-area environments of Late Jurassic and Early Cretaceous sediments in Southeast England. *Proceedings of the Geologists' Association* **95**, 149–163.

31. Batten, D.J. 1985. Coccolith moulds in sedimentary organic matter and their use in palynofacies analysis. *Journal of Micropalaeontology* **4** (2), 111–116.

32. Batten, D.J. 1985. Two new dinoflagellate cyst genera from the non-marine Lower Cretaceous of Southeast England. *Neues Jahrbuch für Geologie und Paläontologie, Monatshefte* **1985**, 427–437.

33. Batten, D.J. & Uwins, P.J.R. 1985. Early–Late Cretaceous (Aptian–Cenomanian) palynomorphs. In *Palynostratigraphy of northeast Libya*. *Journal of Micropalaeontology* **4** (1), 151–167.

34. Batten, D.J. & van Geel, B. 1985. *Celyphus rallus*, probable Early Cretaceous rivulariacean blue-green alga. *Review of Palaeobotany and Palynology* **44**, 233–241.

35. Gaupp, R. & Batten, D.J. 1985. Maturation of organic matter in Cretaceous strata of the Northern Calcareous Alps. *Neues Jahrbuch für Geologie und Paläontologie, Monatshefte* **1985**, 157–175.

36. Collinson, M.E., Batten, D.J., Scott, A.C. & Ayonghe, S.N. 1985. Palaeozoic, Mesozoic and contemporaneous megaspores from the Tertiary of southern England: indicators of sedimentary provenance and ancient vegetation. *Journal of the Geological Society, London* **142**, 375–395.

37. Batten, D.J. 1986. Systematics of pre-Quaternary palynomorphs. In *Systematic and taxonomic approaches in palaeobotany,* Thomas, B.A. & Spicer, R.A. (eds). *Systematics Association, Special Volume* **31**, 253–262.

38. Batten, D.J. 1986. Possible functional implications of exine sculpture and architecture in some Late Cretaceous Normapolles pollen. In *Pollen and spores: form and function*, Blackmore, S. & Ferguson, I.K. (eds). *Linnean Society, Symposium Series* **12**, 219–232.

39. Batten, D.J. 1986. N.F. Hughes – biography and bibliography. *Special Papers in Palaeontology* **35**, 1–5.

40. Batten, D.J. 1986. The Cretaceous Normapolles pollen genus *Vancampopollenites*: occurrence, form and function. *Special Papers in Palaeontology* **35**, 21–39.

41. Batten, D.J., Trewin, N.H. & Tudhope, A.W. 1986. The Triassic-Jurassic junction at Golspie, inner Moray Firth Basin. *Scottish Journal of Geology* **22**, 85–98.

42. Li Wen-ben & Batten, D.J. 1986. The Early Cretaceous megaspore *Arcellites* and closely associated *Crybelosporites* microspores from northeast Inner Mongolia, P.R. China. *Review of Palaeobotany and Palynology* **46**, 189–208.

43. Batten, D.J. 1987. Palynofacies analysis, depositional environments and source potential for petroleum. *VII Simposio Argentino de Paleobotánica y Palinología, Actas*, Buenos Aires, 7–14.

44. Batten, D.J. & Ferguson, D.J.P. 1987. *Cabochonicus*, a new genus for species of gemmate megaspores previously referred to *Verrutriletes*. *Journal of Micropalaeontology* **6** (1), 65–75.

45. Batten, D.J. & Li Wenben 1987. Aspects of palynomorph distribution, floral provinces and climate during the Cretaceous. *Geologisches Jahrbuch A* **96**, 219–237.

46. Batten, D.J. & Morrison, L. 1987. Morphology and occurrence of the Normapolles pollen genus *Papillopollis* in the Cretaceous of Portugal. *Palynology* **11**, 133–154.

47. Batten, D.J., Lister, J.K., MacLennan, A.M. *et al.* 1987. Dorset, Jurassic. In *Mesozoic and Cenozoic stratigraphical micropalaeontology of the Dorset coast and Isle of Wight*, *southern England*, Lord, A.R. & Bown, P.R. (eds). *British Micropalaeontological Society, Field Guide* **1**, 3–78.

48. Batten, D.J., Lister, J.K., MacLennan, A.M. *et al.* 1987. The Isle of Wight, Cretaceous. In *Mesozoic and Cenozoic stratigraphical micropalaeontology of the Dorset coast and Isle of Wight*, *southern England*, Lord, A.R. & Bown, P.R. (eds). *British Micropalaeontological Society, Field Guide* **1**, 88–149.

49. Batten, D.J., Streel, M., Dusar, M. & Bless, M.J.M. 1987. Late Cretaceous palynomorphs from the boreholes Thermae 2002 (Valkenburg a/d Geul, the Netherlands) and 's-Gravenvoeren (Belgium). *Annales de la Société Géologique de Belgique* **110**, 47–51.

50. Li Wenben, Batten, D.J., Zhang Dahua & Zhang Liangde 1987. Early Cretaceous megaspores from the Jalainor Group of northeast Inner Mongolia, P.R. China. *Palaeontographica B* **206**, 117–135, pls 1–9.

51. Batten, D.J. 1988 [1987]. Revision of S.J. Dijkstra's Late Cretaceous megaspores and other plant microfossils from Limburg, The Netherlands. *Mededelingen, Rijks Geologische Dienst* **41-3**, 1–55.

52. Batten, D.J. & Lister, J.K. 1988a. Evidence of freshwater dinoflagellates and other algae in the English Wealden (Early Cretaceous). *Cretaceous Research* **9**, 171–179.

53. Batten, D.J. & Lister, J.K. 1988b. Early Cretaceous dinoflagellate cysts and chlorococcalean algae from freshwater and low salinity palynofacies in the English Wealden. *Cretaceous Research* **9**, 337–367.

54. Batten, D.J., Dupagne-Kievits, J. & Lister, J.K. 1988. Palynology of the Upper Cretaceous Aachen Formation of northeast Belgium. In *The Chalk District of the Euregio Meuse-Rhine*, Streel, M. & Bless, M.J.M. (eds). Natuurhistorisch Museum Maastricht, The Netherlands and Laboratoires de Paléontologie de l'Université d'Etat à Liège, Belgium, 95–103.

55. Lister, J.K. & Batten, D.J. 1988a. *Hurlandsia*, a new non-marine Early Cretaceous dinocyst genus. *Neues Jahrbuch für Geologie und Paläontologie, Monatshefte* **1988**, 505–516.

56. Lister, J.K. & Batten, D.J. 1988b. Stratigraphic and palaeoenvironmental distribution of Early Cretaceous dinoflagellate cysts in the Hurlands Farm Borehole, West Sussex, England. *Palaeontographica B* **210**, 9–89, pls 1–13.

57. Marshall, K.L. & Batten, D.J. 1988. Dinoflagellate cyst associations in Cenomanian–Turonian "black shale" sequences of northern Europe. *Review of Palaeobotany and Palynology* **54**, 85–103.

58. Médus, J., Feist, M., Rocchia, R., Batten, D.J., Boclet, D., Colombo, F., Tambareau, Y. & Villatte, J. 1988. Prospects for recognition of the palynological Cretaceous/Tertiary boundary and an iridium anomaly in nonmarine facies of the eastern Spanish Pyrenees: a preliminary report. *Newsletters on Stratigraphy* **18**, 123–138.

59. Uwins, P.J.R. & Batten, D.J. 1988. Early to mid-Cretaceous palynology of northeast Libya. In *Subsurface palynostratigraphy of northeast Libya*, El-Arnauti, A., Owens, B. & Thusu, B. (eds). Garyounis University Publications, Benghazi, Libya (SPLAJ), 215–257.

60. Batten, D.J. 1989. Cretaceous freshwater dinoflagellates. Short Communication. *Cretaceous Research* **10**, 271–273.

61. Batten, D.J. 1989. Systematic relationships between Normapolles pollen and the Hamamelidae. In *Evolution, systematics, and fossil history of the Hamamelidae*. *Volume 2: 'Higher' Hamamelidae*, Crane, P.R. & Blackmore, S. (eds). *Systematics Association, Special Volume* **40B**, 9–21.

62. Koppelhus, E.B. & Batten, D.J. 1989. Late Cretaceous megaspores from southern Sweden: morphology and paleoenvironmental significance. *Palynology* **13**, 91–120.

63. Kovach, W.L. & Batten, D.J. 1989. Worldwide stratigraphic occurrences of Mesozoic and Tertiary megaspores. *Palynology* **13**, 247–277.

64. Batten, D.J. 1990. Correspondence. Terminology. *Geology Today* **6**, 122–123. [re Lower/Upper, early/late]

65. Batten, D.J. & Kovach, W.L. 1990. Catalog of Mesozoic and Tertiary megaspores. *American Association of Stratigraphic Palynologists, Contributions Series* **24**, ii + 227 pp.

66. Kovach, W.L. & Batten, D.J. 1990. Multivariate analysis of palynofacies and other micropalaeontological data. *North Sea '90* (International Symposium, British Geological Survey, Nottingham), 24–27.

67. Ruffell, A.H. & Batten, D.J. 1990. The Barremian–Aptian arid phase in western Europe. *Palaeogeography, Palaeoclimatology, Palaeoecology* **80**, 197–212.

68. Watson, J. & Batten, D.J. 1990. A revision of the English Wealden flora, II. Equisetales. *Bulletin of the British Museum, Natural History* (*Geology*) **46**, 37–60.

69. Hesselbo, S.P., Coe, A.L., Batten, D.J. & Wach, G.D. 1990. Stratigraphic relations of the Lower Greensand (Lower Cretaceous) of the Calne area, Wiltshire. *Proceedings of the Geologists' Association* **101**, 265–278.

