



# Thomas N. Taylor

1938–2016

BIOGRAPHICAL

# *Memoirs*

*A Biographical Memoir by  
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NATIONAL ACADEMY OF SCIENCES

# THOMAS NORWOOD TAYLOR

June 14, 1938- April 28, 2016

Elected to the NAS, 1994

Tom Taylor was, simply put, a larger-than-life figure. His array of accomplishments in the field of paleobotany, and there were many, was outstanding. His personality was powerful, expansive, charming, and he was charismatic. He was generous to a fault. Tom's remarkable ability to focus on tasks and his time management skills were amazing. He was a great friend and an effective and dedicated mentor to many graduate students, post-docs, and young colleagues. He was field leader, not only in research, but also in his ability to organize and energize his colleagues within the subdiscipline. His leadership sustained the field of paleobotany nationally, and he enriched it immeasurably by his contributions in strengthening the collegial network of internationally cooperative paleobotanists.

Tom's numerical statistics are consistent with his stature in paleobotany. He won numerous awards during his career, including the prestigious Alexander von Humboldt Senior Research Award and the Botanical Society of America's Merit Award (its highest honor), and was appointed to the National Science Board by President George W. Bush in 2006. Tom was awarded sixty National Science Foundation grants throughout his career. His publications included 468 peer-reviewed journal articles (many in *Science*, *Nature*, and the *Proceedings of the National Academy of Sciences*) and four major textbooks. He mentored twenty-five students for master's and Ph.D. degrees and oversaw twenty-seven postdoctoral students. In addition, his laboratory was an incredibly active crossroads for national and international paleobotanists, and he hosted twenty-six scientists as visiting faculty members during his career. He was equally active in community service.

Tom was born on June 14, 1938, in Lakewood, Ohio, to Velma and Allyne Taylor. In high school, he aspired to become a professional golfer. He was generally an excellent athlete who was, or would later become, skilled in track, hockey, tennis, and squash. To say that he was competitive would be an understatement. As a young man though, he



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By William L. Crepet

was particularly focused on golf. His father made him a deal: if he was ranked among the top five amateur golfers in Ohio at the end of his high school career, he could pursue professional golf with his family's blessings and support. If not, he would attend college. By graduation, however, Tom ranked seventh in the remarkable field of Ohio golfers that, at the time, included the legendary Jack Nicklaus, so off he went to Miami University of Ohio, where he was attracted to their strong program in botany. While there, Tom met and married his first wife, Judy, and soon after started his wonderful family. One of his signal characteristics was his ability to multitask, and so with Judy's help, he began raising a family while finishing college and applying to graduate school to pursue paleobotany.

Accepted at the University of Illinois, Tom met colleagues there with whom he would interact professionally throughout his career. Indeed, his interactions with these colleagues would become important in shaping the field of paleobotany in the United States for generations to come. As a nascent graduate student, he was particularly interested in working with a young assistant professor, Theodore Delevoryas, who was a rising star in paleobotany and had just left a position at Yale University to return to Illinois, where he too had studied for his Ph.D. (under Wilson N. Stewart). Two other future National Academy members were at Illinois at the same time: Tom Phillips, who remained at Illinois for his entire career (and mentored notable scientists such as Karl J. Niklas of Cornell University), and David L. Dilcher, who was at Indiana University for much of his career before moving to the University of Florida.

The physical location of the University of Illinois near Carboniferous fossil deposits, as well as the interests of his mentors and colleagues, led Tom to collect and study Carboniferous plants, and so he began his research on petrified plant remains, particularly those of seed fern reproductive organs. During Tom's graduate education, Ted Delevoryas returned to Yale as an associate professor. Tom, who was almost finished with graduate school at the time, stayed at Illinois, officially finishing his Ph.D. with Wilson Stewart. After obtaining his doctorate, Tom returned to the mentorship of Delevoryas as a National Science Foundation postdoc at Yale, where he again became a colleague of David Dilcher (who had moved to Yale with Ted to continue his graduate education). David got to know Tom well at Yale and commented recently that among his career-defining qualities was his remarkable ability to identify significant research goals, exceeded only by his talent for achieving them.

