



CEDRIC HAYDN SHUTE (1937–2019): A BIOGRAPHY

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Early life

Cedric Haydn Shute was born in Swansea on 16 May 1937 to Haydn Shute and Mary Elvira Shute (née Williams). As a small child, his experiences were shaped by the Second World War, and he recollected seeing military aircraft in South Wales and fearing that he would be killed. With rationing and shortages throughout his youth, his family were excited when they were finally able to introduce him to a banana. They waited expectantly for a verdict, but were disappointed to learn that he did not like it at all. After the war, the family moved to Caswell Bay near the Mumbles on the Gower Peninsula, where Cedric developed his interest in natural history. His first major school project was on local seaweed.

Crediting tuition from his mother, Cedric was successful in passing the 11+ examination to gain a place at Dynevor Secondary Grammar School in 1948 (Text-fig. 1). He took part in his biology lessons enthusiastically, once cutting open his hand whilst too engrossed in the dissection of a rabbit, resulting in a visit to the hospital. Perhaps this was the beginning of the development of Cedric's famed meticulous and careful approach to delicate preparation work. On leaving school, Cedric spent time in Germany completing his National Service, which involved medical duties. Cedric never talked about the lives he had saved, as it was not in his nature to boast about anything. One of the lives he saved was that of a soldier who had collapsed with severe heat stroke. Cedric was the only person who realized what was happening and organized treatment until they could get the soldier back to base.

During Cedric's early life, frequent visits to the local museum inspired him to become a curator and so he sought out a career at the British Museum (Natural History).

Curator of Palaeobotany

Cedric joined the Palaeobotany section of the then British Museum (Natural History) [now Natural History Museum (NHM)] as a curatorial assistant in 1959 and his careful attention to detail impressed the existing curator, (Frederick) Maurice Wonnacott (1902–1990). The Keeper of Palaeontology at that time was Errol Ivor White (1901–1985) and (Kathleen I.M.) Kim Chesters carried out research within the Palaeobotany section (Text-fig. 2). Marjorie Elizabeth Jane Chandler (1897–1983) was also a member of the team, although she was not based within the Museum.



Text-fig. 1. Dynevor Secondary Grammar School class of 1948 Lower Sixth photographed 1953–1954. Cedric is standing on the back row, farthest on the right. Image courtesy of the Old Dy'vorians Association.

Wonnacott had been working within the collections since the age of 15 and when he retired and finally finished his work at the Museum in 1970, Cedric and Wonnacott maintained their close friendship and were in frequent contact until Wonnacott's death in 1990. The high standard of curation of the internationally important Palaeobotany collections owes a lot to Cedric's dedication to continuing the meticulous work involved. Cedric began with the curation and documentation of the Marie Charlotte Carmichael Stopes (1880–1958) bequest. It is clear that, from the beginning, Cedric's work involved enhancing the collections through interpretation, annotating the Register in pencil to clearly distinguish curatorial taxonomic, stratigraphic, and geographic determinations from those provided with the specimen entered in ink. He also placed great value in the practice of adding crucial information to the specimen Registers and labels by "marking up" with type, figured, and cited bibliographic data; early examples of this involving the documentation of the work done by William Springthorpe Lacey (1917–1995) on Welsh Carboniferous plants (Lacey 1962); the internationally significant Thomas Maxwell Harris (1903–1983) Yorkshire Jurassic flora (Harris 1961, 1964, 1969, 1979, Harris et al. 1974); the Hugh Hamshaw Thomas (1885–1962) bequest; and the William Noble Croft (1915–1953) collection from the Devonian of Wales.

Cedric's knowledge of the collections and aptitude for assessing the importance of material meant that he



Text-fig. 2. a: The Palaeontology Department of the British Museum (Natural History) in 1963. Cedric is standing in the third row, 7th from the right. Maurice Wonnacott is in the 2nd row, 2nd from the left standing on the bottom step. John Pettitt is on the back row, 4th from the right. K. I. M. Chesters is seated on the front row on the far right. Peter Whybrow is next to Cedric, 6th from the right, and Cedric's friend Cyril Walker is on the back row, 7th from the left. The Keeper Errol White is seated in the centre, 6th from the left. **b:** Cedric Shute. **c:** Maurice Wonnacott. **d:** John Pettitt. **e:** K. I. M. Chesters.

