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Editor: Chet Blackburn, 720 Millertown Road, Auburn, California 95603.
Telephone and Fax: 916-885-0201

Editorial Advisory Board: David H. Benzing, Gregory K. Brown, Pamela Koide, Thomas U. Lineham, Jr., Harry E. Luther, Robert W. Read, Walter Till.

Cover photographs. Front: One of several fine clones from a cross made between *Vriesea platynema* and *V. fenstralis.* Plant grown by Pamela Laever in Concord, California. Photograph by Chet Blackburn. Back: *Bromelia flemingii,* a new species from Venezuela. Text beginning on page 206. Photograph by Francisco Oliva-Esteve.

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Lita, Ecuador

Jose Manuel Manzanares[1]

Few people have heard of the Ecuadorean town of Lita,[2] in spite of the fact that it is home to many choice guzmanias including species such as *Guzmania inexpectata* H. Luther and *G. kraenzliniana* Wittmack.

Lita (Figure 1) is a small town located 71 km west of the town of Salinas, which is on the Panamerican highway between Ibarra and Tulcan in northern Ecuador. Though little known to most travelers, Lita is often used as a base camp by botanists and other scientists performing research in the biologically rich hills near the town. Hotel Villalobos provides little wooden rooms with 1 or 2 beds, or if you prefer more luxurious accommodations, as we did, there is a larger room with 3 beds.

The road between Salinas and Lita traverses beautiful valleys filled with sugar cane and dotted with small villages occupied by hard-working people. It runs along mountainsides and through narrow passes filled with xerophytic vegetation, descending from 2,400 m to an elevation of only 675 m at Lita. It follows the course of the picturesque Río Mira as it tumbles toward the Pacific Ocean. It also generally parallels a nearby railway which used to be the only way to get to Lita. The railway allows adventuresome tourists to ride on top of the cars providing them a panoramic view of the spectacular surroundings as well as a chance to escape the chickens, sheep, goats and other livestock accompanying their owners below in the interior of the railroad car.

In spite of the spectacular scenery, the journey can be a hard one in the winter and only a little easier in summer. It is advisable to ask Sr. Villalobos whether the road west to the hills is passable before starting off in search of bromeliads. On my journey, I found the road to be in bad condition at km 6 and damage to the bridge over the Río Piguambi forced us to ford the shallow riverbed.

Last year the road was blocked at km 2 by a large landslide, but the hope of finding *Guzmania fuquae*[3] H. Luther & Determan in flower inspired us to shoulder our rucksacks and sleeping bags to begin walking to the Río Chuchumbi, where I had collected it for the first time in 1993 in the company of Luc Pieters and Cesar Trujillo. The plant found then was in fruit and appeared to be related to *G. calamifolia* André ex Mez.

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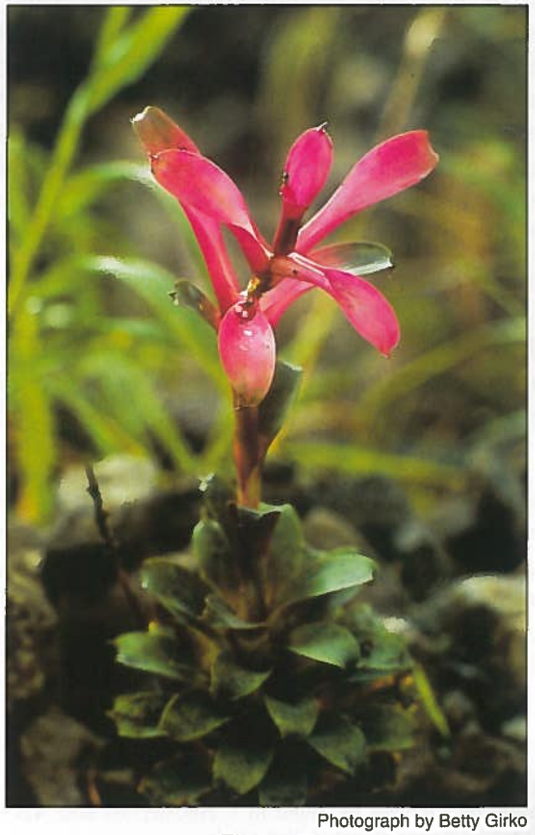
[1] Curator, Ecuadorian National Herbarium (QCNE)Quito, Ecuador

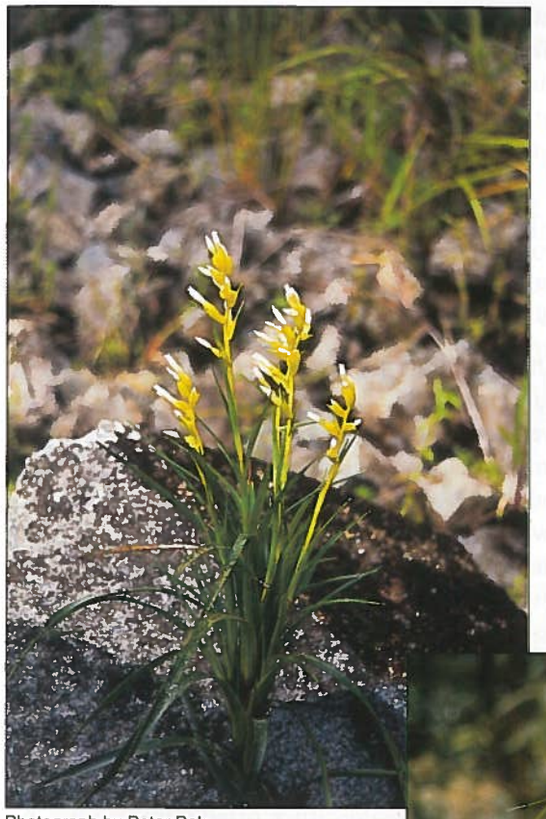
[2] Additional information on Lita can be found in J. BROMELIAD SOC. 42(5):214-216,218. Four interesting Bromeliads by Chester Skotak & Peter Bak.

[3] For description and color photograph of G. fuquae see J. BROMELIAD SOC. 45(3):118-122.

Figure 1. Photograph by Jose Manzanares
View of the town of Lita, Provincia de Imbabur, Ecuador



Photograph by Betty Girko
Figure 2.
Guzmania kraenzliniana



Photograph by Peter Bak
Figure 3.
Guzmania bicolor

Figure 4.
Guzmania graminifolia
Photograph by Jose Manzanares

So, Patricio Martinez and I started searching along the 10 km that separated us from our goal. We walked for an hour before a military jeep suddenly appeared and gave us a ride to the 17th km where we continued our search for plants. We had not found *G. fuquae* but as we were growing tired and it was getting late we decided to return to Lita to spend the night. Fortunately, a wood-cutter's truck came along and we asked the driver for a ride to the Río Chuchumbi. He allowed us to scramble on top of the woodpile with our bromeliads to join a group of workers already riding there. Of course it soon started raining but it didn't dampen anyone's spirits as we all crowded together under our ponchos. We got soaked anyway as the truck swayed down the road.

We finally arrived at Río Chuchumbi and left our wet but jovial traveling companions. We were tired but the excitement generated by the possibility of finding *Guzmania fuquae* in flower helped us climb between rocks to the place where we had found it the first time. Imagine our elation when we found a plant with 4 blooms! I removed one bud with a cane knife just before we heard an approaching vehicle. We fell twice as we ran downhill to catch a ride but managed to get to the vehicle in time. The driver gave us a ride back to the landslide where we had begun our walk.

Another goal was to find *Guzmania kraenzliniana* Wittmack (Figure 2), which had been found earlier by Alexander Hirtz and Betty Girko. I'm sure that other collectors must have also found it in this area, but I have found no other references to it. We were also looking for *G. bicolor* L.B. Smith (figure 3), *G. inexpectata* H. Luther,[4] *G. sanguinea* var. *comosa* H. Luther,[5] and *Ronnbergia morreniana* Linden & André,[6] and of course any other bromeliad species we might come across. We did not arrive back in Lita until 11 pm.

The next morning, August 13, 1995, we began our hike to the humid and dense forests right after the sun appeared between the hills. After leaving Lita and crossing the first bridge we already began finding bromeliads adhering to trunks and branches of trees. Among them were the following species: *Aechmea angustifolia* Poeppig & Endlicher, *Mezobromelia pleiosticha* (Grisebach) Utley & H. Luther, *Vriesea chontalensis* (Baker) L.B. Smith, *Vriesea cylindrica* L.B. Smith and *Vriesea gladioliflora* (Wendland) Antoine.

In a nearby patch of forest at km 5 of the Lita-Alto Tambo road, we found: *Aechmea* cf. *tonduzii* Mez & Pittier ex Mez, *G. musaica* var. *concolor* L.B. Smith,[7] G. *albescens* H. Luther[8] & Determann, G. *eduardii* André ex Mez, *G.*

[4] For description and color photograph of *G. inexpectata* see J. Bromeliad Soc. 44(1):30-31.
[5] A color photograph of *G. comosa* var. *erecta* appears in J. Bromeliad Soc. 31(6):260 labeled as *G. sanguinea* var. *erecta*, a name by which it was formerly known in the trade.
[6] A black and white photo of *R. morreniana* appears in J. Bromeliad Soc. 31(6):263.
[7] A color photograph of the inflorescence of *G. musaica* var. *concolor* appears on the cover of J. Bromeliad Soc. 31(4).
[8] For description and color photograph of G. albescens see J. Bromeliad Soc. 43(4):152-153.

hitchcockiana L.B. Smith, *G. remyi* L.B. Smith,[9] *G. donnellsmithii* Mez ex Donnell Smith, *Tillandsia singularis* Mez & Wercklé, *Pitcairnia brongniartiana* André, and P. bakeri (André) André ex Mez.

In a road cut near km 7.7, between small trees grew *G. pungens* L.B. Smith which stands out due to its large size. When *G. harlingii* H. Luther flowers its inflorescence can also be observed between the leaves of the trees. In more rocky zones *G. spectabilis* (Mez & Wercklé) Utley can be seen.

Finally, with Alfonso Cualchi, we reached the second bridge over the Piguambi river. The high humidity afforded the branches of trees hanging over the riverbank provided ideal conditions for plants such as *T. cornuta* Mez & Sodiro and *G. angustifolia* (Baker) Wittmack. In one of the most open zones we were surprised to find a *Vriesea cf. orjuelae* L.B. Smith ["possibly *V. paupera*" H. Luther] that was in fruit.

