Editorial

This year was again a sad one for Sheffield Palynology with the loss of another of our stalwarts: Professor Bernard Owens. An obituary is being prepared and will appear in the journal *Palynology* and various society newsletters shortly. Otherwise the ninth Centre for Palynology Newsletter reports on an eventful and exciting year. We are particularly pleased to introduce a new Postdoc, Dr Brian Andres, who started on the 1st November. Brian is with us for a year working on a NERC-funded grant. We hope that you enjoy our annual offering.

Christmas Dinner 2019

Current Ph.D. students

*Martha Gibson* is in the final year of her Ph.D. research project studying the palynology of the Upper Permian Zechstein sequence of North Yorkshire. Martha’s material is from various surface exposures and over 16,000 m of borehole core drilled by Sirius Minerals. The project is a 4-year ACCE studentship funded by NERC and supervised by Charles Wellman, Geoff Warrington (formerly BGS) and Tristan Pottas/Asher Haynes (Sirius Minerals). This year Martha has been finishing up her data collection that
has involved: (i) logging standard palynological preparations; (ii) logging palynomorph assemblages from evaporites, that has required developing some novel preparation techniques for extracting palynomorphs from rock salts; (iii) exploring the unusual darkening of her palynomorphs, that appears to be related to their unusual preservation in evaporate deposits rather than thermal alteration; (iv) investigating peculiar fungal bodies within her pollen grains; (v) Transmission Electron Microscope analysis of the wall ultrastructure of key pollen taxa of unknown affinities. Martha is in the process of writing all of this up for her thesis in addition to preparing papers for publications.

**Alex Ball** is now in the second year of his Ph.D. studying spore assemblages from around the Silurian-Devonian boundary in the Anglo-Welsh Basin. It is a 4-year ACCE studentship funded by NERC that is a CASE award with the Natural History Museum, London. It is co-supervised by Charles Wellman (University of Sheffield) and Dr John Richardson (the Natural History Museum, London). The project is based on palynological analysis of material collected over many years by John Richardson from the Welsh Borderlands. Alex has spent time at the Natural History Museum going through John’s collections. He now has an excellent suite of spore assemblages that are beautifully preserved and of very low thermal maturity. In addition, Alex has recovered abundant mesofossils including spore masses and sporangia with *in situ* spores.
**Newly advertised Ph.D.** We are currently advertising for a NERC-funded Ph.D. studentship to study the billion-year-old Nonesuch Shale from Michigan, USA. Preliminary work on borehole material has revealed assemblages of non-marine palynomorphs that are exquisitely preserved and of low thermal maturity. These provide an extraordinary window into life on land before the origin of land plants. The project is co-supervised by Charles Wellman (University of Sheffield) with Paul Strother (Boston College, USA) and Paul Kenrick (the Natural History Museum, London). Interestingly, a very early study of the biota of the Nonesuch Shale were undertaken at Sheffield by Leslie Moore and his postdoc at the time (Ted Spinner):


**New PostDoc: Dr Brian Andres**

Brian joins us to work on the NERC-funded project ‘Excavating the roots of the tree of life’. Brian’s role is to undertake the phylogenetic and molecular clock analyses. This will involve: (i) feeding the new fossil data into data matrices that will enable their phylogenetic position to be resolved (using both morphological characters and molecular sequence data); (ii) using the new fossil time constraints to rework molecular clock analyses of the timing of diversification of the major eukaryote groups. Brian’s background is in vertebrate palaeontology where he is an expert on pterosaurs. Experience gained undertaking phylogenetic analyses of vertebrates will enable him to employ these techniques on the somewhat different group: the euglenids. Brian is from Texas, USA and completed B.Sc. degrees in Biology and Geological Sciences at the University of Texas Austin, an M.Sc. degree at The George Washington University (thesis on pterosaurs) and a Ph.D. degree at Yale University studying pterosaurs.

