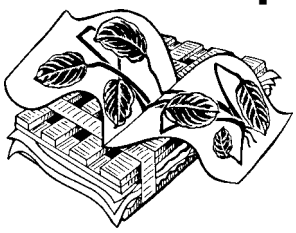
Department of Botany and the U.S. National Herbarium



The Plant Press

Smithsonian
National Museum of Natural History

New Series - Vol. 4 - No. 1 January-March 2001

Department Profile

Flying Down to *Rhoeo*

By Robert DeFilipps

Let us assemble in a spirit of forgiveness, as we review the case of Henry Fletcher Hance (1827-1886), the legendary British botanist in Hong Kong and later consul in Whampoa, Amoy and Canton, who could not have foreseen the great mystery that would arise from his choice of "*Rhoeo*" as the name of a new genus of Mexican Commelinaceae. To this day the derivation of *Rhoeo* is cited in botanical reference books as either unknown or obscure. Yet this plant, with purple boat-shaped inflorescence bracts enclosing slightly emergent white flowers, is well known in the vernacular of gardeners and houseplant enthusiasts as the "boat-lily", "oyster plant", "Moses-in-a-boat" or "three-men-in-a-boat".

From E.H.M. Cox's book on "*Plant-Hunting in China*" (1945), we learn that Hance "was an expert linguist, completely word perfect in Latin, Greek, French and German." Inspired by that clue, a search of worldwide websites led me to Peter Hawlina, a professional genealogist residing in Slovenia, who provided an answer to Hance's puzzle. It transpires that Rhoeo is a Greek mythological figure, the daughter of Staphylos (father) and Chrysothemis (mother), and she was a mistress of the god Zeus. Staphylos became angry when he found out Rhoeo was pregnant, and locked her in a chest and put it in the sea. The chest later washed up on the coast of Euboea (or Delos), after which Rhoeo gave birth to a son, Anius. The "Encyclopedia Mythica" notes that Anius was the father of three daughters: Oeno (wine), Spermo (grain seed) and Elais (oil), who were given the power to generate those crops.

For someone as erudite in Greek as Henry Hance in the 1800s, it would have been appropriate to bestow the name "Rhoeo" on a plant with boat-like bracts enclosing a seemingly hidden inflorescence, to commemorate the mythological Rhoeo's claustrophobic maritime predicament in the Mediterranean Sea. The boat-lily, long known as *Rhoeo spathacea*, is currently referable to *Tradescantia spathacea*, while Rhoeo herself lives on as *Tradescantia* Section *Rhoeo* (Hance) D.R. Hunt.

Mexico and Central America, the home of the boat-lily, is along with continental Asia and tropical Africa a center of diversity of the mainly tropical and warm temperate monocot family Commelinaceae, comprised of approximately 41 genera and 650 species. The family is a major research specialty of Robert B. Faden, curator of African plants in the Department. A native of the Bronx, New York, he earned a B.S. *cum laude* (1962) from City College of New York; M.S. (1964) from the University of Michigan; and a Ph.D. in Biology (1975) from Washington University, St. Louis. After a period of time (1976-1980) as curator of botany at the Field Museum of Natural History in Chicago, Illinois, he arrived at the Smithsonian Institution to take up duties as curator in 1980.

> ***Turning up exciting new plants in well-known areas***

It is rather unusual for a taxonomist to have an abiding interest in ferns as well as flowering plants, and Faden has amply demonstrated an expertise in both groups, while naming a new species of cycad with H.J. Beentje (*Encephalartos kisambo*) to round out the whole *gemisch*. Faden's fern research began as an undergraduate in New York with an honors thesis on the ferns of New York City and a paper on Staten Island pteridophytes (1962), and continued with his treatment of some 200 tropical East African fern species in *Upland Kenya Wild Flowers* (by A. Agnew & S. Agnew, 1994). In a review of the first edition of the latter (Agnew 1974), B. Verdcourt (*Kew Bull.* 30:422. 1975) noted that Faden's treatment was "no mere compilation" but was based on intensive collecting. He referred to Faden's "fantastic habit of turning up exciting new plants in well-known areas" as "smack[ing] almost of wizardry." Five species of ferns (as well as an epiphyllous lichen and liverwort) now bear the epithet "*fadenii*" as a result of his field collections.

From graduate school in Michigan, Faden joined the Peace Corps and was based at Thika near Nairobi, Kenya, where he taught biology for three years and was encouraged to collect plants for the East African Herbarium in Nairobi. Many of his specimens were also sent to

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Travel

Walter Adey (9/28 – 10/1) traveled to Ft. Lauderdale, Florida to present an invited talk, entitled "Alkalinity and the Photosynthesis of Free-Living Algae: Keys to Understanding Acroporid Calcification and the Resulting High Level of Coral Reef Biodiversity" at the Marine Aquarium Conference of North America.

Warren Wagner (10/12 – 10/15) traveled to St. Louis, Missouri to attend the Systematics Symposium and examine collections management at the Missouri Botanical Garden.

John Kress (10/12 – 10/15) traveled to St. Louis, Missouri to attend a Flora of China Editorial Meeting and the Systematics Symposium, (10/19 – 10/22) to Miami, Florida to attend the Coalition for Excellence in Tropical Biology Symposium, (11/7 – 12/7) to Kathmandu, Nepal, Bangkok, Thailand and Kumming, China to make field collections and present an invited lecture at a conference on medicinal plants, and (1/24 – 1/26) to Tampa, Florida to speak at a Selby Botanical Gardens Symposium.