enhanced the Palaeobotany collections extensively. Some of the larger acquisitions he dealt with included the Margaret Jane Benson (1859–1936) collection transferred from Royal Holloway College, University of London, in 1967; the Francis Wall Oliver (1864–1951) slide collection from University College London during the 1960s; the William Henry Lang (1874–1960) bequest comprising principally British Devonian plant fossil material; the William Gilbert Chaloner (1928–2016) Kiltorcan collection; palaeobotanical collections from Downing College, Cambridge; the King's College London palaeobotany collection incorporating the William Thomas Gordon (1884–1950) collection; the Cliff and Iris Taylor collection of Carboniferous plants from south Wales in the 1980s; Devonian material presented by Dianne Edwards; and the large Pennsylvanian coal ball collection amassed by John Holmes (1949–1989).

One major undertaking for Cedric was the huge project to help conserve the internationally important Eocene London Clay flora, totalling thousands of specimens, including the

James Scott Bowerbank (1797–1877) collection and the collection of Eleanor Mary Reid (1860–1953) and Marjorie Chandler. Since these fruits and seeds are largely composed of pyrite, they suffer a high risk of decay and loss (Collinson 1983). Reid and Chandler (1933) had transferred the material to storage within glycerol as they believed that it prevented decay whilst also being soluble in water meaning that it could be washed off for study. However, glycerol was later found to result in the deterioration of specimens (Howie 1977). Cedric therefore oversaw the programme of washing to remove the glycerol, which was not easily washed off and actually involved prolonged immersions in a series of mixtures, followed by drying over silica gel (Howie 1979). The specimens were then immersed in silicone fluid, which is inert and has very low permeability to water and oxygen, and any air remaining within specimens was removed under vacuum. This was begun in the early 1960s and completed for the type and figured collections by 1972. During the late 1970s, Cedric and two of the assistants he trained, Mark



Text-fig. 3. Some of the Palaeontology Department staff in front of the new Palaeontology Building in 1977. Cedric is standing in the back row, 2nd from the left. Chris Hill is next to him, 3rd from the left, and Mark Crawley is farthest on the right. Graham Elliott is seated on the front row, farthest on the left. The Keeper, (Harold William) Bill Ball, is seated 2nd from the left.

Crawley and Susan Keen, carried out this lengthy process for the remaining 3500 (approx.) un-figured specimens. The small glass tubes containing the immersed pyritized fruits and seeds needed to be kept upright and clearly identifiable, so Cedric devised a new method for their storage. Drawers were lined with Plastazote pierced using cork-borers to make holes of the correct size to support the tubes; a system which works well.

Probably the biggest and most complex task Cedric achieved, however, was the move of the Palaeobotany collections from the storage space in and around the galleries of the Waterhouse building to the new east wing purpose-built for the storage of the Palaeontology collections. The building provided space for staff, visiting scientists, laboratories, and libraries in addition to the collections storage plus expansion space, and air-conditioning was included to control temperature and relative humidity for conservation of the Museum's collections (Owen et al. 1981). Cedric dealt with the survey of the Palaeobotany collections of hundreds of thousands of specimens to aid the design of the new storage system. He then planned the arrangement of the collections to maximize their utility for research, according to the principles he later published (Shute and Cleal 1987). The overarching arrangement is stratigraphic, then geographic. The storage system is flexible, so the work to transfer the collections was incredibly detailed, as in addition to the sequence the curator was required to specify every drawer and shelf height to accommodate the specimens appropriately. From 1976 to 1977 he moved the fragile collections into the new storage and the new Palaeontology Department opened (Text-fig. 3). Then in 1980 he dealt with the move of the larger specimens remaining in the closed gallery spaces to a new offsite store (Text-fig. 4).

Cedric worked with the wide variety of palaeobotanical material held within the Palaeobotany collections at



Text-fig. 4. The move of the larger tree fossil specimens to the offsite store in 1980. NHMUK specimen number V 10937, *Sigillaria*, Pennsylvanian, Carboniferous, Tyne and Wear, UK; currently on display in one of the Wonder Bays of the Natural History Museum.

the NHM, from large permineralized tree fossils to palynological and cuticle preparations. In 1987, Cedric co-authored a paper on important considerations in the curation of a palaeobotanical collection, including how to assess a collection for usefulness to palaeobotanists and how to arrange it for maximum benefit. Shute and Cleal (1987) also outlined the most common modes of preservation of plant fossils and here he introduced the term "adpression" which he invented to accommodate the need for a word encompassing both compression and impression fossil preservation.