*Brian Andres on fieldwork (left) and explaining the phylogeny of his beloved pterosaurs (right)*
Visiting Professor of Palynology Geoff Clayton

Geoff continues his regular visits as an ‘unofficial supervisor’, internal examiner and general sounding board regarding all things palynological, in addition to continuing his work preparing our ‘Palynology Impact Case Study’ for the next national research assessment of all UK university departments [Research Excellence Framework (REF 2021). This year Geoff has been working closely with Martha on the thermal maturity of her Permian pollen grains.

Undergraduate teaching

This year we have three undergraduate students studying palaeontology for their Level 3 project topic. These projects have been upgraded from 20 to 30 credits (out of 120 credits per year) which allows for a more detailed study. The students are studying megaspores from the Ringinglow coal collected from several localities in the Sheffield region. As well as megaspores numerous other interesting ‘mesofossils’ are coming to light such as complete sporangia and large spore masses of microspores.

For 2019-2020 we have two Level 4 masters students studying palaeontology (Joe Thomas and John Woodhouse). Joe completed a Level 3 undergraduate project with us last year. This year he is studying beautifully preserved Devonian scolecodonts from northern Spain that include large clusters of elements. John joins us from the University of Sheffield Department of Geography. Last year he completed a final year undergraduate project on Quaternary pollen analysis. This piqued his interest and he has embarked on a project studying vegetation reconstruction using pollen/spores from the Late Permian Zechstein of Yorkshire. The material he is working on was recently collected by Duncan McLean from Cadeby Quarry. Cadeby Quarry has been somewhat rejuvenated as it is currently being worked for stone to be utilised in the renovation of the Houses of Parliament.
An exquisitely preserved scolecodont from the Devonian of northern Spain.

Congratulations to...

- **Alexander Askew** who has been appointed as a ‘Climate Science Communicator’ at the Met Office in Exeter.
- **Martha Gibson** who was elected as Student Representative for the palynological society CIMP (Commission Internationale de Microflore du Paléozoïque).
- **Martha Gibson**, who was awarded travel grants by the Palaeontological Association to attend Progressive Palaeontology in Birmingham, and by AASP to attend The Palynological Society-AASP annual meeting in Ghent.
- **Martha Gibson**, again, who won two awards for conference presentations in 2019: Runner up Best Student Talk at The Palynological Society-AASP annual meeting in Ghent, and winner of Best Student talk at the ACCE NERC DTP Annual Meeting in York.
- **Steffan Samuels** who was awarded the 2019 Palaeontological Association Undergraduate Prize for his final year Level 4 M.Biol.Sci. project studying the enigmatic, probable euglenid, palynomorph *Moyeria*.
- **Charles Wellman** who has been appointed as a member of the Subcommission on Ordovician Stratigraphy.

Outreach

This year our outreach stand ‘Jurassic Plants’ was presented at the annual ‘Yorkshire Fossil Festival’ that this year returned to the Rotunda Museum in Scarborough. The stand features our collection of living ‘fossil’ plants (*Ginkgo biloba*, a monkey puzzle, tree ferns and horsetails) alongside examples of fossil plants and child-friendly microscopes displaying slides of Jurassic spores and pollen. The stand was manned by Alex Ball, Dave Bodman, Charles Wellman and Alex Askew (who kindly came along to help out).
Laboratory, Library and Collections News

Dave Bodman continues to work two days a week in the Palynology Lab (normally Thursday and Friday) and is as ever maintaining and upgrading facilities. As usual we welcomed a number of visitors to the collections (listed below) and continued to augment our collections and library. We received a surprise e-mail from the Geological Survey of Western Australia who had discovered the slides from Kath Grey’s 1971 M.Sc. on the Lower Carboniferous of the Scottish Borderland. These had been located whilst clearing out some drawers and have now been safely returned to the Sheffield collections after a period of nearly 50 years away in Australia! Our collection of palynology theses was also enhanced when Geoff Clayton transferred his collection of theses from Trinity College Dublin into the Palynology Library.

The Centre for Palynology is the main HF facility at Sheffield University and we often receive unusual requests from researchers on other departments that would like to use it. This year a Ph.D. student from the Geography Department has been HF etching computer chips for use in a NASA Mars Rover!

