

The Plant Press



Smithsonian
National Museum of Natural History

Celebrating the NMNH Centennial - see page 9

New Series - Vol. 13 - No. 2

April-June 2010

Botany Profile

The History of the US National Herbarium

By Conrad V. Morton[†] and William L. Stern[†]

Editor's note: In honor of the 100th birthday of the National Museum of Natural History, this issue of The Plant Press looks back on the history of the U.S. National Herbarium. We lead this issue with a reprint of C.V. Morton and W.L. Stern's 1966 article "The United States National Herbarium," from Plant Science Bulletin 12(2): 1-4 (a publication of the Botanical Society of America, Inc.). Footnotes from the original appear as "CVM", in addition to footnotes for clarification by Alan Whittemore (AW) and Gary Krupnick (GK). An updated history that will clarify these points further is being prepared by Laurence Dorr and Alan Whittemore.

The United States National Herbarium dates back almost to the foundation of the Smithsonian Institution in 1846. Collections of plants resulting from various early government expeditions were first deposited in the National Institute, named originally in 1840 as the National Institution for the Promotion of Science. Later these plants were turned over to the newly founded Smithsonian. Of particular interest among these were the large collections of the U.S. South Pacific Exploring Expedition, under the command of Lt. Charles Wilkes, U.S.N., which formed the real basis for a national herbarium. The earliest expeditions sponsored in part by the Smithsonian Institution itself included the explorations of Charles Wright in Texas and New Mexico in 1848.¹ The early

Smithsonian plant collections, together with those gathered during government-sponsored expeditions to the new West, were turned over to Asa Gray, a Regent of the Smithsonian Institution and Professor of Botany at Harvard University, and John Torrey, Professor of Botany at Columbia College. The assembled botanical collections were in the actual custody of Torrey and were kept at Columbia College in New York City.²

The Smithsonian assisted with all the U.S. Government exploring expeditions,³ among others those of Emory, Whipple, King, Gunnison, Pole, Stevens, Hayden, and Powell. Especially noteworthy were the botanical collections of Charles Wright undertaken in conjunction with the U.S. North Pacific Exploring Expedition under the command of Ringgold and Rodgers which provided plant specimens from the Bering Straits, Japan, China, Hong Kong,

and elsewhere.⁴ A great many botanical papers resulting from these expeditions were published in the reports of the U.S. Railroad Surveys. The Smithsonian Institution itself published several important monographs dealing with plants from these explorations, namely, Asa Gray's "Plantae Wrightianae Texano-neo-mexicanae" (1853-1854), John Torrey's "Plantae Frémontianae" (1854), and especially Professor William Henry Harvey's "Nereis Boreali-Americana," the first general account of our marine algae and still a fundamental reference work.

In 1868, only a few years before his death, Torrey decided that he could no longer retain custody of the herbarium. In the absence of suitable quarters and staff in the Smithsonian building in Washington, D.C., the first Secretary, Joseph Henry, made arrangements that the Smithsonian collections be deposited with the U.S. Department of Agriculture, which had been amassing a working collection of herbarium specimens for the use of its personnel.⁵

ent places were often combined under one number, with a label that only said Texas-New Mexico. Asa Gray suggested the collecting area to Wright; Gray was also the one who made up the sets, arranged their sale, and forwarded the money to Wright. See Susan McKelvey, *Botanical Exploration of the Trans-Mississippi West 1790-1850* for details of Wright's 1848-1849 trip. Smithsonian's only connection with this expedition was that Gray published the final account in a Smithsonian series. *AW*

2 Torrey had some Smithsonian material on loan, in addition to the many expedition specimens that had been given to him and were then in his personal herbarium (now at NY). The materials Gray worked on (for instance, Wright's collections and the collections from Commodore Perry's Japan expedition) were in the "actual custody" of Gray and are now at GH. *AW*

3 These expeditions were under the Departments of the Navy and War. The collectors were employees of these departments, and the reports were prepared by independent scientists, often in exchange for receiving the specimens for their personal herbaria. *AW*

4 Some of these explorations are described in S.F. Baird. 1855. Report on American explorations in the years 1853 and 1854. Appendix to the [Ninth Annual] Report of the Regents of the Smithsonian Institution. Beverley Tucker, Senate Printer. Washington, D.C. *CVM*

5 The Smithsonian material was never in Torrey's custody. Torrey borrowed some specimens from the Smithsonian; the institution paid him to mount herbarium specimens from 1860 to 1869, but the bulk of expedition material that Torrey worked on was in his private herbarium, which was sold to Columbia College (this material is now at NY). Those expedition collections that were sent to Smithsonian in the 1850s were stored in the Castle

¹ Charles Wright supported himself by the sale of the herbarium material he collected. In order to make up large enough sets, specimens from differ-

Travel

Pedro Acevedo traveled to Salvador Da Bahia, Brazil (1/29 – 2/19) to participate in an expedition to inventory and collect local floras in Brazil.

John Boggan traveled to Morristown, New Jersey (3/18 – 3/19) and Manhattan, New York (3/19 – 3/21) to give talks on the genera *Gloxinia* and *Seemannia* and their relatives (Gesneriaceae) to the Frelinghuysen Arboretum and Greater New York chapters of the Gesneriaceae Society.

W. John Kress traveled throughout Costa Rica (2/23 – 3/4) to conduct fieldwork on *Heliconia* taxonomy and to deliver the keynote address at the Organization for Tropical Studies Symposium honoring Luis Diego Gómez; to Boston, Massachusetts (3/10 – 3/11) and Portsmouth, New Hampshire (3/11 – 3/12) to present the books *The Weeping Goldsmith* and *Botanica Magnifica*; to Chicago, Illinois (3/19 – 2/20) to present the books and give a lecture at the Chicago Botanic Garden; to Los Angeles, California (3/20 – 3/21) also to present the books and give a lecture at the Huntington Library; and to Dominica (3/22 – 3/28) to do research on

Heliconias and hummingbirds.

Paul Peterson and **Robert Soreng** traveled to St. Louis, Missouri (2/7 – 2/12) to do research at the Missouri Botanical Garden herbarium and to learn the new TROPICOS botanical information system.

Rusty Russell traveled to St. Louis, Missouri (2/22 – 2/25) to participate in a workshop at the Missouri Botanical Garden to plan for a national effort to digitize all herbarium holdings in North America, entitled “United States Virtual Herbarium”; to Redlands, California (3/7 – 3/10) as an invited participant in the Mapping for Conservation Organizations Workshop, involving conservation organizations using GIS technology; and to the San Jacinto Mountains, California (3/19 – 3/28) for continuing fieldwork on the application of herbarium specimen data to studies of floristic changes in the region.

Alain Touwaide and **Emanuela Appetiti** traveled to Richmond, Virginia (3/9 – 3/10) where Touwaide delivered a public lecture “Why Does Medicine of the Past Matter? Ancient Remedies for the 21st Century” at the Virginia Commonwealth

University, and to meet with Peter Schertz, curator of ancient art at the Virginia Museum of Fine Arts; and to Ballston, Virginia (3/27) to deliver a paper entitled “Digitizing Renaissance Herbals” at the Capital Science 2010 conference.

Laurence Skog traveled to Sarasota, Florida (2/25 – 2/22) to work in the herbarium at the Marie Selby Botanical Garden, and to confer with colleagues about the World Gesneriad Conference to be held October 2010 at the Garden.

Warren Wagner traveled to Honolulu, Hawaii (3/10 – 4/6) as an invited speaker at the National Tropical Garden Board, to serve as facilitator for an international NTBG Science review, and to conduct research for the completion of the flora of the Marquesas Islands at NTBG and the Bishop Museum.

Jun Wen traveled to Raleigh, North Carolina (3/22 – 3/24) to visit the North Carolina State University Genomics Laboratory for training in the next-generation sequencing, and to give a seminar on the evolution of intercontinental disjunct plants to the Department of Plant Biology.



The Plant Press

Reu Series - Vol. 13 - No. 2

Chair of Botany

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Web site: <http://botany.si.edu/>

Visitors

Mike Martin, Johns Hopkins University; *Ambrosia* (Compositae) (1/1/09-6/30/10).

Zhumei Ren, Shanxi University, China; Gallnut aphid/host plant coevolution based on DNA sequences (2/1/09-1/31/10).

Pingting Chen, Central China Agricultural University; Vitaceae (3/1/09-2/28/10).

Qing Liu, South China Botanic Garden, Chinese Academy of Sciences, Guangzhou; Chloridoideae (Poaceae) (7/4/09-7/4/10).

Dana Gadeken, University of Mary Washington; Plant conservation internship (12/14/09-1/8/10).

Marie Balboa, University of North Carolina Chapel Hill; Plant conservation internship (12/21/09-1/8/10).

Siddharth Rajagopalan, University of Virginia; Plant conservation internship (12/21/09-1/15/10).

Weidong Zhu, Kunming Institute of

Botany, China; *Astilbe* (Saxifragaceae) and *Aruncus* (Rosaceae) (1/1-4/30).

Jimmy Triplett, University of Missouri; North American *Arundinaria*, and Asian *Pleioblaastus*, *Sasa*, and *Sasamorpha* bamboos (Poaceae) (1/1-12/31).

Jianying Xiang, Kunming Institute of Botany, China; *Dryopteris* (1/1-12/31).

Eleanor Moran, University of Virginia; Plant conservation internship (1/4-1/15).

Jim Cohen, Cornell University; Boraginaceae (1/14).

Todd Lee and 12 students, Elon University; Herbarium tour (1/19).

Amanda Saville, North Carolina State University; *Dichantherium* (Poaceae) (1/19-1/20).

John Skvarla, University of Oklahoma; Compositae (1/20-1/26).

Wesley Knapp, Maryland Natural Heritage Program and Delaware State Univer-

Centennial Celebration

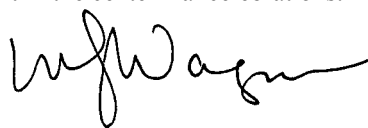
Earlier this year we gathered for a group picture and an informal departmental celebration of the Museum's centennial. Published together in the last issue of *Plant Press* with a few historical snapshots, this most recent photo clearly reflects the significant growth in numbers that the Department of Botany has experienced since the Museum of Natural History first opened its doors to the public in 1910 despite a downward trend in staff during past 20 years. At the time of the museum's opening, the Smithsonian had a small, but distinguished botany staff of four curators aided by six honorary assistant curators from the U.S. Department of Agriculture.

In the ensuing years, the department has continued to expand not only in size, but also in the scope and nature of the research undertaken. The physical record of this expansion is clearly preserved within the collections housed in the National Herbarium and the thousands of published research papers, monographs, and books. Although the U.S. National Herbarium was established in 1848 to house collections from early expeditions within the United States, it has now grown to just under 5,000,000 specimens. The feature article in this issue, "The History of the US National Herbarium," a reprint of an article written in 1966 by two Botany curators, Conrad Morton and William Stern, captures the importance of this herbarium while noting the dedicated individuals that have contributed to its current stature as being among the largest collections in the world.

