

OPUS Trip to Central America

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Thomas B. Croat, P. A. Schulze Curator of Botany

Missouri Botanical Garden

❖ *Travel History*

My third and final OPUS trip to study herbarium specimens of Araceae was to Central America, an area that was like home to me. I first visited Central America in 1962 on my way to a job in the Virgin Islands. It was my first teaching job after finishing my bachelor's degree at Simpson College near my hometown in Warren County, Iowa. I had operated the family farm all during my college years and Simpson was the only place where I could have driven each day to attend classes. That summer I took off by bus to visit the Century 21 Exhibition, the World's Fair in Seattle, Washington then traveled south to California and on to southern Arizona where I intended to cross the border near Nogales, Mexico. I traveled by bus south to Mazatlán. The bus from the border broke down in the middle of the night and the passengers were all out sitting along the highway in

the darkness. It was my very first encounter with Spanish and I vowed to learn the language of this area. We communicated with only a few words of English because though at the time I spoke German rather well, none of the others spoke either fluent English or German. We were traveling along Hwy 15 through the Sonoran Desert and broke down somewhere between Santa Ana and Hermosillo. Shortly before dawn, we were eventually rescued by another bus, and then continued on to Mazatlán where I changed buses to Guaymas and traveled on to Culiacan and Mazatlán. From Mazatlán, I took buses east to Durango and Zacatecas before making it to Mexico City. In the capital of Mexico, I visited all of the historic sites, the Zocalo, the Floating Gardens of Xochimilco and even the Aztec capital of Tenochtitlán, the ancient capital of the Aztec empire which was founded in 1325 in the marshes of Lake Texcoco and once was the largest population in Mesoamerica with an estimated population of 400,000. Later I traveled on to Oaxaca, Tuxtla Gutierrez and to Guatemala. I had limited time since my main goal was to get to Panama for a flight to San Juan and on to my assignment in the Virgin Islands.

It was not until several years later that I returned to Mexico, then as a botanist. After a year of teaching in the Virgin Islands and 4 months of traveling in South America, I returned to Iowa for another semester of teaching then went to the University of Kansas for graduate school. During my second year there, I had an opportunity to travel to Costa Rica for an OTS course. A University of Kansas entomologist, Marty Naumann was traveling to Costa Rica and I went with him, traveling in his camper truck through Mexico and Central America. On the way, we stopped at the base camp on Mount Popocatepetl and I got up at dawn (about 4 AM) and climbed up to the snow line before descending. It was my first and last experience with climbing at such thin air sites. The trip up was slow with rests needed between each few steps and the way down was so easy that I found myself running uncontrollably and finally had to simply fall down to stop. This fall resulted in damage to my leg and a terrific headache the rest of the day.

That summer spent in Central America, especially in Costa Rica was my first real experience with tropical plants even though I had traveled throughout most of the West Indies and South America during the summer after I left the Virgin Islands. It was during the OTS course in

Costa Rica where I began to learn the names of these plants, especially with the assistance of the late Dr. Jesus Idrobo, one of the professors who assisted in the course. Jesus, a botanist from the Universidad Nacional in Bogotá knew most of the common plants in Costa Rica and I reveled in learning their names and taking small samples to study and illustrate later in the evenings.

My present trip thus brings back fond memories of my earliest days in Central America. After I took my first job at the Missouri Botanical Garden, I began to travel frequently to Central America, eventually purchasing my first truck, a 1966 Chevrolet upon which I built a special camper with a built-in gas dryer, which enabled me to collect and dry plants on a continuous basis. That truck ended up in the Río de La Paz in Costa Rica after a significant roll down a mountain side so I built another improved version and went back again in a 1976 model.

❖ *Mexico City, Mexico*

My Central American OPUS herbarium tour began where I had been many times before, in Mexico City. I first attended the International Aroid Society's (IAS) Annual Meeting in Miami where I was invited to give the first lecture for the Kampong Lecture series. As an Adjunct

Member of the staff of the Pacific Tropical Botanical Gardens, I usually stay at their Miami Property, the Kampong, the former home of the famous plant explorer, David Fairchild. It is a historic site located along Biscayne Bay in Coral Gables, and not too distant from Fairchild Tropical Gardens where we hold our Annual IAS Meetings. On Saturday afternoon, we had four lectures and I presented a paper demonstrating the immense changes in the size of *Anthurium*, section by section.



Gerardo J.
Salazar

On Monday, Sept. 19th I flew to Mexico City and immediately went to the **Universidad Autónoma de Mexico (UNAM)** for work in their **Herbarium (MEXU)** where **David Gernandt** is the Curator of the Herbarium.

The Director, **Gerardo J.**

Salazar met me and showed me around the collection. It was a large collection and I worked there for nearly three days.

The herbarium is broken down into four large rooms and the collection is rich, mostly Mexican and the specimens are housed in compactors. There are nice workspaces along the entire length of each compactor. I had contracted to check the



David Gernandt

determinations of Jonathan Amith, an anthropologist from Gettysburg University who has a massive program in Mexico (Puebla and Guerrero) working primarily with the Mixtec indigenous group in Guerrero and with the Nahuatl speaking tribes of Puebla State. Nahuatl, the most important of the Uto-Aztecan languages, was the language of the Aztec and Toltec civilizations of Mexico. During October and November, 2018 I had an opportunity to work with Jonathan directly on a trip that included Guerrero, Puebla, Yucatan and Quintana Roo States.