At km 13.4 we passed the Chuchumbi River and reached another very beautiful hillside that was thickly forested. We decided to stop and look for some other species we were seeking. The first plant found was *Pepinia costata* (L.B. Smith) G.S. Varadarajan & Gilmartin, ["possibly P. hooveri" H. Luther], found for the first time in Ecuador by Dr. Misael Acosta Solis, on April 25, 1949. With sadness I remembered that he had died one year ago at the age of 84. He was an illustrious botanist and a naturalist who devoted his entire life to studying Ecuadorian flora. His name is immortalized by *Tillandsia acosta-solisii* Gilmartin.

As we entered the forest, we found a beautiful example of *G. dissitiflora* (André) L.B. Smith blooming, some examples of *Pitcairnia arcuata* (André) André, and looking like red stars on the trunks and branches of the lowest trees, hundreds of *Guzmania sanguinea* (André) André. Also, we saw some examples of *Pitcairnia bakeri* (André) André ex Mez with its simple inflorescence of brown color and its orange flowers, which were visited by aerobatic hummingbirds searching for nectar and flying at great speed among the trunks of the trees. In this area of special beauty, *Guzmania* rosea L.B. Smith and *Guzmania testudinis* var. *splendida* H. Luther[10] delighted our senses with their blooms. We realized that in their search for nectar the hummingbirds were visiting both blooming species which resulted in the natural hybrids which were first collected by Jeffrey Kent.[11]

This area was also inhabited by *Pitcairnia simulans* var. *ornata* H. Luther[12] which stands erect while fixing its roots to small trees of the forest understory.

[9] A color photograph of G. remyi appears in J. Bromeliad Soc. 35(2):78
[10] For description of G. testudinis var. splendida see J. Bromeliad Soc. 42(6):243-245. A color photograph appears on the cover of the issue.
[11] Copy of the type in the Herbarium of the Universidad Catolica de Quito (QCA), Ecuador.
[12] For description and color photograph of *Pitcairnia simulans* var. *ornata* see J. Bromeliad Soc. 42(6): 243-244.

Figure 5.
Pitcairnia cf. *arcuata*
Photograph by Jose Manzanares

Figure 6.
Guzmania cf. *kentii*
Photograph by Jose Manzanares

Finally, and with great elation after a long walk, we found both fruit-bearing *Ronnbergia deleonii* L.B. Smith, and *Ronnbergia morreniana* Linden & André growing amidst the vegetation.

My friend is probably still deaf from my sudden shout of joy and triumph when I found a small plant of the illusive *G. kraenzliniana* Wittmack. Its small dense rosette topped by purple and green bracts were unforgettable. With the plant in hand we started our way back, excited and relieved that our trip was successful. In the afternoon we reached the highway and continued on our way to Alto Tambo.

Alto Tambo is located at km 21.3 from Lita. This town of wooden houses is close to the train station, with piles of logs on both sides of the highway. We found an entrance to the forest and began hiking anew in search of new species. The forest was dense and the crotches of trees were adorned by long caulescent stems of *Guzmania graminifolia* (André ex Baker) L.B. Smith (figure 4) with their red floral bracts, yellow sepals and green petals. *Guzmania globosa* L.B. Smith[13] with its inflorescence covered in gel was showing its yellow flowers weakly opening at the apex. In this area we also found *Ronnbergia cf. killipiana* L.B. Smith and a great blooming specimen of *Pitcairnia cf. arcuata* (André) André (figure 5). We found *Guzmania longipetala* (Baker) Mez[14] bearing fruit and although it is not common, a plant of *Guzmania testudinis* L.B. Smith & R.W. Read entangled with *Guzmania graminifolia*. Although it may seem unlikely, especially for those who know this area, we found a plant very similar to *Guzmania kentii* H. Luther (figure 6).

In the adjacent trees on pasture land, various plants of *Guzmania alborosea* H. Luther and *Guzmania regalis* H. Luther could be observed, which gave us the impetus to walk further in search of other species. We eventually found the following: *Vriesea vittata* (Mez & Wercklé) L.B. Smith & Pittendrigh, *Vriesea kupperiana* Suessenguth, *Pitcairnia brongniartiana* André, *Guzmania fosteriana* L.B. Smith, *V. ringens* (Grisebach) Harms and *G. lingulata* var. *flammea* (L.B. Smith) L.B. Smith.

The biggest surprise of the trip was finding a specimen of *Guzmania andreana* (E. Morren) Mez in full flower, the yellow spikes covered with gel for protection.

Later that night, very tired, we headed back to the hotel. There I reviewed my notes and mentally relived the seven trips I have made to this bromeliad paradise in the last four years and wondered how many more there would be. At the moment deforestation is taking place at an alarming rate and we are rapidly losing large tracts of pristine forest.

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[13] For a color photograph of Guzmania globosa see the back cover of J. Bromeliad Soc. 42(6).
[14] A color photograph of G. longipetala can be found in J. Bromeliad Soc. 42(5):215

We did not find *Guzmania bicolor* L.B. Smith, *Guzmania sanguinea* var. *comosa* Luther and *Guzmania inexpectata* H. Luther, all of which will be on our agenda for our next trip.

ACKNOWLEDGEMENTS

I am grateful to Chester Skotak and Peter Bak for the specimen of *Guzmania bicolor* provided to me after their trip to Lita in October, 1995. I also want to thank Harry Luther for providing a red-colored form of *Guzmania inexpectata* that had been collected by Wally Berg, and to thank Wally Berg for the specimen of *Guzmania sanguinea* var. *comosa* he and John Anderson found. Also special thanks to Betty Girko, Alexander Hirtz and Chester Skotak, all of whom have contributed to the knowledge of bromeliads to be found in the Lita area.

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In Memoriam - Hazel Quilhot

The bromeliad world lost another well-known grower with the death of Hazel H. Quilhot on June 14, 1996 at the age of 83.

Mrs. Quilhot was past president of the Sarasota Bromeliad Society, a horticulture teacher at Marie Selby Botanical Gardens, an international bromeliad judge and a lecturer. A photograph taken by John C. Ruth which appears in an issue of Grande (Grande, Vol 1, no. 3; formerly published by the Florida Council of Bromeliad Societies, Inc.) captures the essence of Mrs. Quilhot's passion for epiphytic plants. The photograph depicts Mrs. Quilhot and her husband Ralph on 40 foot ladders tending an extensive epiphyte collection which they maintained on the limbs of two huge live oak trees in their yard in Bradenton, Florida.

Grooming Plants for Show

Odean Head

Some of the criteria for selecting potential entries for a show and grooming procedures that can add beauty and judging credits to the entry are discussed below.

SELECTING PLANTS

A common mistake in selecting plants to show is to look for plants that appear in good enough condition for placement on the head table already. It usually takes several trips through a collection to get enough worthy candidates to consider entering. It is best to defer making the final selections until after grooming has been completed or at least attempted. This allows for a little leniency in our initial evaluation. We should familiarize ourselves with the show schedule and try to obtain plants as entries in as many categories as possible to make it a better balanced show.

Grooming procedures change little from year to year, but I usually learn something new each time. You are probably aware of some of these procedures but it might be helpful to review them anyway.

CLEANING PLANTS

Use a water hose with a spray nozzle that will furnish a good solid stream without too much pressure to wash out dirt, tree leaves and other debris from the bases of the leaves. After the first washing, look deep into the leaves for material that did not come out. Be careful about digging around with your fingers because you may break or tear a leaf. It is best to use tweezers or a surgical hemostat to pull out debris. You can loosen stubborn dirt inside the base of the outer leaves with a small artist's brush. Rinse the plant again afterwards to remove loosened dirt and debris. Clean the leaf surfaces individually. Cleaning intensity will vary from plant to plant depending on how delicate the leaf is and whether it has scurf on it. If it has scurf, be careful not to remove any because it will not regenerate and will be an obvious flaw to judges. On most plants I suds each leaf with Ivory soap and clean it with a heavy artist's brush. If the leaves are not too treacherous, pull each leaf through your fingers to loosen the most stubborn dirt. This should also remove dead scales that might be attached to a leaf. If a scale does not rub right off it is probably still alive and the plant should be treated with Safer soap. Scale on show plants is a big NO! Next, rinse the plant with clean water again using the spray nozzle.

When this is done set the plant aside and work on the next plant while that one is drying. You really can't tell whether some plants are clean until they dry. You may have to go back and touch up any missed spots and rinse again. Be sure

to get all of the soap out afterwards. If you have any salt buildup on the foliage, you will need to take additional steps to remove the deposits. Sometimes just another soaping will do the job. Let the soap stay on for a while and go work on another plant. When you return to it, rub the salt deposit area lightly with a brush or your thumb. Be careful, some plants bruise easily and you could damage a leaf. Pineapple juice has worked for me on some of the more stubborn salt deposits. Some growers successfully use club soda for this purpose. When you use pineapple juice or any citric juice, make certain that you rinse well or it may leave a sticky, shiny film on the plant and it will be penalized by the judges. The club soda will not leave a sticky residue.

If the salt deposit remains after drying, you may have to repeat the procedure several times. It is almost impossible to completely remove the residue from some of the darker leafed plants and you may consider entering them anyway when only faint traces are visible.

REPOTTING

It is usually easier to repot a plant than it is to clean the pot. This is also a good time to select a pot size proportionate to the plant. Be aware of what constitutes a standard pot. A pretty pot will probably be classified as decorative and be placed in the Artistic, Decorative Container Division under a different set of judging rules. If you have some pretty or unusual pots, you should probably consider entering this division.

Pot the plant at the proper depth. Quite often this means putting the plant into a slightly larger container if the root ball is big enough that the caudex has been exposed by the removal of lower leaves and cannot be covered in the new same-size pot. If the plant has to go back into the same-size container, the root ball can be trimmed to allow the plant to sit at the right level. Do not pot it too deeply unless you have something to hide because the judges may assume you are hiding something anyway and take off accordingly. Be sure to center the plant in the pot as near as possible - you may need a larger pot to do this - and check to be sure it is upright. It is very important for the plant to be sitting straight. Set the plant down and look at its conformation from both the top and from the side. Straighten the plant if needed and firm the soil around it so that it will stay straight. Be sure the mix on top is neat. Some use a special top dressing, but I don't think that is necessary as long as it is neat.