This year the Museum celebrates its 100th birthday with a special exhibition featuring archival and modern photographs highlighting many facets of the building, its people, collections, research, and exhibitions over the past century. As shown in the timeline on page 11, the Department of Botany has achieved an impressive number of milestones and has been a leading contributor to the museum over the past 100+ years. Of these,

the online launch in October 1993 of the Botanical Type Specimen Register represents the first electronic resource for the National Museum of Natural History. Since then there has been an ever increasing wealth of resources added to the Department's internet outreach and research including floras ranging from the local Washington-Baltimore area to the Pacific Islands and Caribbean, several sites on specialty plant families, a diverse site on the Biological Diversity of the Guiana Shield, large collections of botanical illustrations, and an even larger and easier to use Type Register.

Some of these Botany milestones will be part of the framework for an exciting new NMNH website that will explain the major milestones in the museum's history. Botanist Emeritus Stan Shetler, who served as Deputy Director of NMNH, will be interviewed soon for an oral history component of the centennial exhibition scheduled to open in late May (see page 9). Stan had curatorial responsibilities in the Department of Botany from 1962 to 1984 before moving on to serve as the Associate Director and then Deputy Director of NMNH until 1995. When he returned to the Department in 1996 as an Emeritus Curator he developed along with Sylvia Orli the valuable and widely used Washington-Baltimore flora website and dealt with identifying and distributing many collections from temperate and arctic northern hemisphere. We have also invited a number of botanists with special connections to the U.S. National Herbarium to the centennial opening reception on June 9th. We look forward to their visits and the upcoming celebration and hope to share more news over the coming months of the Department's involvement in the centennial celebrations.



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sity; *Juncus* (Juncaceae) and *Rhynchospora* (Cyperaceae) (1/21).

James Estes, University of Oklahoma; *Artemesia* (Compositae) (1/21-1/22).

Kimberly Winter and 10 students, The Graduate School, District of Columbia; Herbarium tour (1/30).

Shi-Jin Li, South China Botanical Garden, Chinese Academy of Sciences, Guangzhou; *Dalbergia* (Leguminosae) (2/16-2/28).

Paul Berry, University of Michigan; Euphorbiaceae (2/17-2/19).

Henrique Oliveira, Smithsonian Artist

Research Fellowship recipient, Sao Paulo, Brazil; Wood collection (2/19).

Claudio Nicoletti de Fraga, Jardim Botânico do Rio de Janeiro, Brazil; Dilleniaceae (2/23-2/26).

Mariana Saavedra, Jardim Botânico do Rio de Janeiro, Brazil; Asteraceae (2/23-2/26).

Divye Bokdia, Owen Ellis, Sarah Hegge, University of Michigan; Map internship (3/1-3/5).

Saroopa Samaradivakara, Genetech Research Institute, Sri Lanka; Plant DNA barcoding (3/1-4/30).

Alexander Clark, Georgetown University, and **Tenzin Khando**, Virginia Tech; Plant conservation internship (3/8-3/12).

Margaret Cychosz, Butler University, **Jacob Jones**, Jackson State Community College, **Brittney Powers**, Millersville University, and **JoAnna Roman**, University of Notre Dame; Map internship (3/8-3/12).

Samantha Bradbeer, Johns Hopkins University, and **Mara Dauphin**, Yale University; Map internship (3/15-3/19).

Karla Jamir, Huntley Meadows Park; Examining herbarium cases (3/15).

Continued on page 5

Staff Research & Activities

On 24 February, **John Boggan** gave a talk, "Growing Hardy Palms and Other Adventures in Zone Pushing," for the Smithsonian Horticulture Divisions' winter In-Service Training series.

On 18 February, **Alain Touwaide** presented "Hippocrates' Legacy in the 21st Century Revisiting Ancient Greek Medical Knowledge" at the Embassy of Greece.

On 27 March **Alain Touwaide** and **Emanuela Appetiti** attended Capital Science 2010, a conference organized by the Washington Academy of Sciences and the National Science Foundation, in Ballston, Virginia. They delivered a paper, "Digitizing Renaissance Herbals. The PLANT Program," about the website they are creating in collaboration with the Smithsonian Institution Libraries on Renaissance herbals illustrations.

Awards & Grants

Alice Tangerini won an award for her educational exhibit at a recent plant show put on by the National Capital Area Chapter of the Gesneriad Society on March 13-14 at the National Arboretum in Washington, DC. Her entry, "Botanical Illustration from Start to Finish," won first prize in the Educational Display category and received high marks for its presentation of the process of drawing a gesneriad beginning with a herbarium specimen through the final drawing in ink and publication in a botanical journal. The display had five panels showing the specimen, photocopy, preliminary and final pencil sketches, and the final ink drawing with the publication (see page 20). It was given a blue ribbon and even though it was the *only* one in its class, Tangerini was assured that ribbons were not given out unless the entry warranted the award.

New Faces

Jay Bolin is a post-doctoral fellow working with **Kenneth Wurdack** on the molecular systematics and evolution of the

Hydnoraceae. The Hydnoraceae are a holoparasitic Piperalean lineage comprising only two genera, *Hydnora* in Africa and the Arabian Peninsula and *Prosopanche* in Central and South America. Bolin recently completed his dissertation on the ecology and molecular systematics of *Hydnora* at Old Dominion University in Norfolk, Virginia. His dissertation was supported by a student Fulbright appointment to Namibia where he conducted fieldwork and taught at the University of Namibia. During his fellowship at the Smithsonian, Bolin will pursue a coevolutionary study of *Hydnora* and their *Euphorbia* hosts using molecular phylogenetic approaches. In a tandem study he will investigate the presumably reduced *Hydnora* plastome. In addition to laboratory work, Bolin will conduct fieldwork in Brunei Darussalam with Kushan U. Tennakoon (University of Brunei Darussalam) to generate a checklist of aerial hemiparasites and in the Sultanate of Oman with Lytton J. Musselman (Old Dominion University) to collect the furtive and poorly known Arabian *Hydnora*.

In January, **Nancy R. Khan** joined the Department as a Museum Specialist assigned to work with **Warren Wagner** on the Flora of the Pacific Islands and the Onagraceae family. A native of Florida, Khan has lived in Philadelphia, Pennsylvania for the past 20 years and received her master's degree in Environmental Science from the University of Pennsylvania in 2005 with a concentration in Natural Resource Management. Through a year-long joint internship with the Morris Arboretum and the Academy of Natural Sciences she gained valuable experience in field botany, research methods, and herbarium curation. Following this, she served as the Director of the Wissahickon Restoration Volunteers, an active community-based ecological restoration organization that works in partnership with the City of Philadelphia's Fairmount Park Commission. Pursuit of her interests in field botany and forest ecology led Khan to join the National Park Service's Inventorying and Monitoring Program as a seasonal crew leader for the Vegetation Team at the Center for Urban Ecology in Washington, DC. Over a 3 month period she visited over 100 research plots in Maryland, Virginia, and West Virginia, further increasing her knowledge of the flora of the Mid-Atlantic



region. Subsequently, she worked as an Education Coordinator/Biologist for NPS at the Gateway National Recreation Area, engaging citizen scientists and promoting environmental stewardship while also providing support services for researchers and resource managers in the Jamaica Bay Unit. In partnership with research faculty at Queens College, CUNY, she successfully coordinated the first volunteer-focused, all-taxa BioBlitz of the Bay. Most recently, as a Biological Technician in the Forest Ecology Lab at the Smithsonian Environmental Research Center in Edgewater, Maryland, Khan provided technical guidance and field leadership for the HSBC Climate Partnership, an initiative developed in conjunction with the Smithsonian's Center for Tropical Forest Science to study the impact of climate change on forest function and diversity in a temperate forest.

Jimmy Triplett is a post-doctoral fellow working with **Jun Wen** and **Paul Peterson**. He completed his Ph.D. at Iowa State University, where he studied the systematics of temperate bamboos. He recently



completed a post-doctoral project on the phylogeny of *Panicum* with Toby Kellogg at the University of Missouri-St. Louis, and is currently conducting research on the reticulate evolution, polyploidy, and biogeography of the *Arundinaria* clade of the temperate bamboos (including *Pleioblastus*, *Pseudosasa*, *Sasa*, and *Sasamorpha*). Triplett has conducted field work in China, Japan, and the United States.

On-line Guide to Marine Algae of Panama

From *Smithsonianscience.org*

A new online identification guide to more than 120 marine algae of the Pacific Panama has been developed by **Diane** and **Mark Littler** in conjunction with the bioinformatics office at the Smithsonian Tropical Research Institute in Panama. The guide is designed to make it easy for non-specialists to accurately identify seaweed species around Panama's offshore islands from Las Perlas in the Bay of Panama to the Gulf of Chiriqui. More than 158 stunning underwater photographs and 445 photomicrographs showcase the major seaweeds. The treatment also documents 87 new records of marine macroalgae for Panama and 32 new records for the Eastern Pacific Ocean. The database can be accessed at <http://biogeodb.stri.si.edu/pacificalgae/>.

"We have seen rapid degradation of reefs worldwide. It is of paramount importance scientists—from geologists to chemists—and for school kids, tourist guides and conservationists to understand the local reef environment and its foundation species," say the Littlers. "Our guide celebrates the beauty of some of the most attractive inhabitants of Panama's undersea realm and provides an indispensable, easy-to-use tool for their identification."

Along with the coelenterate corals, the algae are the major primary producers and builders of Panamanian Eastern Pacific reef systems. Marine plants from four diverse evolutionary lines dominate. Now there is a way to accurately identify the marine plants that form the basis of this food web and maintain living reef structures.

Identification keys distinguish one species from another based on easily observed characters. This guide provides

keys to genera and species within each phylum of macroalgae. The keys utilize a double numbering system that enables the user to work a key backwards as well as forwards. A specimen can be "picture-keyed" initially, then positively identified by using the dichotomous keys and the photomicrographs.



Plocamium violaceum (Photo by Diane Littler)

Marine Algae of the Northern Gulf of California

A taxonomic study of green and brown benthic marine algae in the Gulf of California is presented in "Marine algae of the Northern Gulf of California: Chlorophyta and Phaeophyceae" by James N. Norris in *Smithsonian Contributions to Botany* 94: 1-286; February 2010. The treatment covers 4 classes, 7 orders, 13 families, 20 genera, and 63 species of Chlorophyta and 9 orders, 15 families, 26 genera, and 70

species of Phaeophyceae. The systematic account includes a guide to identification of the taxa with keys and descriptions. Also given are basionym, type locality, synonyms, relevant taxonomic studies, habitat, and distribution for each species. Four new sections and one new species are described; five new combinations are made. A pdf of this publication can be downloaded at www.scholarlypress.si.edu. To request a print copy, email SISF at schol_press@si.edu. Print copies of this publication are free upon request, while supplies last. Limit five (5) copies.