While in Mexico City, I also traveled by the underground metro system to the north edge of Mexico City to the **Instituto Politécnico Nacional (ENCB)** to determine their herbarium collections. This was the herbarium built up by the Polish immigrant and famous Mexican botanist,



Jerzy
Rzedowski

Jerzy Rzedowski. To get to the Politécnico University from UNAM, I took a bus to Metro CU, which is the main metro terminal for the National University. Buses leave from the Perisur Shopping Center, the main shopping district south of the university. The Universidad metro station is at the end of the green line and one must go north about 15 stations to Hidalgo Station then transfer to the blue line and go NW to

Colegio Militar Station which is not far from the Polytechnico. It is located near a major hospital and I was lucky that a woman on the train was going to the hospital to visit her niece and walked along with me to make sure I found the herbarium. The herbarium specimens at the Herbario Polytechnico are tightly packed into regular cases owing to a lack of adequate herbarium cabinets but the collection is large and impressive.

❖ *Puebla, Mexico*

My next stop in Mexico was in Puebla southeast of Mexico City and I took an early morning bus to that provincial capital to visit the Jardín Botánico. I checked into an old colonial hotel in the oldest part of Puebla. The Hotel Colonial fits its name and it was tucked in between two streets with the front situated on a closed pedestrian street. The elevator was one of the old style types that had a wheel with a handle to control the DC voltage to the elevator's motor and thus had to have an operator to run it. The room was in period style and looked out over the central market and the cathedral.

The Jardín Botánico Benemerita Universidad Autónoma de Puebla (HUAP) is a relatively young

establishment and its Director is, **Maricela Rodríguez-Acosta**. Maricela's husband, **Allen Coombes**, is English and has settled permanently in Mexico. The aroid herbarium collection was small but interesting, mostly from Puebla State and most of the collections were in excellent condition and well determined. Allen has a keen interest in the living collections in the botanical garden, especially with the genus *Quercus* and has done a remarkable job of establishing many interesting species from many families in the garden, often creating the special microhabitats needed for the survival of particular groups. In addition to determining the herbarium collection, I was given a detailed tour of the living collections before being delivered back to the center of town.

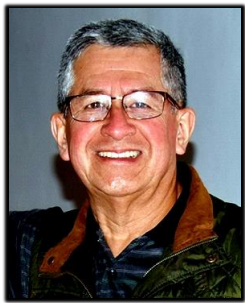


Maricela Rodríguez-Acosta & Allen Coombes

❖ *Xalapa, Mexico*

The following day I went early to the CAPU bus station on the north side of Puebla to board a bus to Xalapa, located further to the NE in Veracruz State. The road to Xalapa is excellent, mostly 4-laned and relatively traffic free at that early hour of Saturday morning. Most of the route was still rather heavily forested and green in

September. I was met at the Xalapa bus terminal by my good friend and Mexican aroider, Pedro Diaz. We went to the hotel that he had arranged to have me stay. It really did not have a proper name and the big sign over the door said “Cuartos 49 Pesos” which is less than 3 dollars. Despite the cheap price, that room proved to be large, clean, well lit and comfortable with a clean bathroom and warm water so I could not complain.



Sergio
Avendaño
Reyes

After we dropped off my bags, we took a bus to **Consejo Nacional de Ciencias y Tecnología (CONACYT)** in their new buildings near the old **Jardín Botánico** where the best herbarium in Xalapa (**XAL**) is located. Because it was Saturday, we were initially told that we could not work in the herbarium even though there were guards there who had keys to the herbarium. Still, we asked if anyone was going to be coming in to work on Saturday afternoon and we just sat and waited since it was raining very hard and we had nowhere else to go. Within about a half hour, one of the guards said that indeed someone was going to be coming in, the actual Curator of the Herbarium, **Sergio Avendaño Reyes** so we indeed lucked out. Serjio got us started and we spent

the rest of the afternoon going through all of the collections. That was rather lucky for us because otherwise I would have lost two days. The XAL Herbarium is located in new compactors in a nice air-conditioned room. The collection of Araceae is almost completely from the State of Veracruz but it is a comprehensive collection for that State.

❖ *Oaxaca, Mexico*

Early the next day on Sunday I met with, **Silvia Salas**, a graduate student in Xalapa who is involved with the **SERBO** one of the two herbaria in Oaxaca. She was



Thorsten
Kröemer



Amparo
Acebey

anxious for me to go to the Serbo Herbarium in Oaxaca. The herbarium is part of an NGO, an institute devoted to the study of biology in Oaxaca State and I was told that we could stay overnight in their facilities. I decided that I would take Pedro along with me because our initial intent was to travel from Xalapa to Villa Hermosa to work in the herbaria there but Oaxaca was a lot closer so we went there first.

About noon on Sunday, Pedro and I went to visit **Thorsten Kröemer** and **Amparo (Carola) Acebey** in

San José Cuatemoc located north of Xalapa and not distant from the Institute we had visited on the previous day. Thorsten is a German ecologist interested in epiphytes and teaches at the Universidad Veracruzana's Centro de Investigaciones Tropical. His wife, Amparo is an aroider and worked with me on the Araceae of Bolivia (Croat & Acebey, 2005; 2014) and more recently published the Araceae of Veracruz (Croat & Acebey, 2015).

Carola did a Master's Degree in Germany at Göttingen University and recently finished her Ph.D. at the Universidad Veracruzana, the same institute where Thorsten teaches. Amparo works part time for the same institute. They have two young children, Bruno and Anna who are growing up trilingual owing to their diverse parents (Thorsten recently spent his sabbatical year in Germany with his family while Amparo is a Spanish-speaking Bolivian) and by attending a school where English is encouraged.