Diane Littler and **Mark Littler** (10/16 – 10/30) traveled to Bali, Indonesia to conduct ongoing research, and (12/14 – 2/20) to Fort Pierce, Florida to continue ongoing research at the Smithsonian Marine Station and the Florida Keys.

Maria Faust (11/2 – 11/4) traveled to Blacksburg, Virginia to give a seminar at the Department of Biology, Virginia Polytechnic Institute and State University.

Linda Prince (11/10 – 11/29) traveled to China with **John Kress** for specimen collecting and pollination biology work on Zingiberales. She also (12/2) visited Rancho Santa Ana, California concerning a Mellon post-doctoral fellowship, which would begin in summer 2001, to investigate phylogenetics and biogeography of *Polyspora* (Theaceae).

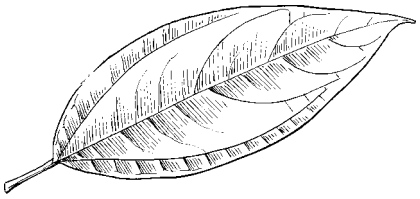
Paula DePriest (11/12 – 11/14) traveled to Boston, Massachusetts to present an invited lecture and conduct research in the Farlow Herbarium, and (11/30 – 12/01) to Durham, North Carolina to participate in the graduate committee for Rebecca Yahr at Duke University.

Pedro Acevedo (11/18 – 11/26) traveled to San Juan, Puerto Rico to provide training to park officials and to collect specimens and data on British Virgin Islands plants.

Laurence Skog (12/11 – 12/13) traveled to the New York Botanical Garden, Bronx, New York to examine herbarium specimens of Gesneriaceae.

Laurence Dorr (12/21 – 01/5) traveled to Caracas, Venezuela to collect botanical specimens in Guaramacal National Park as part of a flora project.

Dieter Wasshausen (1/14 – 1/17) traveled to the New York Botanical Garden, Bronx, New York to examine plant specimens for completion of various floras.



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Chairman, Department of Botany
W. John Kress
(kress.john@nmnh.si.edu)

EDITORIAL STAFF

Co-Editors
Gary Krupnick
(krupnick.gary@nmnh.si.edu)
Robert DeFilipps
(defilipps.robert@nmnh.si.edu)

Circulation Manager
Shirley Maina
(maina.shirley@nmnh.si.edu)

News Contacts
Amanda Boone, Robert Faden, Ellen Farr, George Russell, Alice Tangerini, and Elizabeth Zimmer

The Plant Press is a quarterly publication provided free of charge. If you would like to be added to the mailing list, contact Shirley Maina at: Department of Botany, MRC-166, National Museum of Natural History, Smithsonian Institution, Washington, DC 20560-0166, or by e-mail: maina.shirley@nmnh.si.edu.

Web site: http://www.nmnh.si.edu/botany

Visitors

Cyril Nelson, Universidad Nacional, Tegucigalpa, Honduras (TEFH); Checklist of Honduran plants (1/2-2/15).

Sergey Majorov, Moscow State University, Russia (MW); American weeds in Russia (1/11-1/23).

Dmitry Sokoloff, Moscow State University, Russia (MW); Loteae (1/11-1/23).

Charlotte Taylor, Missouri Botanical Garden, St. Louis (MO); Rubiaceae of the Guianas (1/23-2/1).

Dianxiang Zhang, South China Institute of Botany, Guangzhou, China (IBSC); Fabaceae and Burmanniaceae of China (2/5-2/7).

Colin Hughes, University of Oxford, England (OXF); South American *Lupinus* (Fabaceae) (2/22-2/27).

Adriana Bartoli, Herbario, Facultad de Farmacia, Univ. de Buenos Aires, Argentina (BAF); Asteraceae (4/7-4/9).

Grants & Awards

Peter Hoch (Missouri Botanical Garden), Ken Sytsma (University of Wisconsin, Madison), Jorge Crisci (Museo de La Plata, Argentina) and Robert Raguso (University of South Carolina) were awarded $83,500 in Smithsonian Mellon Fellowships to work in the Department of Botany over the next three years with **Warren Wagner** and **Elizabeth Zimmer** on phylogeny of the Onagraceae.

Correction

Vol. 3(4):1 (Oct.-Dec. 2000): It was intended to note that although the hummingbird flower-mite species *Rhinoseius tiptoni* is confined to Gesneriaceae, the mite genus is additionally associated with several other plant families. Thanks to Jim Luteyn (NY).

Museum Collections as Conservation Tools

Chair With A View — W. John Kress

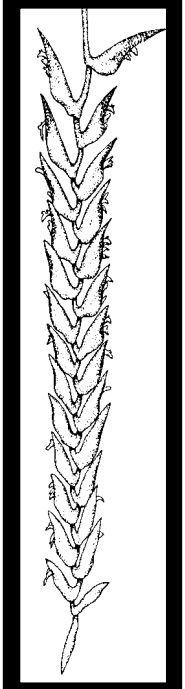
One of the three principal objectives of the Convention on Biological Diversity (CBD) signed and ratified by over 175 nations is the conservation of the earth's biodiversity. To conserve biodiversity it is imperative to know what biodiversity is and where it is found. To achieve this end the Global Taxonomy Initiative (GTI), which is a partnership for taxonomic capacity building between natural history museums and botanical gardens in the developed world with similar institutions in developing countries, was established. The functions of the GTI include establishing the infrastructure for maintaining and using biological collections, database development for sharing biodiversity information, and the syntheses of taxonomic information at various biologic and geographic scales. Other global initiatives, including Species 2000, the Global Biodiversity Information Facility, and the Integrated Taxonomic Information System, have also been recently founded to coordinate and share the biodiversity information contained in taxonomic sources and museum collections. All of these efforts are aimed at sharing and utilizing taxonomic information to achieve the first goal of the CBD: to conserve biodiversity.