Visitors

Continued from page 3

Adam Nguyen, Virginia Commonwealth University; Plant conservation internship (3/15-3/19).

Athanasios Moulakis, American University in Afghanistan, Kabul; Afghan medical traditions (3/18).

Rolf Kinne, Max Planck Institute, Dortmund, Germany; Plant molecular biology and archaeology (3/19).

Henderson Andrew, New York Botanical Garden; Palmae (3/22).

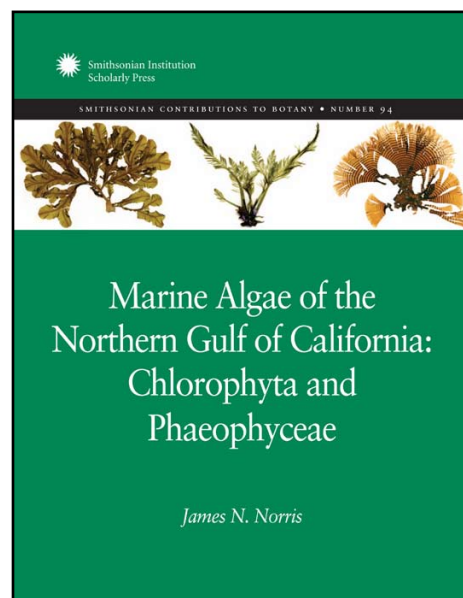
Meghan Kane, California State University, Sacramento, and **Tegan Kehoe**, Brandeis University; Map internship (3/29-4/2).

Frank Farruggia, University of Utah; *Solanum* (Solanaceae) (3/30-4/2).

Addendum

"Are You Experienced? Interning in Botany" *Plant Press* 13(1): 1, 16-18; 2010.

Botany students may also find internships offered through the Minority Awards Program <<http://www.si.edu/ofg/Applications/MIP/MIPapp.htm>>. These internships come with a stipend award. The Office of Fellowships' Minority Awards Program offers internships to increase participation of minority undergraduate and graduate students who are underrepresented in programs of study relevant to the research activities of the Smithsonian. Each year the office receives over 250 applications for ten-week summer appointments. These are distributed for review based on the student's academic and career goals.



Focus on Research Associates

Putting Too Fine a Point On It: Eduardo Garcia-Milagros

By Vicki A. Funk

Eduardo Garcia-Milagros was born in Almacelles, Spain in 1975, the same year the dictator Franco died, which Eduardo considers a lucky sign. He received his B.S. in Biology (specializing in Botany) from the Universidad of Murcia in 2000. While at the University, he worked as a student intern in the Department of Vegetal Physiology isolating plant pathogens (bacteria and fungi). After graduation he accepted a job as the manager of food safety in a fish farming company. By the time he had worked there for four years his wife, Maria Jiménez-Movilla, received her Ph.D. and together they decided it was time for a change. His wife received a postdoctoral fellowship at the National Institutes of Health, he quit his job, and both landed in DC on 2 March 2006. After coming from the south of Spain they found the weather to be really windy and cold.

After a few months, Garcia-Milagros realized one thing: "English is really difficult." But he persevered and now his English is very good.

In August, 2006 he received his work permit and found a job teaching Spanish at George Washington University. While teaching he heard about the National Museum of Natural History and its programs in internships and behind-the-scenes. Because of his background in,

and love for, botany he decided to contact **Rusty Russell**, the Collections Manager. At first he volunteered just a few hours a week; with the help of **Deborah Bell** he learned how the U.S. National Herbarium was arranged and how to sort and file specimens.

During the summer of 2007 Garcia-Milagros met Mauricio Diazgranados who at that time was working for **Vicki Funk** with a Latino Initiatives Program fellowship. Garcia-Milagros began helping Diazgranados with his data-basing, barcoding, and geo-referencing label information of herbarium specimens of subtribe Espeletinae (Compositae). Garcia-Milagros then discovered Google Earth and proposed its use for a better geo-referencing process as well as for displaying the distributions. Funk and Garcia-Milagros decided to use that idea to study and display the US plant specimens from the Guiana Shield. The project was divided into six phases. The first phase was the type specimens in the US that were collected from somewhere on the Guiana Shield <<http://botany.si.edu/bdg/georeferencing.cfm>>. Garcia-Milagros started work on the project in October 2007 and finished in the summer of 2008. It took far longer than they imagined since there turned out to be 3,400 types, and some were difficult to locate due to poor label information. Garcia-Milagros figured

out a novel way to use the map overlays in Google Earth to view the locations of the specimens collected, thus providing more accuracy to the localities.

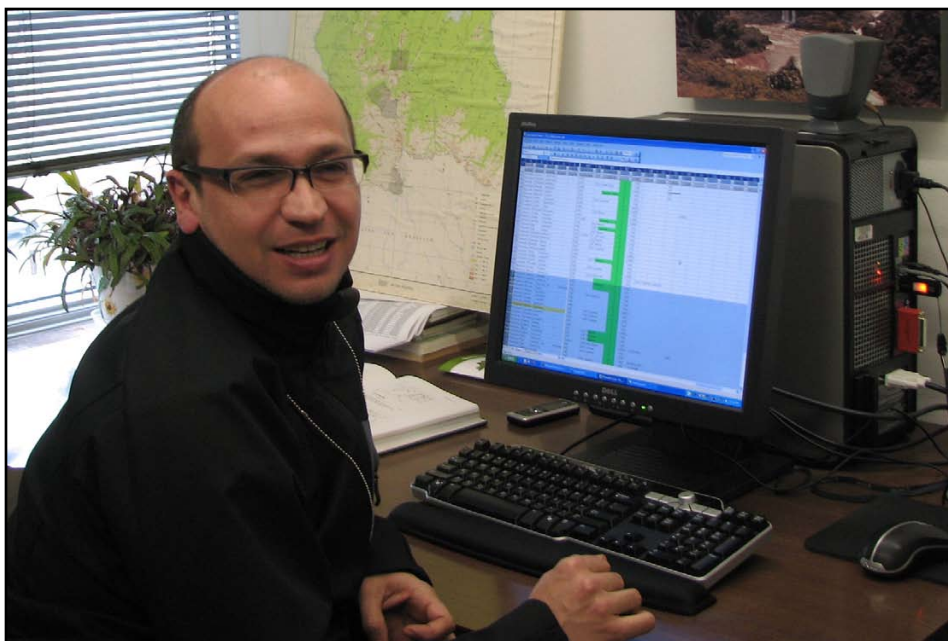
Funk gave a talk that included some of this material at the annual meeting of the Association for Tropical Biology and Conservation in Suriname in January 2009. Together Garcia-Milagros and Funk also wrote a paper on the subject that is now submitted for publication.

After finishing the types project, Garcia-Milagros moved on to phase two. For a number of years the Biological Diversity of the Guiana Shield (BDG) program was able to fund resident collectors in Guyana. This phase involved using Google Earth to map all the expeditions that BDG had sponsored <<http://botany.si.edu/bdg/expeditions.html>>. The project began in December 2008 and, for most of the collectors, it was completed in December 2009. Users can go online and browse through an expedition for Pipoly, Gillespie, McDowell, Hoffman, Clarke, Redden (includes Redden & Wurdack), and Henkel. Over the years we had sponsored many short expeditions to the Guianas; these 'miscellaneous collectors' will be incorporated into the website at a later date.

Phase three involved scanning, cleaning up, and uploading images taken by each of the collectors. This has more of less taken place just after the expedition information is completed.

Phase four, which started in December 2009, involved making all of the data from the BDG collections searchable by taxon <<http://botany.si.edu/bdg/specimenquery/query.cfm>>. This phase involved checking and updating the latitude and longitude data of BDG resident collector's database while developing the expedition website. Thanks to **Ellen Farr** and **Sylvia Orli**, a user can select a genus or species and it will display a list of collections. After selecting all or choosing the desired collection, the program will map the locations. There are over 40,000 records available online, all collected by the BDG program.

Phase five, which includes cleaning up the data base that contains about 100,000 historical specimens from the US National

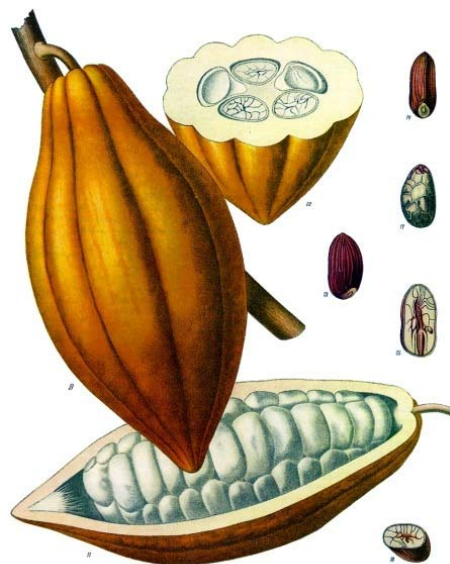


Eduardo Garcia-Milagros (Photo by Elaine Haug)

“Food For Thought: 21st Century Perspectives on Plants and People”

In collaboration with the United States Botanic Garden

Supported by the Cuatrecasas Family Foundation



Theobroma cacao L. from Köhler's
Medizinal-Pflanzen in Naturgetreuen
Abbildungen mit Kurz Erläuterndem Texte.
1887. Gera-Untermhaus, Germany.

People are dependent upon plants for food, clothing, medicine, fuel and other necessities of life. Humans and plants have interacted for as long as humans have existed, but our relationship is not static. Since the advent of agriculture we have exerted evolutionary pressure on plants that are of importance to us. Indigenous and industrialized societies have interacted with plants in their environments and influenced not only crop plants, but also cultural landscapes. The Smithsonian Botanical Symposium, hosted by the Departments of Botany and Anthropology, will examine the 21st century transformation of the study of interactions between plants and people. The invited speakers will cover a wide range of topics: from the role molecular biology now has in elucidating crop domestication to the ways in which peoples across myriad ecosystems interact with specific plants and landscapes.

The Botanical Symposium is one of many activities planned to celebrate the Centennial of the National Museum of Natural History. Symposium participants are invited to visit the new David H. Koch Hall of Human Origins, which is dedicated to the understanding of human origins. This major exhibition opening in March 2010 is based on decades of cutting-edge research by Smithsonian scientists, and it tells the epic story of human evolution and how this occurred over the course of six million years in response to a changing world.

Information and registration at <http://botany.si.edu/sbs/>
Fax: 202-786-2563 – e-mail: sbs@si.edu
Registration is now open

Herbarium, is next, but it may be some-time before it is scheduled. The final phase is to scan one sheet of each species found on the Guiana Shield and create a virtual herbarium, which is only at the ‘dreaming’ stage.

Along the way Garcia-Milagros has not only expanded the original project to include a visual tour of the BDG program now featured on Google Earth <<http://botany.si.edu/bdg/tour.html>>, but is also currently working on a Google Earth quiz highlighting species from the Encyclopedia of Life content.