70. Baldoni, A.M. & Batten, D.J. 1991. Megaspores from the Lower Cretaceous Kachaike Formation, Santa Cruz Province, Argentina. *Neues Jahrbuch für Geologie und Paläontologie, Abhandlungen* **182**, 377–393.

71. Batten, D.J. 1991. Reworking of plant microfossils and sedimentary provenance. In *Developments in sedimentary provenance studies*, Morton, A.C., Todd, S.P. & Haughton, P.D.W. (eds). *Geological Society, London, Special Publication* **57**, 79–90.

72. Batten, D.J. 1991. Correspondence. Lower-Upper-early-late revisited. *Geology Today* **7**, 176.

73. Batten, D.J. & Marshall, K.L. 1991. Palynology of Upper Cretaceous "black shales" from Helgoland, southern North Sea. *Geologisches Jahrbuch A* **120**, 105–115.

74. Charlton, W.A., Watson, J. & Batten, D.J. 1991. A fossil palm at the back door of Hastings Museum, Sussex, England. *Tertiary Research* **13**, 1–9.

75. Batten, D.J. 1992. Comments on *Banksisporites* Dettmann: discussion. *Palynos* **15** (2), 4.

76. Batten, D.J. 1992. Stratigraphic and palaeoenvironmental analyses continue to demand the inclusion of high quality palaeontological data. *Cretaceous Research* **13**, 591–595.

77. Koppelhus, E.B. & Batten, D.J. 1992. Megaspore assemblages from the Jurassic and lowermost Cretaceous of Bornholm, Denmark. *Danmarks Geologiske Undersøgelse, Serie A* **32**, 1–81.

78. Batten, D.J. & Koppelhus, E.B. 1993. Morphological reassessment of some zonate and coronate megaspore genera of mainly post-Palaeozoic age. *Review of Palaeobotany and Palynology* **78**, 19–40.

79. Kovach, W.L. & Batten, D.J. 1993. Diversity changes in lycopsid and aquatic fern megaspores through geologic time. *Paleobiology* **19**, 28–42.

80. Knobloch, E., Kvaček, Z., Bůžek, C., Mai, D.H. & Batten, D.J. 1993. Evolutionary significance of floristic changes in the Northern Hemisphere during the Late Cretaceous

and Palaeogene, with particular reference to Central Europe. *Review of Palaeobotany and Palynology* **78**, 41–54.

81. Batten, D.J., Collinson, M.E. & Knobloch, E. 1994. *Ariadnaesporites* and *Capulisporites*: "water fern" megaspores from the Upper Cretaceous of Central Europe. *Review of Palaeobotany and Palynology* **83**, 159–174.

82. Batten, D.J., Koppelhus, E.B. & Nielsen, L.H. 1994. Uppermost Triassic to Middle Jurassic palynofacies and *palynomiscellanea* in the Danish Basin and Fennoscandian Border Zone. *Cahiers de Micropaléontologie, Nouvelle Série* **9**, 21–45, pls 1–4.

83. Kovach, W.L. & Batten, D.J. 1994. Association of palynomorphs and palynodebris with depositional environments: quantitative approaches. In *Sedimentation of organic particles*, Traverse, A. (ed.). Cambridge University Press, Cambridge, 391–407.

84. Ruffell, A.H. & Batten, D.J. 1994. Uppermost Wealden facies and Lower Greensand Group (Lower Cretaceous) in Dorset, southern England: correlation and palaeoenvironment. *Proceedings of the Geologists' Association* **105**, 53–69.

85. Batten, D.J. 1995. Editorial. A tribute to Professor P. Allen, FRS. Part 1. *Cretaceous Research* **16**, 599–601.

86. Batten, D.J. 1995. Megaspores from lowermost Aptian beds in northern Germany. *Geologisches Jahrbuch A* **141**, 403–443.

87. Batten, D.J. & Zavattieri, A.M. 1995. Occurrence of dispersed seed cuticles and similar microfossils in mainly Cretaceous successions of the Northern Hemisphere. *Cretaceous Research* **16**, 73–94.

88. Lister, J.K. & Batten, D.J. 1995. Palynostratigraphy of the Barremian–Aptian succession in the Wiechendorf 1/86 and Hoheneggelsen KB9 boreholes in the Lower Saxony Basin, North Germany. *Geologisches Jahrbuch A* **141**, 367–395.

89. Ruffell, A.H. & Batten, D.J. 1995. Environmental interpretation of Cretaceous sequences in two north German boreholes on the basis of integrated clay mineralogical and palynofacies analyses. *Geologisches Jahrbuch A* **141**, 445–457.

90. Rice, C.M., Ashcroft, W.A., Batten, D.J., Boyce, A.J. *et al.* 1995. A Devonian auriferous hot spring system, Rhynie, Scotland. *Journal of the Geological Society, London* **152**, 229–250.

91. Batten, D.J. 1996. Editorial. A tribute to Professor P. Allen, FRS. Part 2. *Cretaceous Research* **17**, 1–4.

92. Batten, D.J. 1996. Colonial Chlorococcales. Chapter 7C. In *Palynology: principles and applications*, Volume 1, Jansonius, J. & McGregor, D.C. (eds). American Association of Stratigraphic Palynologists' Foundation, Dallas, 191–203.

93. Batten, D.J. 1996. Mesozoic–Tertiary spores and pollen. Introduction. Chapter 20. In *Palynology: principles and applications*, Volume 2, Jansonius, J. & McGregor, D.C. (eds). American Association of Stratigraphic Palynologists' Foundation, Dallas, 751–753.

94. Batten, D.J. 1996. Upper Jurassic and Cretaceous miospores. Chapter 20E. In *Palynology: principles and applications*, Volume 2, Jansonius, J. & McGregor, D.C. (eds). American Association of Stratigraphic Palynologists' Foundation, Dallas, 807–830.

95. Batten, D.J. 1996. Palynofacies. Introduction. Chapter 26. In *Palynology: principles and applications*, Volume 3, Jansonius, J. & McGregor, D.C. (eds). American Association of Stratigraphic Palynologists' Foundation, Dallas, 1011.

96. Batten, D.J. 1996. Palynofacies and palaeoenvironmental interpretation. Chapter 26A. In *Palynology: principles and applications*, Volume 3, Jansonius, J. & McGregor, D.C. (eds). American Association of Stratigraphic Palynologists' Foundation, Dallas, 1011–1064.

97. Batten, D.J. 1996. Palynofacies and petroleum potential. Chapter 26B. In *Palynology: principles and applications*, Volume 3, Jansonius, J. & McGregor, D.C. (eds). American Association of Stratigraphic Palynologists' Foundation, Dallas, 1065–1084.

98. Batten, D.J. & Grenfell, H. 1996. *Botryococcus*. Chapter 7D. In *Palynology: principles and applications*, Volume 1, Jansonius, J. & McGregor, D.C. (eds). American Association of Stratigraphic Palynologists' Foundation, Dallas, 205–214.

99. Batten, D.J. & Koppelhus, E.B. 1996. Biostratigraphic significance of uppermost Triassic and Jurassic miospores in northwest Europe. Chapter 20D. In *Palynology: principles and applications*, Volume 2, Jansonius, J. & McGregor, D.C. (eds). American Association of Stratigraphic Palynologists' Foundation, Dallas, 795–806.

100. Batten, D.J. & Zavattieri, A.M. 1996. Re-examination of seed cuticles from Cretaceous deposits in West Greenland. *Cretaceous Research* **17**, 691–714.

101. Batten, D.J., Dutta, R.J. & Knobloch, E. 1996. Differentiation, affinities and palaeoenvironmental significance of the megaspores *Arcellites* and *Bohemisporites* in Wealden and other Cretaceous successions. *Cretaceous Research* **17**, 39–65.

102. Koppelhus, E.B. & Batten, D.J. 1996. Application of a palynomorph zonation to a series of short borehole sections, Lower to Middle Jurassic, Øresund, Denmark. Chapter 20C. In *Palynology: principles and applications*, Volume 2, Jansonius, J. & McGregor, D.C. (eds). American Association of Stratigraphic Palynologists' Foundation, Dallas, 779–793.

103. Zavattieri, A.M. & Batten, D.J. 1996. Miospores from Argentinian Triassic deposits and their potential for intercontinental correlation. Chapter 20B. In *Palynology: principles and applications*, Volume 2, Jansonius, J. & McGregor, D.C. (eds). American Association of Stratigraphic Palynologists' Foundation, Dallas, 767–778.

104. Al-Ameri, T.K. & Batten, D.J. 1997. Palynomorph and palynofacies indications of age, depositional environment and source potential for hydrocarbons: Lower Cretaceous Zubair Formation, southern Iraq. *Cretaceous Research* **18**, 789–797.

105. Baldoni, A.M. & Batten, D.J. 1997. Cretaceous megaspores from two boreholes in the Austral Basin, Santa Cruz Province, Argentina, and their stratigraphic and palaeoenvironmental significance. *Neues Jahrbuch für Geologie und Paläontologie, Abhandlungen* **205**, 97–110.

106. Batten, D.J. & Dutta, R.J. 1997. Ultrastructure of exine of gymnospermous pollen grains from Jurassic and basal Cretaceous deposits in Northwest Europe and implications for botanical relationships. *Review of Palaeobotany and Palynology* **99**, 25–54.

107. Wood, C.J., Batten, D.J., Mortimore, R.N. & Wray, D.S. 1997. The stratigraphy and correlation of the Cenomanian-Turonian boundary interval succession in Lincolnshire,

eastern England. *Freiberger Forschungshefte* (*Paläontologie, Stratigraphie, Fazies*) *C* **468**, 333–346.

108. Batten, D.J. 1998. Palaeoenvironmental implications of plant, insect and other organic-walled microfossils in the Weald Clay Formation (Lower Cretaceous) of southeast England. *Cretaceous Research* **19**, 279–315.

