

# **Journal of The Bromeliad Society**



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# Journal of the Bromeliad Society

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Editor: Thomas U. Lineham, Jr., 1508 Lake Shore Drive, Orlando, Florida 32803

Editorial Advisory Board: David H. Benzing, Mark A. Dimmitt, Racine S. Foster, Amy Jean Gilmartin, Harry E. Luther, Robert W. Read

Cover photographs. Front: *Tillandsia schusteri*, a new species from Oaxaca, Mexico, collected by Wayne Schuster of Chula Vista, California. The description on pages 214-215 is by Dr. Werner Rauh who also provided the photograph. Back: An arrangement of *Neoregelia compacta*, *Heliconia caribea*, and Chinese fan palm by May A. Moir. Photograph by Tibor Franyo.

## CONTENTS

- 195 On the Bromeliads of Central Veracruz and Adjacent Parts of Puebla, Mexico **Miguel J. Chazaro**
- 200 Morren's Paintings, 10: *Vriesea erythrodactylon* **Lyman B. Smith**
- 201 New President and Vice-President Elected
- 202 Special Announcement **Linda Harbert**
- 203 A Bromeliad Treasure **Racine Foster**
- 209 Misnamed Bromeliads, 1 **Harry E. Luther**
- 210 Bromeliads and Philately
- 214 A New Species from Mexico: *Tillandsia schusteri* **Werner Rauh**
- 216 Notable Leaf Markings in Guzmanias **Werner Motschenbach**
- 220 Regional Reflections  
Secret Revealed by Atsushi Shirai  
What is "Best" for Growing Bromeliads? by Rosalia Rau  
Home Remedies for Plant Pests
- 223 Bromeliad Arrangement: *Neoregelia compacta* with Heliconia and Chinese Fan Palm **May A. Moir**
- 225 Questions and Answers **Conducted by Eloise Beach**
- 227 Annual Report and Budget

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## On the Bromeliads of Central Veracruz and Adjacent Parts of Puebla, Mexico

Miguel J. Chazaro<sup>1</sup>

Photographs by the Author

### General Characteristics of the Area

Central Veracruz is located in the most eastern portion (at 19 degrees north latitude) of the physiographical region known as the Mexican transvolcanic belt. It is a strip of land running from east to west, from sea level all the way up to the summits of the volcanoes Pico de Orizaba (5700 meters above sea level), the highest point in Mexico, Sierra Negra (4700 m), Cofre de Perote (4240 m) and lesser mountains, all forming a high plateau averaging 2300 m.

A diverse and rich flora is enclosed here as the result of the tremendous variations in topography, climate, and soil conditions. For example, there are the lowlands of the coast, the snow-capped Pico de Orizaba volcano, and the semiarid high plateau.

The windward slopes are humid, and rainfall is abundant as the result of the cooling of air rising from the Gulf of Mexico. A contrasting situation happens on the leeward slopes where there is 75% less rainfall because of a rain-shadow effect.

The ecological factors, mainly those relating to temperature and rainfall, play an important role in the distribution of the vegetation. As in other mountains, vegetation types change with altitude, forming altitudinal belts from the seacoast towards the uplands.

Starting from the ocean and moving toward the highlands, the vegetation types on the windward side are: marine grassland, coastal dune scrub, mangroves, tropical deciduous forest, tropical rain forest (limited to the ravines), tropical oak forest, temperate oak forest, montane rain (or cloud) forest, mixed oak-pine-arbutus forest, fir (*Abies*) forest, high altitude pine (*Pinus hartwegii*) forest bordering the timberline at 3,800 to 4,000 m, and finally, alpine tundra.

On the drier leeward slopes the forest is distinctly sparse. Here are found the juniper forest, piñon pine (*Pinus cembroides*) and oak (*Quercus grisea*) forest, piñon pine and cypress forest, *Yucca-Nolina-Agave* scrub, *Hechtia-Agave* scrub, and the grassland of *Distichlis spicata* where the soil is alkaline. Epiphytic or terrestrial bromeliads are found in all of these groups except in the fir and high altitude pine forests where few bromeliads can withstand such cold, and the alkaline grasslands.





**Fig. 1.**  
These four bromeliads collected by the author have been known since the 18th and 19th centuries but have not appeared before now in the *Bulletin or Journal*. In this figure, *Catopsis paniculata*, a tall epiphyte with three-branched inflorescence often more than 5 dm long.



**Fig. 2.**  
*Pitcairnia ringens*, a rock-grower found in forests and on cliffs, in this case in cloud forest.



**Fig. 3.**  
*Tillandsia kirchhoffiana*, an epiphyte also from the cloud forest.

**Fig. 4.**  
*Tillandsia polystachia*, epiphytic in oak forest from near sea level to 1800 meters altitude.



Many epiphytes can be observed at altitudes between 1,200 and 3,000 m in the temperate oak forest, the cloud forest, and the mixed pine-oak forest. That altitudinal belt includes the most foggy and rainy portions of the study area. In contrast, only three epiphytic tillandsias can be found in the rain-shadow vegetation types.

### Botanical Researchers of the Area

Bromeliads have attracted the attention of many botanists of this century. The first who deserves mention is Dr. Lyman B. Smith of the Smithsonian Institution, working with Dr. Robert J. Downs. Dr. John B. Utley of the University of New Orleans is engaged in a taxonomic revision of the Bromeliaceae of Mexico for Flora Mesoamericana. He and Dr. Sue Gardner of Corpus Christi, Texas, will contribute to the Flora of Veracruz, Dr. Rogers McVaugh is preparing the bromeliad portion of Flora Nova Galiciana (the central-western states of Mexico). Dr. Amy Jean Gilmartin, Washington State University, Pullman, and Dr. Gregory K Brown, University of Wyoming, Laramie, are conducting cytotoxic research of the Latin American Bromeliaceae.