Even towards the end of his career, Cedric fully embraced new technologies. He mastered the new computerized collections management system and fully adopted its use for the documentation of the Palaeobotany collections in 1990, starting with the lower Carboniferous Drybrook Sandstone flora of the Forest of Dean presented by Nicholas P. Rowe (Rowe 1988). With his keen interest in the Carboniferous, Cedric embarked upon a project to create an electronic database of the Palaeozoic type and figured specimens held within the Palaeobotany collections of the NHM. He managed to enter detailed information for over 2000 specimens.

Cedric was a patient teacher. In addition to curatorial assistants Mark Crawley and Susan Keen, Cedric had also trained Nerys Holder and Morag Jones. Towards the end of his career he trained Tiffany Adrain (née Foster), publishing a guide to curation in museum collections with her in 1999 (Shute and Foster 1999). The current Senior Curator of Palaeobotany, Peta Hayes, began to learn about curatorial techniques according to Cedric's instructions whilst research assistant to Joan Watson in 1994. Cedric was always so helpful, supporting Peta in her palaeobotanical pursuits whilst she was a curator in the Botany Department of the NHM before she obtained the long sought after role in the Palaeobotany Section in 2004. Continuing at the Museum daily long into his retirement, Cedric continued to mentor Peta. She is hugely grateful to have had the opportunity to benefit from friendship with Cedric, who so thoughtfully and generously shared his expertise and knowledge of the collections.

International research support

During Cedric's early years he worked extensively with John M. Pettitt, who was appointed to the staff in 1962, and Cedric assisted him with his research. Later Graham Francis Elliott (1916–2001), who worked on fossil algae, joined the Palaeobotany Section. Christopher Hill worked at the Museum carrying out palaeobotanical research from the 1970s to around 1990. Cedric supported these internal research staff with their work on the collections and advised the current NHM Palaeobotany Principal Researcher, Paul Kenrick, who arrived shortly after Cedric began his retirement. However, Cedric was also an excellent host to countless research visitors from all over the world. Through his congenial and helpful manner, Cedric made a great number of friends. Just to name a few, he helped and maintained friendly contact with palaeobotanists such as Henry Nathaniel Andrews (1910–2002), Richard Bateman, Mike Boulter, Bill Chaloner, Margaret Collinson, Bill DiMichele, Dianne Edwards, Else-Marie Friis, Jean Galtier, Pat Gensel, Jason Hilton, John Holmes, Han van Konijnenburg-van Cittert, Hugh Pearson, Tommy Lee Phillips (1931–2018) (who had a great time on sabbatical from Illinois with Cedric in 1975), Gar Rothwell, Paul Strother, Barry Thomas, and Joan Watson. This is an illustrative list of Cedric's network and is caveated with apologies to anyone not included. Cedric was a kind host with a brilliant sense of humour, so made a great many friends. Cedric once commented that an experienced curator specializing in one group is of great value as, for example, such a curator can enable a visiting scientist to achieve more in a week than they would otherwise in a month. This was certainly true of Cedric. He also supported researchers from around the world with access to specimens by arranging loans of NHM material. Where it wasn't possible to send specimens, such as type, figured, or rare material, Cedric took photographs and sent prints or negatives.

Cedric's contribution to palaeobotany has been recognized by new species being named after him. Joan Watson and Caroline Sincock named the bennettitalean species *Cycadolepis cedricii* J. WATSON et SINCOCK, 1992 and

Cycadolepis shuteana J. WATSON et SINCOCK, 1992 in honour of Cedric. Another species is named in Cedric's honour in this volume (Hayes and Pearson 2024).