It is therefore perplexing that some members of the conservation community still refuse to appreciate the value of our collections in conserving biological diversity. In a recent letter to *Science* (15 December 2000, pp. 2073-2074) several prominent conservation biologists made it clear that they continue to hold the incorrect perception of museum scientists as the custodians of an attic filled with "historical biodiversity data … [in]sufficient to address contemporary issues in conservation" (see our response 2 February 2001, pp. 828-829). This statement and the beliefs underlying it are difficult to reconcile with the goals of the CBD, the efforts of the GTI, and the rigorous collecting activities of our staff in collaboration with an international cadre of taxonomists and field biologists.

In the Department we accession an average of 40-50,000 new collections of plants annually while the entire National Museum of Natural History logs in nearly half a million new specimens each year from areas that have been little explored and from habitats of prime conservation concern. If we multiply this number by museums and botanical gardens worldwide, the annual total amount of new biodiversity data available for conservation assessment is staggering. Our collections not only document the past, but are a continuous record of the contemporary status of biodiversity as well. The vital data contained in these collections on geographic occurrence, morphological features, phenology, and uses by local people can be effectively utilized only if they are fully inventoried and cataloged. The immediate priority for an international effort to discover and catalog biodiversity for conservation purposes was elegantly mandated by Edward O. Wilson in a recent editorial (*Science*, 29 December 2000, p. 2779). He outlined an effort that would be similar in scope to the Human Genome Project.

Ironically, these same conservation biologists who question the use of museum collections for contemporary conservation purposes applaud the new Species Information Service of the IUCN-World Conservation Union that will provide conservationists with continuously updated biodiversity data supplied by "species specialists" and "experts". The irony is that these specialists for the most part are housed in museums around the world and derive their expertise from studying the historical and contemporary collections curated in these very institutions. A specialist does not derive his or her expertise from simply reading about biodiversity, but must dedicate one's career to field work along with the study of collections of plants and animals representing the full spectrum of morphological variation and geographic distribution. The value and multiple uses of voucher specimens that result from these life-long investigations are often overlooked. Well-documented collections comprise the data upon which informed decisions for conservation can be made and continually reassessed as habitats become further altered. The biological specimens that have been collected over the centuries and now reside in a multitude of herbaria and museums are a treasure trove of information about the earth's biological riches. This information must be mobilized and made available for all to use in conserving and using biodiversity.

It is time that conservationists become committed partners with museum scientists to provide the most reliable, verifiable, and accurate data for making conservation decisions. Good science requires accessible data and repeatable analyses. Natural history research based on documented collections provides the type of good science from which conservation activities will greatly benefit. Museum scientists and their collections will assist in finding the scientific solutions for coping with the massive economic and social change occurring in the world today.



Staff Research

The goal of a major project on Onagraceae, being undertaken by **Warren Wagner, Elizabeth Zimmer,** and four fellowship participants (see *Awards*, pg. 2), is a comprehensive phylogeny based on molecular and morphological data for tribes Onagreae and Epilobieae, which together include more than 430 of the 650 species in the family. They will be using this phylogeny for new comparative analyses of the chromosomal evolution in the group, the diversification of its pollination biology, and the historical biogeography of the dramatic evolutionary radiation that has taken place in southwestern North America. Major new data sets that they propose to generate will include cpDNA sequence in the *trn*L-*trn*F region, *mat*K, and possibly other regions as necessary for adequate resolution of the phylogeny.

The project will be organized around Peter Hoch and Warren Wagner, as the two principal students of the systematics of the Onagreae-Epilobieae complex, Ken Sytsma and Liz Zimmer, as lead scientists of molecular systematics laboratories investigating Onagraceae, Jorge Crisci, as an international leader in phylogenetics and historical biogeography with experience working with Onagraceae, and Robert Raguso, as an active investigator of the morphological/biochemical basis of evolution in the pollination biology of Onagreae.

They have hired Rachel A. Levin (recent Ph.D., University of Arizona with Lucinda McDade) as a post-doctoral fellow for the next two years to carry out the primary molecular sequencing work at the Smithsonian molecular laboratory. She will work closely with all of the principals on data analysis and additional studies. Other post-doctoral fellows and students from St. Louis, Madison, and La Plata will participate and interact with the principals and the post-doc in various aspects of this project, including detailed cytological *in situ* hybridization studies, pollination and breeding system studies including floral scent analyses, and related molecular surveys involving different DNA sequences.

A well-resolved phylogeny of tribes Onagreae and Epilobieae is in itself an important goal, since it provides the essential foundation for all future taxonomic and evolutionary studies, but this work has additional goals. Almost all genera in these two tribes of Onagraceae are endemic to, or have had their major basal radiation in, southwestern North America, and the proposed analyses will provide a powerful new model system for understanding the evolutionary history of this Madrean Floristic Region, an area of great geological and climatological complexity with a rich and highly characteristic biota.

The results of the project will also provide a new framework for interpreting some aspects of the huge body of literature on the Onagraceae. Beginning at least with the pioneering studies on *Oenothera* by Hugo de Vries more than a century ago, which ushered in the study of mutation in modern genetics and its relationship to evolution and speciation, followed by decades of cytogenetic and genetic study of such phenomena as permanent translocation heterozygosity, and now encompassing research in anatomy, chemistry, developmental biology, classical and molecular genetics, ecology and population biology, systematics, and even human and veterinarian medicine (e.g., cardiovascular disease, mental health, and nutrition), research on Onagraceae has been seminal in the development of numerous critical concepts in evolutionary biology. As a measure of the breadth of contemporary research on members of tribe Onagreae and Epilobieae, a search of the online AGRICOLA database produced nearly 1,000 citations since 1972 [*Oenothera* (484), *Epilobium* (257), *Clarkia* (168), eight other genera (63)].