Later that night, we took the overnight bus from Xalapa to Oaxaca, leaving at 9:30 PM and arriving in Oaxaca at 5:30 AM. By the time we got some breakfast at the bus station, it was time to call a taxi to take us to **SERBO**,

which is located in San Sebastián Tuxtla near the south edge of Oaxaca City. Silvia Salas's sister, Nancy runs the office there and met us at the herbarium to get us settled in. We worked on the small but impressive SERBO aroid collections until about 10:00 AM then were met by a woman from the herbarium at the school of postgraduate education which is located on opposite, north side of town. That herbarium curated by, **Remedios Aguilar Santelises** is much older than the SERBO Herbarium but has somewhat fewer collections. Even so, there were several new species in the collection.



**Remedios
Aguilar
Santelises**

❖ *Villahermosa, Mexico*

Early the following morning Pedro and I took a taxi back to the CAXA bus station in Oaxaca and took the only morning bus leaving the city. There were other more direct buses going to Villahermosa but only in the evening. The bus followed the Interamerican Highway SEE to Juchitán de Zaragoza. The vegetation all along this 2-lane highway was very lush owing to the rains and very different from the way I remembered it in July when I saw it last. We first stopped at Tehuantepec to drop off passengers but then as we tried to enter Juchitán, we ran

into a road blockage owing to some protest and had to turn around. The bus driver knew another way into town but it involved going down some small streets not designed for buses, often scraping under trees. By the time we reached Juchitán, it was already after noon and we had to wait more than an hour for another bus that took us on to Villahermosa. The trip took us straight north along Mexican Hwy 185 through Matias Romero to Acayucán, Veracruz, then northeast to Coatzacoalcos on the Mexican Gulf Coast and finally due east to Cárdenas and Villahermosa. We were met at the bus station in Villahermosa by Pedro's girlfriend, Rocio Santiago Biguata who drove me to a hotel. They came back early the next morning before dawn to get me again and Rocio dropped us off at a bus waiting to depart for Cárdenas. The drive there was less than an hour north of Villahermosa. We had passed through it on our way to Villahermosa the night before but Pedro had made arrangements for the Curator of the Herbarium of the **Colegio de Postgraduados in Cárdenas (CSAT), Eustolia García López**, to meet us there the following morning. The collection was moderately small and largely from Tabasco so it did not



Eustolia
García López

take long to make annotations. After we finished our work, we returned to Villahermosa and went to the **Universidad Juárez Autónoma** where Pedro was scheduled to give a talk at a conference. While I determined the collections in the **Herbarium (UJAT)**,



Nahun
Muñiz
Chavarria

Pedro worked on his talk. The Curator, **Nahun Muñiz Chavarria** was kind enough to fetch and return the specimens I was reviewing so that it did not take long to go through the entire collection.

We went to another building to hear Pedro's presentation on the "Araceae of Tabasco" and once we had finished we were again met by Rocio who drove us north of Cárdenas then east to the Municipio Comalcalco where Pedro's parents live and where he has a large collection of Araceae from Tabasco. There are some species in the collection that may be new- one a *Monstera* and another a *Syngonium*, so I was certain to take detailed photographs and Pedro made herbarium specimens.

Back on the road, we again returned to Villahermosa to the bus station where I caught that first bus to Tuxtla Gutierrez. The road through the mountains from the coast up to the highlands was often choked with traffic but we

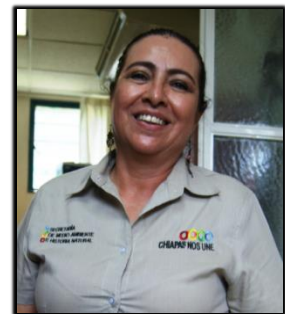
made it to Tuxtla Gutierrez before midnight and I went to the hotel nearby where my friend, Miguel Angel Pérez Farrera had made reservations. Unfortunately, I was a day late and they had therefore canceled the reservations for both nights. I went to the nearby Palace Inn, which was more expensive but very nice.

In the morning, I called Miguel who sent, Hector Gómez Dominguez to take me to the **Jardín Botánico** and to the **Museo del Instituto Nacional**. Hector is a serious plant collector and was on his way to San Cristobal de las Casas so he agreed to take pictures of all of their Araceae in that herbarium and to give me the images later in the afternoon when he returned to Tuxtla Gutierrez. This was wonderful because the following day was Sunday and I

would not be allowed to work. The herbarium at the botanical garden is the **Faustino Miranda Herbarium (CHIP)** in honor of the Mexican botanist who founded the herbarium. He has been honored by the large and attractive

Anthurium faustomirandae Pérez-Farr. &

Croat. The modestly large collection of Araceae was reasonably well curated and pleasant to work even if it is a bit too warm. The CHIP Herbarium had several active



Teresa Cabrera
Cachon

workers including **Biol. Francisco Heman Najarro**, **Biol. María Guadalupe Diaz Mantesinos** and even the Director of the Museum, **Biol. Teresa Cabrera Cachon** came to introduce herself.

❖ *Chiapas, Mexico*

I finished at CHIP a little after noon and made arrangements to be picked up by yet another botanist who took me to the **Eizi Matuda Herbarium (HEM)** which is a part of the Universidad de Ciencias y Artes de Chiapas. The Curator is my old friend, **Miguel Angel Pérez**



Farrera who I visited years ago. We took a long trip to Eiza Matuda's old collecting locality on Mount Ovando, which is the type locality of many species, including *Anthurium ovandense* Matuda. It was a long hike into the area and we spent the night in a small village where we tried to sleep on a concrete floor without blankets or pillows while some medical team talked about the blood samples they were working on until late into the night. Later Miguel Angel and I drove in his car down to the Gulf lowlands to Los Tuxtlas in Veracruz State, where there is a wonderful botanical garden operated by **Universidad Autónoma de Mexico**

(UNAM). This is the same locality where Amparo Acebey did her Ph.D. studies while Thorsten was interim Director of the institute. I made a second visit to the Los Tuxtla field station in 2008 when I visited Carola to complete the Araceae for the Flora de Veracruz Project. The area is one of the richest in Veracruz State and one of the largest tracts of virgin forest. At the time we went to Los Tuxtlas, I was working on my Revision of *Dieffenbachia* for the Flora of Central America and needed to see an unusual population growing there. Fortunately, even though the Director was not present and we were denied access to go into the reserve, we were able to find a large population of the plant growing near the entrance to the field station.

