

John H. Beaman—Recipient of the 2004 Asa Gray Award

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FIG. 1. John Beaman in Borneo, 1995.

What is this “retired” botanist doing? If you guessed “taking a walk in the woods,” you would be only partially correct. If you guessed “working on the flora of Borneo’s Mt. Kinabalu,” you would be entirely correct, but still you wouldn’t have the whole story. This unassuming scholar has been a dedicated botanist, taxonomist, and inspirational teacher for over 50 years, and shows no signs of slowing down. It was our great privilege to nominate Dr. John H. Beaman for the Asa Gray Award of the American Society of Plant Taxonomists, and here we’re pleased to provide a little bit more of John’s story to highlight his extraordinary contributions to plant systematics.

THE PLANTS OF MOUNT KINABALU

In the early 1980’s, on a trip to Southeast Asia for the National Science Foundation, John vividly remembers

seeing the rocky peak of Mt. Kinabalu emerging from the clouds as his plane passed over Borneo. This event sparked an immediate interest in this mysterious mountain. Two years later, John received a Fulbright Fellowship at the Sabah Campus of the National University of Malaysia, and a new phase of his career began, after 30 years of studying Asteraceae and mountain tops of the New World. As Todd Barkman (Western Michigan University) notes, “This remarkable transformation has culminated in the completion of the last volume of the Kinabalu checklist . . . Mount Kinabalu has emerged as one of the most diverse floras on earth. Numbering approximately 5,000 species in 218 families, the flora has turned into an immense challenge for a botanist ‘in retirement.’”

In the words of John Dransfield (Royal Botanic Gardens, Kew), John started by initiating “intensive and extensive fieldwork on the mountain, attracting Malay-

sian botanists and visiting botanists from overseas to join in the fieldwork. His enthusiasm for Kinabalu's flora rubbed off on important Malaysian biopoliticians, and so the momentum grew and grew." Consistent with his longstanding interest in the use of computers in systematics, one of the first things that John did was to design and maintain a specimen database for Kinabalu that now numbers over 60,000 records. As the specimens and data accumulated at Kew, John "quietly masterminded the identification of all the incoming material from Kinabalu, gradually building up his floristic account of Kinabalu, coordinating a wealth of contributions from specialists . . ." (John Dransfield).

The significance of the Plants of Mount Kinabalu project goes far beyond a checklist. Again, from John Dransfield: "This monumental conspectus of the Kinabalu flora has formed the basis of a wide range of studies into the conservation of Kinabalu's astonishing natural history, the demarcation of the park boundary, application of GIS to the interpretation of the vegetation, and detailed studies on particular plants such as *Rafflesia*. It is difficult to find a study of the Kinabalu flora in the last twenty years in which John has not played a major role." One of those additional studies, Projek Etnobotani Kinabalu, led by one of John's former undergraduate students, Gary Martin, is a remarkable documentation of the plants used by people surrounding Kinabalu National Park (Martin et al. 2002). In 2003, John was awarded the Cuatrecasas Medal by the Smithsonian Institution for his work on the Kinabalu flora (Parris et al. 1992; Wood et al. 1993; Beaman and Beaman 1998; J. H. Beaman et al. 2001; Beaman and Anderson 2004).

The work on *Rafflesia* deserves elaboration. John became interested in these plants early on in his work in Southeast Asia (Beaman and Adam 1984). Studying the pollination biology of these giant flowers was a far cry from Neotropical Asteraceae and floristic databasing, but it exemplifies John's great instincts and his willingness to pursue a fascinating problem. Alan Prather comments on John's *Rafflesia* work (Beaman et al. 1988) and on the "big shoes" that Alan is trying to fill as John's successor at Michigan State University: "If not for the work of John and his colleagues, we might still think that elephants pollinate *Rafflesia*. My own view is that John had designs to work with pollinators that needed shoes as big as his own. He must have been sorely disappointed with the discovery that diptera did the dirty deed."

The Plants of Mount Kinabalu is surely one of the most ambitious projects ever undertaken "in retirement," and one can only wonder what mountain John Beaman will climb next. But what happened before Kinabalu? As we shall see, an entire career's worth of research, teaching, and service preceded Kinabalu, but

a constant theme has been John's lifelong affinity for mountains and montane vegetation.

BECOMING A BOTANIST

John H. Beaman was born in North Carolina in 1929, and grew up in the mountainous region of the state. From an early age he was interested in the outdoors, and eventually became an Eagle Scout. For three years during high school, John served as a camp counselor at the Piedmont Boy Scout camp, where his responsibilities included providing guidance for scouts working toward their natural history and bird badges. John was also in charge of the camp's botanical garden, an experience that opened his eyes to plant diversity.