Staff Activities

Vicki Funk spent most of September 2000 conducting fieldwork in South Africa, her second trip to that country. On arrival in Port Elizabeth in the Eastern Cape she joined Richard Cowling from the University of Port Elizabeth and Kathy MacKinnon from the World Bank. Funk was searching for members of the basal groups of the Asteraceae, including the tribes Mutisieae and Arctoteae. They began a four-day trip in the St. Francis fynbos area, followed by a trip through Baviaanskloof Conservation Area with D. Clark. The fynbos gave way to renosterveld as they entered the Western Cape Province and traveled through Swartberg Pass down into Oudtshoorn. On 9 September they met with Jan and Analise Vloot to inspect the vegetation of sandstone cliffs and quartzite areas in the Little Karroo, and further collected composites at Walker Bay and the Grootbos Nature Reserve.

For the second part of the trip, Funk briefly visited the Kirstenbosch Botanic Garden and herbarium and the University of Cape Town herbarium before going into the field. Marinda Koekemoer from PRE met her and together they set off for the nirvana of Compositae, Namaqualand. After several poor years for flowering the rains were late and they were uncertain what they would find. In good years Namaqualand is a carpet of flowers, but in bad years it is bare ground. They went north to Worcester then through the mountains to the coast at Dwarskersbos. The rains had started late but they had finally begun and it was a good season for flowers.

The trip from Citrusdal to Clanwilliam, up to Nieuwoudville and Kamieskroon, and then on to Springbok took about a week, and the fields of flowers were mostly made of composites. After Springbok they headed east to Pretoria, stopping at Augrabies Falls and Langeberge to collect. After two days in the well-organized herbarium in Pretoria with Hugh Glen, Funk was ready to return home. The South African trip yielded a total of nearly 40 species found in three genera of the Mutisieae and nine genera in the Arctoteae, as well as *Hoplophyllum*, *Tarchonanthus* and *Brachylaena*, and many specimens of other tribes. She also saw 40 species of birds for the first time and a half a dozen species of antelope. Funk was pleased to find so many people interested in botany and conservation, and left South Africa with plans for future collaboration and collecting trips.

Mark Littler, **Diane Littler**, **Barrett Brooks** and two volunteers initiated a 2-year project in September/October 2000 at the Smithsonian Tropical Research Institute laboratory in Bocas del Toro,

Panama. The project "Controlling Factors for Colonization and Competitive Dominance on Coral-reef Habitats," supported by a Smithsonian Scholarly Studies grant, will look at the role of nutrients and herbivory as the controlling factors affecting coral reef communities. This project also provides the opportunity for extensive investigations in an area with a unique and especially rich marine flora that has not been previous collected.

At the end of October, the Littlers participated in the 9th International Coral Reef Symposium in Bali, Indonesia. Mark Littler presented their joint paper "Top-down vs. Bottom-up Controls of Coral Reef Community Structure" while Diane Littler presented their joint paper on "Marine Plant Identification for Coral Reef Research." The ecological paper was the lead talk in the ecological section, while the taxonomic paper was the lead talk in the taxonomic section.

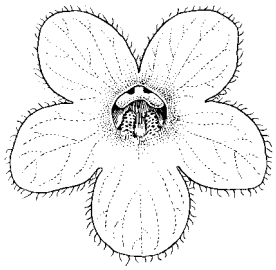
During 20 December—20 February, the Littlers conducted research at the Smithsonian Marine Station at Fort Pierce, Florida. They continued ongoing projects with colleagues Dennis Hanisak and Brian Lapointe at the Harbor Branch Oceanographic Institution. The two also presented two invited talks for Harbor Branch's 2001 Ocean Science Lecture Series "New Discoveries in Marine Botany" and will give guest lectures in Florida Atlantic University's "Aquatic Botany" course in February.

Dan Nicolson was recently invited (27 November—14 December 2000) by Drs. Maria do Carmo E. Amaral and Volker Bittrich to teach nomenclature to 20 graduate students and staff of the University of Campinas in São Paulo State of Brazil. This was Nicolson's first visit to South America, and the first time he has taught since he was a graduate teaching assistant at Cornell University almost 40 years ago. Each of six days he lectured from 9-10, 11-12 a.m., with discussions of exercises from 2-6 p.m., i.e. six hours per day. On the last day the students presented him with a bouquet of origami flowers, *Origamia nicolsonii*, providing a validating Latin diagnosis and citation of the type, making sure that the holotype remained there and that the presented material involved only isotypes so that he would not be arrested by the Brazilian authorities.

In mid-January, Nicolson also hosted the visit of Drs. Sergey Majorov & Dmitry Sokoloff from the Department of Higher Plants, Moscow State University, Russia. Our visitors arrived 10 January to do research on North American Loteae, check the current nomenclature of American weeds in Russia, and compare notes on how type specimens are imaged and made available. They presented a talk, "Linnaean Specimens and Digital Herbarium Project at Moscow University," to the Department on Thursday 11 January. During the next week they traveled with Nicolson to New York Botanical Garden and Harvard University where they continued their work. They returned to Moscow on Tuesday 23 January, after what they felt was a rewarding trip.