Palaeobotanical preparation and techniques

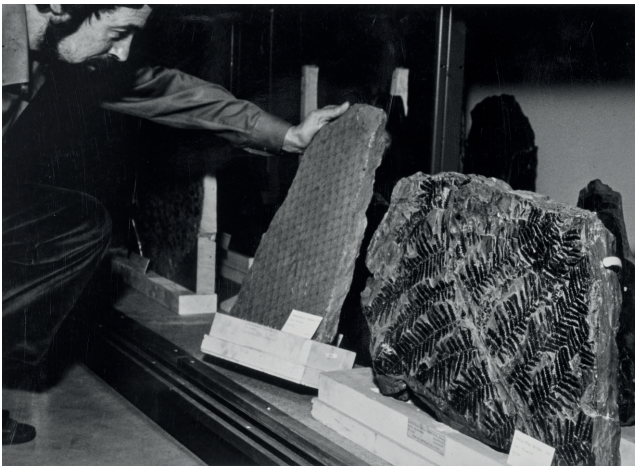
Cedric was world-renowned for his mastery of palaeobotanical preparation techniques, especially cuticle preparation. He was known as a magician in this dark art and was sent the trickiest material to prepare when others had failed. He was also highly skilled in cutting sections and making coal ball acetate peels. His work involved mounting and remounting material from the start of his career at the Museum and John Pettitt had very high praise for Cedric's accomplishments in specimen preparation.

Cedric was an expert microscopist, in both light microscopy and scanning electron microscopy, and he became the Palaeontology Department Microscopes Officer. He was head-hunted for his microscopy skills and offered a good job in Canada, but he decided that Calgary was not for him and chose to stay at the NHM in London. He led on new techniques, such as non-destructive analysis using Confocal Laser Scanning Microscopy to obtain high resolution images of important figured Silurian dyads to reveal new information on the internal membranes within the spores, testing theories about early land plants (Shute and Hemsley 1995, Shute et al. 1996).

Palaeobotany exhibitions and outreach

During the late 1960s the Palaeobotany Section very much wished to update the palaeobotanical displays and in the early 1970s, Cedric collaborated on the development and delivery of the Succession of Life exhibit, selecting specimens from throughout the geological record but with a special interest in the Carboniferous reconstructions. Cedric's guide to *Coal Measure Plants* was published by the Museum in 1975. In 1981 (Text-fig. 5), Cedric was involved in the centenary celebrations of the NHM, which were attended by Queen Elizabeth II and Prince Philip. Every Section produced exhibits illustrating their work, with Cedric putting together displays on the Yorkshire Jurassic flora and the curation of pyritic specimens from the London Clay. Cedric contributed to several exhibitions over the years, including long-term displays in the NHM galleries, touring exhibitions, and helping with exhibitions at other venues, such as the Evolution House at the Royal Botanic Gardens, Kew.

Cedric answered huge numbers of enquiries from researchers, but also lots of identification enquiries from amateur natural historians, even providing identifications based on children's drawings. Eventually, serving as the Enquiries Officer for the Palaeontology Department was added to his duties. He also got involved in outreach activities to share his love of palaeobotany with people of all ages. For example, he helped the British Broadcasting Corporation (BBC) with filming for the children's television series *Merry-go-round: Digging the Black Seam* in 1974; filming for the natural history series *Life on Earth* that was first transmitted in 1979; and in reconstructing a Carboniferous forest for



Text-fig. 5. Cedric Shute photographed in the Palaeobotany collections for a display on collections, curation and associated research at the Natural History Museum in 1981.



Text-fig. 6. Cedric Shute carrying out fieldwork. Locality unknown.

The Birth of Europe documentary that aired in 1991. He helped artists with illustrations and reconstructions. He was also involved in teaching students, for example, through the 1970s and early 1980s he delivered demonstrations for students of St Mary's College, Twickenham, every year.

Fieldwork

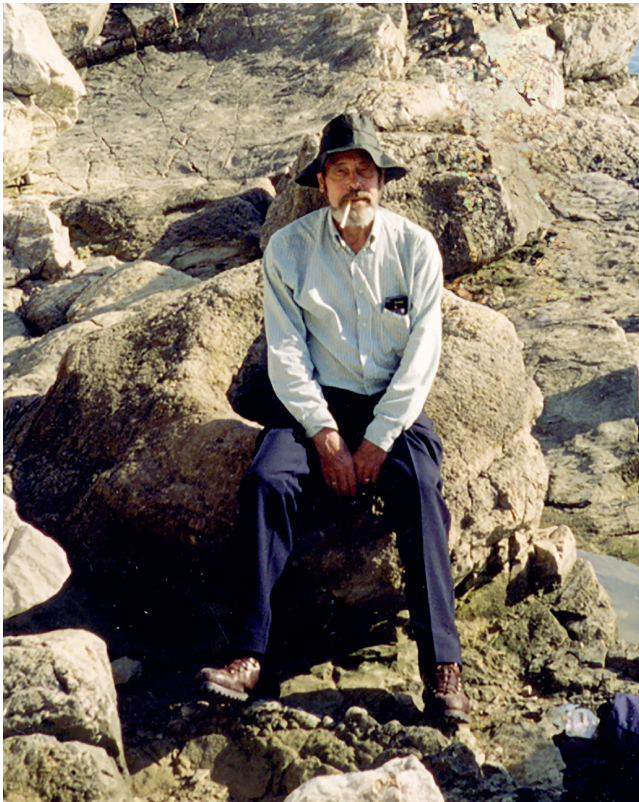
Cedric added to the collections significantly through fieldwork. He went on collecting trips with his colleague and friend Peter J. Whybrow (1942–2004), beginning with the collection of *Equisetites* from the Cretaceous of Sussex in 1963, and together they drafted a manuscript that was not published. Around that time he also went collecting Jurassic plant fossil material from Dorset and Yorkshire.