TRIMMING LEAVES

Leaf damage is a common cultural problem with bromeliads and you can be certain that judges will see any that exists. They will also usually notice where you have trimmed the leaves. If you have done a good job of trimming they may not take off points unless too much surgery was required. Before you start cutting, try to visualize the effect the cut will have on the plant's appearance. If you cut a leaf tip back too far it could change the overall shape of the leaf as well

as the plant's conformation. Normally you should trim a leaf tip to its natural shape but how should you treat a fingernail tip? Analyze the damage and the effect of the trim before you act. You may want to trim only the brown parts, changing its shape rather than take off the color. You may decide not to trim at all if it would do more harm than good. In those situations judges can usually see your dilemma and will often be lenient if there is little else wrong with the plant. Some trimming of leaf edges close to the base can also be done where there are no spines but do try to keep a smooth leaf edge.

FINAL EVALUATION FOR SHOW ENTRY

Look at the overall appearance of the plant. Does it appear healthy and well grown? Does its foliage have the good sheen or scurf appropriate for the plant? Are the colors rich and the markings clear? How about its symmetry, is it appropriate? Is the size close to maturity? Check for leaf damage. If there is any, is it severe? Does it need more grooming? CAUTION - do not be overly critical. You can expect to be short in one or more of these areas since there are very few perfect plants.

TRANSPORTING PLANTS

Getting plants groomed for show can be frustrating enough without incurring additional trauma on the way to the show. Take extra time packing your plants to make sure they do not damage each other or topple over during transport. You would be wise to take some of your cleaning tools and some extra mix with you for a last minute check just in case you experience a mishap on the way.

Once you do all you can do, the rest is up to the plant.

Houston, Texas

Reprinted in part from the newsletter of the Houston Bromeliad Society, Vol 28 No 8 (August 1995).

A New Species of *Bromelia* L. From Venezuela

Ivon M. Ramirez[1] & German Carnevali[2]

ABSTRACT: *The genus* Bromelia *L. in Venezuela is represented by seven species, one of which is newly described herein. Color photographs of the new species, as well as a key to identify the Venezuelan taxa of the genus are included. A brief discussion about the geographical distribution and ecological notes of the genus and the new species are also included.*

The genus *Bromelia* has a broad distribution in the Neotropics, from Mexico through the Caribbean region to Argentina. The highest diversity of the genus is in the area of southern Brazil, a very rich region for several additional endemic Bromelioideae.

Venezuela, located in northeast South America, is well known for the high diversity of pitcairnoioid taxa in the Guayana area, including several endemic genera. The subfamily Bromelioideae, on the other hand, is poorly represented in Venezuela, with relatively few species in *Aechmea* Ruiz & Pavon(*s.l.*), *Billbergia* Thunb., *Hohenbergia* Schultes filius, *Neoregelia* subgenus *Hylaeaicum* (Ule)L.B. Sm. & Read, *Araeococcus* Brongniart, *Bromelia, Greigia* Regel, and *Streptocalyx* Beer.

The genus *Bromelia* includes 50 species (Luther and Sieff, 1991), only seven of which are known to occur in Venezuela. Species in the genus *Bromelia* have wide distribution in the country, occurring from rain forests to dry coastal open vegetation, always at low elevations. Two species (*Bromelia tubulosa* and the one here described) are endemic to Venezuela.

***Bromelia flemingii* I. Ramirez & Carnevali, sp. nov.** (back cover & figures 7–9).

TYPE: Venezuela. Aragua: 8–9 km from the redoma at Cata Beach, SE towards Cuyagua, 10° 29'N, 68° 42'W, dry-semideciduous forest; on very steep slope, on side facing the sea, ca. 400 m., flowered in cultivation, March 1993, by Conrad Fleming at St. Croix, Virgin Islands, *I. Ramirez & G. Carnevali 511* (holotype VEN; isotype SEL; pickled).

Species haec *B. humilis* Jacquin sed folis longioribus proportione angustioribus, sepalis connatis, petalis purpureis albomarginatis et habito umbraticolo recedit.

Plant A terrestrial, reproducing by basal stolons. **Stolons** 1–1.5 cm diameter, densely covered by imbricate, papyraceous sheaths disintegrating when

[1] Missouri Botanical Garden, P.O. Box 299, St. Louis, MO 63166-0299, USA
[2] Biology Department, University of Missouri—St. Louis, 8001 Natural Bridge Rd., St. Louis, MO 63121, USA

old, with margins densely serrate. **Leaves** more than 20 per rosette, rigid, basally erect but with tips arching when not blooming, spreading and exposing the inflorescence when flowering. **Blades** 60–65 cm long, 1.8–2.4 cm wide, green, usually ligulate to narrowly linear-oblong, acute and apically long attenuate, usually canaliculate when mature, margins laxly serrate (spines 1.5–2 cm apart), antrorse, in some young leaves basally retrorse, spines up to 3 mm long, pungent. **Foliar sheaths** transversely elliptic, 6–7 cm long, 6–6.5 cm wide, densely covered by trichomes in the upper 1/4 part, abaxially and adaxially, soon glabrous on both surfaces, margins serrate in the upper half, entire in the lower half. **Inflorescence** sunk in the center of the rosette, compound. **Scape bracts** bright red, like the leaves but shorter, more abruptly attenuate. **Primary bracts** bright red, much shorter than the scape bracts, 20–35 cm long, 1–1.5 cm wide, narrowly attenuate and long acuminate. **Fascicles** with 2-3 flowers. **Floral bracts** ligulate to narrowly oblong, apically rounded and with a minute apicule, 6–6.5 cm long, 0.8–1 cm wide, densely lepidote abaxially, glabrous adaxially. **Flowers** 5–6.6 cm long, erect and sometimes slightly curved, sessile. **Epigynous tube** formed by the connation of sepals, petals and a crown where the stamens' filaments are inserted, 2.6–2.8 cm long. **Sepals** connate, narrowly triangulate, sometimes narrowly oblong, asymmetric, carinate in their free portion, apically rounded or obtuse, with the apex curved towards the left or right, when dry the apex is dark brown, color unknown in life, free portion 2.3–3 cm long, 5 mm wide, tube (or connate portion) 2.7–2.9 mm long, in the outer surface all covered by a dense layer of trichomes, brown when dry, multinervate, but in the inner surface below the keel there are two prominent nerves. **Petals** free, oblong, obtuse, fleshy, pink-purple with white margins, 2.4–3.6 cm long, 6–7 mm wide, margins entire. **Stamens** included; filaments inserted in a tube which forms a ring, connate to the petals and these to the sepals, anthers 14 mm long. **Pistil** 10 mm long, style erect; stigma conduplicate-spiral. *Ovary* cylindrical, ca. 1 cm long, densely lepidote adaxially. **Fruit** unknown.

PARATYPE: Same locality as the type, 29 Sept. 1985, *B. Holst, G.S. Bunting and G. Carnevali 2307* (MO, VEN).

Bromelia humilis Jacq. is probably the closest relative of *B. flemingii.* The new species is larger, with longer, greener leaves (vs. yellow-green leaves), with a less compact inflorescence, the inflorescence bracts are red but not shiny, the sepals are connate, and the petals are purple with white margins instead of dark purple. In general, *B. flemingii* is a larger, less compact species than *B. humilis.* As opposed to *B. humilis* that usually grows (and certainly only flowers when) exposed to full light, *B. flemingii* prefers the shade afforded by small trees and shrubs. The degree of shading that it will take is variable, and the authors have seen populations of the species growing under dense shade on north facing slopes near the type locality, and plants thriving in cultivation at full exposure. *Bromelia flemingii* is of easy cultivation and remains smaller than most other species of the

genus. The inflorescences are very showy and a well-grown specimen is certainly an impressive sight.

This species has been known in cultivation in Venezuela under the unpublished name *Bromelia costanensis*. We dedicate this species to Conrad Fleming, a very enthusiastic collector and grower of rare bromeliads, aroids, and orchids. He kindly donated the plant which was used as the type voucher.

Phytogeography: *Bromelia flemingii* is known from only a few localities along a narrow belt that extends east to west on the northern, sea-facing slopes of the Serrania de La Costa of the Coastal Range in the state of Aragua (Figure 7). Here, it grows in dry semideciduous-forest along with other plants such as *Peperomia carnevalii* (Piperaceae), *Matelea virginiae, Tassadia subulata* (Asclepiadaceae), *Anthurium lilacinum, A. crassinervium, Philodendron humboldtii* (Araceae), *Bromelia humilis* and *B. chrysantha, Aechmea aquilegia, Tillandsia paucifolia* (Bromeliaceae), and *Myrmecophila humboldtii* and *Brassavola nodosa* (Orchidaceae).