Garcia-Milagros's work has transformed the way the BDG information is served to the public and made an outstanding change in the website and its usefulness. According to Garcia-Milagros “Google Earth is an amazing tool. Its uses and applications are still under development, but it definitely rocks as a tool for displaying geographical information in an interactive and educational way.”

Unfortunately for BDG, at the end of

April, Eduardo, Maria, and their daughter are returning to Spain where Maria has an Assistant Professor position at Universidad of Murcia. Eduardo hopes to find work using his knowledge of plant data and his well honed Google Earth skills. We wish them well and thank Eduardo for all his hard work for the BDG program.



Herbarium Tours

In addition to the other duties the Core Collections Management group performs, it often falls to them to give tours of the herbarium. Naturally, any visiting scientist is given a cursory orientation so they can work on the research they came to do, but other tours are journeys through the her-

barium that can take up to two and a half hours. Depending on the group, more or less detail about the areas visited is given, and questions are always encouraged. The tours generally cover collection and storage methods, history of the collection, and emphasize the value of systematics collections and the importance of plants in everyday life.

In the cryptogams, many visitors are fascinated by the Antarctic endolithic lichen and tropical beach-forming algae. Others are awed by the skill and huge amount of labor that go into each of Alice Tangerini's illustrations. The groups range from interns and college classes to elementary school classes, to VIPs and, sometimes, friends and relatives of staff.

Recently, Greg McKee conducted two wildly different herbarium tours. First, a group of 3-year olds from the Smithsonian Early Enrichment Center (SEEC) visited, which required rounding up low benches and touchable props, i.e. a giant bamboo

Continued on page 8

Herbarium Tours

Continued from page 7

culm. McKee reports that the children were extremely well behaved and showed considerable interest. Second, a group

of wounded war veterans from Walter Reed Army Medical Center, sponsored by the Healing Waters Project, came to the herbarium as part of their rehabilitation program. Their special needs were met by bringing the tour to them on lab carts.



Greg McKee showing Antarctic endolithic lichen (lichen that grows inside rocks) to a group of pre-school children. (Photo by Elaine Haug)

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NMNH Centennial – Special Issue

Celebrating 100 Years at the National Museum of Natural History

Giant fossil sloths, microscopic pollen in amber, fragile pottery sherds, and ancient meteorites—for 100 years the Smithsonian's National Museum of Natural History has provided a home for objects like these, along with the curators, research labs, storage areas, and exhibitions necessary to study and display them.

Since our doors first opened in 1910, the Museum has inspired curiosity and learning about the natural world and our place in it. Building upon our extensive collections, we have been at the forefront of scientific exploration and research, as well as groundbreaking public exhibitions and education.

On 29 May 2010, the temporary photographic exhibition “Celebrating 100 Years at the National Museum of Natural History” opens, allowing visitors to explore the Museum's history through documentary photographs of important milestones – from laying the cornerstone for the

building to modern DNA and genomic research. The photographs capture the incredible diversity of science research and education at the Museum.

Visitors will be able to explore our history and share a voice in contributing to our vision for the century ahead as we help solve the problems of global warming, habitat loss, and changing societies.

The photographic exhibition is made possible by The Windland Smith Rice Nature's Best Photography Fund.

The Plant Press: A Look Back

In 1973, the Department of Botany decided to institute a weekly newsletter to inform staff about events and news. *The Plant Press* recorded visitors; staff travel; room and telephone number changes; recipes; seminar announcements; stories from the field; library acquisitions; births, marriages, and deaths; jokes, poems, quizzes, and comics; grants and awards; and various other events and points of interest to Department staff. The initial run of *The Plant Press* lasted 23 years (1973 – 1995) and produced 1,284 pages spread across 795 issues. The newsletter was originally

designed as an in-house publication. By the end of the original run, 275 copies of each issue were being printed and distributed (8 to libraries, 77 to subscribers, and the remaining 190 to Smithsonian staff, interns, fellows and volunteers).

After a 2-year absence, the newsletter returned as a new series in a new format, with the aim of reaching a broader audience outside the Museum. Our current distribution reaches 740 avid readers (including 26 libraries and 588 subscribers) and countless others who read the newsletter on the web.

To celebrate the museum's centennial, we present here a small selection of special moments captured in the original run of *The Plant Press*:

1(1): 1

February 20, 1973

Following the example of other herbaria, we thought we would try a weekly newsletter. Anyone having news or views, please submit by the end of the day on Friday or first thing Monday. We would also appreciate suggestions for changes in format or content.

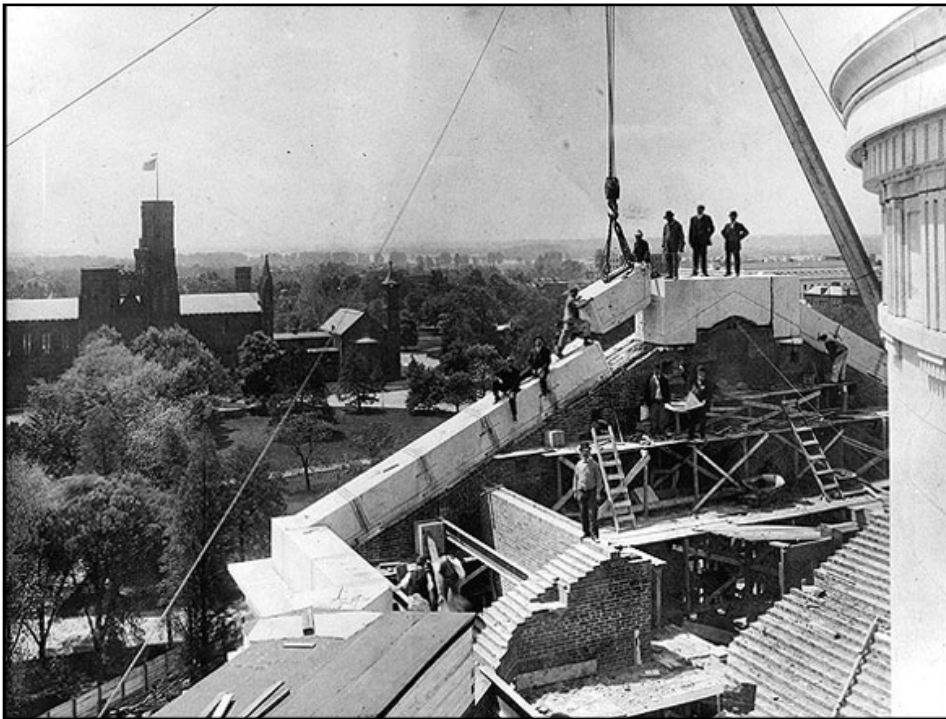
Between Feb. 12 and March 3 an important international conference on endangered species (both plants and animals) is being held at the State Department. Over 60 countries are represented. The object is to negotiate an international convention for the protection of endangered species that enter international trade (or are imported and exported between countries for any purpose). Howard Irwin (alternate Tom Elias), New York Botanical Garden, and **Ray Fosberg** are the botanical members of the U.S. delegation.

1(2): 1

February 26, 1973

As one of the two Smithsonian representatives (the other is Martin Moynihan of STRI) on the board of the OTS (Organization for Tropical Studies), **Tom Soderstrom** attended the annual meeting in Turrialba, Costa Rica (January 12-14). Using funds from his Smithsonian Research Award he went on to Panama to collect with Bob Dressler (STRI) and Dimitri Sucre and Pedro Braga, the latter two from the Jardim Botânico in Rio de Janeiro. From there he went to Colombia to revisit a locality where *Neurolepis*, an

Continued on page 12



On May 11, 1909, workers set the final stone on the National Museum of Natural History building. Construction of the museum began in 1904, and the granite structure was completed in 1911. The background of this photo shows the first Smithsonian Institution building, known as “the Castle.”

United States National Herbarium

1840. First plant collections are deposited in the National Institution for the Promotion of Science.

↓ **1904.** Construction begins for the new U.S. National Museum building.



March 17, 1910. The National Museum building opens to the public.

1840

1850

1860

1870

1880

1890

1900

1910

1920

1868. Smithsonian plant collections are transferred to the U.S. Department of Agriculture.

1846. Congress establishes the Smithsonian Institution. ↓



Copyright Digital Image Smithsonian Institution, 1998

1890. Publication of the *Contributions from the U.S. National Herbarium* begins.

1911. In its first full year, the National Museum welcomes some 151,112 visitors.

1896. Legal custody of the National Herbarium is officially transferred to the Smithsonian; collection totals 250,000 plant specimens.

Centennial Milestones



← **1979.** The Botanical Museum in Berlin honors USNH with the Willdenow Medal in gratitude for the contribution of duplicate collections to rebuild their collections of the herbarium after it was completely destroyed during an air raid and subsequent fire in 1943.

1960. Wood collection is transferred to USNH from the Museum of History and Technology.

1965. The West Wing of NMNH is completed; plant collections move from SI Castle to NMNH. Foundation of marine herbarium.

1966. Collection climbs to 3 million plant specimens.

1983. The Department of Botany becomes the first systematics collection in the world to use barcode technology as a means to managing digital specimen records.

1994. The Department of Botany is a leader in the Natural History Gopher server (the first internet application in which organized text files could be brought from servers all over the world to a viewer's computer).

1996. The Department of Botany launches the first NMNH intranet webpage with information for staff on resources, visitors and publications. Public internet page soon follows.

1956. NMNH surpasses one million visitors for the first time (1,007,578).

1954. The *Index Nominum Genericorum* (ING), a collaborative project with the International Association for Plant Taxonomy, is initiated as a compilation of generic names published for all organisms covered by the International Code of Botanical Nomenclature.

1928. Collection climbs to one million plant specimens.

1971. The Type Specimen Register project begins. This represents one of the earliest natural history databases in the world, and the only one to verify the type status of each specimen.

1973. First issue of *The Plant Press* is published conveying information about the NMNH Department of Botany to an audience primarily within the Museum.

1999. The herbarium begins compactization. The first two bays, representing one-tenth of the herbarium, is completed, thus beginning the enhanced use of museum storage space.

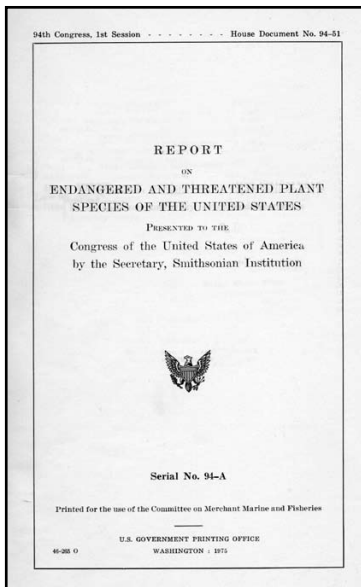
2000. First high-definition digital image of type specimen in the U.S. National Herbarium is produced. Today more than 200,000 digital images, half of which are types, are managed in Botany.