After finishing his postdoctoral studies, Tom obtained his first professorship at the University of Illinois, Chicago Circle (UICC) in 1965 and while there recruited Donald

A. Eggert, another Delevoryas Ph.D., to the Chicago Circle faculty from the University of Iowa. Tom and Don Eggert had an excellent working relationship and published prolifically on various aspects of Carboniferous fossil plants, including their seminal studies of pollen and spores using newly developing tools in electron microscopy. During this interval, Tom and Don built a massive and excellent collection of fossil plants, the bulk of which accompanied Tom throughout his career moves. That collection grew in size and diversity under Tom's care, and it remains at the University of Kansas today as one of the county's premier and best curated plant fossil collections. Tom loved fieldwork and collected fossils at notable and sometimes newly discovered localities from all over the world, occasionally under arduous collecting conditions.

While a professor at UICC, Tom supervised a number of graduate students, including Ruth Stockey and Gar Rothwell, both of whom went on to successful and important careers in the field of paleobotany. Not only did they contribute significantly through their own research projects, but also by their training of students who are now successful and active paleobotanists (for example, Mihai Tomescu at Humboldt State University and Brian Atkinson at the University of Kansas). Tom was very supportive of his students even at the early stages of his career. Gar Rothwell writes, "Tom was exceedingly generous and loyal to his students and colleagues and one summer he even diverted his salary to the support of his graduate students." Tom was also a strong advocate for his advisees. As an undergraduate at UICC, Ruth Stockey had some trouble identifying and getting into the courses she needed as a biology major interested in paleontology. When she consulted Tom, her advisor, she recalls that "he got me into the courses that I needed, even though they were full, by calling the instructors and telling them that he wanted me in. I immediately knew that this was a guy who could make things happen for me."

Sadly, during his time at Chicago Circle, tragedy struck Tom and his family, his young son Timm succumbed to a rare and unsuccessfully diagnosed genetic disorder. Tom was devastated, but even as he strongly supported his beloved family through this crisis, he worked on with iron will in the wake of this horrible event.

Rapidly attaining the rank of professor by 1971, Tom moved on to Ohio University in 1972 and after a short stay, moved to the Ohio State University in 1974 as Chair of the Department of Botany, a position he retained until 1978. At Ohio State, Tom was a colleague of James Morton Schopf, who, although located there, was a U.S. Geological Survey scientist and well-known paleobotanist. Schopf, among other things, worked on the Permian-Triassic flora of Antarctica and interestingly was also the father of two

renowned paleontologists, William at UCLA and an NAS member, and Tom, who sadly died young as a professor at the University of Chicago. Collegial proximity and discussions with Jim stimulated Tom's interest in working on Antarctic fossils. Accordingly, he joined the Byrd Polar Research Center at Ohio State in 1982. He was attracted to these fossils because of their potential systematic, evolutionary, and biogeographical significance and, consistent with his athletic and adventurous nature, he absolutely loved the glamorous, demanding, and dangerous fieldwork associated with Antarctic collecting.

During his time at Ohio State Tom's first marriage ended in divorce, and several years later he married a former student, Edie Smoot, then a professor at Hope College in Michigan. Edie, now Professor Emerita and Senior Curator at the University of Kansas, and an excellent scientist in her own right, was Tom's beloved companion, inspiration, and research colleague for the remainder of his life. She accompanied him into the field, often under challenging circumstances and especially those encountered while collecting in Antarctica. She pursued her own research interests throughout her career but became an increasingly important collaborator with Tom, sharing many research projects and coauthoring many papers and their comprehensive and excellent books.

One of Tom's most important contributions to the field of paleobotany was the set of relationships he developed with Argentine scientists. He was important in creating the productive and warm cooperative collegiality among Argentine and American paleobotanists that flourishes today. The Argentine fossil record is both important and remarkable for its quality and diversity. Studies of these fossils are significantly expanding our knowledge of Cretaceous through Tertiary seed plants and have had important evolutionary, systematic, and biogeographic implications so far. In spite of the potential importance of these fossil localities, however, not many American scientists had been involved in studies of Argentine fossils before Tom brought several students of the renowned Argentine paleobotanist Sergio Archangelsky to the United States as postdoctoral researchers in his laboratory. This group included the now influential Argentine paleobotanists Georgina del Fueyo, Ana Archangelsky, Ruben Cúneo, and Ignacio Escapa. Their postdoctoral experiences with Tom blossomed into lifelong relationships that included many other scientists and contributed to the establishment of a lively American–Argentine research network that now comprises numerous leading researchers in the field. Once established, these relationships cemented an enduring scientific interchange between U.S. institutions and the remarkable Museum of Paleontology Egidio Feruglio (MEF), founded by Ruben Cúneo in 1990 in Trelew, Patagonia. In addition to

its important collection of fossil plants, the MEF holds one of the most impressive collections of Cretaceous dinosaurs in the world, with a research staff of scientists to match.