KEY TO THE VENEZUELAN SPECIES OF *BROMELIA*

1. Inflorescence scapose 2
1A Inflorescence nidular 4

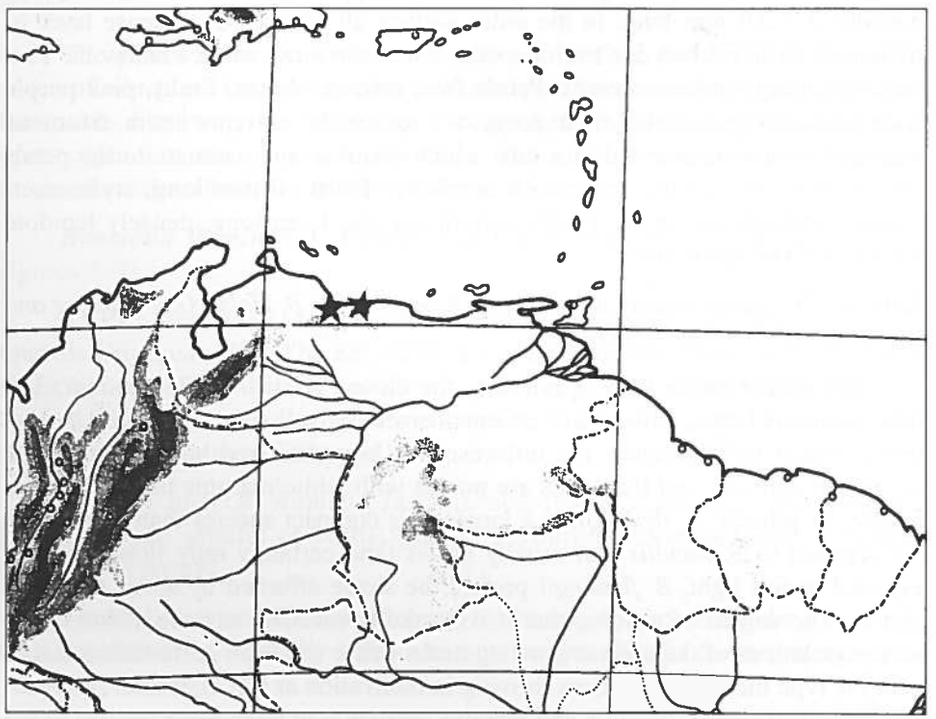

Figure 7.
★ Geographical distribution of *Bromelia flemingii*

2 Inflorescence cylindric to narrowly cylindric 3
2A. Inflorescence narrowly pyramidal .....*Bromelia pinguin*

3. Sepals serrulate .....*Bromelia goeldiana*
3A. Sepals entire .....*Bromelia chrysantha*

4. Sepals free.....5
4A. Sepals connate 6

5. Leaves 1.5–3 m long.....*Bromelia plumieri*
5A. Leaves 0.4–0.8 cm long.....*Bromelia humilis*

6. Petals white; sepals high connate; plants from Guayana region .....*Bromelia tubulosa*
6A. Petals pink with white margins; sepals low connate; plants from Coastal Range .....*Bromelia flemingii*

Photographs of Venezuelan species of the genus *Bromelia* have been previously shown and their morphological variation briefly discussed by Rousse and Rousse (1992) and Rouse (1993a, 1993b). Also, photographs and comments about their general and Venezuelan distribution have been mentioned by Oliva-Esteve and Steyermark (1987).

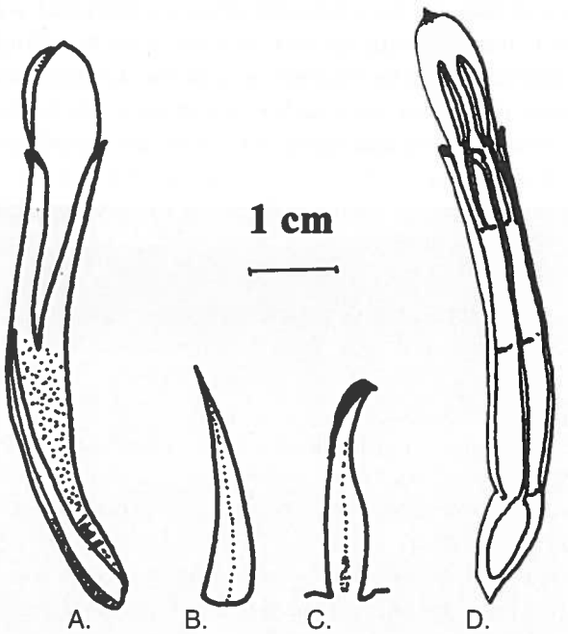

Figure 8.
Bromelia flemingii, Floral details: A. Flower; B. Floral bract; C. Sepal; D. Longitudinal section of the flower.

Photograph by Conrad Fleming

Figure 9.
Habit (in cultivation)

The species of this genus are nearly always associated with dry areas or habitats with well drained soils in wet forests, such as granitic outcrops in Amazonas and Bolivar States in southern Venezuela. Those species occurring in the Coastal Range (northern Venezuela), are mostly on north-facing slopes, where the vegetation is mainly deciduous forests or dry shrublands. Some species inhabit the dry areas of the Llanos and the north areas of the Guayana region (where there are many floristic elements from the Llanos), reaching the Parguaza Formation along the Orinoco River.

ACKNOWLEDGEMENTS:

We are indebted to Franciso Oliva-Esteve and Conrad Fleming for the beautiful pictures of this species, and to Harry Luther and Bruce Holst for critical comments in the developments of this research.

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St. Louis, Missouri

A New Ornamental *Tillandsia* From Bolivia

Harry E. Luther

Tillandsia xiphioides ssp. ***prolata*** H. Luther, ssp. nov. (Figures 10 & 11).

A *Tillandisa xiphioides* Ker-Gawler typo et varietatibus affinis, sed caule inflorescentiaque longiore differt.

TYPE. Bolivia. La Paz: roadside from La Paz to Mecapaca, Valle de la Luna, Rio Abajo, 2500–3000 m elev., Aug. 1993, *D. Cathcart B-2 legit,* flowered in cultivation, 5 Oct. 1995, *D. Cathcart s.n.* (holotype: SEL; isotype: LPB).

Plant a caulescent, sometimes rootless, mound-forming lithophyte or terrestrial (!D. Cathcart); flowering 40–75 cm tall. **Leaves** densely imbricate along the stem, stiffly suberect to spreading, 12–20 cm long, silver-grey. **Leaf blades** narrowly triangular, attenuate, 5–10 mm wide, somewhat nerved, rigid but not especially succulent. **Scape** erect, 12–18 cm × 2–3 mm. **Inflorescence** lanceolate, 8–15 × 1–2 cm, distichously 3 to 5-flowered. **Floral bracts** narrowly elliptic, acute, 45–58 mm long, thin-coriaceous, nerved, pale green to yellow-tan. **Flowers** opening in the late afternoon and remaining open 24–48 hours, strongly and sweetly fragrant at all times. **Sepals** narrowly elliptic, acute to acuminate, 33–36 mm long, thin-coriaceous, nerved, the adaxial pair carinate, pale green. **Corolla** with spreading to reflexing blades. **Petals** oblanceolate, obtuse, 7–8 cm long, the margins of the blade becoming strongly undulate, white. **Stamens and style** exserted due to the reflexing of the petal blades.

Photograph by Dennis Cathcart

Figure 10.
Tillandsia xiphioides var *prolata*

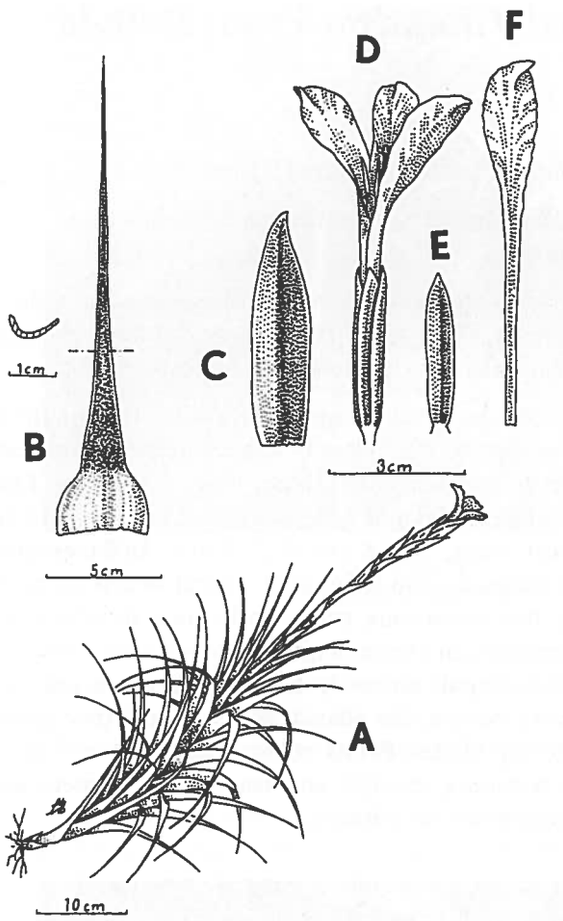

Illustration by Stig Dalstrom

Figure 11.
A, habit; B, leaf with cross section; C, floral bract; D, flower; E, sepal; F, petal.

The Valle de la Luna site represents both a very high elevation and northwest outpost for *Tillandsia xiphioides*. The habit of the plant is also unique within the complex of *T. xiphioides;* in fact the collector expected the plants (sterile when collected) to be some form of *T. latifolia* Meyen or *T. incarnata* HBK based on their appearance.

The long leafy stem, thinner, scarcely succulent leaves and rather elongate inflorescence at once separates this taxon from all the described varieties of *T. xiphioides* but the bract and flower size and structure seems consistent enough to include it at the subspecific level. Actually, the reproductive structures and phenology show much more congruence with the type of this species than do those of the variety *tafiensis* L. B. Smith. The latter seems more similar to the complex of *T. zecheri* W. Till.

Similar long-stemmed populations of *Tillandsia* have been described within the species of *T. ionantha* Planchon and are also known to exist in certain high elevation populations of *T. latifolia* var. *divaricata* Bentham; the latter plant is often a stemless epiphyte at sealevel and a caulescent (to nearly 1 m long) lithophyte at 1500–2500 m in Ecuador.

Mulford B. Foster Bromeliad Identification Center
Marie Selby Botanical Gardens
Sarasota, Florida

Book Review

Tom Lineham

Epiphytes of the Monteverde Cloud Forest Reserve, by Stephen W. Ingram, Karen Ferrell-Ingram, and Nalini M. Nadkarni; illustrations by Stig Dalstrom. 44 pages, 20 black and white drawings; bibliography. 22 x 14 cm, paper, illustrated cover. $6.00 post paid. Order from Epiphyte Guide, The Marie Selby Botanical Gardens, 811 South Palm Avenue, Sarasota, Florida, USA 34236

The order form for **Epiphytes of the Monteverde Cloud Forest Reserve** states that this is the first published field guide to epiphytes found in the Monteverde area of north central Costa Rica on the continental divide and identifies the authors as recognized epiphyte authorities. Mr. Ingram is the former herbarium manager, while Dr. Nadkarni is the former director of research, at the Marie Selby Botanical Gardens in Sarasota, Florida.

The introduction of the book explains the nature of epiphytes and describes the climatic conditions of the Monteverde cloud forest. A glossary indicates that the book is intended for both novices and specialists. Mr. Dalstrom's drawings are indexed. His ability as a botanical artist is well known to JOURNAL readers. Only two bromeliads, *Guzmania angustifolia* and *Tillandsia insignis,* are illustrated but that number is proportionate to the total list of 26 families including 238 species of flowering plants and 56 species of ferns.