The Rhynie chert is inaccessible, buried under a field, and is now a Site of Special Scientific Interest, but in 1964 a trench was opened for the International Botanical Congress. Cedric asked if he could collect some material for the Museum and brought one ton of important research material back to London that continues to form the basis of research projects.

During the 1970s, Cedric anticipated that it would soon no longer be possible to collect Lancashire coal balls. In June 1975 he led a collecting trip to coal tips in the Burnley area for a couple of weeks to collect coal balls with Mark Crawley, Jean Galtier, and John Holmes. Cedric collected 3.5 tons of coal balls for the Museum! Tom L. Phillips joined



Text-fig. 7. Cedric Shute in May 1977 putting together a demonstration about Carboniferous coal balls. The coal ball behind him weighs about 50 kg and was a favourite of Cedric's that he called "Fred".



Text-fig. 8. Cedric Shute on the Linnean Society Palaeobotany Specialist Group field trip to the Purbeck fossil forest in Dorset, 1998. Image courtesy of Tiffany Adrain.

Cedric for his sabbatical from the University of Illinois later that year and Cedric cut and peeled an enormous proportion of the coal balls. In August 1976 Cedric conducted reconnaissance for potential sites for the collection of coal balls in the Halifax and Huddersfield area of the Yorkshire coal field but found that there had been much redevelopment and the spoil tips of abandoned mines had been cleared.

In August 1978 Cedric took part in the joint NHM Palaeontology and Entomology Department trip to Derbyshire to examine surface exposures of the Pennsylvanian beds in which the Bolsover giant dragonfly wings had been found to try to uncover information on the environment in which the dragonflies lived. As a result of his informative report, Cedric was then permitted to lead a trip to the Bolsover coal mine a month later, just before it closed permanently. Along with a small team from the Museum (including Mark Crawley and Ed Jarzembowski), Cedric worked for around seven hours a day three miles underground with volunteer colliers. They systematically collected about 150 kg of plant fossil material from the rocks overlying the coal seam before it was declared too dangerous to continue due to the potential collapse of the roof of the tunnel. Cedric had “thought it too dangerous at sometime previous to them deciding so”.

When he learned that one of the last remaining Pennsylvanian Radstock flora sites was in danger due to the removal of the coal tips after cessation of mining in the area, Cedric visited the site to plan fieldwork in his own time. Then in August 1979 Cedric and Mark Crawley collected over 400 specimens of Carboniferous plants from the site at Kilmersdon, near Radstock, Somerset. He returned



Text-fig. 9. Cedric Shute instructing Richard Bateman in the art of *Pecopteris* identification on a Linnean Society Palaeobotany Specialist Group field trip to the Kent coalfield that coincided with the hottest day ever recorded in England up until that point (10th August 2003, when Faversham in Kent recorded 38.5 °C = 101 F). Image courtesy of Paula Rudall.

with Mark and Sue in August 1980, again collecting about 400 specimens. On the way back to London, Cedric seized the opportunity to visit Gloucestershire to collect approximately 100 plant fossils from the Pennsylvanian of the Forest of Dean. He then returned again to Kilmersdon with Chris Cleal and Mike Taylor of the Bristol Museum in November 1980 and collected a large amount of material. Also in the early 1980s, Cedric, Hugh Pearson, Mark Crawley, and Chris Cleal joined Alan Charles Howell (1949-2022) of Bolton Museum in rescue collections of the remaining Burnley coal balls. In 1982, Cedric and Chris Cleal carried out fieldwork at Whiteadder in Berwickshire to search for Mississippian plant fossils and they made a detailed survey of the Edrom locality.