Paul Peterson with Jacques Cayouette, former visiting scientist from DAO (Canada), conducted fieldwork (24 September—16 October 2000) in the mountains of northern Baja California (Sierra San Pedro Martir), in Arizona, and in NW Mexico (Sierra Madre Occidental) in Sonora, Chihuahua and Durango. Two hundred sixty-four numbers of grasses were collected and seeds of 73 populations of *Bromus* spp. (primarily *Bromus* sect. *Bromopsis*) were obtained for later molecular, cytological, and morphological studies. Currently, Cayouette, Bruce Coulman (SASK), Yasas Ferdinandez (SASK), and Peterson are preparing a paper analyzing the important morphological and molecular characters that distinguish *Bromus ciliatus* L. from *B. richardsonii* Link. Cayouette and Peterson also verified that the ceremonial corn-beer [*tesquino* (Spanish); *batari* (Tarahumara)] prepared by the Tarahumara Indians is inoculated (to begin fermentation) initially with *Bromus anomalus* Rupr. ex E. Fourn., which occurs locally on cliffs above the Rio Verde near Guachochi, Chihuahua. Dr. Yolanda Herrera Arrieta (CIIDIR) and Socorro Gonzalez Elizondo (CIIDIR) accompanied them in the field for portions of their time collecting in Durango.

Stanwyn Shetler and **Sylvia Orli** continue to work on Part 2, Monocotyledons, of their Annotated Checklist of the Vascular Plants of the Washington-Baltimore Area and are now well into the grasses. In 1995, Shetler began editing the translation of the final eight volumes of the Flora of the USSR. Six volumes have now appeared in print, and the page proofs of the seventh (vol. 28) went back to the printer in December 2000. He is now nearing the end of editing the galleys of the 30th and final volume, with the page proofs yet to come. Shetler lectured on 11 January to the Potowmack Chapter of the Virginia Native Plant Society on "Spring Birds and Wildflowers of the Potomac Valley" and he will lecture on the same subject to a number of garden clubs in March. He also spoke on "The New Jersey Pine Barrens" to the monthly Members' Meeting of the Audubon Naturalist Society on 18 January. On 3 February, Shetler taught a one-day class on "Winter Botany" at the Rust Sanctuary of the Audubon Naturalist Society in Leesburg, Virginia. In April and May he will be teaching two sections of the U.S. Department of Agriculture (USDA) Graduate School 8-week course on "Spring Wildflower Identification," a course that he initiated in 1962 and has intermittently taught since then.



New Faces

Jing-Ping Liao, a visiting scientist from the South China Institute of Botany (SCIB) and sponsored by the Chinese Academy of Sciences (CAS) in Guangzhou, China, is working with **W. John Kress** on the palynology of the Zingiberales. Using a recent new phylogeny of the family based on molecular data, Liao, Kress, and research assistant **Ida Lopez** are investigating the evolution of pollen characters in all the genera of the Zingiberaceae. At SCIB, Liao, an associate research professor, is the director of the Cytology and Molecular Biology Laboratory, deputy director of the Research Center for Plant Systematics and Phylogeny, and a Ph.D. candidate at the institute. He leads a research group in the study of the anatomy, embryology, palynology and

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Smithsonian Botanical Symposium features keynote address by Edward O. Wilson

Edward O. Wilson, the renowned entomologist, conservationist, and provocative science writer at Harvard University, has accepted our invitation to present the keynote lecture at the first annual Smithsonian Botanical Symposium, 30-31 March 2001. The symposium, "Linnaean Classification in the 21st Century," will focus on the relevance of the Linnaean system of binomials and hierarchical ranks to contemporary phylogenetic classification, monographic and floristic treatments, and biodiversity conservation. Dr. Wilson's address is entitled "The Future of Life" and is the subject of his next book.

In addition to the keynote address, the two-day event that will include six symposium presentations, a student poster session, reception, a symposium dinner, and an exhibit featuring historical botanical texts, including some original Linnaean materials from Hunt Institute for Botanical Documentation. Symposium speakers include Dr. Paul Berry (University of Wisconsin), Dr. Richard K. Brummitt (Royal Botanic Gardens, Kew), Dr. Jim Carpenter (American Museum of Natural History), Dr. Paul Kenrick (The Natural History Museum, London), **Dr. Dan Nicolson** (Smithsonian Institution), and Dr. Peter F. Stevens (Missouri Botanical Gardens).

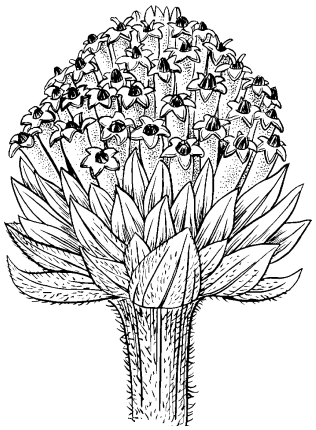
The symposium will be held at the Smithsonian Institution's National Museum of Natural History. On Friday 30 March we will host an opening reception and poster session at 7:30 p.m. "around the elephant" in the Museum's Rotunda. On Saturday 31 March, the symposium will be held in Baird Auditorium at NMNH between 9 a.m. and 5 p.m., with lunch and poster viewing between 12 and 2 p.m. A mixer will begin at 5:30 p.m. with the symposium dinner beginning at 6:30 p.m. in the Rotunda, followed by the keynote address at 8 p.m. again in Baird Auditorium. We hope that the systematics community can join us for all of these events.