Each of the named species is keyed to show frequency of observation: "A" (abundant), "C" (common), or "U" (uncommon). In addition, the month or months of flower, fruit, or spore production are shown. For example:

Catopsis nitida	erect rosette	A	IV-X

This species list contains a painstaking amount of detail that undoubtedly required many hours of collection and preparation. It would be a valuable guide and souvenir for visitors to the Monteverde Cloud Forest Reserve. Researchers who have access to FLORA MESOAMERICANA, edited by G. Davidsae, S. Souse, and A. O. Chater will probably find it a useful supplement. Specialists will be interested in comparing the list of bromeliads with Harry Luther's "An annotated Checklist of the Bromeliaceae of Costa Rica" (SELBYANA 16(2):230-234; 1995.

This work is recommended to both botanical researchers and amateurs able to visit and study in Costa Rica.

Orlando, Florida

Love of Bromeliads Breeds Fellowship Among Men

Jules Chantrier

I have often had, in the course of my life, occasion to prove the truth expressed in this wise saying.

Flower shows and congresses bring together men who have the same tastes, the same aptitudes and the same aspirations, and give them the opportunity of becoming acquainted. Thus men learn to know each other better and to appreciate each other. From this, sympathy springs up, and friendship is established–friendship, that most precious of all good things which sweetens and enriches life and which, in times of trouble, brings us unexpected comfort and relief and provides much food for thought.

On this subject I should like to tell this little authentic story of which I was a most interested witness.

It was in June, 1940. Holland had just been invaded, the Belgian army had been annihilated, the British troops had withdrawn across the channel after Dunkirk and Hitler's divisions were rushing forward. Hundreds of thousands of soldiers, tipsy with success, were pushing rapidly southwards with a view to making themselves masters of Paris.

Mortefontaine, a little village of 400 inhabitants, lying thirty-five kilometers to the north of Paris, had hurriedly been put in a state of defense; the roads had been blocked and trenches had been dug, in order to check, or at least delay, the thundering advance of the conquerors.

As for me, having fought actively for four years in the first Great War of 1914-1919, in the famous Marchand Division, the heroes of Fashoda, and with the 63rd American Brigade, with the valiant American Generals Louis Covell and Campbell, who have been my good friends ever since, I had decided to "stay put", whatever happened. But on June 9th I received formal orders from the military authorities to evacuate the place immediately.

So I was obliged, willy-nilly, to abandon my home, my business, my collections and my hybrids. That morning, having piled up in my little car everything which it could possibly carry, we left, we knew not exactly whither–my wife, our old cousin of eighty years who had taken refuge with us, my dog and myself.

My first idea was to stay as near to Mortefontaine as possible. I was hoping for a second victorious counter-offensive along the Marne, as in 1914, and thought that, once across the Seine, we should be in comparative safety, and in a

position to return to Mortefontaine if events turned out favorably. So we stopped at Samois, just across the Seine, where we had found two rooms in the house of a friendly nurseryman in which to lodge. But three days later we learned that one German right wing had crossed the river at Rouen and was swinging round to the East to surround us. Samois in its turn had to be evacuated, and that evening we set out again, with no aim in view, but as chance should lead us.

In short, eight days later, after numerous misadventuresss, under continuous bombardment from Italian aircraft, on a road crammed with cars, flocks and teams of draught animals of all kinds, where we hardly made 10 kilometers (6 miles) an hour, we found ourselves immobilized in a street in Chateauroux. We had not a drop of petrol left, nor any hope of buying any at any price.

A nurseryman in the place allowed us to install ourselves in an empty potting-shed in his establishment. For want of better, we stayed there, sleeping on the straw and doing our cooking in the open air between two paving stones, in the archaic manner.

Although one Armistice had been signed, we had to wait two months before the High Authorities could allow us 40 liters of petrol for our return journey to Mortefontaine.

Now we come to the point of the story, which may astonish readers except, of course, those of them who have a genuine love of plants.

I drove back to Mortefontaine, of which I had no news since leaving. I expected to find that everything I possessed had been destroyed. Well, thanks to a providential coincidence, I found everything at home almost untouched. My house, my greenhouses and my collections had suffered little damage. A German officer who knew me and remembered my address had billeted himself in my house, slept in my room and saw to the aerating and shading of the greenhouses and the watering of the plants until one of my workmen, who had remained in the neighborhood, could return and take up the job.

I learned later on from a village woman, who had looked after the room, that this German officer was himself a nurseryman and that we had met at the Flower Show at Ghent in 1938. I never found out his name, nor heard any news of him. I fear, and I am sorry to think, that he must have shared the fate of many of his comrades and had been killed before the end of hostilities.

Mortfontaine (Oise), France

Reprinted from The Bromeliad Society Bulletin, Vol 1 No. 4 (July-August 1951).

Mexican Memories

Don Beadle

These days my mind wanders much more than my body does. I will be in the middle of a routine, everyday event when suddenly, in my mind's eye, I am driving that stretch of road near Oaxaca. It's late evening and the glow from the city shows in the hills ahead. The sun, below the horizon, is lighting the heavy clouds with that special dreamlike effect that tints the air lemon-orange. Every detail of that landscape is clear and fresh, and it's as if I were there, caught in that beautiful moment again. If it's not Oaxaca, then it's riding that serpentine stretch of highway down the mountains between Puebla and Fortin in the "Zona de Niebla" and the "niebla" is thick enough to cut. These are the curves where the big trucks regularly take the outside lane no matter which side they're supposed to be on. We ride with the windows open to listen for big truck's diesel racket. Adrenalin aplenty.

I've come to understand that these flashbacks increase in frequency until the need to return to Mexico gets too strong to resist. They are always random glimpses and range from the 1000 ft. stairway to the canyon bottom near Tuxtla-Gutierrez where *Tillandsia chiapensis* lives, to the misty still square in Santa Clara del Combre where giant trees are garlanded with crimson cactus blooms.

My favorite seems to be the sight of Orizaba in the early morning sun as seen from our table in "Posada Loma's dining room". I am able to call it up at will. Sometimes I add a bit of haze or clouds for effect, but mostly I choose a sharp bright morning glistening on the snow covered peak; a Japanese water color. The large window, as always, frames the same magnificent *Tillandsia*-burdened tree and the same old man rhythmically sweeping Hibiscus blooms from the walkways with his worn palm frond. I am so very much there at this moment...so much there that is beautiful.

The mood shifts when we stop along the highway in the Isthmus of Tehuantepec to harvest *T. ionantha* 'Peanuts' and a small blue car stops. A concerned gentleman warns us that we are in a "zona de assaulto" which could be dangerous to our persons if a local "bandido" should choose to take exception to our presence. But we finish, and move on, and add that memory to the others.

This morning, as we get ready to head south again, headlines in our local paper tells us of bandits posing as policemen preying on Americanos in the North of Mexico. The apprehension this causes takes a bit away from the joyful anticipation of the trip. But balance returns when we consider the hazards so common in our own country. My rational mind says, "forget it", it's an odds situation; like driving a freeway; like a lightening strike. Oh well...for Orizaba,

[Continued on page 230]

Two New Ornamental *Neoregelia* From Rio de Janeiro State, Brazil

Elton M.C. Leme

***Neoregelia rubrovittata* Leme, sp. nov.** (figures 12 & 13).

A *Neoregelia paulistana* E. Pereira Leme cui affinis, foliis pulchre rubro-vittatis, latioribus, marginibus spinis longioribus, sepalis distincte longioribus, basi 25–30 connatis, petalis longioribus differt.

TYPE: Brazil. Rio de Janeiro: Cachoeria de Macacu, faz. Santo Amaro, 23 Mar 1992, *E. Leme 1865, P. Nahoum & Angelo S. Garcia* (holotype, HB).

Plant an epiphyte, stoloniferous, stolons stout, ca. 10 cm long, ca. 1.5 cm in diameter, bearing prophylles triangulate, obtuse to acuminate, entire, stramineous, the upper row forming a crest. **Leaves** ca. 15 in number, coriaceous, suberect at anthesis, forming a narrow crateriform rosette. **Sheaths** elliptic, 14 × 10 cm, densely brown-lepidote and irregularly wine-spotted on both sides. **Blades** sublinear, slightly if narrowed toward the base, subacute to rounded and cuspidate, 30 × 7–8 cm, green with distinct irregular narrow red cross-bands on both sides, inconspicuously white-lepidote on both sides, margins densely spinose, spines 1–1.5 mm long, wine-colored. **Scape** ca. 4 cm long, ca. 1.5 cm in diameter, white, glabrous. **Scape bracts** broadly triangulate, acute and apiculate, ca. 2 cm long, spinulose. **Inflorescence** capitate, subglobose at base, simple, umbellate, equaling the apex of leaf sheaths, 6–9 cm long (excluding the petals), 3–4 cm in diameter at base. **Involucral bracts** ovate, acute and apiculate, membranaceous, glabrescent, green, entire, slightly shorter to slightly exceeding the ovaries. **Floral bracts** narrowly oblong-ovate to sublinear, subacute, entire, ecarinate, membranaceous, hyaline, remotely lepidote, from shorter than the pedicels to near equaling the ovary, 15–25 × 3–8 mm. **Flowers** ca. 17 in number, erect, 10–12 cm long, strongly fragrant at anthesis, distinctly pedicellate, pedicels 7–20 mm long, the outer ones complanate, ca. 3 mm wide, the inner ones terete, ca. 2 mm in diameter. **Sepals** subsymmetric, linear-lanceolate, acute and apiculate, 60 × 7 mm, connate for 25–30 mm, ecarinate, glabrous, entire, green. **Petals** narrowly lanceolate, apex acuminate, 90–110 × 10 mm, connate for 32–40 mm in a very narrow tube in contrast with the blades, blades spreading-recurved at anthesis, white with exception of the apical 1/3 of its length dark lilac-blue, bearing two appendages just above the tube with irregular suberect membranaceous finger-like blades, rose and strongly recoiled after anthesis in the afternoon. **Filaments** terete, white, equally connate in a common tube with petals and free for 15 mm above it. **Anthers** linear, ca. 12 mm long, base sagittate, apex apiculate, dorsifixed near the base. **Stigma** conduplicate-spiral, cylindrical, blades 20 mm long, white, margins lacerate. **Ovary** ellipsoid, 12–15 mm long, 7 mm in diameter, white, glabrous. **Placentae** apical. **Ovules** obtuse. **Epigynous tube** lacking.