109. Batten, D.J. 1998. In: Allen, P., Purbeck–Wealden (early Cretaceous) climates. *Proceedings of the Geologists' Association* **109**, 197–236.

110. Batten, D.J. 1998. The Jehol fauna. *Geology Today* **14**, 170–171.

111. Batten, D.J. 1998. Geology and the National Trust. *Geology Today* **14**, 176.

112. Batten, D.J., Collinson, M.E. & Brain, A.P.R. 1998. Ultrastructural interpretation of the Late Cretaceous megaspore *Glomerisporites pupus* and its associated microspores. *American Journal of Botany* **85**, 724–735.

113. Al-Ameri, T.K., Al-Musawi, F.S. & Batten, D.J. 1999. Palynofacies indications of depositional environments and source potential for hydrocarbons: uppermost Jurassic–basal Cretaceous Sulaiy Formation, southern Iraq. *Cretaceous Research* **20**, 359–363.

114. Batten, D.J. 1999. Extraction techniques: small palynomorphs. In *Fossil plants and spores: modern techniques*, Jones, T.P. & Rowe, N.P. (eds), The Geological Society, London, 15–19.

115. Batten, D.J. 1999. Sedimentology: palynofacies analysis. In *Fossil plants and spores: modern techniques*, Jones, T.P. & Rowe, N.P. (eds), The Geological Society, London, 194–198.

116. Batten, D.J., Gray, J. & Harland, R. 1999. Palaeoenvironmental significance of a monospecific assemblage of dinoflagellate cysts from the Miocene Clarkia Beds, Idaho, USA. *Palaeogeography, Palaeoclimatology, Palaeoecology* **153**, 161–177.

117. Dutra, T. & Batten, D.J. 2000. Upper Cretaceous floras of King George Island, West Antarctica, and their palaeoenvironmental and phytogeographic implications. *Cretaceous Research* **21**, 181–209.

118. Martill, D.M., Batten, D.J. & Loydell, D.K. 2000. A new specimen of the thyreophoran dinosaur cf. *Scelidosaurus* with soft tissue preservation. *Palaeontology* **43**, 549–559.

119. Al-Ameri, T.K., Al-Najar, T.K. & Batten, D.J. 2001. Palynostratigraphy and palynofacies indications of depositional environments and source potential for hydrocarbons: the mid Cretaceous Nahr Umr and lower Mauddud formations, Iraq. *Cretaceous Research* **22**, 735–742.

120. Batten, D.J. & Collinson, M.E. 2001. Revision of species of *Minerisporites*, *Azolla* and associated plant microfossils from deposits of the Upper Palaeocene and Palaeocene/Eocene transition in the Netherlands, Belgium and the USA. *Review of Palaeobotany and Palynology* **115**, 1–32.

121. Thomas, B.A. & Batten, D.J. 2001. The Triassic palaeobotany of Great Britain. In Cleal, C.J., Thomas, B.A., Batten, D.J. & Collinson, M.E. *Mesozoic to Tertiary palaeobotany of Great Britain*. Geological Conservation Review Series, Joint Nature Conservation Committee, pp. 17–27.

122. Thomas, B.A. & Batten, D.J. 2001. The Jurassic palaeobotany of Yorkshire. In Cleal, C.J., Thomas, B.A., Batten, D.J. & Collinson, M.E. *Mesozoic to Tertiary palaeobotany of Great Britain*. Geological Conservation Review Series, Joint Nature Conservation Committee, pp. 29–96.

123. Thomas, B.A. & Batten, D.J. 2001. The Jurassic palaeobotany of southern England. In Cleal, C.J., Thomas, B.A., Batten, D.J. & Collinson, M.E. *Mesozoic to Tertiary palaeobotany of Great Britain*. Geological Conservation Review Series, Joint Nature Conservation Committee, pp. 97–113.

124. Thomas, B.A. & Batten, D.J. 2001. The Jurassic palaeobotany of Scotland. In Cleal, C.J., Thomas, B.A., Batten, D.J. & Collinson, M.E. *Mesozoic to Tertiary palaeobotany of Great Britain*. Geological Conservation Review Series, Joint Nature Conservation Committee, pp. 115–134.

125. Thomas, B.A. & Batten, D.J. 2001. The Cretaceous palaeobotany of Great Britain. In Cleal, C.J., Thomas, B.A., Batten, D.J. & Collinson, M.E. *Mesozoic to Tertiary palaeobotany of Great Britain*. Geological Conservation Review Series, Joint Nature Conservation Committee, 135–154.

126. Batten, D.J. 2002. Palaeoenvironmental setting of the Purbeck Limestone Group of Dorset, southern England. In *Life and environments in Purbeck times*, Milner, A.R. & Batten, D.J. (eds). *Special Papers in Palaeontology* **68**, 13–20.

127. Yi, Sangheon & Batten, D.J. 2003. Palynology of Upper Cretaceous (uppermost Campanian–Maaastrichtian) deposits in the South Yellow Sea Basin, offshore Korea. *Cretaceous Research* **23** (for 2002), 687–706.

128. Yi, Sangheon., Yi, Songsuk, Batten, D.J., Yun, H. & Park, S.-J. 2003. Cretaceous and Cenozoic non-marine deposits of the northern South Yellow Sea Basin, offshore western Korea: palynostratigraphy and palaeoenvironments. *Palaeogeography, Palaeoclimatology, Palaeoecology* **191**, 15–44.

129. Li Gang & Batten, D.J. 2004. *Cratostracus*? *cheni*, a new conchostracan species from the Yixian Formation in western Liaoning, north-east China, and its age implications. *Cretaceous Research* **25**, 577–584.

130. Li Gang & Batten, D.J. 2004. Revision of the conchostracan genera *Cratostracus* and *Porostracus* from Cretaceous deposits in north-east China *Cretaceous Research* **25**, 919–926.

131. Li Jianguo & Batten, D.J. 2004. Early Cretaceous palynofloras from the Tanggula Mountains of the northern Qinghai-Xizang (Tibet) Plateau, China. *Cretaceous Research* **25**, 531–542.

132. Batten, D.J. & Stead, D.T. 2005. Palynofacies analysis and its stratigraphic application. In *Applied stratigraphy*, Koutsoukos, E.A.M. (ed.). Topics in Geobiology 23, Springer, Dordrecht, 203–226 and 468–470.

133. Li Gang & Batten, D.J. 2005. Revision of the conchostracan genus *Estherites* from the Upper Cretacous Nenjiang Formation of the Songliao Basin and its biogeographic significance in China. *Cretaceous Research* **26**, 920–929.

134. Li Jianguo & Batten, D.J. 2005. Palynofacies: principles and methods. *Acta Palaeontologica Sinica* **44**, 138–156. [In Chinese, English abstract]

135. Yi, S., Batten, D.J. & Lee, S.J. 2005. Provenance of recycled palynomorph assemblages recovered from surficial sediments in Bransfield Strait, offshore Antarctic Peninsula. *Cretaceous Research* **26**, 906–919.

136. Noè, L.F. & Batten, D.J. 2006. 'Publish or perish': the pitfalls of duplicate publication. *Palaeontology* **49**, 1365–1367.

137. Batten, D.J. 2007. Spores and pollen from the Crato Formation: biostratigraphic and palaeoenvironmental implications. In *The Crato fossil beds of Brazil*. *Window into an ancient world*, Martill, D.M., Bechly, G. & Loveridge, R.F. (eds). Cambridge University Press, Cambridge, pp. 566–573, pl. 32.

138. Chen Peiji, Li Gang & Batten, D.J. 2007. Evolution, migration and radiation of late Mesozoic conchostracans in East Asia. *Geological Journal* **42**, 319–413.

139. Li Gang, Shen Yanbin & Batten D.J. 2007. *Yanjiestheria*, *Yanshania* and the development of the *Eosestheria* conchostracan fauna of the Jehol Biota in China. In *Palaeontology, stratigraphy, and correlation of some Chinese non-marine Cretaceous basins*, Sha Jingeng (guest ed.). *Cretaceous Research* **28**, 225–234.

140. Li Gang, Wan Xiaoqiao, Willems, H. & Batten, D.J. 2007. Revision of the conchostracan genus *Tenuestheria* from the Upper Cretaceous Lanxi Formation in Zhejiang and its biostratigraphic significance in southeast Asia. *Acta Geologica Sinica* **81**, 801–806.

141. Li Jianguo & Batten, D.J. 2007. Palynological evidence of an Early Cretaceous age for the Yixian Formation at Sihetun, western Liaoning, China. In *Palaeontology, stratigraphy, and correlation of some Chinese non-marine Cretaceous basins*, Sha Jingeng (guest ed.). *Cretaceous Research* **28**, 333–338.

142. Yang Xiaoju, Li Wenben & Batten, D.J. 2007. Biostratigraphic and palaeoenvironmental implications of an Early Cretaceous miospore assemblage from the Muling Formation, Jixi Basin, northeast China. In *Palaeontology, stratigraphy, and correlation of some Chinese non-marine Cretaceous basins*, Sha Jingeng (guest ed.). *Cretaceous Research* **28**, 339–347.

143. Li Jianguo, Batten, D.J. & Zhang Yiyong 2008. Late Cretaceous palynofloras from the southern Laurasian margin in the Xigaze region, Xizang (Tibet). *Cretaceous Research* **29**, 294–300.

144. Li Jianguo, Batten, D.J. & Zhang Yiyong 2008. Palynological indications of environmental changes during the Late Cretaceous–Eocene on the southern continental margin of Laurasia, Xizang (Tibet). *Palaeogeography, Palaeoclimatology, Palaeoecology* **265**, 78–86.