The **Herbario HEM**, part of the **Universidad de Ciencias y Artes de Chiapas**, is much larger than that of CHIP and I had to work until about 8:00 PM to finish. Miguel Angel had left someone there with orders to drive me back to my hotel when I finished. In the morning, I took a taxi to the bus station and took the first bus to Comitán near the Guatemalan border. We reached San Cristóbal de las Casas within an hour and arrived at Comitán by 1:00 PM. There I had to wait about an hour for the first bus to Ciudad Cuauhtémoc, the village that

lies on the border and where you to go through Mexican Immigration to get your passport stamped. The area became flatter as we approached the Guatemalan border. From that distance Guatemala looks like a big mountain and indeed after we crossed the border the route became mountainous with deep gorges and steep valley walls.

In Ciudad Cuauhtémoc, after I got my passport stamped for my exit from Mexico, I took a taxi to the small Guatemalan town of La Mesilla. It is a chaotic place but remarkably easy to pass through. I found a window in a building where I got my entrance stamp but there was no customs inspection at all. I stopped at one of many money-changers to get Guatemalan quetzals for my remaining Mexican pesos. Then I caught a moto-taxi to the area where buses were departing for Huehuetenango. The buses are large but the seats crammed close together. My big rolling bag was hefted up to the roof on a ladder affixed to the outside of the bus. I had a hard time throwing this bag into the back seat of a taxi since it got heavier as moved along my route, mostly owing to everyone giving me books that they are donating to our library back at the Garden. Still a skinny little kid scrambled up the ladder with this big bag on his back like he was carrying a football. The driver let me sit on the

first seat which had space for my legs. I shared the seat with a woman and her child and as we progressed up the road the driver continued to stop and pick up more people until there was not even room for them to stand in the aisles and the loading honcho was hanging half way out the door trying to get more passengers. When they insisted that I slide over to allow for yet another person in my seat I told him that he was breaking the law by loading so many people in the bus. After that, he at least did not insist that I share the seat with yet another person. We passed through several sizeable cities including Santa Ana Huista, San Antonio Huista, San Pedro Necta, San Ildefonso Ixtahuacán and San Sebastián Huehuetenango before reaching the large city of Huehuetenango. The entire road was two-lane, narrow and winding but without excessive traffic.

By the time we reached Huehuetenango, the capital of the department with the same name, it was just starting to get dark and it had already started raining lightly and I worried that my bag would get soaked up on the roof of the bus but when I finally got it back into my possession it was dry at least on the inside. The bus stopped in a filthy market area with lots of debris on the pavement and I carefully rolled my bag through the rotting fruit and

banana leaves to a small hotel. Since I would be leaving early the next morning the proprietor let me stay in a big room on the ground floor with two beds. I then went out to do some shopping, buying some bread and fresh fruit just as the market was closing down.

❖ *Guatemala City, Guatemala*

Unbeknownst to me, there was a time change from Mexico to Guatemala so when I got up at what I thought was 6:30 AM it was actually an hour earlier so when I arrived at another bus station to catch the bus to Guatemala City it had not even opened up yet. Unlike most cities in South America which have large central bus terminals, most bus companies in Central America have their own terminals and these are scattered all over the place, usually on the edge of town from which they operate. They are not even located near a hotel which makes it difficult to find a room.

The Huehuetenango-Guatemala City bus traveled through very scenic territory and through the cities of Sacapulas then through part of the Department of Quiche and through San Cristóbal in Alta Verapaz just north of Laguna Chicoj before reaching Guatemala City. The city is truly enormous spreading across a broad valley as far as

the eye can see. The bus station for the bus from Huehuetenango was along a major street but I knew not where. I desperately needed to find a wifi place to read my email so that I could find out if I had gotten a response from Fredy Archila with my request for a telephone number. I was told that there was a McDonald's just down the street so I headed there, ordered lunch and checked my email. Fredy had left his telephone number so I took a taxi to yet another bus station to take the Monja Blanca bus to Cobán. The buses left from a shopping center out near the north edge of town. I did not have to wait long for a bus but it was a long trip with the driver apparently paying no heed to speed limits. In contrast to the road from Huehuetenango in the morning this road leading north out of Guatemala City was a nice four-lane highway for much of the way to Cobán. The Cobán region is extensively built up with many plantations of cardamom and coffee. The city of Cobán is large and seemingly very prosperous. Again the bus simply stopped somewhere along a side street and unloaded passengers near its terminal. I called Fredy and he and his wife were soon there to pick me up. They took me to the Carlos V. Hotel, a nice motel-like area set among big trees.

In the morning at 8:00 AM, Fredy and his wife came to get me and we went to a nice restaurant for a typical Guatemalan breakfast. In Middle America, breakfasts are usually a combination of eggs, black bean paste and platano maduro along with some kind of flour tortillas and coffee. After breakfast, we went to Fredy's office and gardens. These are separate from his home but was an old home that he has converted for his use. He has a wonderful collection of orchids and for many of the rarer species in Guatemala he is attempting to grow large numbers of species in order to repopulate natural areas with the same young plants. I had come to visit Fredy with the express purpose of learning more about a new species of *Anthurium* that I was describing in his honor. Fredy had sent me a picture of the plant several years ago and I concluded that it was new but did not know the nature of the stem, something very important in this *Anthurium silvigaudens* Standl. & Steyerm. complex to which it belonged. Upon entering his garden to see the plant, study its stem and to take pictures, one of the first plants I noticed was a large *Philodendron* growing in a tree just outside the door to the garden. I immediately recognized it as a new species, one somewhat aligned with *Philodendron smithii* Engl., based on habit and blade

but the species differed in having a deeply furrowed stem, a shorter peduncle and a red rather than green spathe. Another collection, a *Spathiphyllum* is also possibly a new species.