Cedric also got involved with organized group field visits. In 1975 he took Tom Phillips on the Geologists' Association weekend excursion to collect plant fossils from the Yorkshire Jurassic. Cedric visited Yorkshire again on the Linnean Society Palaeobotany Specialist Group (LSPbSG) trip led by Alan Hemsley, Allister Rees, and Han van Konijnenburg-van Cittert in 1994. It was here that Cedric became known as a member of the “Beard Society”. At one point during the trip, Cedric and one of us (Chris) were out together with others of the group (Richard Bateman, Barry

Thomas, and Bob Spicer) when a passer-by stopped to ask it was a meeting of the “Beard Society”: all did indeed have beards! Cedric was an active participant in other LSPbSG field trips, including a trip to the Carboniferous of South Wales during the 1990s; the trip led by Joan Watson to the Purbeck fossil forest at Lulworth Cove (Text-fig. 8) and the Wealden of Worbarrow Bay in Dorset in 1998; and in 2004 he joined the trip to Hastings and an open-cast coal mine in Deal, Kent (Text-fig. 9).

Research

Much of Cedric’s research was on late Carboniferous plant fossils, especially on medullosalean pteridosperms and marattialean ferns. His insights into these plants were partly rooted in his deep knowledge of the excellent collections of these fossils in both the Natural History Museum, and in the Museum of Practical Geology that until the mid-1980s was in an adjacent building on Exhibition Road, London. For instance, the description of the holotype of *Lobopteris miltonii* (ARTIS) R.H. WAGNER, 1959 (Shute and Cleal 1989), and of an almost complete frond of the type species of *Neuropteris* (*N. heterophylla* (BRONGN.) STERNB., 1825) (Cleal and Shute 1991) were major contributions to an improved understanding of marattialean and medullosalean taxonomy.

Perhaps more important, however, was his skills in palaeobotanical preparation, especially in obtaining and photographing cuticles from the fossils. Although it had been known for well over a century that such fossils would often yield cuticles, and cuticle work had been done on the lycopsids by Barry Thomas in the 1960s and 1970s, there had been few attempts to do similar work on the medullosaleans in Britain. In pioneering studies, in the 1990s and 2000s Cedric described cuticles of several medullosalean fronds, and collaboration with one of us (Cleal) and Erwin Zedrow (Sydney, Cape Breton) resulted in a comprehensive re-classification of these important fossils – a classification that remains in use today (Cleal et al. 1990). Cedric was also instrumental in revising our understanding of the enigmatic cyclopterid leaflets associated with many medullosalean fronds, which he showed to be probably shade leaves attached epiphyllously to the basal parts of the main fronds (Shute and Cleal 2002). Much of this work on medullosalean foliage anatomy was brought together in a major 2012 paper published in the *Journal of Systematic Palaeontology* (Cleal and Shute 2012).

Cedric was also interested in the taphonomy of fossil cuticles: did they shrink during fossilisation and preparation? This would have important consequences for the use of stomatal densities in assessing atmospheric compositions and climate in deep time, a subject that was attracting much attention at the time. He was able to show that relatively little shrinkage in fact occurred during fossilisation, confirming the potential value of cuticles studies in palaeoclimatology (Cleal and Shute 2007).

Another major study that Cedric collaborated on was on the enigmatic pteridosperm *Eremopteris artemisiaefolia* (STERNB.) SCHIMP., 1869. His preparations included the isolation of almost complete seed-cuticles that

revealed details of the micropylar structure, essential for understanding the systematic position of these enigmatic fossil plants (Cleal et al. 2009).

His final paper was on a new species of equisetopsid fossils from the upper Carboniferous of South Wales. These fossils did not yield cuticles but by careful preparation and photography he was able to reveal fine details of the strobilus structure, and to show that they represented species new to science (Cleal and Shute 2016). Although the bulk of Cedric’s work was on Carboniferous floras, his skills as a palaeobotanical preparator resulted in collaboration with palaeobotanists working on early land plants. With Dianne Edwards (Cardiff) he undertook detailed analyses of the branching structure of a *Cooksonia*-like fossil from South Wales (Shute and Edwards 1989), and with Alan Hemsley (Cardiff) and Paul Strother (Massachusetts) he used the newly-developed technique of Confocal Laser Scanning Microscopy to reveal the fine structure of dyad spores obtained from a Silurian rhyniophytoid (Shute and Hemsley 1995, Shute et al. 1996).