John was determined to study botany, and especially plant taxonomy, so he looked for the state school that offered the most botany. That turned out to be the Forestry program at North Carolina State University, where he began his studies in 1947. As a freshman, John took a general botany course from Bob Godfrey, and was quickly put to work in the herbarium by its then curator, Bill Fox. This model of getting undergraduates involved in the herbarium evidently made a deep impression, because John employed it with great success later in his career. In 1951, John graduated with a B.Sc. in Forestry (with honors), and proceeded directly on to a Master's program.

Although he applied to several institutions, it was Marion Ownbey and Washington State University that provided an assistantship. Not surprisingly, given Ownbey's seminal work on *Tragopogon* and the importance of cytology as the latest tool in systematics, John elected to study the cytotaxonomy of the composite genus *Townsendia*. Another graduate student at WSU at that time was Billie Turner (a prior recipient of the Asa Gray Award), who became another mentor to John. In fact, John's first publication was with Turner on legume cytology (Turner & Beaman 1953). John graduated with his M.Sc. in 1953, and published his thesis the following year (Beaman 1954).

Although Ownbey wanted John to continue on for his Ph.D. at WSU, John decided to broaden his horizons, and started a doctoral program at Harvard University in 1953, under the direction of Reed Rollins. *Townsendia* continued to provide inspiration, and John worked on the systematics and evolution of this complex, apomictic group. In addition to Rollins, other members of the plant systematics group included Dick Howard, Rolla and Alice Tryon, Richard Schultes, and Shiu-Ying Hu. Grady Webster was there as a postdoctoral fellow, and served on John's examining committee. Other graduate students with whom John interacted were Erwin Lane (*Heliconia*), Arthur Barclay (*Brugmannsia*), and Robert Dressler (working on Euphorbiaceae, though he was already interested in orchids).

Perhaps the most influential course that John took while at Harvard was in tropical botany, taught by Richard Schultes in 1955 in Cuba. This was John's first real exposure to tropical plants, so he took advantage of the opportunity to build up an excellent set of photographs. It was also his first exposure to Spanish. During this course, John met a Mexican ethnobotanist, H. E. Xolocotzi, better known as Hernandez X, who encouraged John's subsequent work on the alpine flora of Mexico.

As John was finishing his dissertation in late 1956, he began applying for jobs. Before even graduating, he was hired at Michigan State University as a cytotaxonomist and Curator of the Beal-Darlington Herbarium. John formally graduated from Harvard in 1957. His dissertation on *Townsendia* (Beaman 1957) was an exceptional piece of work and long held up at Harvard as a model. Even today it provides an excellent framework for more detailed studies of polyploidy by Jeanette Whitton and her students at the University of British Columbia.

THE MICHIGAN STATE YEARS

Upon his arrival at Michigan State University, John immediately began a program of field work in the Rocky Mountains and Mexico, and shortly thereafter secured a grant from the National Science Foundation to study the alpine flora of Mexico and Central America. One focus was the cytotaxonomy of Asteraceae, especially apomictic complexes such as *Hieracium* and *Erigeron*, but John also worked on many other plants, including Caryophyllaceae and Anacardiaceae, eventually describing new species of Pinaceae, Poaceae, Orchidaceae, Melastomataceae, and of course Asteraceae. Perhaps due to John's violent allergy to poison ivy, taxonomic work on *Toxicodendron* with J. D. Guin and Bill Gillis extended to a series of collaborative papers on dermatitis caused by these plants as well as other allergenic Anacardiaceae (e.g., Guin et al. 1981 and Beaman 1986).

At about the time he started at MSU, John also made the acquaintance of Teofila E. Cabrera, a Filipina graduate student in botany and plant pathology whose office ended up next door to his. John and Teffy married in 1958 and had two children, Teresa and Reed. Teresa, now a professional flautist teaching at California State University, Fresno, is known to the ASPT for her wonderful recording of botanical music, the CD *Flute Flora*. One piece on this recording, "*Rafflesia* for solo flute" composed by Benjamin Boone, was commissioned in honor of these marvelous plants and the work on their pollination by Reed and John. Reed has become a fine plant systematist in his own right and now heads up the bioinformatics program at Yale's Peabody Museum of Natural History. Incidentally, Reed has played a major role in the Kinabalu project, primarily in designing

and programming the database management software but also in helping to visualize the landscape and in providing fine-scale maps of plant distributions on the mountain (Beaman and Beaman, 1990). Teffy, who only recently retired from her position in MSU's microbiology department, often accompanied and assisted John in the field, and generally "put up" with his mania for plant collecting. Family vacations were generally synonymous with collecting trips. But she also has a strong interest in orchids, and during her travels with John, she took the lead in documenting the orchids of Sarawak (T. E. Beaman et al. 2001). Her philosophy about retirement is similar to John's, in that she is now working on a book on the orchids of Sabah.