2001. The first Smithsonian Botanical Symposium, titled "Linnaean Classification in the 21st Century," is convened.

2009. Type Register passes the milestone of 100,000 records. All types are verified, digitally imaged, and available online.

← **1974.** In accordance with Section 12 of the Endangered Species Act of 1973, *Report on Endangered and Threatened Plant Species of the United States* is presented by the Smithsonian Institution to the U.S. Congress.

April 15, 2010. The U.S. National Herbarium collection contains 4,879,839 specimens.



A Look Back

Continued from page 9

Andean bamboo flowered and died four years ago. He found the same population of seedlings, some two meters tall and doubtless three or four years old, but many seedling at different stages, suggesting delayed germination over a rather long period of time. A stipend from Mr. Ripley (from the Fluid Research Fund) allowed him to go on to the state of Rio Grande do Sul, Brazil, to observe *Merostachys multiramea*, a bamboo now coming into flower throughout southern Brazil after 30-32 years. He and Cleo Calderon spent three months collecting in eastern Brazil last year on a grant from the National Geographic Society, Cleo in Bahia and Tom in the southern states. At that time Tom found a couple of clumps of this *Merostachys* in flower and upon questioning the local inhabitants found that the last time flowers had been seen was in the early 1940's. Checking the literature and specimens upon return, he noted that this year or next would be the proper time for flowering, if indeed this cycle were a real thing. The population which he studied in May of last year is now completely in flower and other populations throughout the state are coming into flower and will probably be at their maximum flowering next fall. Since this phenomenon has never been studied over a long period of time, he marked localities throughout the state and colleagues in Rio Grande do Sul are going to continue collecting and making observations of this phenomenon. He plans to check the next flowering upon retirement.

1(18): 1

June 11, 1973

Beryl Simpson had returned from her three month's trip to Arizona where she was working on the breeding biology of the dominant desert perennials (excluding cacti). Due to the heavy spring rains, the flowering in the southwest was the most spectacular of any year since about 1920. While there, the University of Arizona made her a visiting professor and provided her with a lab and faculty privileges. The favorable weather combined with the hospitality of the university allowed her to gather most of the data necessary for the North American part of the study on the convergence of breeding systems in desert scrub communities. She also went to a four-day meeting of the IBP in San Diego

and visited Florida State University, where she is an adjunct professor, for three days. On her way back, she stopped at Austin and spent a relaxing two days working in the herbarium and talking to faculty members and students. The trip was paid in part by the Department; she financed the rest, except for the side trips.

2(6): 1

February 4, 1974

Jose Cuatrecasas attended the annual meeting of the O.F.N. Jan. 18 and 19 (Organization for Flora Neotropica) supported in part by UNESCO, at Mossoro, Rio Grande do Norte, Brazil. Only B. Maguire and G. Prance from New York Botanical Garden and Alicia Lourteig from Paris, besides a group of Brazilian members of the Organization attended. Main topics of discussion were problems of the Flora Neotropica publication and matters related to regional promotion of botanical studies in neotropical countries. The long time spent in traveling left no space for field work; nevertheless, it was possible to visit extensive and beautiful stands of the "carnauba" palm (*Copernicia certifera*, wax-palm) which, along with areas of scrubby restinga and patches of succulent Cactaceae, is characteristic of the eastern plains of Brazil in the states of Ceara, Rio Grande do Norte and Pernambuco. A new crop for the region which proves to be profitable is the acaju tree, which is being officially promoted. The next meeting (Jan. 1975) of the O.F.N. will take place at the Smithsonian Tropical Research Institute in Panama.

2(38): 1

September 23, 1974

The Type Register Project is proud to announce the last week type specimen number 25,000 was processed. The specimen, *Eugenia clavellata* Merr., a member of the Myrtaceae family that bears the U.S. National Herbarium Number 850930. It was collected by T.E. Borden in the Philippines some time at the turn of the century, and first described in the Philippine Journal of Science 1:104, in 1906. This means that approximately 5/13 of the 64,000 type specimens have been processed.

2(46): 2

November 18, 1974

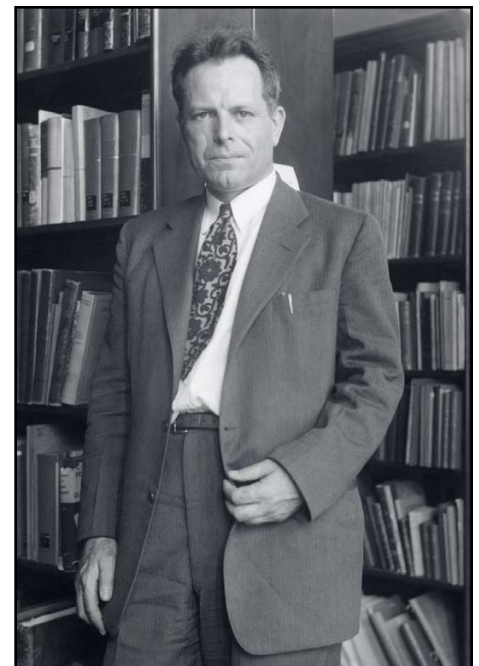
Dieter Wasshausen recently spent 10 days touring museums and industry in

search for well-organized storage systems and innovations in specimen retrieval. This study is necessary in order to plan in the greatest possible detail the first building of the Museum Support Facility. Some of the numerous facilities visited are the following: The Field Museum, the Chicago Historical Society, International Harvester Company, the L.A. County museum, BioQuip Products, a Sears, Roebuck & Co. warehousing facility in Los Angeles, the Calif. Academy of Sciences, the Steinhart Aquarium, and Hewlett Packard in Paulo Alto, Calif. The two most impressive facilities visited were the Chicago Historical Society, where three different types of compactors are currently in use and the massive, fully automated Sears, Roebuck & Co. building which can fill up to 300,000 orders in a working day. The knowledge obtained here will help us in planning a Support Facility (in Silver Hill) which will take full advantage of every modern technique to improve the accessibility and the conditions of our collections.

3(16): 1

April 28, 1975

Ray Fosberg returned recently from a trip to the Pacific, spending two weeks in the Phoenix Islands and ten days in Hawaii. In company with David Stoddart of Cambridge University and Roger Clapp of the Bird and Mammal Laboratory, U.S.



Francis Raymond Fosberg (courtesy of the Hunt Institute for Botanical Documentation, Carnegie Mellon University)

Fish and Wildlife Service, he resurveyed the sites occupied by the Air Force missile range personnel, examined in detail in 1973 to assess the environmental impact of the operation. They found that their recommendations made in 1973 had been followed and that, except for the physical clearing of the ground, the impact on Hull and Enderbury Islands was minimal, as such things go. Large parts of Canton Island, on the other hand, had been drastically altered, as would be expected from the presence of several hundred people. The three were able to complete their survey of the plants, birds, vegetation and geomorphology of all eight of the Phoenix Islands, this time reaching remote Gardner and McKean Islands, missed in 1973. The Air Force gave them every desirable cooperation, with helicopter transport to all the islands and logistic support that was all that could be asked for, and an excellent and very versatile helper assigned from the base personnel, a Mr. Melvin Smith, former botany student of Prof. A.B. Massey at V.P.I. in Blacksburg.

The time in Hawaii was divided between a little field work on the islands of Maui and Hawaii, some work in the Bishop Museum herbarium, and a meeting to formulate a U.S. program participating in the UNESCO Man in The Biosphere (MAB) Theme 7, Rational Management and Utilization of Island Ecosystems. This meeting was a follow-up of the work shop held last October under Smithsonian sponsorship at Roland Center. Substantial progress was made, but there is still much to be done before a viable comprehensive proposal can be submitted to NSF. Dr. Bill Hart, special assistant to Dr. Kier, was also present at this meeting.

3(26): 1 July 7, 1975

On July 1 the Department of the Interior published in the Federal Register a Notice of Review of the status of the plants listed in the Smithsonian's Report on Endangered and Threatened Plant Species of the U.S. -- the first step towards eventual official listing of them as endangered or threatened. Also, on July 1 the Convention on International Trade in Endangered Species of Wild Fauna and Flora came into effect; as of that date all native cacti and orchids shipped abroad will require an import permit on the receiving end.

3(32):1-2 August 18, 1975

For **Stan Shetler**, the Botanical Congress provided the third occasion in about ten years to visit parts of the Soviet Union. The first visit, in 1964, resulted in his book on the Komarov Botanical Institute (1967). The second visit, when he was accompanied by his wife, came immediately after the 11th Congress in Seattle and took him to Moscow as well as Leningrad. This latest visit provided the first opportunity to get out into the provinces beyond the Leningrad-Moscow tourist axis. Although much still looks the same in Leningrad and Moscow, many difference also could be noticed. The average citizen clearly seems to have more to buy these days, and there also is a more relaxed and normal reaction to foreigners and their various quirks, such as wanting to be free to do as they please. Considering all the dire predictions in advance, Stan was pleasantly surprised to see how competently the hosts were able to run the Congress. The post-Congress field trip to Mount Kazbek, the second-highest peak in the main Caucasus, was successful in every respect. This is not to endorse the miserable French-type toilets (as his Danish roommate dubbed them) that they had to endure at the mountain hotel in Kazbegi.

Their Georgian hosts went out of their way to make the trip highly botanical and interesting as a tour in its own right. Plant presses were provided to all interested collectors. Stan found the area, as anticipated, to be something of a mecca for *Campanula* and saw plants of several species everywhere. A dozen species were collected. The Georgian botanists are drying the specimens for everyone and arranging to have them sent to the respective collectors in due course.

4(7): 1 February 16, 1976

The body of the text for the second edition of TAXONOMIC LITERATURE (TL-2) went to the printers 16 February. It covers 2223 books, by authors with names A to G, in great detail, including a standard citation-form for authors' names, standard abbreviations of the short titles of the books, a description of each book (pages, figures, publisher, etc.) references to biographies/bibliographies of each author included, generic names honor-

ing the authors, references to handwriting samples, etc. Indices are now being prepared and the introduction sections written. Volume one should be available in November. **Dan Nicolson, Ellen Farr, Polly Prichard, Norman Jaffee, and Dick Cowan** recently served as a small working group to develop the standard citation-forms for book titles and author names. Research Associate Frans Stafleu is the senior author with Dick Cowan assisting in a variety of ways.

4(35): 1 August 30, 1976

The Greenhouse is ours! Today we assumed beneficial occupancy of the Greenhouse. **Bob Read** has moved in test plants from his greenhouses: ferns, aroids, bromeliads, palms, marants, velloziads, orchids and pandanus. These will be used to test the lighting, watering, temperature, etc., for the next few weeks by which time the benches should arrive. The rest of botany research plants will be brought from Bob's greenhouses at the end of the test period.