145. Batten, D.J. 2009. An unusual megaspore from the Weald Clay (Lower Cretaceous) of south-east England, and its stratigraphic and palaeoenvironmental significance. *Grana* **48**, 270–280.

146. Li Gang, Chen Peiji, Wang Deyou & Batten, D.J. 2009. The spinicaudatan *Tylestheria* and biostratigraphic significance for the age of dinosaur eggs in the Upper Cretaceous Majiacun Formation, Xixia Basin, Henan Province, China. *Cretaceous Research* **30**, 477–482.

147. Li Gang, Wan Xiaoqiao, Batten, D.J., Bengtson, P., Xi Dangpeng & Wang Pujun 2009. Spinicaudatans from the Upper Cretaceous Nenjiang Formation of the Songliao Basin, northeast China: taxonomy and biostratigraphy. *Cretaceous Research* **30**, 687–698.

148. Morris, P.H., Cullum, A., Pearce, M.A. & Batten, D.J. 2009. Megaspore assemblages from the Åre Formation (Rhaetian–Pliensbachian) offshore mid-Norway, and their value as field and regional stratigraphic markers. *Journal of Micropalaeontology* **28**, 161–181.

149. Batten, D.J., Colin, J.-P. & Néraudeau, D. 2010. Megaspores from mid Cretaceous deposits in western France and their biostratigraphic and palaeoenvironmental significance. *Review of Palaeobotany and Palynology* **161**, 151–167.

150. Li Gang, Hirano, H., Batten, D.J., Wan Xiaoqiao, Willems, H. & Zhang Xianqiu 2010. Biostratigraphic significance of spinicaudatans from the Upper Cretaceous Nanxiong Group in Guangdong, South China. *Cretaceous Research* **31**, 387–395.

151. Li Jianguo, Guo Zhenyu, Batten, D.J., Cai Huawei & Zhang Yiyong 2010. Palynological stratigraphy of the Late Cretaceous and Cenozoic collision-related conglomerates at Qiabulin, Xigaze, Xizang (Tibet) and its bearing on palaeoenvironmental development. *Journal of Asian Earth Sciences* **38**, 86–95.

152. Batten, D.J. 2011. Ch. 1. Introduction. In Batten, D.J. (ed.). *English Wealden fossils*. Palaeontological Association, London, Field Guides to Fossils 14, 1–6.

153. Batten, D.J. 2011. Ch. 2. Wealden Geology. In Batten, D.J. (ed.). *English Wealden fossils*. Palaeontological Association, London, Field Guides to Fossils 14, 7–14.

154. Batten, D.J. & Austen, P.A. 2011. Ch. 3. The Wealden of south-east England. In Batten, D.J. (ed.). *English Wealden fossils*. Palaeontological Association, London, Field Guides to Fossils 14, 15–51.

155. Austen, P.A. & Batten, D.J. 2011. Ch. 32. Plant megafossils. In Batten, D.J. (ed.). *English Wealden fossils*. Palaeontological Association, London, Field Guides to Fossils 14, 596–642.

156. Batten, D.J. 2011. Ch. 33, Organic-walled mesofossils. In Batten, D.J. (ed.). *English Wealden fossils*. Palaeontological Association, London, Field Guides to Fossils 14, 643–651.

157. Batten, D.J., Collinson, M.E. & Brain, A.P.R. 2011. Megaspores and associated microspores of extant and Tertiary marsileaceous *Regnellidium* and Cretaceous *Molaspora*: evolutionary and phytogeographic implications. *International Journal of Plant Sciences* **172**, 1087–1100.

158. Batten, D.J., Zavattieri, A.M. & Collinson, M.E. 2011. Megaspores from the upper Maastrichtian of the eastern Spanish Pyrenees and their biostratigraphic, palaeogeographic and palaeoenvironmental significance. *Review of Palaeobotany and Palynology* **167**, 156–172.

159. Li Jianguo & Batten, D.J. 2011. Early Cretaceous palynofloral provinces in China: western additions. *Island Arc* **20**, 35–42.

160. Li Jianguo, Batten, D.J. & Zhang Yiyong 2011. Palynological record from a composite core through Late Cretaceous–early Paleocene deposits in the Songliao Basin, Northeast China and its biostratigraphic implications. *Cretaceous Research* **32**, 1–12.

161. Batten, D.J. 2012. Taxonomic implications of exospore structure in selected Mesozoic lycopsid megaspores. *Palynology* **36**, Supplement 1, 144–160.

162. Mao Limi, Batten, D.J., Fujiki, T., Li Zhen, Dai Lu & Weng Chenyu. 2012. Key to mangrove pollen and spores of southern China: an aid to palynological interpretation of Quaternary deposits in the South China Sea. *Review of Palaeobotany and Palynology* **176–177**, 41–67.

163. Néraudeau, D, Allain, R., Ballèvre, B., Batten, D.J., Buffetaut, E., Colin, J.P., Dabard, M.P. Daviero-Gomez, V., El Albani, A, Gomez, B., Grosheny, D., Le Lœuff, J. Leprince, A., Martín-Closas, C., Masure, E., Mazin, J.-M., Philippe, P., Pouech, J., Tong, H., Tournepiche, J.F. & Vullo, R. 2012. The Hauterivian–Barremian lignitic bone bed of Angeac (Charente, south-west France): stratigraphical, palaeobiological and palaeogeographical implications.*Cretaceous Research* **37**, 1–14.

164. Alaug, A.S., Batten, D.J. & Ahmed, A.F. 2013. Organic geochemistry, palynofacies and petroleum potential of the Mukalla Formation (late Cretaceous), Block 16, eastern Yemen. *Marine and Petroleum Geology* **46**, 67–91.

165. Collinson, M.E., Smith, S.Y., van Konijnenburg-van Cittert, J.H.A., Batten, D.J., van der Burgh, J., Barke, J. & Marone, F. 2013. New observations and synthesis of Paleogene heterosporous water ferns. *International Journal of Plant Sciences* **174**, 350–363.

166. Li Jianguo, Peng Jungang & Batten, D.J. 2013. Palynostratigraphy of a Jurassic–Cretaceous transitional succession in the Himalayan Tethys, southern Xizang (Tibet), China. *Cretaceous Research* **46**, 123–135.

167. Tang Lingyu, Mao Limi, Lü Xinmiao, Ma Qingfeng, Zhou Zhongze, Yang Chunlei, Kong Zhaochen & Batten, D.J. 2013. Palaeoecological and palaeoenvironmental significance of some important spores and micro-algae in Quaternary deposits. *Chinese Science Bulletin* **58**, 3125–3139.

168. Batten, D.J., Zhou Zhiyan & Li Wenben. 2014. Plant remains from Cretaceous deposits on the Goban Spur, Bay of Biscay, North Atlantic Ocean, and their palaeoenvironmental significance. *Palaeoworld* **23**, 162–186.

169. Anderson, H., Batten, D.J. Cantrill, D.J., Cleal, C., Feist-Burkhardt, S., Fensome, R.A., Head, M.J., Herendeen, P.S., Holmes, H., Jaramillo, C., Kvaček, J., McLoughlin, S., Skog, J.E., Takahashi, M., Wicander, R. 2015. (087–090) Proposal to treat the use of a hyphen in the name of a fossil-genus as an orthographic error. *Taxon* **64**, 863.

1**70**. Li Gang, Ohta, T., Batten, D.J., Sakai, T., Kozai, T. 2016. Morphology and phylogenetic origin of the spinicaudatan *Neodiestheria* from the Lower Cretaceous Dalazi Formation, Yanji Basin, north-eastern China. *Cretaceous Research* **62**, 183–193.

171. Li Jianguo, Peng Jungang & Batten, D.J. 2015. Palynomorph assemblages from the Fenghuoshan Group, southern Qinghai, China: their age and palaeoenvironmental significance. *Science Bulletin* **60**, 470–476.

172. Slater, S.M., Taylor, W.A., Batten, D.J., Hill, C.R. & Wellman, C.H. 2015. Morphology and wall ultrastructure of a new and highly distinctive megaspore from the Middle Jurassic of Yorkshire, UK. *Review of Palaeobotany and Palynology* **216**, 33–43.

173. Batten, D.J., Li Jianguo & Peng Jungang 2016. Megaspores attributable to *Ghoshispora* in Late Cretaceous deposits of the Songliao Basin, north-east China: taxonomic clarification and distribution. *Review of Palaeobotany and Palynology* **232**, 40–60.

174. Morris, P.H. & Batten, D.J. 2016. Megaspores and associated palynofloras of Middle Jurassic fluvio-deltaic sequences in North Yorkshire and the northern North Sea: a biofacies-based approach to palaeoenvironmental analysis and modelling. *Journal of Micropalaeontology* **35**, 151–172.

175. Néraudeau, D., Saint Martin, S., Batten, D.J., Colin, J.-P., Daviero-Gomez, V., Girard, V., Gomez, B., Nohra, Y.A., Polette, F., Platel, J.-P., Saint Martin, J.-P. & Vullo, R. 2016. Palaeontology of the upper Turonian paralic deposits of the Sainte-Mondane Formation, Aquitaine Basin, France. *Geologica Acta* **14**, 53–69.

176. El Atfy, H., El Diasty, W.Sh., El Beialy, S.Y., Gheith, A.M, Batten, D.J. & Agha, N.N. 2017. Palynofacies and geochemical analyses of the Upper Cretaceous–Eocene succession, western Sirte Basin, Libya: palaeoenvironmental interpretation and implications for hydrocarbon generation potential. *Journal of Petroleum Science and Engineerin*g **157**, 148–163.

177. El Diasty, W.Sh., El Beialy, S.Y., Anwari, T.A. & Batten, D.J. 2017. Hydrocarbon source potential of the Tanezzuft Formation, Murzuq Basin, south-west Libya: an organic geochemical approach. *Journal of African Earth Sciences* **130**, 102–109.