Shortly after lunch, I left Cobán on a Pullman type bus that took me directly to a parking lot across from Hotel Santoña where Fredy was able to make a reservation for me. Never have I had it so easy getting from my bus to a hotel room. From there I was able to catch a taxi to the



Mario Esteban Vélez Pérez

Universidad San Carlos the next morning. I took with me my pile of herbarium specimens that I had made in Cobán and Luis Velázquez from the herbarium helped me put my material into the dryers. **Mario Esteban Vélez Pérez**, the Curator of the **Herbarium BIGU**, lives a long way out into the country but was the first to arrive in the morning. He remembered me from my last visit when a Guatemalan student, Julio Morales managed to find funds to bring me down to present a conference on the Araceae of Guatemala and one of the first Guatemalan Botanical Conferences in November, 2003. Mario Velez is an aggressive collector and works on many different groups of plants. His herbarium, largely owing to his efforts is much better than the nearby herbarium in

Edificio T-8 where the Department of Agronomy also has an herbarium. It took the entire day to get through the collections and to make determinations. I returned the



Juan José
Castillo

following day to work on the collections at the nearby **Herbario "José Ernesto Carrillo"** (AGUAT) at the **Facultad de Agronomía de la Universidad de San Carlos de Guatemala** which is curated by my friend, **Juan José Castillo**. He

contributed in the publication of *Anthurium guatemalense* Croat, Cast. Mont. & Vannini and is collaborating on the description of several new species. I had dropped into his office the preceding day because he told me that he had to leave at noon and I wanted to make sure I would be able to visit the herbarium the following day. He had brought to one of the classrooms about 10 living plants that he wanted to show me and he also brought more leaves of a specimen that Jay Vannini and I are naming, *Anthurium castilloi* Croat & Vannini. Juan José has living plants in cultivation at a property in the lowlands. I gathered samples from three different species among the living collections that Juan José had brought in for me to see in order to make descriptions later that evening in my hotel room.

The total number of herbarium specimens at AGUAT were not extensive so I was able to finish shortly after midday and the herbarium administration made arrangements for to visit the **Herbario USCG in the Jardin Botanico. Assistant Curator, David E. Mendieta** took me there in his car and later delivered me back to my hotel in a rainstorm so that was very convenient for me. The only herbarium that I missed on this trip was that of the **Universidad del Valle de Guatemala** and the **UVG Herbarium** which is located out on the edge of town. The herbarium had failed to respond to my inquiry about working there and I was not sure there was an active curator. In 2003 when I last visited Guatemala, the Curator at the time, **Ana Lu McVean**, brought me all the collections for my revision while I was attending the Guatemalan Botanical Conference and it was reported that the herbarium had not grown much since that time so perhaps it was not so important that I revisit it anyway.

❖ *San Salvador, El Salvador*

The following morning, I took a taxi to the Holiday Inn in Guatemala City where I caught the Nicabus to San Salvador, El Salvador. The bus drove through

mountainous roads for about an hour then descended rather low rolling hills. The border to El Salvador was easy to cross and the bus service did all of the waiting with passport stamping. I was prepared to exchange Guatemalan quetzal for El Salvador money but was surprised to learn that the country had switched to using dollars only, like Panama and Ecuador, so I had no difficulty making purchases there.

Upon my arrival in San Salvador, I was not sure where the herbaria were located but a man helped me find the address for the herbarium at the **Universidad Nacional de El Salvador (UES)** and I took a taxi directly to the herbarium but stopped along the way at the Hotel Happy to drop off my big bag. The Curator of the **Herbario**



Nohemy Ventura

ITIC was a woman named, **Nohemy Ventura**. She had replaced Edy Montalvo who had been the curator for many years but who had retired. The herbarium was not air-conditioned and was in part damaged owing to insects. I was able to finish completely going through the collections to make determinations and confirmations before closing time and Nohemy showed me how to get out of the university by a pedestrian gate and where to catch a bus back where my hotel was

located. The bus was small and cramped and blared loud music on some bad speakers which made the whole bus vibrate. I was happy to arrive at the shopping center, made some grocery purchases and walked about 800 meters to the hotel.

I had made arrangements while at the ITIC Herbarium to go the **Museum of Natural History** to work at the **Herbario MHES** the following day. The Curator, **José Gabriel Cerén** was to pick me up at 8:00 AM at my hotel and take me there. When we arrived the following day, I was surprised to find that this herbarium was located in a large park-like setting, a former coffee finca that had been donated by a wealthy Japanese businessman. The herbarium is modern and air-conditioned, and is next to the administration building located in the massive coffee estate house with large rooms and high ceilings. We had lunch there with the Director of the Institute, **Eunice Escheverría**. One of the biggest surprises came when I first entered the herbarium to be greeted by someone who knew me. It was **Jenny Menjívar**, now the Coordinator of Natural History at MHES and a grass taxonomist that had spent two months recently at the Missouri Botanical Garden studying the grasses of



Jenny
Menjívar

Central America. Apparently, I had never formally met her but I remembered her well as the lady who was constantly moving grasses from Compactor A at the Garden and taking them either to the scanning room or to her work space along Compactor E. I recalled that she was often still working there when I attempted to shut off the herbarium lights at night. Jenny was marvelous and helped me out tremendously because she owned a car and it was in her car that José Cerén picked me up at my hotel and also took me later to another herbarium. Jenny also picked me up early the next day and delivered me to the Pullmantur Bus Company on which I had a reservation to go to Honduras.