Photograph by Luiz Claudio Marigo

Figure 12.
Neoregelia rubrovittata in habitat

Photograph by Elton Leme

Figure 13.
Neoregelia rubrovittata

Photograph by Elton Leme

Figure 14.
Neoregelia nivea

This new species is related to the poorly known *N. paulistana* but is easily distinguished from it by the leaves which are broader and red-banded, by the longer spines on the margins, by the sepals being distinctly longer and much higher connate at the base, and by the longer petals.

N. rubrovittata was found growing as an epiphyte along a river at an altitude of about 300 meters. It grows inside the typical Atlantic rain forest. Discovering a large population of such a strikingly-colored species so near the City of Rio de Janeiro, a region so heavily explored, studied, and well known by botanists was a pleasant surprise. *N. rubrovittata* belongs to a natural complex of species which possesses very long flowers. A more complete study on all the species of this complex will be available soon.

***Neoregelia nivea* Leme, sp. nov.** (figure 14).

A *N. laevis* (Mez) L.B. Smith, cui affinis, laminis foliorum distincte denseque serrulatis, centralibus prope basin abrupte albis, bracteis floriferis apicem versus dense brunneo-lanatis, marginibus petalorum apicem versus violaceis differt.

Type: Brazil. Sao Paulo: without exact location, *Roberto Burle Marx* s.n., flowered in cultivation Nov 1992, *E. Leme* 1994 (holotype, HB).

Plant stoloniferous, stolons ca. 10 cm long, ca 1.2 cm in diameter, very rigid and completely covered by suberect, lanceolate, paleaceous prophylles which disintegrate with age. **Leaves** ca. 20, spreading-arcuate at anthesis, forming a broad crateriform rosette. **Sheaths** 11 × 8.5 cm, broadly elliptic, dense

brown-lepidote on both sides, whitish or purplish toward the apex. **Blades** linear, 30 × 4 cm, inconspicuous if narrowed at base, margins densely spinulose, spines ca. 0.5 mm long, inconspicuous white-lepidote on both sides, lustrous, green but the inners ones abruptly white toward base, apex rounded and conspicuously apiculate, apiculous paleaceous. **Scape** ca. 5 cm long, ca 1 cm in diameter, brown-lepidote. **Scape bracts** triangulate, apiculate, apex subspreading, ca. 2 cm long, ca. 3 cm wide at base, spinulose near the apex, densely brown-lepidote. **Inflorescence** subglobose, simple, subcorymbose, sunk in the center of the rosette, ca. 3.5 cm long, ca 4 cm in diameter, ca 70-flowered. **Floral bracts** obtuse, slightly undulate toward the apex, subentire, ecarinate, densely brown-lanate toward apex, equaling the middle of the sepals, the outer oblong-ovate, ca. 24 mm long, ca. 18 mm wide at base, the inner oblong, 20 × 8 mm wide. **Flowers** 35–40 mm long, pedicels 4–8 mm long. **Sepals** asymmetric, subovate, subobtuse and inconspicuously apiculate, 12 × 7 mm, connate for ca. 2 mm, ecarinate, green, brown-lepidote inside. **Petals** subspathulate, abruptly acuminate, 20 × 4 mm, connate for ca. 8 mm, white except for the bluish apical margins, spreading-recurved at anthesis. **Filaments** almost completely adnate to the petal tube. **Anthers** sublinear, ca. 3 mm long, fixed 1/3 of its length about the base, base obtuse, apex apiculate. **Stigma** subcylindric, ca 3.5 mm long, conduplicate-spiral, blades strongly contorted, margins lacerate, white. **Ovary** cylindric, ca. 10 mm long, ca. 3 mm in diameter, glabrous. **Placentae** subapical. **Ovules** many, obtuse. **Epigynous tube** ca. 1 mm long.

This new species is apparently related to *N. laevis* (Mez) L.B. Smith, but differs from it by the distinctly serrulate leaf blades, the white-colored inner leaves at anthesis, by floral bracts brown-lanate toward the apex, and by the petals having bluish apical margins.

N. nivea was maintained in cultivation by Roberto Burle Marx for many years and according to personal conversation with him, he could not remember the exact locality where it was collected in Sao Paulo State, but it was probably found near the coast. Its most striking feature is related to the color of the central leaves, which abruptly turn pure white when in bloom. However, *N. nivea* is not a close relative of the recently described *N. lactea* Luther & Leme, in spite of the fact that both utilize a strategy of attracting pollinators by means of the white-colored central leaves surrounding the inflorescence.

ACKNOWLEDGEMENT:

I thank Angelo Santana Garcia, a member of the Sociedade Brasileira de Bromelias, who took us to the collection place of *N. rubrovittata* and kindly climbed a very tall tree, risking his life without safety equipment, to a collect a specimen for our study.

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Rio de Janeiro, Brazil

Tom Lineham Joins Editorial Advisory Board

The BSI Editorial Advisory Board is composed of individuals possessing unquestioned credentials in various aspects of the bromeliad field. The purpose of the board is to provide authorative advice to the editor as needed, particularly in reviewing articles of a technical or controversial nature. The morphological, physiological, and taxonomic aspects are well served by such distinguished scientists as David Benzing, Gregory Brown, Harry Luther, Robert W. Read, and Walter Till. The practical and horticultural sides are represented on the board by Pamela Koide, who is a widely respected collector and grower and who helped represent the BSI at the last CITES conference.

I am pleased that Thomas U. Lineham, Jr., former editor of the BSI Journal, has agreed to join this distinguished group as a member of the Editorial Advisory Board. Tom brings with him a different, but nonetheless important, body of knowledge in the fields of editing, publishing, and bibliography, as well as a thorough understanding of the BSI organizational structure and history. His counsel will be frequently sought.

Announcement of Elected Directors

Jerry Raack

I would like to congratulate the following directors on their recent election and welcome them to the Board of Directors of the BSI. They will serve a 3-year term from 1997 through 1999. I know they will all do a fine job of representing their respective regions. I want to thank them on behalf of the officers, board, and all members of the BSI for volunteering their services to their regions and to the BSI. If you have any items that you wish for them to address, please do not hesitate to contact them.

Doris Bundy	Northeast Region (Re-elected)
Luiz Felipe de Carvalho	International Region
Pedro Glucksmann	International Region
Keith Golinski	Australia Region
Dan Kinnard	California Region
Thelma O'Reilly	California Region (Re-elected)
Jack Reilly	Central Region
Hattie Lou Smith	Florida Region (Re-elected)
Bill Soerries	Southern Region
Sally Thompson	Western Region (Re-elected)

Please join me in welcoming them to the Board of Directors of the BSI.

Pataskala, Ohio

Species Conservators - An Appreciation

Herb Plever

In a BROMELIANA article entitled *Where Have All Our Flowers Gone?*[1] I decried the great and continuing destruction of the Central and South American environments where bromeliads grow. Ten years later the need for land for agriculture and the pressure from commerce and political opportunism have accelerated the already rapid clearing of forests with resultant permanent destruction of vital flora and fauna.

The process appears to be inexorable and it is possible that within a few decades what we hobbyists grow, along with botanical garden collections, and the bromeliads growing in a few parks and preserves may be all that will be left of the once numerous Bromeliaceae. This prospect imposes on growers the grave responsibilities to preserve the species of the family. Our botanical gardens should be the prime repositories of species—places where students can examine and study them and their different habitats. Of course, the gardens must also attract and educate the public.

However, the increasing shortage of operating funds has led gardens to initiate or raise existing public admission fees, and caused many gardens to cut back on maintenance and have also caused them to sacrifice displays of extensive collections in favor of the lower-level Epcot types of exhibits designed to be flashy and eye-catching, often consisting primarily of hybrids, at the expense of diversity of species.

There are a few bright spots in this otherwise gloomy picture, thanks to the work of some very dedicated groups such as our New York Botanical Garden and the Brazilian Bromeliad Society.

I have had a long-standing commitment to the staff of the New York Botanical Garden to check out their bromeliad collection, but somehow I never seemed to find the time. The opportunity was forced on me recently by the arrival in New York of Luiz Felipe Nevares de Carvalho, the President of the Brazilian Bromeliad Society. Felipe asked me to arrange for a visit to the Garden's bromeliad collection and to its herbarium. Thanks to the assistance of Bruce Riggs, the Garden's Manager of Plant Records and Interpretations, an appointment was made for us to inspect the bromeliad collection which is being maintained in the propagation houses while a great new conservatory is being constructed. Despite a snow and ice storm, we managed to drive up to the New York Botanical Garden in the Bronx and spend a full morning examining the bromeliad collection with Francisco Coelho, the able gardener in charge of

[1] BROMELIANA (the publication of the New York Bromeliad Society), December, 1985.

bromeliads. We managed to check some of the identification tags in the short time available, but much more work needs to be done.

And I was greatly pleased to learn that the new conservatory will in fact be a species repository for many plant families. The Garden's goal is to maintain and display the different species in a natural setting in a way which will serve both scientific interests and still be of interest and serve to educate the public. However, there are big gaps in their species collection, so please support this important project by contributing funds and/or plant species. Contact either me[2] or the New York Botanical Garden, Bronx, NY 10458 if you can help.

A full day of non-stop discussions with Luiz Felipe Nevares de Carvalho left me with an immense impression of the man. A nuclear engineer by profession, he is well-educated, highly cultured, and an experienced traveler who speaks fluent English. He has extensive knowledge of the taxonomy and horticulture of the Bromeliaceae, but more importantly, he is passionately dedicated to the preservation of bromeliad species and their habitats in his country. He helped organize the movement for the enactment of laws and regulations to protect the environment. Felipe, together with Elton M.C. Leme, Roberto Menescal, Renato Bello, Roberto A. Kautsky, Luiz Knud Correia Araujo, and other leaders of the Brazilian Bromeliad Society are following the spirit of the late Roberto Burle Marx in educating the Brazilian public to appreciate their own native plants and the need to protect them.