Conferences

Cedric was invited to speak at various conferences, including overseas, such as the Carboniferous conference held in Illinois, USA, in 1979. He also received invitations to visit colleagues in far off countries, but of course he did not go. Cedric did not like to fly! The conferences he attended, therefore, were closer to home. He was still a keen member of the International Organization of Palaeobotany (IOP), which did hold a meeting nearby in Reading in 1980. In 2008, Cedric, along with Peta, travelled to the IOP meeting in Bonn, Germany, by train. For the *A life of ferns and seed ferns* meeting to celebrate the career of Jean Galtier organized by the Linnean Society Palaeobotany Specialist Group and the Organisation Francophone de Paléobotanique in Montpellier, France, in 2006, again Cedric took the train.

Cedric was an active member of the Geological Curators’ Group (GCG). In 1985 he took part in the meeting entitled *Aspects of palaeobotany in museums* organized by Alan Howell at Bolton Museum, where he delivered a talk on *Palaeobotanical classification for storage purposes*. In 1987, he was interested to attend the Geological Society of London, Palaeontological Association, Geological Curators’ Group meeting in London on *Use and Conservation of Palaeontological Sites* meeting. In 1985, at the Systematics Association and Linnean Society of London meeting at Goldsmiths’ College, London, on *Systematic and Taxonomic Approaches in Palaeobotany*, Cedric gave a paper on the designation of type material in palaeobotany (Shute 1986). Cedric was a very important member of the Linnean Society Palaeobotany Specialist Group (LSPbSG), and he also was involved with the Linnean Society Palynology Specialist Group (LSPSG). At a meeting of this group in Cardiff in 1987, Cedric was invited to give a presentation on a new rhyniopsid from the Lower Old Red Sandstone of South Wales. The meeting was followed by visits to Devonian and Carboniferous localities in the vicinity. In 1994, Cedric co-edited a volume of *Biological Reviews* with Elizabeth Sheffield, resulting from the Natural History Museum

and Linnean Society of London Symposium held to bring together neobotanists and palaeobotanists on the theme of alternation of generations in plants. He also took part in joint meetings with the Linnean Society and the Royal Botanic Gardens, Kew.

Cedric was a central figure at the Linnean Society meetings, and when Peta took over the organization of the Palaeobotany Specialist Group meetings in 2007, Cedric played an essential role helping to plan the evening social event, especially by reviewing pubs and testing the beer while Peta (who doesn't drink beer) tested the chips.

Personal life, interests, commendations

In 1968 Sharon Louise Portbury joined the Entomology Department of the NHM. Cedric and Sharon were married in Ealing on 13 December 1969. Over 35 years later, one of us (Peta) remembers the saga of Cedric's frustrating search for a dry cleaner or mender that could return his favourite jumper to its former, unfaded, shade of blue. He was disappointed that, despite much trudging from establishment to establishment, he couldn't find anywhere that could do it. Then one day he got home to find his jumper hanging drying, and it was beautifully blue. Without a word, Sharon had taken care of it. He was thrilled to tell us about this and wore it proudly (Text-fig. 10).

Peta remarked, "I bet you're glad you married Sharon today." Cedric sincerely replied, "I think that every day."

Cedric and Sharon shared a love of cats. Cedric stewarded at cat shows, while Sharon was the judge. They also showed their own cats. Cedric was a keen sportsman, too, and played an active role in several of the Museum sports and social clubs. During the 1960s he played golf and in 1965–1966 he won the NHM Rifle Shooting trophy. During the 1970s he was a member of the bird watching group and took part in outings to north Norfolk. Cedric was captain of the Museum darts team, which played in the Fulham and District Darts League on the basis of a historical precedent that Cedric had discovered. Cedric was the winner of the Darts trophy for 1979–1980. He was still scoring 180s after he retired as a member of the Holland Club Team in the Trafalgar Dart League. He was also a member of the Museum's Snooker club. Cedric and his table tennis partner, Peter Hammond, were the undefeated table tennis champions. Cedric represented the Museum in the Civil Service league. He was a horse rider in the 1970s and 1980s and kept a grey hunter mare called Moulin Rouge. He was also a supporter of the Welsh rugby team and a fan of Brentford Football Club, going to home games with his NHM Zoology Department friend Tim Ferrero.