The **MHES Herbarium** was relatively small but reasonably well curated and had excellent facilities including a dissecting microscope. I was able to finish up shortly after lunch and at 2:00 PM was driving in Jenny's car to **Jardin Botánico La Laguna** where the herbarium is located right near the front gate. The Curator of the **Herbario LAGU** is **Dagaberto Rodríguez** and the herbarium also employs another active botanist, Pablo Galán so the collection is well-managed and certainly the largest in El Salvador. In addition to collections made in

the wild, the herbarium has many collections made from the adjacent botanical garden.

I was able to finish revising the material in the herbarium by about 5:00 PM when people were anxious to leave. It was Saturday night and José Gabriel Cerén drove me back to the MHES herbarium in Jenny's car then Jenny drove us to an outside restaurant and bar where we spent a few hours enjoying beer before they took me back to my hotel. Jenny agreed to pick me up the following morning and take me to the Ticabus station for my trip to Honduras.

❖ *Teguigalpa, Honduras*

Because it was Sunday, there was no direct bus service to Tegucigalpa so I took the bus to San Pedro Sula, the largest city in Honduras that is located near the coast and straight north of San Salvador. We departed San Salvador at 7:00 AM and reached Barberena just a little after 8:00 AM. Before long we arrived at the Honduran border, a lonely little-used outpost where I managed to get some Honduran money. Most of the way to San Pedro Sula we traveled along a road through the mountains that lie just north of the Guatemalan border. Most of the vegetation near the road had been removed and the area was

moderately dry with very depauperate stands of corn planted along the road banks but further up on the slopes the vegetation consisted of two species of *Pinus*. We arrived in San Pedro by about 4:00 PM and I went immediately to try to find a bus to Tegucigalpa. I had been in contact with **Lilian Ferrufino** who is the Curator of the Herbarium at both **Tegucigalpa and Zamorano**. She offered to come pick me up when I arrived in Tegucigalpa so I called her to tell her which bus I would be traveling on.

Lilian lives in a new house only 6 km from the **TEFH Herbarium** and I spent the night there. In the morning, **George Pilz**,



Lilian
Ferrufino

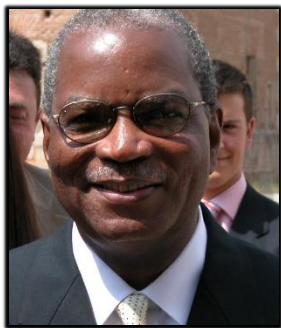


George Pilz

the herbarium at the **Escuela Agrícola Panamericana** picked me up at Lilian's home. The drive to Zamorano was pleasant on Sunday morning with little traffic. George had booked me into the Kellogg Center, the school's nice hotel operated by the agricultural school. The **Escuela Agrícola Panamericana** was founded by the United Fruit Company and still gets a substantial sum of money each year. The herbarium is one of the finest in Central

America but principally has collections only from Honduras. The collection was once curated by first class botanists including, Paul Standley (who's grave is in nearby San Antonio) and Louis Williams. For most of its existence, the herbarium was curated by Honduran botanist, Antonio Molina. As an aside, my friend, George Pilz, whom I had hired for a yearlong training session with funds from the National Endowment for the Arts Grant for Curatorial Traineeships in 1975 and 1976 and whom I visited in Ibadan, Nigeria during the summer of 1981, died of kidney failure on June 2, 2017.

On Monday morning, I took the school's shuttle bus directly to the **Universidad Nacional Autónoma de Honduras** to visit the **TEFH Herbarium** and spent the



Cirilo Nelson

rest of the day going through their collection. The herbarium is located on the top floor of the Science Building and is well curated. For many years, the collection was under the curatorship of another old friend, **Cirilo Nelson** who is now retired and living

in Spain. At the end of the day, I returned to Lilian's house by taxi. She also arranged for a taxi to come get me

in the morning about 5:00 AM. While the bus was not due to leave for Nicaragua until about 7:00 AM, I was advised to arrive there early though nothing happened for an hour. Eventually we got started and followed the same road out of town that had taken me to Zamarano. This is a heavily agricultural part of Honduras, more mesic than the lands further to the west along the Pacific Ocean where the lands are too dry for most crops and are devoted to poor pastures.

❖ *Managua, Nicaragua*

After crossing the border, we drove east along CA6 through rolling hills through Santa Clara, Ojo de Agua, then made a sharp turn to the right at Las Crucitas entering the N15 highway. This road was cut into the lower slopes of hills to the north that run along much of the country. At Jacaleapa, we made another right turn and again went south to the large town of Danli and proceeded south to El Paraiso and on to Ocotal. At Paraiso, the CA6 Highway was joined by the Panamerican Hwy, CA1. The Panamerican Highway does not go through the mountains of Honduras but instead take a route along the coast from San Salvador through Choluteca, a much faster route to Nicaragua and Costa Rica. As a result, that road has the

advantage of being mostly in the dryer parts of Central America along the Pacific Ocean where rainfall levels are comparatively low thus making it easier for road maintenance. South of Ocotal, the road passed through Estelí and San Isidro and finally Sebaco where I exited the bus. At Sebaco, the bus would go on to make another sharp righthand turn and then carry on south through Ciudad Dario and on to San Benito where it would begin skirting the southeast edge of Lake Managua, through Tipitapa and on to nearby Managua, the country's capital.