6(2): 1 January 9, 1978

Mason Hale leaves in a week for Guatemala and Honduras. This trip will complete a three year program on removing lichen growths from Mayan archaeological ruins. The local workers have been trained in the spraying techniques, and responsibility for further treatments will



Mason Hale

Continued on page 14

A Look Back

Continued from page 13

be assumed by the institutes of anthropology in these countries. Mason will be accompanied by his photographer, Julie Gould, and Dr. Paul Zahl of the National Geographic, who hopes to get some pictures for an article on lichens now being prepared for the Geographic magazine. All expenses on this trip are being paid by the National Geographic Society.

6(14): 1

April 10, 1978

The Orchid Collection, under the auspices of the Botany Department and the Horticultural Services and maintained by the latter at the Soldier's Home, has just expanded tremendously with the anonymous gift of over 500 new plants. The mostly wild-collected plants include approximately 400 species of plants, some of which are probably not even represented in our herbarium yet. **Bob Read** plans to photograph each species as it blooms and then prepare herbarium specimens when possible without destroying the plants.

7(27): 1

August 6, 1979

On July 25, **Alice Tangerini** left for Pittsburgh to conduct the First National Meeting of the Guild of Natural Science Illustrators which was held at the Hunt Institute for Botanical Documentation from July 26 to 29. The idea for holding a meeting had been suggested to her a year earlier by Bob Kiger, Director of the Hunt Institute. As chairman for the meeting, Alice worked closely with Jim White and had additional help from several Smithsonian illustrators, among them Candy Feller and Elaine Hodges. The meeting included 2 workshop sessions (Friday and Sunday) where eight people gave demonstrations of their special techniques and Saturday was set aside for slide shows on "Fantastic Voyage into Drawing Surfaces" and "A History of Botanical Art", as well as a movie on painting birds in Trinidad presented by the guest speaker, Don Eckleberry. There was also a panel discussion on "Pricing and Ethics." An exhibit of Guild work in the Hunt Penthouse provided the occasion for a wine and cheese opening. About 70 illustrators attended, from all over the United States, and some members even offered to be

hosts for future national meetings, much to Alice's relief.

7(44): 1

December 10, 1979

The Index Nominum Genericorum was published November 30, 1979. (Details will be given in the next issue.)

7(45): 1

December 17, 1979

Ellen Farr traveled to Utrecht for the publication of the Index Nominum Genericorum and returned with one of the advance copies which can be seen in the ING office. The book will be available in January and the February issue of Taxon will give details. Ellen's husband, David, also made the trip and spent several days at the Rijksherbarium in Leiden. Mild weather made the weekend's sightseeing in Amsterdam very enjoyable and also brought out mushrooms, making the trip botanically interesting as well.

9(43): 1

November 30, 1981

Elbert L. Little, Jr. was the recipient of the 1981 Distinguished Service Award of the American Forestry Association for distinguished service to conservation of America's natural resources. Presentation was made at the annual meeting in Santa Fe, New Mexico on Oct. 13. The Oklahoma Forestry Association at its annual meeting on Oct. 24 gave him a plaque for 51 years of service to forestry in Oklahoma.

Then he had a month of field work in southeastern Oklahoma to finish a 51-year history of selected pine-oak forest areas. Dr. Little re-examined and photographed 30 areas that he had first studied and photographed in 1930. These forests of shortleaf and loblolly pines are much more productive now, owing to continuous fire protection and intensive forest management. He made some additional collections to revise his earlier publication on the trees and shrubs of that region. His revision of Forest Trees of Oklahoma with new maps and keys has recently been published by the Oklahoma Forestry Division.

10(30): 1

July 26, 1982

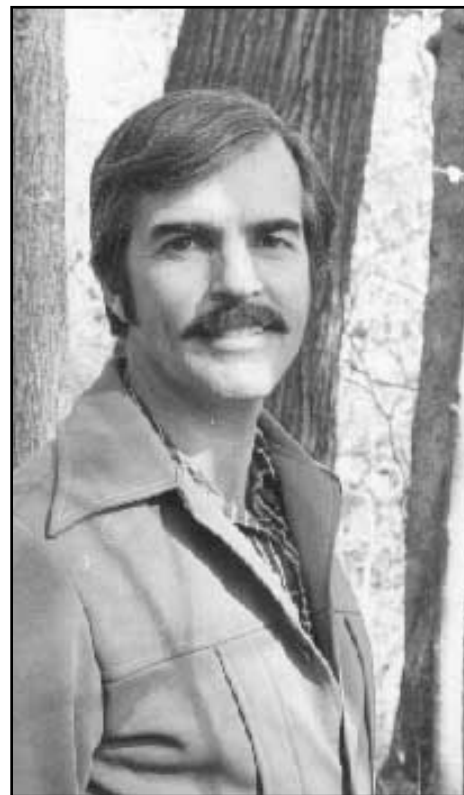
Mr. Thomas Darling, Jr., of Fairfax County, Virginia, has donated his herbarium of 678 mostly North American ferns to the U.S. National Herbarium. Begin-

ning in 1937 when he met the well-known pteridologist Edgar T. Wherry, Mr. Darling has collected ferns in many parts of the country, including Alaska and the Florida keys. He has concentrated on finding rare ferns, and on the species and many hybrids of the genus *Asplenium* (Spleenworts). He is the author of several papers on ferns.

12(50): 1

October 15, 1984

The 1984 Panama Palm Expedition, to study a newly discovered species of the genus *Pholidostachys* and to gather additional information on several other poorly understood palms and bromeliads, was counted successful, this, in spite of fire and flood wrought upon the travelers. The only thing lacking was pestilence. Considerable loss of sleep resulted from, first, a fire in the hotel where **Bob Read** and **Betsy Watson** were staying (an air conditioner caused the fire with considerable smoke and disagreeable smell), and second, a flood caused by the tank in the bathroom overflowing all night (discovered when Bob made an early visit, stepping in 4" of water in the dark). Apart from these small inconveniences, the collecting weather and conditions were superb. They got sunburned walking along the trails of the rain and cloud forest areas. Roads were dry and passable to the



Robert W. Read

highest elevations. Bob and Betsy knew how Balboa must have felt when he stood on the Continental Divide above El Copé and could clearly see both the Atlantic and Pacific coasts. And, this was supposed to be the rainy season.

Sylvia Churgin, who is now Librarian at STRI, went on a collecting trip to Cerro Jefe with Bob and Betsy. She reports that her cats are fine and that she is really enjoying herself so far.

14(30): 1
November 3, 1986

Most of you have probably been aware of the team working in the Library on bar-coding books, a preliminary step necessary to automating the Library's circulation system. This phase includes Library of Congress classed monographs; no serials or any Dewey-classed volumes are being handled at this time. Now the time has come to work on books in partons' offices. The team will be making visits to your offices in the very near future to work on the books, either in the office or on the herbarium cases outside. Would you please cooperate by putting the L.-C. cataloged monographs charged to you in one place in your office. If you no longer need to retain one, please turn it in to the Library and it will be taken care of there after it is discharged. **Ruth Schallert** will try to warn you in advance of the actual date of the team's arrival and they will try to disrupt you as little as possible. Thank for your help.

16(17): 1
August 8, 1988

Vicki Funk, Bill Melson, **Rusty Russell** and a group from Earth Watch have returned after surveying the geology and flora of Arenal Volcano in northwestern Costa Rica. (One week before they left, two Americans climbed near the top, despite warnings by the locals, and one person was killed by a blow to the head from a rock, spewed out during an eruption.)

Rusty reports about 200 numbers collected, dominated by Araceae and Zingiberales families. The collecting was accentuated by 11 inches of rain in 12 days and 4-5 thundering eruptions of the volcano each day! The west slope of the volcano is apparently receiving a very high acid rainfall as a result of the numerous eruptions and the plants are having difficulty in re-establishing themselves. Only about

a dozen or so species are having any appreciable success. However, the heavily wooded slopes adjoining the volcano and recent block lava flows made for great collecting. Rusty noted a high epiphytism and cauliflory.

17(3): 3
February 10, 1989

A garden created mainly of bamboo will be featured at the New York Flower Show 4 March through 12 March, 1989.

Robert Lester of Robert Lester Associates "Springhill" will enter a display of bamboo and other related plants. There will be bamboos from around the world featured in the garden.

Bamboo in the Landscape will be dedicated to **Dr. Thomas Soderstrom** and **Dr. Floyd McClure** of the Smithsonian Institution who inspired Mr. Lester to further his studies and growing of these plants at his farm in Pennsylvania.

Plans are also underway to create a Soderstrom Memorial Bamboo Garden at the National Zoo. The site has been selected and Oehme, Van Sweden, & Associates have volunteered to do the design. Several sketches have already been presented and the most likely candidate is posted on the wall outside room W409. The garden will serve as an information



Thomas R. Soderstrom

center for numerous plantings of bamboo throughout the zoo, including indoor cages.

Many bamboo varieties will also be included in the new tropical exhibit. Rick Hider, zoo horticulturist, is hoping to establish the zoo as a center where bamboo researchers can come to study and observe living specimens.

If all goes well, the garden should open in the spring. Anyone interested in more information, or providing a helping hand should contact **Mary Sangrey**.

18(12): 2
November 21, 1990

The Royal Bank of Canada has made a generous donation to the WWF-Canada to establish a Tropical research center in Guyana. WWF is collaborating with the Smithsonian Institution and the Univ. of Guyana in the development of a Center for the Study of Biological Diversity to be located in Georgetown, Guyana. **Dr. Vicki Funk**, Dir. Biological Diversity of the Guianas, and Jane MacKnight, WWF-US will travel to Georgetown, Guyana 11-21 Nov. to present the building plans for the Center. The proposed Center for the Study of Biological Diversity will be composed of 6 buildings for botany, mammology, and invertebrate collections, offices, a classroom/lecture hall and a library.

The goals of the Center will be to work with the government of Guyana to make recommendations for protected areas and sustainable use of the rain forests as well as to survey the country's flora and fauna.

19(9): 1
August 22, 1991

The first International Melastomataceae symposium will be hosted by the Dept. of Botany, NMNH 26-27 August, 1991 to foster exchange of information on melastomes across lines of individual disciplines and geographical areas. Invited and contributed papers and a poster session will address character evolution in the family, relationships between major groups (or within large genera), phyto-geography, and melastome/animal interactions. Participants presenting talks at the symposium include **Susanne S. Renner**, Maria Pingen, Margaret E. Collinson, Frank Almeda, Tsan I. Chuang, Helmy Mentink, Pieter Baas, George Cremers, Walter S. Judd, James D. Skee, Jr.,

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A Look Back

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John J. Wurdack

Thomas Morley, Chuang, J.F. Maxwell, Jacinto C. Regalado, M.P. Nayar, Henri Jacques-Felix, Angela B. Martins, Otto Huber, and **John J. Wurdack**. Frank Talbot and **Stan Shetler** will welcome symposium participants. Contact Susanne S. Renner for further information - (202)357-2542 office at the Smithsonian or FAX (202)786-2563.