178. El Diasty, W. Sh, El Beialy, S.Y., Anwari T.A., Peters, K.E. & Batten, D.J. 2017. Organic geochemistry of the Silurian Tanezzuft Formation and crude oils, NC115 Concession, Murzuq Basin, southwest Libya. *Marine and Petroleum Geology* **86**, 367–385.

179. El Diasty, W.Sh., El Beialy, S.Y., Fadeel, F.I., Peters, K.E. & Batten, D.J. 2017. Organic geochemistry of the Lower Silurian Tanezzuft Formation and biomarker characteristics of crude oils from the Ghadames Basin, Libya. *Journal of Petroleum Geology* **40**, 299–318.

180. El Diasty, W.Sh., El Beialy, S.Y., Mostafa, AR., El Adl, H.A. & Batten, D.J. 2017. Hydrocarbon source rock potential in the southwestern Gulf of Suez graben: insights from organic geochemistry and palynofacies studies on well samples from the Ras El Bahar Oilfield. *Marine and Petroleum Geology* **80**, 133–153.

181. Fleury, R., Polette, F., Batten, D.J., Durand, M., Moreau, J.-D., Néraudeau, D., Strullu-Derriene, C. & Redois, F. 2017. Palaeobotanical investigation of a Cenomanian clay lens in Hucheloup Quarry, Maine-et-Loire, NW France: taxonomic, stratigraphic and palaeoenvironmental implications. *Annales de Paléontologie* **103**, 235–250.

182. Mendes, M.M., Barron, E., Batten, D.J. & Pais, J. 2017. A new species of the spore genus *Costatoperforosporites* from Early Cretaceus deposits in Portugal and its taxonomic and palaeoenvironmental signficance. *Grana* **56**, 401–409.

183. Néraudeau, D, Perrichot, V., Batten, D.J., Boura, A., Girard, V., Jeanneau, L., Nohra, Y.A., Polette, F., Saint Martin, S., Saint Martin, J.-P., Thomas, R. 2017. Upper Cretaceous amber from Vendée, north-western France: age dating and geological, chemical, and palaeontological characteristics. *Cretaceous Research* **70***,* 77–95.

184. Polette, F. & Batten, D.J. 2017. Fundamental reassessment of the taxonomy of five Normapolles pollen genera. *Review of Palaeobotany and Palynology* **243**, 47–91.

185. Li Jianguo, Wu Yixiao, Peng Jungang & Batten, D.J. 2019. Palynofloral evolution on the northern margin of the Indian Plate, southern Xizang, China during the Cretaceous Period and its phytogeographic significance. *Palaeogeography, Palaeoclimatology, Palaeoecology* **515**, 107–122.

186. Zavialova, N. & Batten, D.J. 2018. Species of the water-fern megaspore genus *Molaspora* from a Cenomanian deposit in western France: occurrence, sporoderm ultrastructure and evolutionary relationships. *Grana* 57, 325–344.

187. Austen, P.A. & Batten, D. J., 2018. English Wealden fossils: an update. *Proceedings of The Geologists Association* **129**(2), 171–201.

188. El Diasty, W. S., El Beialy, S. Y., Peters, K. E., Batten, D.J., Al-Beyati, F. M., Mahdi, A. Q. & Haseeb, M. T., 2018. Organic geochemistry of the Middle–Upper Jurassic Naokelekan Formation in the Ajil and Balad oil fields, northern Iraq. *Journal of Petroleum Science and Engineering* **166**, 350–362.

189. Mendes, M. M., Barron, E., Dinis, P., Rey, J. & Batten, D. J., 2018. A new palynoflora from upper Barremian–lower Aptian rocks at Casal do Borracho, Torres Vedras, western Portugal, and its palaeoecological significance. *Cretaceous Research* **90**, 363–374.

190. Polette, F., Batten, D. J.; Neraudeau, D., 2018. Re-examination of the palynological content of the Lower Cretaceous deposits of Angeac, Charente, south-west France: Age, palaeoenvironment and taxonomic determinations. *Cretaceous Research* **90**, 204–221.

191. Steads, D.T. & Batten, D. J., 2018. Palynology of the Lower Cretaceous Hundleby Clay Member of the Claxby Ironstone Formation in eastern England and its biostratigraphic and palaeoenvironmental significance. *Proceedings of the Yorkshire Geological Society* **62**, 133–141.

192. El Diasty, W. S., El Beialy, S.Y., Fadeel, F. I. & Batten, D.J. 2019. Palynostratigraphic, palynofacies, organic geochemical and palaeoenvironmental analysis of the Silurian Tanezzuft Formation in the Ghadames Basin of north-west Libya. *Revue de Micropaleontologie* **62**(1), 45–58.

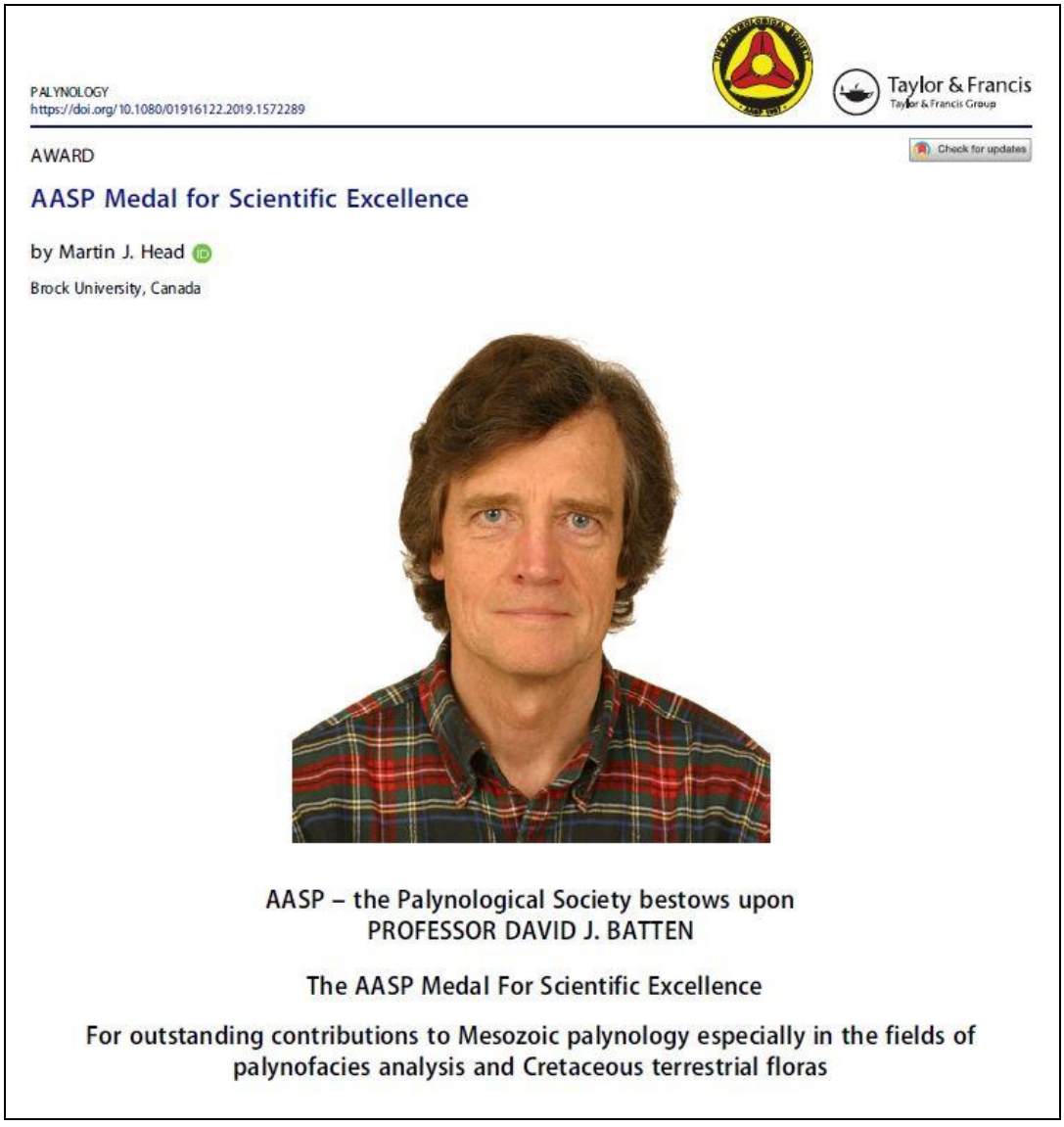
193. Peyrot, D., Barron, E., Polette, F., Batten, D.J., Neraudeau, D., 2019. Early Cenomanian palynofloras and inferred resiniferous forests and vegetation types in Charentes (southwestern France). *Cretaceous Research* **94**,168–189.

Martin J. Head
Brock University
February 25, 2019

Professor David J Batten – unfinished projects and scientific materials

Contact person Margaret Collinson [M.collinson@rhul.ac.uk]

Professor David J. Batten sadly passed away on February 14, 2019 after battling with cancer. In 2018 the AASP awarded their Medal for Scientific Excellence to David "For outstanding contributions to Mesozoic palynology especially in the fields of palynofacies analysis and Cretaceous terrestrial floras". The citation for the medal and a response from David, can be found in Head (2019). A full obituary for David, including a publications list and lists of students is published in the present newsletter. Together these two items provide a record of David's life and career as well as indicating the high regard in which he was held by all his scientific colleagues and friends.