I was met in Sebaco which is a bustling town in the middle of an agricultural zone by, Don Esteban, a representative of an NGO run by an American woman, Angie Price. Don drove me to Matagalpa and took me to the main office and introduced me to the staff members. Angie is the Executive Director for an organization called, Sister Communities of San Ramón Nicaragua (scrun) in which local Nicaraguan families can get assistance with community development and educational opportunities. Angie is a good friend of one of my Missouri Botanical Garden Volunteer Research Associates, David Belt (a distant relative of the famous naturalist, Thomas Belt who had spent several years operating a gold mine in the country while he pursued his

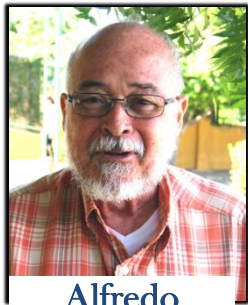
strong avocation of science (Belt, 1874). The following day, I went early to the bus terminal by taxi and headed off for Leon to find the first of the Nicaraguan herbaria that I would visit. My first objective was the **Universidad Nacional Autónoma de Nicaragua (HULE)**. The bus passed through rolling hills toward the Pacific Ocean, past a large area of mature woodlands before entering the suburbs of Leon. In the Leon bus station, we were met with a swarm of bicycle-powered “rickshaw-like” vehicles and I took one after making it clear that I could actually be taken to the National Museum. The skinny driver strained to pull me and my bag through the bumpy street. When we arrived at the museum, I learned that the herbarium was no longer even located in the National Museum and I was told that it had been moved to the botanical garden. After taking a taxi to the Jardín Botánico, I discovered that the herbarium was not there either. Yet another trip finally found me at the door of the actual herbarium where I was met by the Director,



Ricardo Rueda

Ricardo Rueda. I knew him well because he had gotten his Ph.D. at the University of Missouri in St. Louis and had done most of his work at the Botanical Garden. The herbarium was big and well-organized but I

found that I actually had already determined most of the collection since it was the place that Doug Stevens used as his base for the Flora of Nicaragua. Doug started the flora by living in Managua but after the year 2000, he moved his operations to the **Universidad Nacional Autonoma** in Leon. **Indiana Coronado**, who works at the herbarium, took me to my hotel and picked me up the following day to drive me to a place along the highway where collectors departed for the more or less hour long drive to Managua.



Alfredo
Grijalva

Much of the road to Managua was flat south of Leon but we passed through some low hills before coming into view of Lake Managua. The car stopped only meters from the front gate of the Universidad Centroamericana where a good friend, **Alfredo Grijalva** met me at the gate to the university. He is the Curator of the **HNMN Herbarium** and spent time in St. Louis during his graduate school days. Alfredo set me up with a place to work in the herbarium. The collection of Araceae was very well-curated owing to having seen much of the material as duplicates in St. Louis and the close collaboration we have with the Flora of Nicaragua Project. Everything went so smoothly and

after spending most of the day working with the collection, I got finished when Alfredo was ready to go home. Alfredo even drove me to the Nicabus Terminal which was not far away. The Station was not only conveniently located but had its own hotel right at the terminal. This was remarkably convenient because one only has to get up in the morning and walk a short distance to where the buses are departing for Costa Rica.

❖ *San José, Costa Rica*

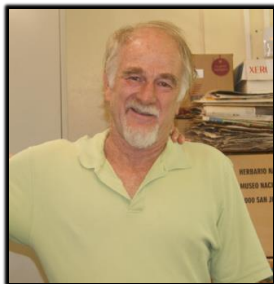
The trip to Costa Rica took a long time despite the fact that it is really not that far away. Our trip from Managua on the south shore of Lake Managua through Masaya and on to Granada on the NW shore of the larger Lake Nicaragua, took about an hour. But after picking up more passengers in Granada, the longer trek down through Rivas to the Costa Rican border along the margin of the Lake took nearly two hours. Border crossings are always a slow process for some reason and the passengers have to line up for both the exit stamp and the entrance stamp. I have never figured out why it takes so long to get fewer than 30 people processed. Eventually we were on the road to San José and I remembered back to my first few trips in the 1960's when the road was just a pothole-filled rock

road. Even today this dryer part of Costa Rica has scarcely any towns of consequence before reaching Liberia. It was in Liberia where I spent the night being sewn up after crashing into the back of a tractor which had an illegal bright white light on the rear. In a blinded condition, I slowed and made sure that I would not go into the ditch on the right. The crash put the tractor into the ditch and its two passengers (one too many for legality) came clambering out of the ditch while I laid bleeding on the pavement. I had crashed through the window cutting my face from cheekbone to cheekbone. In the hospital in Liberia, I spent the rest of the night being sutured by a Costa Rican doctor trained in Mexico. In the morning while waiting for some paperwork, I was presented with an infraction by a local policeman for hitting the tractor and was told to appear for a hearing before a judge in about a week's time. I just wanted to go home.

Fortunately, I was spotted by a local construction contractor who found me trudging away from the hospital with my bandaged head. He listened to my story and decided to befriend me. He volunteered to patch up the affair with the farmer, arranged for me to give my truck to the local police chief and carried me to the Nicaraguan border where he assumed I could get across the border

without my truck. The plan almost did not work because his friend that he assumed would help us did not even work for Customs but instead Immigration. Nevertheless, he managed to convince them that he would bring my truck to the border. I flew home to St. Louis from Managua the next day. On subsequent trips, I saw my crashed truck sitting in front of the local police station during the first two years. After the third year when I drove by, they had made an addition to the building and the truck was gone. No doubt it is was fixed up and is being used on some local farm.