In 1981, Tom began studying fossil fungi. Inspired by his former Ohio University colleague Charles E. Miller, a mycologist who was then taking his sabbatical leave at Ohio State in Tom's laboratory, and perhaps mindful and intrigued by David Dilcher's pioneering *Science* cover article on epiphyllous fungi, Tom began his investigations of well-preserved fungi in petrified Carboniferous specimens with his Ph.D. student Cynthia Wagner. He then focused on the well-preserved mycorrhizal fungi in the silicified early land plants of the famous Lower Devonian Rhynie Chert, site of one of the world's most important fossil floras. Tom began these investigations in earnest with German scientist Winfried Remy. This collaboration grew to include additional German scientists who did postdocs in or visited Tom's lab, including Hans Kerp, Hagen Hass, and Michael Krings. Krings later coauthored several textbooks with Tom and Edie. Tom's studies were so well received that he might reasonably be considered the father of a new subdiscipline, paleomycology, a distinction supported by the publication of his final textbook, *Fossil Fungi*. He is widely respected among leading contemporary mycologists for extending the knowledge of fungi through time with his reliable investigations of well-preserved fossils. NAS member Maria Harrison, of Cornell and the Boyce Thompson Institute, observes that

*Tom's images of fossil arbuscular mycorrhizas were stunning and his work had a major impact on arbuscular mycorrhiza research. He published many significant papers but to me, his 1994 PNAS paper 'Four hundred-million-year-old vesicular arbuscular mycorrhizae' is the classic. It indicates that arbuscular mycorrhiza-like associations existed when plants first colonized land, an important discovery that provided support for many other studies of this ancient symbiosis. The paper has over 600 citations and I am sure it will continue to be cited.*

In 1994 Tom was elected to the National Academy of Sciences, and he then retired from Ohio State. The following year, he moved to the University of Kansas (UK) as the Roy A. Roberts Distinguished Professor in Botany, Curator of Paleobotany at the UK Biodiversity Institute and Natural History Museum, and Courtesy Professor in the Department of Geology. Tom went on to serve as the Chair of the Department of Systematics and Ecology and upon departmental reorganization, as the Chair of the Department of Ecology and Evolutionary Biology. He continued his prolific research



program and student training at Kansas. He remained a generous mentor to his students and, as former student Kathleen Pigg, now a professor at Arizona State University, pointed out in a recent communication, Tom was very effective in helping his students obtain and settle into appropriate academic positions.

Tom never retired from his Kansas professorship and remained active in his lab and office until only weeks before his death. There have been few more dedicated paleobotanists, and Tom remains an inspiration to young scientists in his field. His legacy continues at UK, where there are two promising young paleobotany professors carrying on the tradition of excellence, dedication, and enthusiasm for fossil plants established by Tom and Edie Taylor: Brian Atkinson, assistant professor in Ecology and Evolutionary Biology and Assistant Curator, Biodiversity Institute and Natural History Museum, and Kelly Matsunaga, Thomas N. Taylor Assistant Professor of Botany and Assistant Curator, Biodiversity Institute and Natural History Museum. They are supported there by the well-known Paleobotany Collection Manager Rudolf Serbet.

My personal recollections of Tom as a friend are pleasant and often amusing. I remember playing golf with him and my Ph.D. student and later Tom's postdoc, Michael Zavada, in Farmington, Connecticut, where a slight tiff occurred with a group of insurance executives in front of us as to the order of play. Tom asserted himself, and they evaporated!

I remember Tom as a guest in my house in Cayuga Heights, a house coincidentally built by Edie Taylor's family (the Cornells), and fondly remember being a guest myself in Tom's houses in Columbus and Lawrence. He was both a great host—we drank vintage champagne at his houses (and I suffered in the mornings)—and a great guest; my two daughters just loved him when he visited us. I spent a great deal of time with Tom and Edie at national and international meetings, and we enjoyed dining out in venues from Antoine's in New Orleans to outstanding restaurants in London, Berlin, Patagonia, and even in Columbus and Lawrence. It was impossible to pay for dinner with Tom, and I remember a particularly pleasant and expensive dinner in Columbus with Edie Taylor's parents. I believe that my former postdoctoral student and later Tom's, Charles P. Daghljan (now Emeritus Professor at Dartmouth), was also there. It was a great evening, and we could all see that Tom was a wonderful, caring, and very well-liked son in law.

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