19(10): 1-2

September 27, 1991

A workshop on United States Centers of Plant Diversity was held Sept. 12 & 13, 1991 at the Woodrow Wilson International Center for Scholars, Smithsonian Institution, sponsored by **Robert DeFilipps** and **Shirley Maina** on behalf of the IUCN Plant Conservation Office. The workshop was held to determine the richest sites of botanical diversity worthy of conservation and protection measures in the United States, to be written up for a book on worldwide sites of similar importance. Speakers included Steve Davis from the IUCN Plant Conservation Office in England; David Wagner from the University of Oregon at Eugene who discussed the Klamath-Siskiyou region; Tim Messick from Davis, California who discussed the California Floristic Province; Mark Skinner from the California Native Plant Society, Sacramento who talked about California Vernal Pools; Niall McCarten from the

University of California at Berkeley who discussed the California Serpentine Flora; Richard Wunderlin from the University of South Florida, Tampa who discussed the Lake Wales Ridge of Florida; Marshall C. Johnson of Austin, Texas who discussed the Edwards Plateau endemics of Texas; and Richard Felger from the University of Arizona, Tucson who talked about the Apachean Floristic Province in the United States/Mexico Borderlands.

19(11): 1

November 20, 1991

Paul Peterson recently returned from an extended trip to Mexico and the Southwestern U.S. The trip began back in late July by launching an organizational meeting in San Antonio for the Grasses of the New World Project with fellow editors, Gerrit Davidse (Mo), Tarciso Filgueiras (IBGE), Emmet Judziewica (WISC), and **Fernando Uloaga** (SI). All 30 agrostologists, 14 from Latin America, who attended this meeting, thought the idea was grand and pledged their support for this international cooperative flora. Following the planning meeting Paul gave a lecture at the AIBS meetings on the phylogenetic analysis of chloroplast DNA restriction site variation in the Eragrostidae, and participated in two others papers with co-authors: Carol Annable, Alan Christensen, Melvin Duvall, Paul Hattersley and Ed Terrell. After a 15 day backpacking trip in the High Sierra of California, a far-ranging collecting trip through New Mexico, western Texas, and Mexico yielded over 750 numbers of grasses. Carol Annable, Socorro Gonzalez, (ANSM, Saltillo, Coahuila) were able to free themselves from mundane activities to enjoy portions of this trip.

21(9): 5

September 1, 1993

Mark, Diane, and Barrett spent six weeks in Fiji and the Cook Islands collecting marine plants. Although bitten by a moray eel (Diane), stung by wasps (Mark), infected with Fiji flu (Diane and Barrett), and poisoned by a ciguatoxic fish (Mark, Diane, and Barrett), the expedition was extremely successful. Over 700 specimens were collected and 4,500 photographs taken

Although they report that many of the larger algae were of great interest, the small single-celled dinoflagellate *Gambierdiscus toxicus* appears to have had the

biggest impact on the expedition. This small alga is the implicated producer of the toxin which causes ciguatera. Herbivorous fish incorporate the toxin by grazing *G. toxicus*, and then it works its way up the food chain, becoming most concentrated in large predatory fish. In Mark, Diane and Barrett's case, they ate a Two Spot Red Snapper, *Lutjanus bohar*, given to them by villagers at the research site. This was the first record of ciguatoxic fish ever to be harvested from the Great Astrolabe Reef of Fiji although the villagers reported that they commonly eat the Two Spot Red Snapper – perhaps no longer as many of the villagers were also poisoned.

Although it wasn't their intention to be part of this scientific discovery, a lesson was learned. Relates Barrett: "I guess the old adage, when in Rome, do as the Romans do, isn't always a failsafe guideline to follow when traveling."

Profile

Continued from page 1

Some years later the noted paleobotanist Lester F. Ward began gathering another collection of plants in the U.S. National Museum⁶ for use in comparing living plants with fossil materials for the purpose of identification of the latter and also because of his interest in the local Washington area flora. It is of interest to note in this connection that in 1881 the Smithsonian Institution published Ward's "Guide to the flora of Washington and vicinity." Ward was given the title of Honorary Curator of Recent Plants at the Smithsonian Institution and later was named Honorary Associate in Paleobotany, a position he held until his death in 1913.

Spencer F. Baird, the second Secretary of the Smithsonian Institution, was concerned about maintaining two herbaria in

but never curated. Concern was raised by Torrey and others that the collections were unusable in their unmounted state and were being damaged by insects. It was concern over the need for an active curator in Washington that led to the deal whereby the uncurated materials in the Castle were transferred to USDA and combined with the USDA herbarium (the former Patent Office herbarium), with the understanding that USDA would hire a curator. USDA hired C.C. Parry to curate the combined herbarium. Parry's work was not satisfactory and he was fired after less than three years and replaced by George Vasey, who curated the National Herbarium for 22 years and bears most of the credit for molding it into a well-organized and well-curated major herbarium. *AW*

⁶ The U.S. National Museum is that branch of the Smithsonian Institution comprising the Museum of Natural History and the Museum of History and Technology. *CVM*

Washington. Because of this and his personal desire to establish a great museum in the Capital, he made arrangements for returning to the Smithsonian the plant collections that had been turned over to the Department of Agriculture by Secretary Henry and also to bring along the assembled Agriculture specimens.⁷ Thus was formed the U.S. National Herbarium,⁸ a joint project of the U.S. National Museum, under the Smithsonian Institution, and the U.S. Department of Agriculture. Frederick Vernon Coville, Chief Botanist of the Department of Agriculture, was appointed Honorary Curator of the National Herbarium, March 28, 1893. He retained this post until his death in 1937. In 1894, Joseph Nelson Rose was made Assistant Curator of the National Herbarium and thus became the first, full-time, professional botanist associated with the Smithsonian Institution.⁹ The next year, C.L. Pollard was appointed Assistant Curator and served in this capacity until 1903. At the time of the union which finally took place July 1, 1896, the National Herbarium contained an estimated 250,000 specimens.

In 1899 William Ralph Maxon was appointed Aid in the Division of Plants; he subsequently became its first Curator following Coville's death in 1937.¹⁰ Maxon was chiefly responsible for building up the National Herbarium to its present position among the herbaria of the world. Several other botanists were associated with the

Museum in its early years, notably Joseph H. Painter, a promising young botanist appointed as Aid in 1904. Painter drowned while swimming in the Potomac River at Plummer's Island in 1908. Others, who subsequently made their names elsewhere, were LeRoy Abrams (Assistant Curator, 1905-1906), E.O. Wooton (Assistant Curator, 1910), and Homer D. House (Assistant Curator, 1905). Also to be mentioned is the talented botanical artist F.A. Walpole who was with the herbarium for a number of years and died in 1904; many of Walpole's beautiful paintings and drawings are still maintained by the Museum. Associated with the herbarium was the controversial figure of E.S. Steele, highly regarded as the botanical editor of the *Contributions from the U.S. National Herbarium*,¹¹ but debatable as an authority on the taxonomy of *Rubus*, *Liatris*, and other "difficult" groups of plants.

In the early part of the century two prominent taxonomists were associated with the herbarium. The distinguished authority on North American plants, Edward L. Greene, resigned his position as Professor of Botany at Catholic University and became an Honorary Associate in Botany at the Smithsonian in 1904. At this time he was working on his monumental "The Landmarks of Botanical History," the first volume of which was published by the Smithsonian Institution in 1909; since Greene's death in 1915 the manuscript of the second volume has lain unpublished, but consideration is now being given to publishing it.¹² Captain John Donnell Smith was appointed an Honorary Associate in 1905, a position that he retained until his death in 1928. He was an authority on the flora of Central America and gave his extensive herbarium and library, which contained a fine collection of books on classical botany, to the Institution during his lifetime.

A close cooperation with the U.S. Department of Agriculture has continued from the beginning. Several botanists did curatorial work on the collections, among them Orator Fuller Cook (Honorary Assistant Curator of Cryptogamic Collections, 1898-1948), Walter T. Swingle (Honorary

Custodian of Algae, 1898-1951), G.T. Moore (Honorary Custodian of Lower Algae, 1902-1904), David G. Fairchild (Honorary Custodian of Lower Fungi, 1898-1953), and Bernhard E. Fernow (Honorary Custodian of the Section of Forestry, which was subsequently transferred from the Division of Plants). Many prominent botanists of Agriculture spent most of their time in the herbarium, among them William Edwin Safford (specialist on Annonaceae and on useful plants in general), Ivar Tidestrom (authority on the flora of Utah and Nevada), Thomas Kearney (authority on the flora of Arizona and on cotton and other economic plants), and Sydney F. Blake (the world authority on the Compositae).¹³

Paul Carpenter Standley was appointed Assistant Curator in 1909 and remained in Washington until 1928. Standley was the most prolific botanist ever associated with the National Herbarium. He was also an energetic curator, and the growth of the herbarium and development of early policies were largely influenced by Standley and Maxon. At the time of Standley's departure to accept another post in 1928 the herbarium numbered about 1,000,000 specimens. Several large private herbaria had been received, notably those of John Donnell Smith, Charles Mohr, Otto Buchtien, S. Venturi, and the Biltmore Herbarium.¹⁴ Sheets in these herbaria were mostly identified by distinctive embossed stamps. Another notable accession was the Willey Herbarium of lichens.

Following the retirement of Maxon in 1946, Ellsworth P. Killip was made Curator. Shortly thereafter, on the recommendation of a committee of distinguished botanists, the former Division of Plants of the Department of Biology in the Smithsonian's Museum of Natural History became the Department of Botany with four divisions: Phanerogams, Grasses, Ferns, and

7 The transfer was made due to widespread concern in the scientific community that the Agriculture Museum building where the collection had been moved in 1881 was a serious fire hazard, and that the herbarium was in danger of being lost if it was not moved to a fireproof building. The herbarium was physically moved to the Castle in 1894, and officially transferred to the Smithsonian Institution on 1 July 1896. At this time, all herbarium employees were moved from USDA to Smithsonian except Coville, who remained a USDA employee, although he continued as curator of the National Herbarium and editor of the *Contributions* until his death in 1937. *AW*

8 The U.S. National Herbarium is a quasi-official organization previously administered by the Division of Plants and now by the Department of Botany of the Smithsonian Institution. It was established in 1894 as the name for the joint plant collections of the U.S. National Museum and the Department of Agriculture. *C/M*

9 Coville was Curator, not Honorary, from 1893 until his death in 1937. Rose was with USDA from 1888 through 1896, then transferred to the Smithsonian when the herbarium did in 1896. *AW*

10 Maxon was the fourth Curator of the U.S. National Herbarium (following C.C. Parry, 1869-1871; George Vasey, 1872-1893; and F.V. Coville, 1893-1937), and the second curator since it was transferred to the Smithsonian in 1896. *AW*

11 Coville was editor from the inception of the series in 1890 until 1936; Maxon took over with the next issue, in 1939. No issue of the journal mentions Steele. *AW*

12 The second volume of Greene's "Landmarks of Botanical History" was published by the Hunt Institute in 1983. *AW*

13 Kearney worked primarily on cotton culture, and Blake primarily did determinations in the Economic Botany Herbarium. Both of them used the National Herbarium regularly, but neither "spent most of their time" away from their primary jobs. The three USDA scientists who *did* spend most of their time in the National Herbarium, Hitchcock, Chase, and Swallen, are not mentioned in this paragraph. *AW*

14 Most of the Biltmore Herbarium was destroyed in the flood that destroyed much of Asheville in 1916. The specimens they recovered were turned over to the Smithsonian when they decided not to start the Biltmore Herbarium anew – about a quarter of the collection (25,000 of 100,000 sheets). *AW*

Profile

Continued from page 17

Cryptogams. The formerly independent Section of Diatoms, established in 1912 with Albert Mann as Honorary Custodian, was united with the Division of Cryptogams, bringing along with it Mann's magnificent diatom collection. Following the retirement of Killip in 1950, Jason R. Swallen was appointed Head Curator of the department.