John's first graduate student received her M.S. degree in 1959, and a steady stream of both M.S. and Ph.D. students followed. John continued to train graduate students well into retirement, with his last Ph.D. student graduating in 1993. Among his former graduate students are Paul Van Faasen, Garrett Crow, Bill Gillis, Douglas Stevens, Walter Judd, John Furlow, John Atwood, Richard Rabeler, Kathy Kron, Jacinto (Jack) Regalado, Kim Medley, Martha Case, and Todd Barkman.

John began mentoring undergraduates well before this became fashionable, using his undergraduate systematics course as the main vehicle for identifying and attracting these students. Among those mentored by John as undergraduates, and who still are active in systematics, ethnobotany, or conservation, are Christiane Anderson, Jim Rodman, Larry Morse, Walter Judd, Jim Beach, Sue Crispin, Kathy Kron, Nancy Hensold, Gary Martin, John Pipoly, Gerald (Stinger) Guala, and the two of us.

A typical experience for an undergraduate would involve taking the course, being singled out and invited to work in the herbarium or teach a laboratory section in the course the following year (often both!), followed by involvement in the weekly taxonomy/ecology seminar, participation in field trips (in Michigan but often elsewhere), invitations to receptions and other events, and encouragement to attend professional meetings such as the annual Missouri Botanical Garden symposia. Travel for field work and to meetings was facilitated by "Air Force One", a "vintage military surplus Air Force double-cab pickup truck" (Jim Beach, University of Kansas) that John resourcefully had obtained (Fig. 2).

Receptions at John and Teffy's home were always entertaining—it was usually ascertained very quickly if you played any kind of musical instrument, and if so you were placed on the program, no ifs, ands, or buts. John himself played the harpsichord and was an accomplished harpsichord builder, and encouraged musical talent in everyone (including, of course, his daughter Teresa). We both fondly remember one par-



FIG. 2. John Beaman's truck "Air Force One" in Mexico, 1974. From left to right: Michael Donoghue, Reed Beaman, and Jim Beach. Photo by J. Beaman.

ticular evening at the Beaman's. One of us (Lynn) was a freshman and the other (Michael) was just departing for graduate school—Michael was "encouraged" to play the banjo for the other guests. It was a wonderful evening, and we both left amazed but deeply gratified that a professor would take such interest in his students. Over the years there have been many enjoyable evenings instigated by John, who remains ever hospitable to former students and to systematics colleagues from around the world.

What we find so impressive about John's interactions with his students is the sheer number and the magnitude of the life-transforming experiences that he seems to have brought about. One of us (Michael) had the opportunity elsewhere (in Gladfelter 2002) to more extensively highlight John's impact on his own development as a scientist, and the letters we received in support of John's nomination provided ample testimony to his influence on the hearts and minds of those around him. One consistent message concerns intellectual independence. As Todd Barkman (Western Michigan University) explained: "One of the key events was that John fostered my intellectual independence. As a young student I found myself frequently meeting with John to query him about particular topics. While it would have been easy for John to answer my questions directly, he would instead gently steer me towards resources that would allow me to find my own answers."

A second sentiment features John's willingness to take risks on young students, offering them responsibilities that demonstrated his faith in them and his respect. Chris Anderson (University of Michigan Herbarium) put it this way: "Others will have different stories, but the core remains the same: unstinting support and guidance from a professor who was willing to devote his time to beginners still trying to find their way." And then there's John's infectious enthusiasm, reflected perfectly in these words from Kathy Kron

(Wake Forest University): "More recently I met John ("retired") at a symposium in Copenhagen; the great thing about his talk was his enthusiasm about his Mt. Kinabalu work. As I listened to him talk about the marvelous flora I thought "I want to be like that when I grow up!"

Along these lines, Jim Beach (University of Kansas) provided this perspective: "By providing desks, introductions to the graduate students and whatever office and logistic resources were needed, he created an intellectual environment that fostered undergraduate research and interactions with the advanced students that taught us more about the process and the glories of science than we would have ever learned from our formal coursework." Jim Rodman (National Science Foundation) may have provided the single best statement of the nature of John's impact: "In a quiet, wholly unassuming, confident and considerate way, John Beaman inspired his students—me certainly, and many others—to conjoin love of plants with their study and analysis, in the field and herbarium and laboratory."