Cedric had a great interest in steam locomotives from childhood, particularly the Great Western Railway. This led to his interest in the Victorian engineer Isambard Kingdom Brunel. He became a founder member of the Museum's Brunel Appreciation Club. As well as giving talks, club members visited Brunel's creations, such as the Thames Tunnel, Clifton Suspension Bridge, and the SS Great Britain. Cedric's interests also included stationary steam engines, many of which he visited in Victorian pumping stations. He built a model stationary steam engine which he used to run at home on the weekend. For many years



Text-fig. 10. Cedric Shute in the Seward Room, Palaeobotany Section of the Natural History Museum, 2005.

he visited the Great Dorset Steam Fair held at the end of August in Blandford Forum. This is the largest exhibition of working traction engines in the UK, with lots of craft beers on show too! Cedric's zoologist friends Fred Wanless and Tim Ferrero often accompanied him, as did his friend Peter Davison (Text-fig. 11).

During the 1970s Cedric received two commendations from London Transport for saving lives of fellow passengers



Text-fig. 11. Cedric Shute at the Dorset steam fair with his friend Fred R. Wanless (1940–2017), arachnologist who worked in the Zoology Department of the NHM.



Text-fig. 12. Cedric Shute at a “Last Wednesday” meeting. Clockwise: Cedric Shute, Peta Hayes, David Steart, Margaret Collinson, Paul Kenrick, Richard Bateman, Peter Davison, and Chris Cleal.

on the London Underground. He once got under a train at Acton Town station to help a man who had fallen from the platform. When everyone else was just shouting, Cedric could see that the man was panicking and every time he tried to get up was hitting himself on the underside of the train. Cedric got down under the train to help the man until the emergency services arrived. A second time at Acton Town, a man fell down the gap between the carriage and the platform. Cedric quickly grabbed the man and pulled him up as the train started moving. He would not go to the awards ceremonies, so the authorities could only send the certificates in the post to thank him. On another occasion, he saw a man lying on the platform at Acton Town station and people were just stepping over the man assuming he was drunk. Cedric just knew he wasn't drunk and got help for the man, who was actually in a diabetic coma. In the 1980s, on his lunch break near the Museum, a man collapsed in front of him with a heart attack. Cedric saved the man by carrying out CPR until the ambulance arrived. Most importantly, in 1977 he saved the life of his beloved Sharon, an asthmatic who stopped breathing during the night. She was blue, but he managed to get her breathing again with CPR. Cedric was a real hero!

Retirement

When Cedric reached the compulsory retirement age at the Museum in 1997, a celebration of his career was held by the Linnean Society Palaeobotany Specialist Group, organized by Imogen Poole, Alan Hemsley, and Tiffany Foster (Adrain). It should be a clear indication of the high regard with which Cedric is held within the palaeobotanical community that less than ten years later, in 2005, another meeting of the Linnean Society Palaeobotany Specialist Group was held to celebrate Cedric's career.

Cedric played a key role in fostering collegiality of the palaeobotanical community, both for UK palaeobotanists and for international visitors invited to join activities. This included his active participation in social events such as the “Last Wednesday” of the month, which has been held in various pubs in the area around the Museum over many decades, such as monthly meetings in the Norfolk during

the 1970s and in the Anglesea Arms during the 21st century (Text-fig. 12).

Although Cedric retired in 1997, he continued to come into the Museum every day as a Scientific Associate until an accident on his way into South Kensington one morning in the winter of 2012 limited his mobility. Sharon cared for him and was there for him to rely on. Still, Cedric's passion for the collections and palaeobotany burned on. He embraced the digital age, allowing him to continue to publish with Chris Cleal. He chatted daily with Peta on the phone and shared his valuable knowledge and advice up until just a couple of days before his death. Cedric Shute, our much-loved friend and most highly esteemed colleague, respected worldwide, died on 26th January 2019. He is very sorely missed by all those who knew him. On the 23rd of October 2019, the Linnean Society Palaeobotany Specialist Group held a celebration of the life of Cedric Shute at a meeting focusing on subjects of great importance to Cedric, *Palaeobotany: current techniques and the importance of collections in research*.

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