In order to engage students in Symposium activities and to provide them with the opportunity to meet the large group of systematists who will be attending, a student poster session is being organized that will run concurrent to the presentations and be featured during the reception, breaks and lunch. Graduate students and post-docs are encouraged to register for the meeting and participate in the poster session. They can indicate their interest in presenting a poster on the web-page registration form.

A nominal registration fee of $50 ($40 students and postdoctoral fellows) will cover the cost of the receptions, a box lunch on Saturday and the symposium dinner on Saturday evening. Through our on-line registration at http://persoon.si.edu/sbs/ you can arrange lodging at our official hotel the Hyatt Arlington located just across the Potomac River in Rosslyn, Virginia.

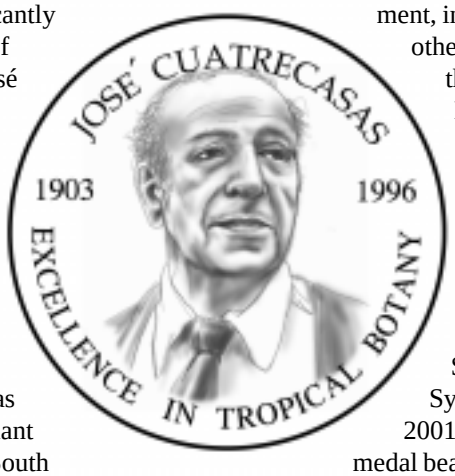
For more information and on-line registration (through 1 March) see http://persoon.si.edu/sbs/. Students can submit poster abstracts on-line through the site until 15 February (note revised date). We look forward to seeing everyone at the symposium!

The Symposium is being hosted by the Department and is sponsored by the Cuatrecasas Family Foundation, Richard and Priscilla Hunt, the Roy A. Hunt Foundation, the Hunt Institute for Botanical Documentation, the United States Botanic Garden, and the International Association for Plant Taxonomy.



José Cuatrecasas Medal for Excellence in Tropical Botany

The Department has initiated a new award that will be presented to a botanist and scholar of international stature who has contributed significantly to advancing the field of tropical botany. The José Cuatrecasas Medal for Excellence in Tropical Botany is named in honor of Dr. José Cuatrecasas, a pioneering botanist and taxonomist who spent nearly a half-century working in the Department. Cuatrecasas devoted his career to plant exploration in tropical South America and this award serves to keep vibrant the accomplishments and memory of this outstanding scientist.



The winner of this prestigious award is selected by a committee made up of three botanists on the staff of the Department, in consultation with other plant scientists in the Washington area. Nominations for the Medal are accepted from all scientists in the Department.

The award, which is made annually and will be presented for the first time at the Smithsonian Botanical Symposium on 31 March 2001, consists of a bronze medal bearing an image of José Cuatrecasas on the front with the awardee's name and date of presentation on the back.

New Faces

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phylogeny of Zingiberales and heads the projects on "Reproductive Organ Anatomy and Palynology of Zingiberales and Their Phylogenetic Significance" and "Phylogeny of Banana Families." His six-month visit will end April 2001.

Denise Mix started in December 2000 as research assistant to **Warren Wagner**. She is a graduate of George Washington University with an M.A. in museum studies, focusing on collections management. As part of the program, she interned at the NMNH with Paleobiology collections manager, Jann Thompson. Denise is originally from upstate New York and earned an undergraduate degree in biology and anthropology from SUNY Albany. She spent several years working as a laboratory technician in biomedical research at various institutions including the New York State (NYS) Department of Health. While working as a lab technician, Mix also served as a volunteer in the herbarium at the NYS Museum, where her interest in botany and museum work developed.

Gisela Sancho, a visiting scientist from La Plata, Argentina, is working with **Vicki Funk** on a revision of Tribe Vernonieae, Subtribe Elephantopodinae (Asteraceae). Currently, she has a one-year external fellowship from CONICET, the government institution of science in Argentina. Sancho received a Ph.D. (1997) from the University of La Plata, with a dissertation on the "Cladistics, Systematics and Biogeography of *Gochnatia* sect. *Moquiniastrum* (Tribe Mutisieae, Compositae)," and later did similar studies of *Onoseris* in the same tribe. She is employed in the Department of Vascular Plants of the Museo de La Plata Herbarium (LP).

Compactorization Update

In the 4th floor herbarium range, the two newly compactorized areas, Bay 3 [Poaceae C-S (in part)] and Bay 8 [Fabaceae - Euphorbiaceae (in part)] are essentially complete. We are experimenting with a speed control modification in Bay 8, which allows the carriages to start more slowly, speed up, then slow down before stopping. The premise is that this will create less jarring of the specimens within the cabinets. Later it will be decided whether to retrofit the other bays by replacing a few programming chips.

While funds have not yet been allotted to additional compactor equipment, we have received support for designing the necessary sprinkler relocation, electrical, etc. of the five bays left to be compactorized, and for designing the 'main street' (center aisle) which will contain the study carrels and layout space. Decompression and expansion are much needed in the remaining areas. Map cases previously located within the Bay 3 area have been relocated to the center aisle. Other map cases remain outside the Palynology Laboratory.

[by Deborah Bell]

Herbarium News

The Annual Statistics Summary of specimen transactions has been completed for fiscal year 2000 (1 October 1999—30 September 2000). Acquisitions totaled 30,346, of which institutional exchange (18,385) accounted for more than half, followed by donations (8,898), including gifts for names, SI transfers (1,596) and staff collections (860).

The Department processed 76 more incoming loan transactions than the previous year, and borrowed specimens doubled over last year. Outgoing loan transactions and specimen totals remained nearly constant.