PALYNOLOGY
https://doi.org/10.1080/01916122.2019.1572289

Taylor & Francis
Taylor & Francis Group

AWARD

Check for updates

AASP Medal for Scientific Excellence

by Martin J. Head

Brock University, Canada

AASP – the Palynological Society bestows upon
PROFESSOR DAVID J. BATTEN

The AASP Medal For Scientific Excellence

For outstanding contributions to Mesozoic palynology especially in the fields of palynofacies analysis and Cretaceous terrestrial floras

First page of the article: Head, M.J. 2019. AASP Medal for Scientific Excellence. Palynology 43, No. 2, 175–180. https://doi.org/10.1080/01916122.2019.1572289

All his scientific materials (palynology and mesofossil slides in boxes and cabinets; SEM stubs; residues from preparations; sediment samples; photographs; negatives, etc), inferred to cover his entire career, were present in David's private house after he passed away. At the request of, and with formal approval from, his family, Margaret Collinson has helped to go through this material. It has now all been removed from the house and is in storage either at National Museum of Wales, Cardiff (some 140 LM slide boxes only) or the British Geological Survey. Margaret will be going through the material at BGS starting this summer and will be doing her best to return material that was on loan, or is part of unfinished projects, to the relevant owners where appropriate. Other material will be permanently incorporated into the BGS collections.

Please help. If you are aware of material David may have had on loan, or material being used in collaborative research with you, please contact Margaret. Please also contact Margaret if you think you may be able to provide useful information on his unfinished work. Please note that the family have given Margaret access to David's computer files but, at time of writing in early June, Margaret has not been able access any of David's e-mail correspondence.

For all their help, support, discussion, information and advice that has enabled David's scientific materials to be retained for future generations to use and study Margaret would like to thank:- David's family; staff of the British Geological Survey (Mike Howe, Jim Riding, Paul Shepherd, Rob Bailey, Scott Renshaw and Tracey Gallagher); staff of the National Museum of Wales, Cardiff (Caroline Buttler and Cindy Howells) and Peter Austen, Martin Head, Chris Hill, Jiří Kvaček, Jianguo Li, Tim Palmer, France Pollette, and Han van Konijnenburg.

In memoriam: Phillip L. Holmes 28.01.1965 – 09.02.2019

Obituary, Career and Memories

Margaret E Collinson, Sarah Jane Holmes (née Sudell), Lynne Frostick, Alan Hemsley, Tim Jones & Imogen Poole.

Phillip L. Holmes PhD, pollen and spore taphonomist, plant fossil database and IT specialist, passed away on February 9th 2019 due to an infection after 55 years of living with stage IV bowel cancer. He is survived by his wife Sarah Jane (née Sudell) and two sons.

Academic career and publications

Phil attended Cedar's First and Middle School, Harrow, followed by Gayton High School, Harrow and Harrow Weald Sixth Form College. He obtained a 1st class BSc in Geology in 1986 (starting at Chelsea College and receiving the award from Royal Holloway and Bedford New College (RHBNC; now Royal Holloway University of London) after the merger.

Phil then studied for his PhD (Holmes 1990a) at RHBNC in the Huntersdale laboratory, co-supervised by Professor William (Bill) G. Chaloner and Professor Lynne Frostick (from the Geology Department). This team combined palynological and sedimentological expertise and Phil took an experimental approach to study pollen and spore taphonomy using laboratory flume tanks and field studies in Silwood Lake, Berkshire England. Phil published two major papers arising from his thesis work, focussing on differential sorting of spores and pollen during transport (Holmes 1990b, 1994) and also presented his work at the 7th IPC in Brisbane in 1988 (Holmes 1988). That unpublished abstract is appended here. These contributions to pollen and spore taphonomy contain fundamental data of direct relevance, today and in future, to all palynologists interpreting palaeoenvironments from fossils.

After his PhD Phil moved to University of East London, as a post-doctoral researcher to work with Mike Boulter for two years. In addition to working on the "Names in Current Use" project for the ICBN they produced the first major computerised database of plant fossils "The Plant Fossil Record Database", where Phil was Editor-in-Chief. That database was used in the compilation of the fossil record of flowering plants by Collinson et al. (1993) unfortunately only a printed publication. Phil's work thus made a major contribution to both palaeobotany and palynology in kick-starting the work towards the online databases with which we are all now familiar.

Subsequent career

As no further funding was available at the end of two years with Mike, and Phil had family responsibilities (Holmes in Collinson 2017), he moved to CTEC computer training company, initially as a trainer and then in technical support. He moved in 2003 to TDG Logistics as a Technical Services Manager where he moved on and up in similar roles. At his death, he was

employed as Head of Infrastructure, SC Europe at XPO Logistics Europe and responsible for a Europe wide team.

Memories from friends and family

Sarah Jane met Phil in their 3rd year (1985-1986) of BSc studies when the Geology Departments of Chelsea College, Bedford College and Kings College London merged onto the Royal Holloway campus. They married in May 1989 the year in which Phil also submitted his PhD – quite an achievement. Sarah remembers that Phil never lost his love of Geology or of the outdoors (Figure 1) and was a volunteer instructor and assessor for the Duke of Edinburgh Award Scheme right up to the end of the last season before his death. Phil only had a short academic career but followed that by a long and fulfilling career as a technical services manager and enjoyed the challenges that presented. Phil is greatly missed by his family who loved him deeply.

Figure 1. Phil near Old Harry Rocks in Dorset on a day out with friends in December 2018.

Margaret Collinson remembers Phil as a key active member of the palaeobotany and palynology community in London during her early career while she was working at Kings College London and RHUL under her Royal Society Fellowship (1983-1993). Peter Moore (Quaternary palynologist) was also at Kings but it was a very small research group. Phil was

always welcoming at times when the wider London group met as well as being cheerful, full of life and entertaining. We all had an amazing time together on a memorable trip in 1990 when Bill Chaloner drove us in the RHBNC Geology Department minibus, and we camped en route, to attend "Anatomical Investigations of Plant Fossils" 3rd International Senckenberg Conference, Frankfurt am Main in memoriam Richard Kräusel (Figure 2). It was a real pleasure and privilege to later work with Phil on the Fossil Record 2 book chapter (Collinson et al., 1993). It was great good fortune that Phil and I made contact again on 5th December 2012 when Phil accompanied his son Sam to an open day at RHUL and took the trouble to try to find me in Earth Sciences on the off-chance that I might also be in my department helping out. When Bill Chaloner passed away in 2016 Phil willingly helped me with various questions, he contributed to the IOP newsletter article (Holmes in Collinson 2017) and, in March 2018, he also provided information that allowed me to get his thesis uploaded into the EThOS database (Holmes 1990a), hence now available to the scientific community.

Figure 2. Some of the London palaeobotany and palynology group on their camping trip to Frankfurt in 1990. Kneeling in front Bill Chaloner (driver and organiser). Standing left to right – Margaret Collinson, Alan Hemsley, Herman Zumpe, Phil Holmes, Imogen Poole, Chris Berry, (far right name uncertain).

***Lynne Frostick*,** now on the Board of the Environment Agency dealing with flooding, remembers co-supervising Phil's PhD with Bill Chaloner as a delightful experience because Phil was so enthusiastic about trying out some flume experiments – which were very innovative at the time. Phil was a diligent and thoughtful person who was always willing to try something new. He was one of the pioneers of experimental palaeobiology. Some of the

knowledge developed as part of Phil's PhD has been useful when encouraging engineers to consider the impact of plants and animals on hydraulics and sediment transport.

Tim Jones remembers Phil as a gentle soul, a really nice guy and a key player in the research group at Huntersdale. The lab group are remembered as a happy, easy-going bunch jammed together in the lab, where even a selection of somewhat unflattering caricatures (Figure 3) stayed on the whiteboard for a considerable time. Another over-riding memory of Phil from lab members is the enthusiasm with which he devoted a great deal of time and effort to helping the undergraduates. Tim recalls that Phil also cycled huge distances during his PhD because his computer at Huntersdale was only connected to a printer on the main campus. After Phil celebrated his PhD viva success Tim drove him back to the Egham rail station, a drive memorable because of the stormy weather and Phil's very happy and animated behaviour.

Figure 3. Entertaining caricatures, reflecting the relaxed and friendly atmosphere, drawn on the white board in Huntersdale, RHBNC in 1989 following a birthday party organised for Bill Chaloner. Illustrated by Tim Jones with small contributions from Phil. Top right is Tim Jones and below Tim is Phil. Alan Hemsley is center to left of Tim and Phil and Kelly Berube is furthest left. (Other names uncertain). Bill does not appear but see his 'thank you' message in green signed WGC. The '*Cooksonia*' in Bill's message refers to cheese sticks made by Alan Hemsley in the shape of *Cooksonia*. Image sent to Margaret by Phil in January 2017 while exchanging memories during compilation of the obituary and memories of Bill in IOP Newsletter 112.

Imogen Poole remembers the time she shared with Phil and the other PhD students under the direction of Professor Chaloner, in the cosy Palaeobotany Lab housed in leafy Hunters-

dale. These were happy, fun-filled years with Phil's wonderful sense of humour and quick wit keeping the atmosphere alive and the rest of the group on their toes! Phil was always calm, kind, patient and considerate, and being the most senior member of the group at the time was always attentive and supportive of his fellow students - nothing was ever too much trouble. He was a superb role model for everyone during those, often very intense, postgraduate research years.

Alan Hemsley remembers that Phil, to him, was not just a friend in the lab. He was a guide, a stabilizing influence, a dangerously complimentary sense of humour, and best of all, a geologist who right away began to install some basics of his subject in an ignorant botanist (something with which Tim Jones continues to do to this day). Phil was highly organised, indeed if he was only a few minutes late in the lab it was cause for concern. He'd arrive in whatever brightly-coloured, well ironed shirt he'd chosen for the day, switch on the radio, turn on the computer and away it would go. Yes, we worked, but we also had fun and there were many instances of us both laughing so much at an extrapolated absurdity that the tears would flow. I remember well the Senckenberg trip (Figure 2), the tents (with which Phil had a knack), the snoring at night, the new experience (for me) of travelling in Europe (Belgium particularly).