Little attention had been paid to fungi in the early years, but in 1928 Curtis G. Lloyd donated his extensive mycological collections. In order to make them available to working mycologists, they were transferred to the U.S. Department of Agriculture, and John A. Stevenson was appointed Honorary Curator. Later all the general fungus collections of the Smithsonian were lent to Agriculture to form the National Fungus Collections,¹⁵ headed now by Chester R. Benjamin. The John A. Stevenson Mycological Library, one of the most complete specialized collections in the United States, is kept with the National Fungus Collections but is owned by the Smithsonian Institution.

In 1960 the wood collections of the Division of Agriculture and Wood Products of the Museum of History and Technology were transferred to the Department of Botany. These collections formed the basis for a Division of Woods, the name of which was changed to Division of Plant Anatomy in 1963. The division maintains

the Archie F. Wilson Memorial Collection of Woods and the Harley H. Bartlett wood collections from Indonesia, the Philippines, Mexico, British Honduras, and Guatemala.

In 1965 an active program of research in the algae was initiated, and to that end the marine herbarium of the Beaudette Foundation was immediately secured.

Presently William L. Stern is Chairman of the Department of Botany, which has grown from a staff of five in 1946 to the present staff of 16 professional botanists. There are also resident five appointed Research Associates who carry on their botanical activities in quarters provided by the department. They are considered part of the professional staff, although they are not paid by the Institution nor do they have regular curatorial assignments. Several Honorary Curators, connected with the National Fungus Collections, are responsible for maintaining liaison between this organization and the Smithsonian Department of Botany and for caring for the department's fungus holdings.

As presently constituted, the Department of Botany is one of seven departments which comprise the Museum of Natural History of the Smithsonian Institution. Botany is divided into the five divisions mentioned above, four being set up along taxonomic lines, and Plant Anatomy. Each division is headed by a Curator-in-Charge and is staffed by Curators and Associate Curators. Herbarium-wide services are provided through the office of the Custodian of the Herbarium, a branch of the chairman's office. Besides

engaging in his own chosen research and publication, each member of the curatorial staff is expected to care for a part of the collections, carry out public service, cooperate with the botanical community, pursue a program of exploration for plants in the field, develop a museum exhibits program, and serve on intramural committees and advisory groups.

According to latest figures¹⁶ plant specimens in the Department of Botany number well over 3,000,000 divided among the divisions about as follows: Phanerogams, 2,000,000; Ferns, 240,000; Grasses, 400,000; Cryptogams, 500,000; and Plant Anatomy, 45,000. The segregated Type Herbarium contains about 60,000 specimens: 42,000 phanerogams, 10,000 grasses, 3,500 ferns, and 4,500 cryptogams. These collections are housed in well over 2,000 storage cases.

From its beginnings the U.S. Department of Agriculture has had a special interest in grasses and other forage plants. Under the leadership of the eminent agrostologist George Vasey, a large grass collection was assembled which was increased by his successors Frederick Lamson-Scribner and Albert S. Hitchcock. In recognition of the size and importance of the grass collections which ultimately came to the Smithsonian, the Division of Plants formally set up a Section of Grasses on October 10, 1912, with Professor Hitchcock as Custodian. After the death of Hitchcock in 1935 Dr. Agnes Chase was appointed Honorary Custodian, a position she held actively until very near her death in 1963. During the reorganization of the Division of Plants in 1946 a separate Division of Grasses was established with Jason R. Swallen as Curator. The grass collections are the finest in the United States and rank with the best in the world. They are supplemented by the Hitchcock-Chase Agrostological Library, a magnificent collection of books and papers on grasses built up through the personal efforts and expenditures of Albert S. Hitchcock and Agnes Chase through many years. This library is maintained as a unit and has a small bequest for its support.

Many of the results of research undertaken in connection with the specimens in

¹⁵ See Chester R. Benjamin. 1963. The National Fungus Collections. *Plant Science Bulletin* 9: 1-6. *CVM*



Construction of the West Wing of the National Museum of Natural History (future home of the US National Herbarium) in their early 1960s.

¹⁶ As of 15 April 2010, plant specimens in the Department of Botany number 4,879,839. The segregated Type Herbarium contains about 101,000 specimens: 86,372 phanerogams, 10,793 grasses, 4,548 ferns, 504 fern allies, 2,106 cryptogams, 4,577 algae, 338 diatoms, and 2,971 lichen. *GK*



In 1965, the US National Herbarium moved into the 4th and 5th floors of the West Wing of the National Museum of Natural History.

the U.S. National Herbarium have been printed in the *Contributions from the U.S. National Herbarium*, which were at first published by the Department of Agriculture beginning on July 16, 1890. Agriculture continued to publish the *Contributions* through the seventh volume, until July 1, 1902, when the U.S. National Museum assumed the responsibility for publication pursuant to an act of Congress. Throughout the years many important papers have been published in the *Contributions*, among them the "Botany of Western Texas," by John M. Coulter; "Plant Life of Alabama," by Charles Mohr; "Flora of Washington," by C.V. Piper; "Flora of New Mexico," by E.O. Wooten and P.C. Standley; "Trees and Shrubs of Mexico," by P.C. Standley (recently reprinted); "Flora of the District of Columbia and Vicinity," by A.S. Hitchcock and P.C. Standley; "Flora of Utah and Nevada," by I. Tidestrom; and "Flora of the Panama Canal Zone," by P.C. Standley. In addition to these floristic treatments, the *Contributions* have included monographs in all major plant groups and papers on subjects other than traditional taxonomy, as for instance, ethnobotany, genetics, ecology, plant anatomy, linguistics, plant geography, and bibliography. Among the notable contributors, in addition to those already mentioned, are George Vasey, Alexander W. Evans, Edwin B. Bartram, Joseph N. Rose, Per A. Rydberg, Albert S. Hitchcock, Frederick V. Coville, Orator F. Cook, William R. Maxon, Edward L.

Greene, Henri Pittier, Nathaniel L. Britton, Frederick Lamson-Scribner, Elmer D. Merrill, Agnes Chase, William E. Safford, John Donnell Smith, Sydney F. Blake, Wilson Popenoe, William Trelease, Albert C. Smith, and William R. Taylor. The *Contributions* have 32 completed volumes and six additional under way.¹⁷

Space is regularly provided in the U.S. National Herbarium for six to eight investigators attached to the New Crops Research Branch, Agricultural Research Service, U.S. Department of Agriculture. Facilities are also made available, on a more or less regular basis, for botanists from the Forest Service, the National Arboretum, and the National Park Service who come to consult our specimens, use our library, and confer with our staff. Throughout the existence of the U.S. National Herbarium facilities have been afforded in Washington to visiting botanists for purposes of study and comparison. The guest register indicates that over 4,000 visits were made to the U.S. National Herbarium by botanists since 1930. Of these, almost 800 were from foreign nations, some botanists coming to the United States for the express purpose of studying our collections. Specimens are also made available to the botanical community on loan, and since 1949 over

¹⁷ The October – December 2004 issue of *The Plant Press* (Vol. 7, No. 4), provides a detailed account of the history of the *Contributions from the U.S. National Herbarium*. The *Contributions* have 56 completed volumes, and the *Smithsonian Contributions to Botany* have 94 completed volumes. *GK*

350,000 specimens have been so treated. Well over a quarter-million herbarium specimens have been sent from the U.S. National Herbarium on exchange to institutions throughout the world since 1949.

For many years the department has supported activities leading to the preparation of an index to the species of grasses. George Vasey began this compilation sometime prior to 1900, and it has been continued over the years by Frederick Lamson-Scribner, Elmer D. Merrill, F.T. Hubbard, Cornelia D. Niles, and finally by Agnes Chase. Through the diligent work of Mrs. Chase, the compiled "Index to Grass Species" in three volumes was published by the G.K. Hall Company in 1962, one year before Mrs. Chase died.

The production of the Index Nominum Genericorum, a project of the International Association for Plant Taxonomy, has recently been transferred from Utrecht, Netherlands, to the United States. Financed by a grant from the National Science Foundation, the continuing project is housed in the Department of Botany of the Smithsonian Institution where facilities have been made available for a staff of botanical bibliographers headed by Ida K. Langman.

The U.S. National Herbarium was located on the third floor and in the towers of the original Smithsonian building until recently. The Division of Plant Anatomy had occupied quarters in the adjacent Arts and Industries building, the old National Museum building. In the spring of 1965, the Department of Botany and the assembled collections were moved to the new west wing of the Museum of Natural History. The fourth and fifth floors of this wing now occupied by the department comprise 50,000 square feet of air-conditioned specimen storage space surrounded by 60 rooms used for offices, laboratories, and libraries. The department maintains a well-equipped microtechnical laboratory and laboratory for the study of grass anatomy, as well as a photographic darkroom and department conference and seminar room. Paleobotanical laboratories and equipment are obtainable for use on an adjacent floor of the same wing through arrangements in effect with the Division of Paleobotany, a unit of the Department of Paleobiology. Study areas are available for visiting scientists and graduate students and botanists are encouraged to make use of the herbarium and library.

Art by Alice Tangerini

***Kohleria hypertrichosa* J.L. Clark & L.E. Skog**

The illustration of *Kohleria hypertrichosa* was drawn for publication as a new species of Gesneriaceae collected in the Carchi Province of northwestern Ecuador by John L. Clark and Richard Dunn in 1996. Originally it was thought to be a very woolly *Capanea* but the key character placing it in *Kohleria* was a fruit that dehisced by a single longitudinal slit from apex to base. The new *Kohleria* was published by John L. Clark and Laurence E. Skog in the *Journal of the Botanical Research Institute of Texas* 2(1): 19-23. 2008. When the National Capital Area Chapter of the Gesneriad Society held a flower show at the National Arboretum in March 12-13, 2010, Skog suggested to Tangerini to make an exhibit of the drawing process of a Gesneriad and enter it as an Educational display. Tangerini's display, "A Botanical Illustration from Start to Finish," was given a blue ribbon.



Smithsonian
National Museum of Natural History

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