Foreign institutions were responsible for almost 45% of the total loan and borrow transactions for the year, but only 32% of the loan and borrow specimen total, with Brazil, Germany, the Netherlands, and the United Kingdom leading the way.

Finally, during the fiscal year 2000, the Department processed 1,531 specimen transactions involving over 125,000 specimens, a total larger than 80% of the world's herbaria.

[*by Rusty Russell]*

Botany Featured in NMNH Staff Day '00

On 14 November 2000, the Department was one of three participants in the NMNH Staff Day Open House, "Symbiosis at the Museum: Research, Collections and Public Programs." Botany's displays included interesting and unique specimens, rare books, Caribbean reef plants, and the compactorization of the collection. Other exhibits addressed the Burma Project, spring flowering date research and global warming, Biological Diversity of the Guianas Program, and the legacy from mercuric chloride treatment of specimens. Demonstrations on plant mounting, type specimen digitization, and plant illustration were also presented. Twenty people from the Department participated in preparations for the open house and program. In addition to our own staff, docents and staff from other areas in the museum visited botany's displays.

[by Linda Hollenberg]

Rupert C. Barneby (1911 - 2000)

On 16 January 2001 the New York Botanical Garden held a memorial service for our friend and colleague, Legume specialist and Latin expert, Rupert Barneby. In attendance were over 100 people including five scientists from the US National Herbarium—**Pedro Acevedo**, **Laurence Dorr**, **Vicki Funk**, **Dan Nicolson**, and **Dieter Wasshausen**. At the beginning of the service several letters were read that had been sent from around the world, including one from **W. John Kress** that expressed the sentiments of the Department. Kress described Barneby as "a man of knowledge, wit, and generosity who pursued his craft with intense engagement and love." Personal comments from Dorr and Funk were read as well. The service was interesting as well as informative, revealing many humorous and touching aspects of Barneby's life. He was a wonderful colleague, one that we have depended on for many years. We will all miss him.

[by Vicki Funk]

Lending Support for Brazilian Medicinal Plants

Medicinal Plants of Brazil[1], by Walter Mors, Carlos Rizzini and Nuno Pereira, is a synthesis of information on the medicinal and pharmacological utilization of approximately 1,500 species and varieties of plants in 148 families ranging from lichens, ferns and fern allies to gymnosperms and flowering plants. They represent the diverse botanical heritage of an immense nation where, for economic reasons, many of the people cannot fully afford the benefits of healing systems based on Western medicine and expensive pharmaceuticals. Locally available medicinal plants are the answer to immediate health problems in many cases. This volume is part of a series on *Medicinal Plants of the World* that now includes treatments for West Africa, West Indies, North Africa, China and India.

A cooperative effort by three Brazilians, Mors (a natural products chemist), Rizzini (a plant taxonomist) and Pereira (a pharmacologist), this book distills their decades of experience and research, evidence of which is especially manifested by the inclusion of abundant references to the active chemical constituents and pharmacology of the plants. This "hard core" data is particularly welcomed in books of this nature, and in many instances is derived from literature sources not generally accessible outside of Brazil. References are given in the text at the end of each family write-up, where, for example, one may find 117 articles cited for Asteraceae, 36 for Apocynaceae, 48 for Fabaceae and 23 for Solanaceae. Evidence of the many uses to which locally available plant-derived medicines are put by traditional herbal practitioners may be ascertained by the huge swatches of species listed in the comprehensive Medicinal Index, which was computer-generated as a useful cross-reference for various related illnesses.

Department staff who participated in the preparation of the book include volume editor **R. DeFilipps** who also contributed the Foreword; **W. J. Kress** who supplied the dust jacket photo of *Heliconia angusta*; and staff authorities on various plant groups who checked the taxonomy and nomenclature of plants in their areas of specialization: **P. Acevedo** (Sapindaceae), **L. Dorr** (Malvaceae, Sterculiaceae), **C. Feuillet** (Aristolochiaceae), **W. J. Kress** (Costaceae, Heliconiaceae), **D. Lellinger** (Ferns, Fern Allies), **D. Nicolson** (Araceae), **J. Pruski** (Asteraceae), **H. Robinson** (Asteraceae), **L. Skog** (Gesneriaceae) and **D. Wasshausen** (Acanthaceae).

Two illustrators from the Smithsonian Behind-the-Scenes Volunteer Program made significant contributions. For the Foreword, Anna DiCarlo provided drawings of Amerindians of the Bororo, Botocudos, Coeruna, Juri, Jurupixuna, Karaja, Maua, Mauhe, Mayoruna, Mongoyo and Mura tribes. Of the 88 botanical plates, 19 are originals by volunteer Rufus Toomey, and are interspersed among those from other sources including Cecilia Rizzini.

[1]Mors, W.B., Rizzini, C.T. and N.A. Pereira. 2000. Medicinal Plants of Brazil. 501 pp. Algonac, Michigan: Reference Publications, Inc.

[by Robert DeFilipps]

Botany Web Site Update

Two new presentations have been added to the Department's Web site: http://www.nmnh.si.edu/botany/.

For the past year our greenhouse staff has displayed a "plant of the week" image showcasing a specimen from our research greenhouse. A searchable archive of the previous photos is now available. Look for links to the archive under the "Images" section or on the "Plant of the Week" display page.

Electronic records for the 42,500 specimens in the Wood Collection have been available on the Gopher server for several years. We are pleased to announce that the records for wood specimens are now available through a Web based search interface. Follow the existing link to "Wood" in the "Collections" section of our Web site.

Faden

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the Herbarium of the Royal Botanic Gardens, Kew, an institution with which he continues to maintain a close working relationship.

