

Obituary: 英国皇家学会院士 William G. Chaloner (1928--2016)
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2016-12-25 23:57

2016 年 10 月 13 日英国皇家学会院士、古植物学家 William G. Chaloner (1928--2016) 在伦敦去世。Bill 的老学生—伦敦大学皇家 Holloway 学院退休教授 Andrew C. Scott 为他的老师写了讣文，于 2016 年 11 月 6 日刊印在英国《卫报》(*The Guardian*):

William Chaloner obituary

<https://www.theguardian.com/science/2016/nov/06/william-chaloner-obituary>

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William Chaloner obituary

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Authority on fossil plants who pioneered the use of growth rings to reconstruct ancient climates

William Chaloner, who has died aged 87, was one of the world's leading authorities on fossil plants. He pioneered new methods for their study and is considered one of the founders of the research field of palynology, which uses fossil pollen and spores from ancient rocks to interpret plant evolution and to reconstruct environments of the past.

His research was wide-ranging and included work on some of the earliest plants to colonise the land, fossil plants of the coal age, and the use of plant fossils to infer ancient climates and the composition of the atmosphere in the distant past.

Born in London, Bill was the son of journalists, Lenore “Len” (nee Barling) and Ernest Chaloner. He attended Kingston grammar school and evening classes in geology at Chelsea Polytechnic before going to Reading University in 1947, to study botany, chemistry and geology. He graduated with first-class honours in

botany in 1950 and remained at Reading to study extinct plants with Tom Harris, who influenced him greatly, including encouraging the importance of fieldwork as the main way to gain new and interesting fossil material.

For his doctorate, Chaloner studied spores from the extinct club-moss trees of 300m years ago, showing that these strange plants were highly diverse, and using them to understand the ecology of the vegetation that formed some of the world's most important coal deposits. In 1953 he accepted a Commonwealth Fund fellowship (now a Harkness fellowship) and travelled to North America to work with one of that continent's premier palaeobotanists, Chester A Arnold, at the University of Michigan, on the spores of similar plants to those he had studied in Britain. On the voyage home he met Judith Carroll, whom he married in 1955.

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In 1956, Chaloner was appointed an assistant lecturer in the botany department at University College London. He was promoted to lecturer in 1958, and then reader in palaeobotany in 1963, spending a year as a visiting professor in the geosciences department at Pennsylvania State University and teaching at the University of Nigeria at Nsukka in 1965-66, which gave him new insights into tropical vegetation. This phase of his career included his important 1970 review on the colonisation of the land by plants, which integrated information from plant fossils of all kinds into an influential overview that showed the stepwise accumulation of the features, such as water-conducting tissues and leaves, that today characterise almost all land plants.

Chaloner was appointed to the chair of botany at Birkbeck College, London, in 1972, where he remained until 1979. During this period he pioneered the use of scanning electron microscopy to study fossil plants at high magnifications and in three

dimensions, which opened up many new fields of study, including the possibilities of detailed work on spores and ultimately the study of fossil flowers. He also became interested in forest fires in ecosystems of the past, and the use of fossil charcoal to estimate the concentration of oxygen in ancient atmospheres.

In 1979 Chaloner moved to the chair of botany at Bedford College, University of London. There he pioneered the use of growth rings in fossil woods to reconstruct ancient climates. He showed that forest growth, mainly of conifers, was possible close to both poles during the global warmth of the Cretaceous period, about 100m years ago, and hence that these ecosystems were capable of supporting a diverse fauna, including dinosaurs.

When Bedford College merged with Royal Holloway College, University of London, in 1985, Chaloner became the first chair of the school of life sciences. There he developed the use of stomata (gas exchange pores) on fossil plants to reconstruct levels of carbon dioxide in ancient atmospheres. It had been shown that the number and density of these pores bore a direct relationship to the concentrations of carbon dioxide in the Earth's atmosphere. Chaloner was able to document differences in stomatal number and density in fossil leaves at different times in the past, creating a record of changing concentrations of carbon dioxide in the atmosphere that related to warming and cooling of the climate. He became passionately interested in the link between carbon dioxide concentrations in the atmosphere and climate, believing that knowing more about past changes would help us to understand the future.

Chaloner received numerous honours for his services to science, including election as a fellow of the Royal Society in 1976. He was a trustee of the Royal Botanic Gardens at Kew, president of the International Organisation of Palaeobotany and president of the Linnean Society in its bicentennial year. He received both the

Linnean and the Lyell medals and also served as vice-president of the Geological Society of London.

After retirement in 1994, he continued to publish research up until his death, including editing a volume on the past, present and future of fire in the history of the Earth, including recommendations for future research as well as for policymakers. With a warm sense of humour and a self-effacing manner, he was ever approachable, especially for young researchers. His thoughtful, polite and generous approach won him many friends.

He is survived by Judith, their three children, Caroline, Michael and Sarah, and six grandchildren.

- William Gilbert Chaloner, palaeobotanist and palynologist, born 22 November 1928; died 13 October 2016

Fossil *Ginkgo huttoni* leaves, found in the Jurassic rocks of Yorkshire. The leaves show up as black against the background of the pale sandstone. Photograph: Han van Konijnenburg van Cittert

William Chaloner became fascinated by the link between carbon dioxide concentrations in the atmosphere and climate.

The trunk of a fossil known as *Lepidodendron*, an extinct coal-forming tree found in Radstock, Somerset. By studying a latex cast under a scanning electron microscope, Chaloner showed that the trunk surface has stomata (gas exchange pores).

Photograph: Andrew Scott