Often our humour in the lab centred on the very primitive computers we were using. It is difficult to believe how much things have progressed in terms of computing since that time (we witnessed the origin of the internet). Our struggles with computers had stemmed from attempts to produce theses in LaTex typesetting programme (no word-processing packages then). The computer terminals in Huntersdale (where we wrote) were unable to display the page as it would be printed meaning, on many an occasion, one or other of us would have to cycle up to main campus to look at the output and report back (by primitive email or landline telephone) on whether it looked as we hoped.

Following his successful completion, Phil undertook work with Mike Boulter on the Plant Fossil Record data base construction. He (and occasionally I) worked on converting records from one format to another, a tedious but potentially competitive enterprise that again often led to amusement. How many could we do in an hour? (Mike, any errors were probably my fault.)

After his work with Mike, I didn't see Phil much. He had a serious job and family life, and I'd gone off to France for a year. After a long period of silence, I had an email from him completely out of the blue in late April, 2016. He'd been looking out some old photographs and sent me a few (Senckenberg trip again – wonderful, but I looked embarrassingly young). I responded with thanks and said we should try to stay in touch. Sadly, that was the last communication we had.

Phillip L. Holmes publications and contributions

(in chronological order, with notes by MEC)

Holmes, P.L.
Biology Department, Royal Holloway and Bedford New College, University of London, Egham, England, UK.

Results from some flume experiments on the hydrodynamical sorting of spores and pollen.

It is generally recognised that spores and pollen go through a series of physical processes during dispersal and transport.They may also undergo chemical alteration (biodegradation), before they are finally deposited and fossilised. Some of these processes are known to affect spores/pollen differentially (transport, degradation); whilst others may homogenise the spore/pollen spectra (re-suspension, bioturbation). These processes will complicate any investigations in this branch of palynology.
The processes that may affect the spore/pollen spectra in a lacustrine environment have been reviewed, and one in particular singled out for study. Rivers and lake currents are known to affect spores/pollen differentially. The extent to which this occurs, and its dependence on particle size, shape and density, have been experimentally investigated using a 7.5m recycling flume. The flume models a shallow stream, into which different pollen types can be introduced and their behaviour under a variety of conditions monitored. In addition to varying velocity, experiments have been run with and without additional suspended load. Initial analysis of the results appears to support the idea of differential transport and the final analysis will be presented.The experimental data will also be reconciled with field data collected from Silwood Lake in Berkshire, England.

Symposium : 12.

Figure 4. The unpublished abstract presented at 7th IPC, Phil's first compilation of part of his research work.

Holmes, P.L. 1988. Results from some flume experiments on the hydrodynamical sorting of spores and pollen. Symposium 12. Palynologic/Lithologic Relationships. 7 International Palynological Conference Brisbane Abstracts p.73 (Unpublished – but provided as Figure 4 above).

Holmes, P.L. 1990a. An experimental approach to spore/pollen taphonomy. Unpublished PhD thesis, University of London. https://ethos.bl.uk/OrderDetails.do?uin=uk.bl.ethos.734436

Note although this says 1989 on the EThOS site that is the submission year. Phil stated that it was awarded in 1990 (Holmes in Collinson 2017).

Holmes, P.L. 1990b Differential transport of spores and pollen: A laboratory study. Review of Palaeobotany and Palynology 64, (1-4) 289-296.

Collinson, M.E., Boulter, M.C. & Holmes, P.L. 1993. Magnoliophyta ("Angiospermae") Chapter 45 p. 809-841. In: Benton, M. (Editor). The Fossil Record 2. Chapman & Hall, London, 864 pp.

Holmes, P.L. 1994. The sorting of pollen and spores by water: experimental and field evidence. 9-32. In: Traverse. A. (Editor). Sedimentation of Organic Particles. II. Studies of palynosedimentation in modern environments. A. Palynomorph sedimentation. Cambridge University Press, Cambridge. https://books.google.co.uk/books?hl=en&lr=&id=5SDd3QyRkGAC&oi=fnd&pg=PA9&dq=spore+pollen+P+Holmes&ots=ytFfAwqB3v&sig=HYItasZHGN3wlLdgtdTmv-aKWrQ#v=onepage&q=spore%20pollen%20P%20Holmes&f=false
Four pages are not visible in this preview

Holmes, P.L. in Collinson, M.E. (compiler) 2017. Professor William Gilbert Chaloner (Bill) and his contributions to palaeobotany. IOP Newsletter 112, February 2017.

Collections Spotlight: The Field Museum

Az (Ashley A.) Klymiuk, *Collections Manager (Jan 2019-present)*
aklymiuk@fieldmuseum.org

The Paleobotany Collections at the Field Museum (Chicago, Illinois) have a venerable 126 year history, having been established at the Museum's inception during the 1893 World's Columbian Exposition. Former curators and researchers George Langford, Sr., Alfred Noé (Walker Museum, accessioned to the Field Museum in 1965), Eugene Richardson, and Gordon Baird established this collection as one of the premier repositories of Pennsylvanian plants, particularly those in semi-sideritic concretions of the renowned Mazon Creek lagerstätte. The Mazon Creek collection held at the Field Museum is unparalleled, as avocational paleontologist Jack Wittry has been instrumental in growing the collection through his own activities and by facilitating accession of private collections, including recent acquisition of the avocational Testa and Konecny collections. Other Pennsylvanian holdings include >30 000 compression-adpression specimens, notably the semi-sideritic Stanley Cemetery flora of Indiana (J.M Wood collection, University of Missouri) and Grand Ledge flora of Michigan (Aureal T. Cross collection). Mississippian holdings were markedly expanded by [partial] acquisition of Gar W. Rothwell's Ohio University Paleobotanical Herbarium (OUPH; the remainder was accessioned at the University of Kansas) in 2011. Carboniferous plants from Illinois, Iowa, Indiana, Michigan, Kansas, Ohio, Pennsylvania and West Virginia are well-represented at the Field Museum.

A substantial portion of the Rothwell Collection now housed at the Field Museum includes the OUPH permineralized peats (Carboniferous "coal balls"), comprising Rothwell's own research collection, as well as those of Don Eggert and Mike Millay. This collection thus constitutes the largest collection in the world of anatomically preserved plant remains for organismal studies of plant morphology and anatomy, with more than 70 taxonomic publications since 1959. In addition to the permineralized peats themselves, the Field Museum houses nearly 11,000 slides, and the cellulose acetate peels resulting from the research activities of more than 30 scientists. Here at the Field Museum, we are currently engaged in ensuring that the peels remain available for research well into the future. Paleobotanists should be aware that **cellulose acetate has a finite lifespan (50-70 years)** when stored at room temperature and ambient humidity (RH 50%). Autocatalytic decay of acetate is accompanied by a strong vinegar odour, and both shrinkage and friability of the plastic. There are no conservation techniques to reconstitute acetate; buffering is of minimal use, increasing the lifespan of these materials by no more than a decade at best. I strongly recommend that removal to freezers, as we are now doing at the Field Museum, be adopted discipline-wide as best practises for cellulose acetate, including new material. Historic collections that are approaching autocatalysis, or for which autocatalysis has already begun, may be saved from destruction for 50-100 years with freezing; newly-produced acetate could theoretically survive a millennium. It is not yet clear whether

acetate mounted on glass slides is immune to autocatalytic ‘vinegar syndrome’, and I would welcome reports from anyone engaged in remaking slides mounted in the late ‘50s through 1960s.

View into a collection room.

Several other collections of note are also held at the Field Museum. These include fossil and modern palynological collections of Aureal T. Cross, Alfred Traverse, and Robert H. Tschudy; materials from the Traverse and Cross collections are slide-mounted and often also accompanied by resin preparations, from which new slides could be made. We are also storing Cross’ bulk sediments and his collection of coals. Other bulk sediments stored at the Field include Cretaceous Potomac Group charcoals studied by Peter Crane, Else-Marie Friis, and colleagues; holotypes on SEM stubs are also accessioned at the Field. Cretaceous bulk sediments from Richard Barclay’s Dakota Sandstone dissertation work is also presently

housed here. The Field Museum also contains substantial Cenozoic compression-adpression floras, including Succor Creek, and the Wilcox, Claiborne, and Green River Formations. Finally, Patrick Herendeen's ongoing explorations of Mongolia's Early Cretaceous are producing new type and figured specimens which are formally accessioned in this collection.

Upcoming meetings

19th International Congress on Carboniferous and Permian, Cologne, Germany, July 29 – August 2, 2019

For further information lease have a look at: http://iccp2019-Cologne.uni-koeln.de/.
Contact: ICCP-2019@uni-koeln.de

First announcement:

28th International Workshop on Plant Taphonomy, November 1-3 2019, at Westfälische Wilhelms University Münster, Germany

Organisation: Hans Kerp and Palaeobotanical Research Group

Preliminary program: 1-2 days talks/posters/discussions, 1 day (Sunday) field trip to Piesberg site (Carboniferous)

1st Circular expected in August/September

15th International Palynological Congress / 11th International Organisation of Palaeobotany Conference (IPC/IOPC-2020) Prague, Czech Republic, 12th to 19th September 2020

Invitation

Since 2009 the world community of palynologists and palaeobotanists has met every four years to discuss the latest research and to exchange experiences. The 15th International Palynological Congress (IPC-XV 2020) and the 11th International Organisation of Palaeobotany Conference (IOPC-XI 2020) are coming soon. This joint congress will be held in Prague, from 12th to 19th September 2020, hosted by Czech palynologists and palaeo-botanists. In 1820 a binomial nomenclature for fossil plants was used for the first time by the Czech "Father of Palaeobotany" Caspar Maria Sternberg when publishing Flora der Vorwelt. We are delighted to dedicate this meeting in honour of 200 years of Palaeobotany.