A few years ago Mike Newman and Jan den Blaauwen visited Sheffield to examine our rather large collection of Old Red Sandstone fish from Scotland. These were left by Alex Ritchie, who was a lecturer in the geology department (1963-1968), before transferring to Australia. Among this excellent collection Mike and Jan discovered an exquisite specimen of *Cheirocanthus* (image below) that they are figuring in a publication on this genus.
The Sheffield Cheirocanthus from the Middle Old Red Sandstone of Scotland

Publications 2019


WELLMAN, C. H. 2019. The Rhynie chert is the gift that keeps on giving. *Current Biology* 29, 93-95.


Meetings 2019

- 19th International Congress on the Carboniferous and Permian in Cologne, Germany [Gibson]
Fieldwork 2019

There was plenty of field activity during 2019. Martha Gibson continued her exploration of the Zechstein of northeast England with the aid of Rick Ramsdale of SAGS, as well as visiting the famous German Zechstein sections during the field excursion associated with the "19th International Congress on the Carboniferous and Permian" in Cologne. Alex Ball commenced his fieldwork on Silurian-Devonian boundary sections in the Anglo-Welsh Basin. Charles Wellman undertook fieldwork in South Africa (Ordovician of the Cape Supergroup), Spain (concentrating on the D/C boundary in the Cantabrian Mountains), Scotland (Torridonian and Lower Old Red Sandstone) and England (Bristol coalfield).

Visitors 2019

As usual we welcomed a number of visitors to the Centre for Palynology. These included Clinton Foster (Australian National University & University of Western Australia), Fiona Gill (University of Leeds), Awad Ibrahim (Sudan), Barry Lomax (University of Nottingham), Chris Reid (University of Plymouth), Thomas Servais (University of Lille), Paul Strother (Boston College) and Mike Whiteker. Mike Whiteker completed an M.Sc. thesis in 1972 on “A palynological investigation of the Lower Limestone Group Northumberland”. He popped in on the off chance whilst on holiday in the Peak District! Tim De Backer, a Ph.D. student at the University of Ghent, visited the collections for several days searching for malformed chitinozoans.
Second edition of ‘Sorby’s legacy: Geology at the University of Sheffield’

Unfortunately Alison Hunter’s excellent website on the history of the University of Sheffield Geology Department has been shut down [geologyatsheffield.co.uk]. However, it has been archived at webarchive.org and can be accessed through the Sheffield Area Geology Trust (SAGT) website at http://www.sagt.org.uk/geologyatsheffield. Many thanks to Alison who continues to donate funds from the sale of her books that are used to finance palynology student fieldwork and conference attendance.

“Sorby’s Legacy: Geology at the University of Sheffield” by R. Alison Hunter (1st and 2nd editions)
Christmas Dinner

The 2019 Christmas Dinner was held on Saturday 7th December as usual upstairs at the Red Deer. Along with the current Centre for Palynology and MB Stratigraphy palynologists various other alumni attended including Paul Dodsworth and Brian Pedder. Many thanks to Alex Ball who has inherited the mantle (junior Ph.D. student) for organising what is always a highly enjoyable event.

News from former students of the Centre for Palynology

Please keep in touch (e-mail c.wellman@sheffield.ac.uk) and keep us updated with respect to your contact details. And most importantly--please send in your alumni news for the next newsletter.

In memoriam

Sadly we have heard of the passing of at least two Sheffield palynology alumni: Leonard Love (Ph.D. 1959: The Scottish Lower Carboniferous oils shales with particular reference to the upper part of the Lower Oil Shale Group) and Bernard Owens (Ph.D. 1963: A palynological investigation of the Namurian and Westphalian sediments of the Stainmore Outlier, Westmorland). Both completed B.Sc. and Ph.D. degrees at the University of Sheffield and both were staff members at the University of Sheffield (Leonard during a long career post-Ph.D. and Bernard following his retirement from BGS).