We arrived in San José in a light rain at about 5:00 PM. I had been invited to stay with **Barry Hammel**, a Missouri Botanical Garden staff member living in Costa Rica. Barry eventually made it through the rush hour traffic and we went to his place out near Santo Domingo. Barry and I



Barry Hammel

spent the next two days working in the very large **INBio Herbarium** near where he lives. The herbarium was founded in 1989 and was built up over a relatively short time using parataxonomists trained to collect all forms of wildlife. It was a remarkably successful effort because thousands of collections were accumulated. Unfortunately, owing to lack of funding the

INBio organization was eventually closed down so when we were there, the place was essentially without staff. The INBio herbarium is the largest herbarium in Costa Rica, even if it does not have any old type specimens. It is officially now a part of the **Museo Nacional** where the **CR Herbarium** is located but they do not have funding to provide a building where they can incorporate both collections.

Since I had arrived in San José on a Friday night, it was nice that Barry was able to gain access to the INBio facility on Saturday. On Sunday, we could not get into INBio so I decided to take the bus down to Wilson's Garden in San Vito near the Panamanian border. It has a wonderful collection of living aroids, many of which are new to science and an herbarium collection of vouchers of many of the same species. I had contacted the Director of the garden ahead of time and they provided me with a room for my visit. This was a very profitable trip and I was able to get pictures and descriptions of several new species. I headed back to San José on Monday evening and worked at the herbarium at the Museo Nacional in downtown San José on Tuesday. The CR herbarium, while smaller than INB is old, very crowded and filled with

historic collections. It took the whole day and part of the next day to review them and make determinations. On the afternoon of the second day, we visited the herbarium at the University of Costa Rica in nearby San Pedro. This was the last collection (Herbario **UCR**) I visited in Costa Rica. The Herbarium is curated by, **Mario Blanco Coto** and is small by comparison to INBio and CR so it did not take more than a few hours to complete a review of the collection. While at the herbarium, I was able to meet, Marco Cedeño, a student at the University of Costa Rica who is doing his undergraduate thesis on *Monstera*. He has been doing a lot of fieldwork on the genus, especially studies with detailed life histories of all the species he finds. I agreed to have Marco help me with the *Monstera* treatment for Central America.



Mario Blanco
Coto

On Wednesday evening I visited, William Ramírez, a longtime friend who lives in Santo Tomas not far from where Barry lives. Bill is one of the finest biologists in Central America, a specialist with fig wasps which are so critical in the biology of the genus *Ficus*. He is also one of the greatest innovators in the science of apiculture. We both attended the University of Kansas and Bill and his

wife Carmen visited us while he was doing fieldwork in Panama. Though now retired for some years, Bill's intense interest in his research is still inspiring. Bill drove me to the bus terminal for my 11:30 PM departure for the bus to Costa Rica.

The bus did not take the historic old route through Costa Rica, through the mountains and over Cerro de la Muerte, the road I had taken to and from San Vito over the weekend. Instead, it went down toward Puntarenas and took the new coastal route, the Carretera Pacifica, which went through Santiago de Puriscal, Guapinol before reaching the coastal road. The Carretera Pacific passed through Quepos and Uvita before reaching the Interamerican Highway at Palmar Sur. It continued on to Piedras Blancas and Ciudad Neily and finally ended at Paso Canoas at the border. We arrived at the border shortly after dawn and spent nearly an hour getting back on the road again.

❖ *Panama*

The border crossing into Panama was less time-consuming than the border into Costa Rica from Nicaragua. Although the road has been paved for many years, the government of Panama has greatly modernized

the entire road from Panama City to the border and the route is in excellent condition. There is even a paved route from Chiriquí through the Azuero Peninsula. Virtually the entire route was very familiar to me owing to my many years of work in Panama and my many trips from the Canal Zone to Chiriquí Province. I had made arrangements to stay with Jerry and Linda Harrison, friends who live on Cerro Jefe near the Panama City airport. They are biologists who spent their careers in Florida but retired to Panama where they spend their time studying the wildlife in that area. I had called Jerry about midway during my journey from the border and told him that I thought we would arrive on time. Unfortunately, our journey back to Cerro Jefe was during rush hour so it was not a quick journey.

When the Harrisons took me back to the city, I began working at the **SCZ Herbarium**



Carmen
Galdames

operated by the
**Smithsonian Tropical
Research Institute.** The
herbarium is modern and
well-organized, curated by



María de Stapf

Mireya Correa but managed principally by
Carmen Galdames, an ex-Chilean biologist who came to

Panama during the dangerous Pinochet Administration in Chile. Carmen has made many interesting aroid collections throughout Panama and I reviewed and determined them. Later that day, I went to the University of Panama to begin studying the collections there. The **PMA Herbarium**, curated by **María de Stapf** since the retirement of Mireya Correa, has an excellent aroid collection made all the better in



recent year by studies of Panamanian, **Orlando Ortiz** who has specialized on Araceae and has made collections of many interesting and new species. Orlando and I [Orlando Ortiz](#) have been collaborating for a number of years on a variety of different genera. Despite the many years of work with Araceae in Panama, the country is still rather poorly known with many new species being described every year. The herbarium tour of Central America was completed with my studies at PMA. I had intended to go from Panama to Venezuela since I had been unable to study there on my South American herbarium tour but I was unable to get a visa and moreover, the place is politically unstable and even dangerous so I had to abandon my studies of Araceae in that country.

This last trip concluded my tours of herbaria where there are sizeable or important collections of Araceae. It resulted in thousands of specimens being determined, and thousands of specimens deemed not capable of being determined were carefully studied and photographed and these images were all labeled and uploaded into Tropicos for later study. The herbarium trip had been an incredible task and I visited 75 herbaria over the course of 18 months. These reports are filled with details which will be useful to other researchers who are planning trips to visit herbaria and the report will be circulated to all the institutions and curators who participated in the studies.

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