Felipe believes that there should be more exhibits with a greater emphasis on educating the public about the plants rather than an emphasis on judging, awards and prizes. This is based on the belief that given the reality of the times, the presentation of awards tends to cause the species to take a back seat and cause an emphasis to be placed on production and cultivation of more ornamental plants, especially hybrids and cultivars. The species, which often possess more subtle beauty, need more emphasis to ensure their protection. To quote Felipe from a recent Article in *Bromélia,*[3] "Besides man's efforts to perfect these plants, we want to show the world what nature has given us for free. We want to change the standard view of esthetics so that beauty comes in all forms and is seen from all sides. It will be a new experience..."

Both Brazil and the Sociedade Brasileira de Bromélias are fortunate to have such a man in their midst.

[2] Herb Plever may be contacted at 225 Broadway, New York, NY, 10007

[3] Bromélia 2(3):1 (the journal of the Sociedade Brasileira de Bromélias), Message from the President.

New York City

Reprinted in part from BROMELIANA 33(2), the publication of the New York Bromeliad Society. February, 1996.

Brazil
(Selections from the book BRAZIL) by Mulford B. and Racine Foster

VIII
RETURN, 1940: FURTHER EXPLORATION

From the day we sailed we worked all the way home, during the long twelve-day sea journey, on our notes, drawings and herbarium specimens. During the succeeding winter months at home we worked with the plants, solicitously caring for those that were not killed in quarantine. It was a task of many months establishing those tender orchids and bromeliads. Very few of them bloomed after the shock of fumigation and transportation, so it was another year before many of them could be identified. We felt that our work in Bromeliaceae had just started and we longed for the time when we could return; it was as much of a surprise to us as to our friends and family that we found ourselves on the way back to Brazil in the spring of 1940. John and Margot Massee, seeking South American adventure, went with us for a part of the trip.

Somewhere early in our first exploration we had already decided on the things we must bring for our next collecting trip. Experience had taught us that more efficiency came with better equipment and on an extended collecting trip it is only fair, considering the great expense and energy, to have the most efficient equipment possible, yet we realized that additional baggage in Brazil would be a real problem. Rules and regulations change with every railroad line and station. You cannot do this and you cannot do that, but you must do thus and so. It is much trouble to move any large amount around and it is nearly as expensive as your own traveling cost. Most of the time while traveling in Brazil, we kept at least one press without any wrapping to cover it, for we found it almost impossible to properly describe our paraphernalia to the inquiring railroad employees who still did not know what it was even after they looked at it! The fact that we were not hiding it from their curious eyes seemed to satisfy most of them.

We had taken one herbarium press the first year, (although we borrowed several). It was an old but very good one which had, during many years, preserved records for the botanical world in the hands of the late Dr. Henry Nehrling who did so much pioneer work with the plant life in Florida.

This return trip to Brazil showed a reverse in luggage. Less space for wearing apparel and very much more space for the necessary equipment. A better stove for heating and drying, a lighter weight electric iron, art materials, photographic supplies such as two Leicas, one for kodachrome, the other for black and whites, additional lenses, flash lamps, etc., all to make better work possible. Dr. Smith sent additional presses and quantities of paper, ventilators,

blotters and flower envelopes from the Gray Herbarium to our boat. Our baggage was piled high on the deck, in fact it stood over eight feet high! The porters and stewards could only shake their heads in complete bewilderment wondering why anyone should be carrying all those blotters and papers, done up in waterproof tarpaulin, the long way to Brazil. The smallest part of the baggage was our own personal belongings, reduced to a suitcase each. We looked more like emigrants.

In fact we were taking some emigrants back with us, yes, Brazilian plant emigrants who had left their home in Brazil over 100 years ago and settled mostly in Europe and the British Isles. They responded happily to their reception and were welcomed into the greenhouses and homes of thousands of people, later sending some of their offspring to the United States where they were also well received.

When we were in Brazil on our first trip we mentioned to some interested Brazilians how beautifully effective these plant emigrants were in American homes and gardens. To our surprise we were told that these were not to be seen any more in Brazilian flower and plant markets, in fact, although they were native there, it seemed that they and their kin had left the country entirely. We promised to do something about it. We felt that some of the plants might like to see their native home again so now on the boat with us were some of these natives, Brazilian plants returning to their homeland after many years of wandering afar.

This time, landing in Brazil, it was most pleasant to have friends to greet us. Dr. Bertha Lutz was there and gave us our prearranged permit from the *Conselho de Fiscalsação das Expediçioes Artisticas e Scientificas* which facilitated things for immediate collecting. One full month of red tape and anxious waiting which had occurred on our arrival the first year was eliminated. This meant little delay for us and within a week of landing we started for the interior.

[With this favorable beginning of their second trip to Brazil, the Fosters travelled optimistically north from Rio de Janeiro to Belo Horizonte (as it is now called), the capital of the state of Minas Gerais. They explored that vicinity marvelling over the profusion of terrestrial orchids—Laelia species—but reported only one bromeliad genus: Dyckia. They overstayed their time in and around Belo Horizonte becoming acquainted with that mineral-rich area and getting reacquainted with the problems of cashing a check. They then turned eastward.]

THE MONASTERY AT CARAÇA

After a day's ride on a dirty train we arrived at Santa Barbara and found to our surprise that we could hire a man with an old car to take us up to the monastery on Serra Caraça where we had hoped to do some collecting.

It was a good two-hours' pull up the mountains from the village of Santa Barbara. Over bumpy, dusty roads, over small rickety bridges we were carried by our Brazilian taxi. We had asked if the road was good and the answer was that it was regular meaning passable. It was desolate and lonely on these roads. And here, going to another destination in Minas our curiosity was working over time,

wondering just what lay ahead of us. We had been told that women could not stay at the monastery but that there was a building below the monastery for the women servants. Just what awaited the two girls in our party?

The beautiful low mountains all around us in every direction were expressions of the peace and security which befits the repose of the monastery. Monks the world over know where to choose a site for their meditation and communings...

Another half hour's steep climb around many a perilous hairpin turn brought us to the summit of the road and there below in a shallow valley encircled by powerful mountains spread the old monastery. Very impressive it was from this height. What new experiences lay beyond those gates so remote from the world?

As we drove up through the large courtyard, surrounded by an ancient, moss-covered, twelve-foot wall, we were met at the church steps by the Father Superior and one of the Brothers. The Father Superior said in his quiet and sincere Portuguese, "This is your house as long as you wish to stay." Such friendly hospitality one might have expected had they known of our coming but they were saying this to strangers! Mulford and John were shown their rooms in the monastery proper, while Margot and Racine were sent down to the servants' quarters. The rooms were quickly prepared and soon we were served in our respective dining rooms, the belated almoço.

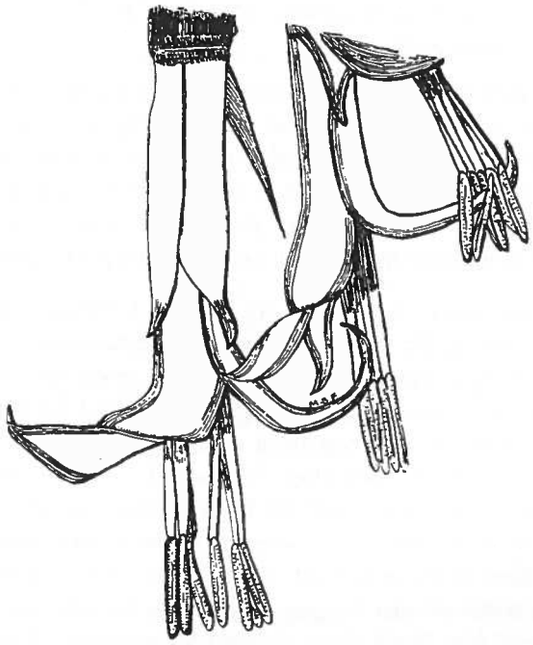
The monastery *[founded in the mid-18th century]* is located slightly above the tropics as far as temperature is concerned. So they can grow not only subtropical fruits such as oranges, tangerines, guavas and jaboticabas, but it is also cool enough for apples, grapes, strawberries and most of the fruits which we have in temperate zones. Here these monks are almost entirely self-supporting on the land, growing their own food, and making their own wine, the only drink they serve with their meals. When we did not drink the entire contents of the bottle at one meal and asked for water, they could not understand it...

We were told before going to Caraça that it had been a rendezvous of botanists for over a hundred years and we could easily believe it. What vast reaches of vegetation!

Each side of the mountains had different exposures which produced different conditions with different growth. Hardly one plant did we find that grew on the opposite slope. It seemed incredible that areas so near could be so different in vegetation. On one side the small trees had neither bromeliads nor orchids in them, whereas on the other side not only the trees but the rocks as well were literally covered with all kinds of these epiphytic plants. Often we would climb and cut our way for an hour through a sandy region with very few plants to interest us, then we would go another thousand feet up and everything would be lush with just the plants we desired. These areas changed so rapidly that we have often thought that the air currents had much to do with these sudden changes.

For us the collecting yielded some very interesting material; several *Billbergias,* a *Quesnelia,* a rare secund *Vriesia,* a grey *Cryptanthus,* orchids such as *Laelia cinnabarina* and *Zygopetalums* as well as many lovely ferns.

Caraça (pronounced with the last "c" soft) means mask or face. This great monasterial domain, which is some thirty miles across, is named for the mountain whose silhouette is that of a giant face or mask. The profile of the mountain is like a huge body lying face up serenely against the sky. This natural phenomenon in the rocks was quite probably the reason the monastery was located here...



***Billbergia* flowers**

We started by daybreak one morning to explore the details of this great face. Reaching to dislodge some clinging bromeliads from a perpendicular wall we realized that we were doing a bit of face lifting! And soon we were trying to climb the sides of the nostrils. It was a dangerous position to be in for if there should be a sneeze or a sudden breath of wind through the half-open mouth we might be pushed into the dark pit below. The plants we found sheltered under the chin were very different from those on the high cheek bones which, being exposed, had more color and severity of form. Beautiful orange and white Laelia orchids were growing in the crevices of the "Adam's apple." It was a day of unusual exploration not soon to be forgotten.

We should have spent several more days in this retreat for we had not explored the highest rocky peaks and ledges, nor the lower areas which were lush with tantalizing vegetation that beckoned us to search it through. The morning for our departure came too soon...