Finally, we highlight two quite general and lasting effects that John had on the development of plant systematics while he was at MSU. First, from a remarkably early stage (in the punch card era of the late 1960's and early 1970's) he advocated the integration of computers into teaching and research in systematics. His enthusiasm even rubbed off on computer scientists at MSU, such as Sakti Pramanik. We especially remember using computers for specimen identification in John's introductory plant systematics class. For many, this provided the very first glimpse of the potential power of computers in such applications. John pushed the use of computers in the context of the Flora of North America project and at the National Science Foundation, and over the years helped develop a variety of applications, even very recently in relation to the Kinabalu project. Not surprisingly, several notable leaders in biodiversity informatics, including Larry Morse, Jim Beach, Stinger Guala, and John's own son Reed, were directly associated with John.

Second, while John was busy with all of his other academic activities, he also managed to be an extremely strong and effective advocate for the Beal-Darlington Herbarium at MSU, which he directed and curated for a mind-boggling 37 years. Alan Prather, current Director of the herbarium, explains it this way: "... because John put decades of effort into educating his colleagues, the value of the herbarium is widely recognized on campus. People really understand the importance of systematics and of the collection. It is viewed as a critical facility for plant research, and because the herbarium is so well respected I have been able to convince the university to provide matching funds for a renovation grant, recruit new personnel, and most importantly, the MSU Herbarium has not been subject to

the recent spate of budget and personnel cuts sweeping the university and the country. Had John not laid the groundwork, all of these things would have been impossible." Alan also notes that the number of specimens in the herbarium tripled during John's tenure, and that he (Alan) inherited a well designed and beautifully curated collection.

A LASTING LEGACY

John's scientific career now spans more than 50 years, dating from his first publication in 1953. He has 115 research publications and counting, including six books, five of which are dedicated to the plants of Mt. Kinabalu. John mentored at least 20 undergraduate students over the years and was the major advisor for 37 graduate students. Although he primarily taught plant systematics courses (both undergraduate and graduate), he also offered courses on aquatic plants, economic botany, poisonous plants, and computer applications in systematic biology. The lecture syllabus and laboratory manual for the introductory plant systematics course went through 10 editions during John's tenure with that course.

In terms of service, John participated actively on a wide variety of departmental and university committees, but also was active in a number of professional organizations. He served as a Council member and as President of both the American Society of Plant Taxonomists and the Society for Economic Botany, and he founded the Economic Botany section of the Botanical Society of America (and served as a Council member for BSA as well). He also was active in the Michigan Botanical Club, eventually serving a term as President. Beyond these involvements, we could provide a long list of committees (state and national), consultancies, and panels on which John participated over the years. He also contributed to a number of editorial committees or boards, including the Flora North America Editorial Committee.

Two other jobs that John undertook during his career exemplify his integration of research, teaching, and service. John took two years (1979–1981) while at Michigan State to serve as a program director for Systematic Biology at the National Science Foundation. And after his formal retirement from MSU, John took on the challenge of being the founding Director for the Institute of Biodiversity and Environmental Conservation at the Universiti Malaysia Sarawak (1994–1996). The former experience provided the initial spark for what ultimately became the Kinabalu project, while the latter provided the most recent opportunity for long-term work in Southeast Asia.

JOHN BEAMAN AND THE ASA GRAY AWARD

John Beaman surely merits the Asa Gray Award for his many contributions to plant systematics, but there

are two other connections that make this so appropriate. First, John traces his academic pedigree directly to Asa Gray, through Reed Rollins, Merritt L. Fernald, and Sereno Watson, and of course John worked at the Gray Herbarium as a Ph.D. student. Second, John Beaman was responsible for the creation of the Asa Gray Award. As Christiane Anderson (University of Michigan Herbarium) remembers, it was John who, while President of the American Society of Plant Taxonomists in 1980, "proposed to the Council that the Society present a special award for exceptional contributions to plant taxonomy. His suggestion was approved and eventually resulted in the Asa Gray Award."

John has had an exceptional career as a botanist, and has left a lasting mark on the discipline through his outstanding research and service to the community, not to mention his impact on several generations of students. John is a modest, gentlemanly scholar, and in payment, would request only that we continue to contribute to and promote the field of systematics. But the presentation of the 2004 Asa Gray Award to John Beaman is certainly a fitting tribute to his contributions to plant taxonomy.

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