It will be an excellent opportunity for the Czech Republic (a country rich in plant fossil finds, palynological sites, and palynological and palaeobotanical history) to host the leading experts in various disciplines and to promote scientific innovations. Joint symposia are planned to foster interaction and integration between palynologists and palaeo-botanists, as well as plenary sessions of general interest. The meeting is promoted by the collective efforts of the International Federation of Palynological Societies (IFPS) and the International Organisation of Palaeobotany (IOP).

Please complete the pre-registration form on our website:
http://prague2020.cz/registration.php

We look forward receiving your contributions to the conference.

Best wishes,
The Organizing committee
IPC XV / IOPC XI 2020

Call for Symposia

It is our pleasure to invite proposals for symposia for IPC XV/ IOPC XI 2020, the joint meeting of the 15th International Palynological Congress and 11th International Organization of Palaeobotany Conference to be held on September 12–19 2020 at the Clarion Conference Hotel, Prague, Czech Republic

The deadline for proposals is 31 August 2019. Proposed symposia could cover various disciplines such as palynology, palaeobotany, palaeoecology, palaeoclimatology, biostratigraphy, plant taxonomy, plant morphology, cell biology, aerobiology, allergology, melissopalynology and forensic palynology. We also welcome proposals involving cutting-edge techniques.
To organize a symposium, please prepare a "pre-proposal" that briefly describes the symposium in English. This pre-proposal should include the following:

1. A descriptive title;
2. One or two paragraphs explaining the purpose of the symposium;
3. A list of any possible speakers, their institutions or affiliations, and preliminary presentation titles.

Please use the attached file to submit the pre-proposal. We will accept only one symposium proposal from each individual. The length of symposium talks is 15 minutes plus 5 minutes for discussion. Organisers of symposia may propose one invited speaker with a 25 minutes long talk plus 5 minutes for discussion. Please send the pre-proposal to the program committee (ipciopc2020@seznam.cz) and use the subject heading: IPC/IOPC 2020 Symposium proposal.
The program committee will review all proposals and may make suggestions in view of the organization of the whole conference. For example, the committee may request merging of proposed symposia with similar topics. We also welcome workshop proposals.
More information about the IPC/IOPC 2020 is available at
http://prague2020.cz/introduction.php

Location
Prague is the largest city and the capital of the Czech Republic. Situated in the heart of Europe, it is one of the continent's most beautiful cities and the major Czech economic and cultural centre. . It is famous for its historical monuments and sights and has UNESCO World Heritage status. The Charles Bridge (Karlův most) across the Vltava River probably represents the city's most famous landmark. The winding course of the Vltava, with its succession of bridges and changing vistas, contrasts with the ever-present backdrop of the great castle of Hradčany (Prague Castle), which dominates the left-bank region of the city. Prague is famous for its cultural life. Wolfgang Amadeus Mozart lived here, and his Prague Symphony and Don Giovanni were first performed in Prague. In addition, the lyric music of the great Czech composers Bedřich Smetana, Antonín Dvořák, and Leoš Janáček is commemorated each year in a spring music festival.
Venue: The congress will be held in the Clarion Congress Hotel Prague, Freyova 33, Prague 9 (https://www.clarioncongresshotelprague.com/en/). This is an international four-star hotel and a state-of-the-art conference center, providing high-quality services. The hotel is 30 minutes by car from the International Václav Havel Airport and 10 minutes by metro from

the historic city centre of Prague. The conference centre is directly on the metro B line, station “Vysočanská”.

Visa Policy

Participants from most European countries and the USA can enter the Czech Republic without a visa. Other participants are advised to check requirements at their closest Czech Republic embassy or consulate, and make their own arrangements. Detail information can be found on https://www.mzv.cz/jnp/en/information_for_aliens/general_visa_information/index.html. An official letter of invitation will be sent on request. Such a letter will not grant any financial support.

More **Practical hints** are available online. Please visit http://prague2020.cz

Field trips

Pre-Conference Field trip (three days): Permian of Chemnitz

Mid-Conference Field Trips (one day each):

- Lower Palaeozoic of the Barrandian area
- Late Cretaceous of the Bohemian Cretaceous Basin
- Paleogene and Neogene of North Bohemia
- Postglacial of Šumava National Park
- Modern pollen deposition in relation to Holocene vegetation changes in the Krkonoše Mts.
- Late Pleistocene and the Holocene of Bohemian Paradise

Post-Conference Field Trips (2 days):

- Permian of Bohemia
- Miocene in the Carpathian Foredeep and Quarternary of Moravian Karst

Scientific programme

This will cover all aspects of palaeo- and actuopalynology and palaeobotany including:

- Taphonomy
- Major extinctions and diversifications through time
- Methods in palynology and palaeobotany
- Palaeoecology and adaptive traits
- Pollen/spore morphology
- Palaeobotanical and palynological contributions to the Tree of life
- Aeropalynology, forensic palynology and Melissopalynology
- Quaternary palaeobotany and palynology
- Cenozoic palaeobotany and palynology
- Mesozoic palaeobotany and palynology
- Palaeozoic palaeobotany and palynology
- Proterozoic palynology

15th Climatic and Biotic Ebents of the Paleogene (CBEP-2020) Bremen, Germany, 31th August to 3rd September 2020

CBEP2020

Climatic

and

Biotic Events

of the Paleogene

Bremen, Germany

Aug 31 – Sept 3, 2020

First Circular

Contact

CBEP 2020
Bremen, Germany

www.marum.de/CBEP2020

CBEP2020

MARUM
University of Bremen
Leobener Strasse 8
Bremen
Germany

cbep2020@uni-bremen.de

Place and date

The International Conference „Climatic and Biotic Events of the Paleogene (CBEP) 2020" will be held in Bremen, Germany, on the University Campus from Monday, August 31, to Thursday, September 3, 2020.

Optional field trips on Sept 4-5, 2020.

Registration and accommodation

Details will be given in the Second Circular.

Important dates

January 2020 Publication of Second Circular
1 May 2020 Deadline for abstract submission
1 March to 1 May 2020 Early bird registration
before 1 August 2020 Online registration

marum
Center for Marine Environmental Sciences
Universität Bremen

From land to sea

We welcome you cordially to Bremen, a charming modern city with a touch of hanseatic flair located at the banks of the Weser river, close to the North Sea coast.

The Paleogene Period was a time of extremes and transitions, characterized by climatic conditions largely unfamiliar to us today but saw the rise of essentially modern continental configurations, biotic communities, and biogeochemical regimes.

CBEP2020 will provide a multidisciplinary stage with a focus on the exciting themes and topics (see "Scientific themes"). We expect exciting scientific contributions, hot discussions, and new ideas.

The IODP Bremen Core Repository (BCR) at MARUM – Center for Marine Environmental Sciences of the University of Bremen holds sediment cores from over 89 expeditions. Explore beyond the Paleogene at CBEP2020!

We welcome you to participate and are looking forward meeting in in Bremen in late August/early September 2020!

Local organizing committee

Ulla Röhl, University of Bremen
Thomas Westerhold, University of Bremen
Heiko Pälike, University of Bremen

Conference program

The conference will comprise scientific sessions, poster sessions (incl. poster presenters Lightning talks), and field trips. If you are interested in receiving the Second Circular, please send an e-mail to cbep2020@uni-bremen.de.

Scientific themes

- Habitable Planet: Learning from Past Environments
- Climate, Paleoecology and Paleodiversity
- Biogeochemical Cycles
- Tectonics, Surface Environments and Hydrological Processes
- New developments, applications and results of Paleoproxies

Field trips 1-2 days field trips

2020	Sunday Aug 30	Monday August 31	Tuesday Sept 1	Wednesday Sept 2	Thursday Sept 3	Friday Sept 4	Saturday Sept 5
Morning		Opening Oral sessions	Oral session Oral session	Oral session Oral session	Oral session Oral session	Field trips	Field trips
Afternoon		Posters Oral session	Posters Oral session	BCR* visit Informal Meetings	Oral session Posters, Wrap-up	Field trips	Field trips
Evening	Icebreaker		Conference Dinner				

*IODP Bremen Core Repository (BCR)

Hosts

The conference is hosted by:
MARUM – Center for Marine Environmental Sciences, University of Bremen

Scientific organizing committee

Claudia Agnini, University of Padova
Laia Alegret, University of Zaragoza
Steve Bohaty, University of Southampton
Bernard Boudreau, Dalhousie University
Gabe Bowen, University of Utah
Will Clyde, University of New Hampshire
Edoardo Dallanave, University of Bremen
Rob DeConto, UMass Amhurst
Jerry Dickens, Rice University
Oliver Friedrich, University of Heidelberg
David Greenwood, Brandon University
Matthew Huber, Purdue University
Celli Hull, Yale University
Sandra Kirtland Turner, Univ of California, Riverside
Carrie Lear, Cardiff University
Pete Lippert, University of Utah
Kate Littler, University of Exeter
Heiko Pälike, University of Bremen
Jörg Pross, University of Heidelberg
Ulla Röhl, University of Bremen
Appy Sluijs, University of Utrecht
Ellen Thomas, Wesleyan University/Yale University
Thomas Westerhold, University of Bremen
Scott Wing, Smithsonian Institution
Jim Zachos, University of California, Santa Cruz

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 (120) until end of September 2019.
Contributions should be sent to Lutz.Kunzmann(at)senckenberg.de.

 Homepage: *www.palaeobotany.org*

 *https://www.facebook.com/International-Organisation-of-Palaeobotany-543548202500847/*

 *https://twitter.com/hashtag/paleobotany?lang=en*

 *https://www.instagram.com/explore/tags/paleobotany/?hl=en*