When we arrived again at Santa Barbara we discovered to our dismay that although the train did go that day there was no connection at the end of the line to our destination, the new State Park. Rather than be side-tracked in an even smaller village than Santa Barbara we decided to make the most of a very bad situation and remained for the night where we were, in a *pensão* which several days ago we had thanked our lucky stars we did not have to stay in…

PARQUE AYMORÉS

Came morning and we were on our way to the Parque Aymorés with a letter of introduction to the man in charge who had lived many years on North America. We anticipated seeing him.

An all day's ride in a narrow gauge, sometimes going as fast as twenty miles an hour, didn't get us to our destination very rapidly. By late afternoon we had arrived at Coronel Fabriciano, which could hardly be called a town. It was a mere station and a few houses. Neither the man nor his wife to whom we had the letter of introduction were in town. They had gone to Sáo Paulo. Their absence was a blow because we anticipated the contact with some English-speaking people.

However, luck was with us when we found a German lady whose husband was in charge of clearing the park which was our destination…She explained that to reach the Parque Aymorés we would have to go about twelve miles further on to the next station. So it would be necessary to wait until the following afternoon to catch the next train for Ipatinga from whence we would walk perhaps forty minutes to the Parque. In the meantime, however, Frau Schneider would send her eleven-year old son to the park to tell her husband that we were coming. The little boy would have to walk the twelve miles to Ipatinga and from there out to the park in time for them to get beds ready for us, then walk right back over the long trail to meet us with all our luggage when we finally arrived on the next afternoon's train…

After the meal *[of chicken and rice, beans and eggs, and coffee]* in order to use the few hours of daylight left, we went down to the river's edge, looking for a dugout canoe which we might hire. We crossed the Rio Doce and as we were poled with the prow pushing hard against the swift current we thought of the experience last year when we crossed this same river, many miles below on that high, narrow bridge in a heavily loaded truck, a mile of breath-holding torture. It was different now, the mata (forest) with its tall grey trunks beckoned us a welcome which we were anticipating. We strained with our boatsman trying to hold the boat from being swirled down stream with the current. Once onto the *mata,* all became serene again. No problems save those of perhaps climbing a tree or cutting our way to a certain section of trying our best to preserve an ungainly specimen of a strange bromeliad. Up in the air plant garden of the tallest tree there was a problem of stinging ants and annoying bees. It was a question as to who would master the situation, Mulford or the insects. But Mulford, although a bit blotched and scratched, although dripping with perspiration and covered with

leaf debris, came down triumphant with a lovely new *Portea,* whose ethereal colored flowers in powdery pastels of green, lavender and pink were ample compensation for the pesky insects.

We had been told about the large lake and the wonderful waterfall at the junction of the Rio Doce and the virgin forest. It sounded like good collecting country for epiphytes. As we left on the train the following afternoon, accompanied by Frau Schneider, we wondered just what was in store for us in this new venture ahead and we felt confident that this might prove to be our best collecting territory. Sr. Schneider and three men met us at the train on the edge of the jungle as our train pulled into Ipatinga an hour or so late; twilight, at five o'clock, was already setting in. Going into the big woods at night is no fun; although a path was cut, it was not free of fallen logs, sticks and long grasses. The density of the foliage overhead made it dark even in full daylight. Not familiar with the trail, it seemed endless and the baggage became heavier and heavier. The uncertainty of it all made it hard for us to be entirely free of feeling the sharp discomforts of such a long trek into the dark jungle. Those forty minutes they said it would take from the station to the park grew into two hours as the day grew older, and we became more weary. At long last our footsteps emerged from the jungle trail into the tall grasses which led to the river bank where a dugout canoe was awaiting us. Heavens! Another crossing of a river at night in a dugout canoe. There were nine of us plus luggage in a canoe which, of course, was too heavy and consequently we were stuck on several sandbars. Another canoe came out to relieve our load after many loud calls for help.

We were ushered up a hill to the little house where we were to sleep. The whole structure was made from local material carried on the backs of hard-working natives. Tree trunks, mud, straw and strong roots, all had been combined into a cozy little native house. Four cots with mosquito netting and thin blankets accommodated us for sleeping. In order to wash hands and face it was necessary to go down the hill to a hewn log trough which carried the constantly flowing mountain stream. All washing, cleaning of teeth and shaving was on public exhibition…

After a night's rest we were eager to be out in the great jungle forest which had never been touched by an axe. It was truly a virgin jungle and it thrilled us to realize that probably no other botanist had ever collected here. We anticipated excellent collecting, but the day wore on and we were very disappointed. In such dense jungles the trees are very tall, so that the air garden of epiphytes is high, inaccessible and sparse. Although our steps were always in the direction of the lake it was not until we were actually at the edge of that body of water that we found another good collecting spot.

The woods were full of monkeys but they kept their distance, all the time taunting us with their low guttural howls. They were the howler monkeys, and their call sounds more like a large animal in distress than the natural call of monkey to monkey…

After several days of almost fruitless searching in the woods up and down the river, we decided to cut our stay short. It was one of those unexplainable mysteries; we had not found the bromeliads and orchids which one would naturally expect here in great uncut jungle. We had worked hard but found only one new species, a *Neoregelia*. However, we chalked it up as one more experience to the Brazilian scene...

It had taken us more than two hours to stumble and feel our way through that inky blackout to get to the station where in the cold grey mist of early morning we waited and waited.

After four hours of waiting the train was at last in sight and soon we were scrambling aboard with our abundance of luggage. Twelve pieces of baggage, bundles of plants, cameras and a typewriter to be lifted through the little train's window. Then it was a scramble to find room for it all in the narrow car which was already crowded with passengers and their luggage. What a workout we had every time we boarded or left a train! Such trappings for four people was as great a show for the natives as the occasional circus. Indeed many thought that we had some connection with the circus, since John, who stands six feet two, afforded them some speculation as to our activities with a a traveling show. The majority of Brazilians are on the short side and an extra tall person in their midst creates quite a sensation especially to the little boys who just love to look up to a tall man.

At the end of the run we had to take pot luck at the best "hotel," called the Grande, a name which tries to cover up a multitude of neglect.

With a mountain in the distance Mulford immediately became restless. Everyone was dead tired. We had been wide awake since 2:30 that morning under anything but comfortable circumstances, but it made no difference to him. He went down to the river alone and engaged a native with a boat. During the remainder of a short afternoon he was eagerly collecting across the river on the slopes of the great hill. His efforts yielded only a few species, however, but two of them, *Billbergias,* proved to be interesting new species.

[To be continued]

[Continued from page 216]

T. chiapensis, and diesels and deserts and all the other wonders, we are ready to run the gauntlet and head south again–but we'll keep an eye peeled for the snake that has entered the garden.

Venice, Florida

Reprinted in part from the Sarasota Bromeliad Society newsletter, June 1996.

Eliza Doolittle of the Thorn Scrub

Chet Blackburn

"Descript" is a word that ought to exist, but doesn't. Logically it would seem that if a plant can be described as nondescript out of bloom, when it comes into bloom, and the bloom is attractive, then it ought to be called descript.

Nondescript aptly describes *Tillandsia streptocarpa* out of bloom. The plant forms small clumps of silvery, twisted, narrow leaves growing among thorny bushes on hillsides or in open woodlands in semi-arid regions of Peru, Bolivia, Brazil, and Paraguay. The appearance of the countryside can be deceiving, however, as it is often a surprisingly humid environment.

This species is almost as variable as it is widespread. The individual leaves are deeply channeled, usually recurved, and oddly twisted in appearance.

When a clump is mounted on a piece of driftwood in cultivation it always looks as if it had been thrown against the wood with a great deal of force and simply went "splat" into the final arrangement of it's leaves.

Yet, even without the assistance of Professor Henry Higgins, this ugly little duckling becomes a swan when the flowers emerge. The attractive, violet-blue, slightly fragrant flowers with spreading petals are large in relation to the plant, and there are usually several flowers open at the same time along the branched inflorescence. They also bloom over an extended period as an added bonus. It is said to bloom from March to May in the wild, but doesn't stay confined within those boundaries in cultivation.

The species name, *streptocarpa,* is derived from the latin words "strepto" meaning twisted, and "carpa" meaning fruit. If you grow other tillandsias successfully, you'll have no trouble with this one. As with most tillandsias, it needs bright light, good air circulation, and an occasional soaking followed by a longer period of being dry than wet before soaking again. The frequency of the soakings depends, of course, on the weather conditions.

It is readily available from growers and reasonably priced. It belongs in any collection of tillandsias, especially during its "descript" periods. "With a little bit of luck", you'll grow accustomed to their face.

Auburn, California

Reprinted in part from the BROMELIAD NEWS, Newsletter of the Sacramento Bromeliad Society. February, 1995.

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The purpose of this nonprofit corporation is to promote and maintain public and scientific interest in the research, development, preservation, and distribution of bromeliads, both natural and hybrid, throughout the world. You are invited to join.

Bromelia flemingii I. Ramirez & Carnevali

Photograph by Francisco Oliva-Esteve

Calendar

14 Sep	Extravaganza 1996: The Florida Council of Bromeliad Societies will be hold a large plant sale followed by a banquet at Marie Selby Botanical Gardens in Sarasota, Florida, on Selby's annual "Free Admission" day. Sale hours are from 10 to 5. Contact: Don Beadle 941-485-1096.
21-22 Sep	The 15th annual show of the River Ridge Bromeliads Society will take place at the City Park Botanical Gardens, 1 Palm Drive, New Orleans, LA, 70124. Hours of the show are from 1 PM to 5 PM on Saturday and 10 AM to 5 PM on Sunday. Sale hours are from 10 AM to 5 PM on both days. A $3.00 admission fee benefits the City Park Botanical Gardens. Contact: Tom Aldridge 504-833-9859.
9-10 Nov	The Caloosahatchee Bromeliad Society will hold its annual exhibit and sale at the Lee County Garden Council & Activities Center, 2624 Cleveland Ave. (U.S. Rt. 41), Ft. Myers, Florida. The theme will be "A Pallette of Color" in honor of renowned artist and member Kitti Wenzel. The hours will be from 9 to 5 on Saturday and 10 to 4 on Sunday. Contact: Dianne Molnar 941-549-3404 or Marie Bessellieu 941-674-0656.
26-29 Sep 1997	The WESTERN BROMANZA, Australia's ninth annual Bromeliad Conference, will be hosted by the Western Australian Bromeliad Society in Perth. Details of hours and location to be supplied in later issues of the JOURNAL.