In Kenya, Faden found new national records for the genus *Baphia*, a leguminous tree, the verbenaceous genus *Karomia* (first described as *Holmskioldia*), and many other genera and species. Eventually, Andrew Agnew of the University of Nairobi invited him to undertake a treatment of the abundant Kenyan Commelinaceae for Agnew's book on Kenya wildflowers. This he did, and from it followed numerous other studies of Commelinaceae on a worldwide basis over the years, including publications in *Flora of North America* (to which he also contributed Mayacaceae), and the floras of Ecuador, Ethiopia, Equatorial Guinea, Sri Lanka, Somalia and Southern Africa.

Faden has performed fieldwork in a large array of countries, much of it with his wife Audrey, including the United States, Mexico, Costa Rica, India, Pakistan, Sri

Lanka, and 11 African nations from Cameroon and Ghana to Somalia, Uganda, Zimbabwe, Zambia and beyond. Attesting to his remarkable "eye" for spotting novelties during field collecting trips are 12 Kenyan angiosperm species named in his honor by specialists, including new members of the families Dichapetalaceae, Euphorbiaceae, Rubiaceae (such as *Coffea fadenii*), Rutaceae, Urticaceae, Amaranthaceae, Capparaceae and Crassulaceae. They are crowned, as it were, by the genus *Fadenia* Aellen & C.C. Townsend (Chenopodiaceae), although Faden once wrote: "I maintain that Audrey was the best collection that I ever made in Africa!" Kenya-born Audrey Faden is a landscaper, master gardener and Smithsonian volunteer for the intensive cultivation and maintenance of numerous commelinads used for research, growing in the departmental greenhouse in Silver Hill, Maryland. Both people are also intensely involved with the Potomac Valley Chapter of the North American Rock Garden Society.

Commelinaceae is the family of the bright blue dayflower (*Commelina*), the wandering Jew and the purple heart (both *Tradescantia*). A number of tribal and subtribal realignments in this family have been made by Faden and D.R. Hunt. In addition to the type genus *Commelina*, several mostly Asiatic and African genera have become subjects of intense research and sources of newly described species for Faden, including *Murdannia*, *Aneilema*, *Palisota*, and *Pollia*. But that is not to suggest that all is known about this family. At the moment, he is finishing a treatment of Commelinaceae for the *Flora of the Guianas*, and is continuing work on accounts for the *Flora of Tropical East Africa*, *Flora Zambesiaca* and *Flore du Cameroun*, while studying generic relationships by cladistic methods (with Tim Evans and others) and developing a database on leaf anatomical characteristics from a family survey.

His carefully cultivated greenhouse plants, derived from populations around the world, are used at various junctures for studies of floral morphology, phenology patterns in species with dimorphic (bisexual and male) flowers, chromosome counts, DNA sequencing (with Tim Evans), seed germination, and occasionally as parent material for hybrid crosses. Faden has performed the cross of *Tradescantia pallida* 'Purple Heart' x *Tradescantia buckleyi* (from Texas-Mexico) in both directions. The extent of natural hybridization in the family remains a large question to be probed by all interested researchers.

More fieldwork and collections of living material will follow. We might hope that perhaps some of Faden's future studies could involve medicinal plants, encouraged by the fact that a remedy for children's eye infections using the spathe-liquid of *Commelina*, which was originally recorded by someone from Bolivia, was independently noted by Faden in use in Tanzania; absence of calcium oxalate crystals in the spathe-liquid make it soothing in contrast to the crystal-bearing liquid found in other tissues of the plant. Strangely enough, reports from the fairly new (to botanists) discipline of zoopharmacognosy indicate that in Tanzania and the Democratic Republic of the Congo, chimpanzees and eastern lowland gorillas, respectively, seek out and consume leaves of *Commelina*, likely for reasons of health or digestive improvement (Sumner, J. 2000. *The Natural History of Medicinal Plants*).

Africa will remain a significant focus of Faden's work in the coming years, for he has observed that approximately three-quarters of Kenya is too dry for agriculture, and 90 percent of that area is still poorly known botanically, with most species, including many annuals and bulbous plants, coming into flower only during the rains. Preparation of a basic flora of the Mpala Research Station in Kenya, which he was involved in setting up for research, would also be a good project for this omnivorous collector.

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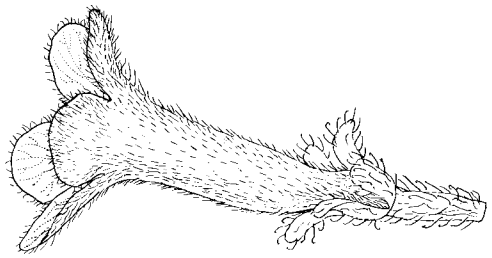

Art by Alice Tangerini

Commelina disperma Faden

Commelina species are difficult to distinguish from herbarium specimens alone. Thus it is most unusual for Robert Faden to describe a new species based on a single dried collection. Faden made an exception for *Commelina disperma* Faden, the type and sole collection of which, *Bidgood*, *Sitoni*, *Vollesen & Whitehouse 4153*, came from near Lake Tanganyika in Tanzania, because the material was unusually complete, including base of the plant, mature capsules and seeds, and kodachrome slides of the flowers, taken by Kaj Vollesen. This enabled an accurate description and contrast with other African forest *Commelina* species with two-seeded capsules, *C. macrosperma* J. K. Morton from West Africa and *C. zenkeri* C. B. Clarke, which ranges from Uganda to Cameroon. The new species has been submitted to the journal *Novon*.

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