In Mexico, the late Dr. Eizi Matuda, who emigrated from Japan to Mexico early in the 1930s, studied the bromeliads for thirty years, especially those of Chiapas (Matuda, 1952). Recently, new people have joined these studies. Among them, Patricia Magaña (1986), Biology Institute, National University of Mexico, prepared an inventory of the bromeliads of coastal Jalisco.

José Guadalupe Garcia-Franco, of "Francisco Javier Clavijero" Botanical Garden, Xalapa, Veracruz, made two studies, one in Chiapas and the other at national level (Garcia-Franco, 1985 and 1987). He has collected a large, living group of bromeliads at the garden. We must mention also Arturo Victoria, National Polytechnic Institute, Mexico, Distrito Federal, whose work on the phanerogamic flora of the Valley of Mexico is now in press.

I should mention that I am not a specialist in the Bromeliaceae but that I made these studies as a personal project.<sup>2</sup> The goals were to establish the altitudinal belts of vegetation in the mountains of central Veracruz (Chazaro 1988). From 1980 through 1983, we carried out field trips and the general collection of plants. While a graduate student at the University of Wisconsin-Madison, I spent the summers of 1984, 1985, and 1986 in botanical work in the cloud forest in the same geographical area. During that time I acquired first-hand experience with both terrestrial and epiphytic flora. I had the opportunity to observe, photograph, collect, and identify many bromeliads in their habitats.<sup>3</sup>

My attention was attracted by the close relationship of the bromeliads with belts of vegetation; species growing chiefly in one or two adjacent types of vegetation, except for *Tillandsia usneoides* and *T. recurvata*, which are ubiquitous. I was impressed with the great number of epiphytes in the cloud forest where the plants literally covered the boles and branches of the trees.

### An Inventory of the Bromeliads of the Area

According to Garcia-Franco (1987) there are 364 species of bromeliads in Mexico, over half of them belonging to the genus *Tillandsia*. The southeastern states, namely Chiapas, Veracruz, and Oaxaca are the richest. In Chiapas, Lopez de B. & Beutelspacher (1974) reported 89 species. A more recent account by Dr. Utley (1986) gives a figure of 119 species in Chiapas. The *Diccionario de Especies de la Flora de Veracruz* (1985) lists 89 species for Veracruz.

In central Veracruz, we have seen so far nine genera: *Aechmea*, *Ananas*, *Bromelia*, *Catopsis*, *Hechtia*, *Pitcairnia*, *Tillandsia*, and *Vriesea* for a total of 47 species. My observations about these plants follow:

- *Hechtia*. Starting from the coast and moving toward the uplands and then to the high plateau we have *Hechtia* aff. *stenopetala* Klotzsch, terrestrial, basal rosette leaves, spines along the margin and the tip, floral scape bearing a branched inflorescence with small white flowers. It covers the rocky outcrops right next to the ocean and occurs also in the drier spots of the tropical deciduous forest. It looks like an agave, but has more flexible leaves, the underside covered with scales. In addition, the rosette is more open. At anthesis it is easy to tell the two apart. This *Hechtia* together with *Agave angustifolia* form dense, spiny scrubs almost impossible to walk on or through.

- *Bromelia pinguin* Linnaeus. Called "guapilla," "cardon," or "piñuela." Like the hechtias, a terrestrial rosette plant with recurved spines along the leaf margins. In the month of May, a clustered inflorescence a meter or so high rises from the center bearing showy pink flowers among the bracts. It grows on the coastal dunes up to the 900 m level, the upper limit of the hot coastal zone, hence the limit also of the tropical deciduous forest. When the ripe fruit turns orange it is picked by the local people who use it to make a tasty drink. It is also planted to form living fences to keep domestic animals within bounds.

- *Tillandsia ionantha* Planchon ("Tencho"). This species is the most common epiphyte found on the trees of the tropical deciduous forest, but can be seen also in the mangroves and oak woodlands. It is a small plant with stiff leaves and showy purple flowers. It blooms from October through February. We deem it one of the most attractive tillandsias of the region. Collection number MCH1268.

- *T. schiedeana* Steudel ("Tencho"). Epiphytic, rosette with tomentose leaves, the only tillandsia within the study region with stem and yellow flowers. Epiphytic in trees in the tropical deciduous forest (upper zone), the oak woodland, and the cloud forest (lower zone), occasionally on rocks. Blooms during March. MCH1469, 4693.

[continued on page 205]



## Morren's Paintings, 10: *Vriesea erythrodactylon*

Lyman B. Smith



Photograph by the author of a painting by  
Margaret Mee in the C. J. E. Morren collection  
Fig. 5. *Vriesea erythrodactylon*.

This species name is from the Greek, meaning rosy-fingered, and has a poetic connotation as when Homer sang of "dawn the rosy fingered." Here it all adds up to one of the most beautiful of all the vrieseas that I much enjoyed collecting in southern Brazil.

The fingers in the photo are my wife's who held up the paintings because their varying and often great size did not allow the usual speed system of shooting them flat on the floor. Some years later Bob Read and Betsy found more paintings and finished the job.

Smithsonian Institution, Washington, D.C.

## New President and Vice-President Elected



Fig. 6. Jack Burton Grubb

Jack Burton Grubb of River Ridge, Louisiana, was elected president of the society for a three-year term by the directors at the Miami meeting of the Board in May 1988. Jack is past-president of the Delta Bromeliad Society and The Greater New Orleans Bromeliad Society. He was the general chairman of the World Bromeliad Conference in New Orleans in May 1986, he is presently serving his second three-year term as a director of the BSI, and has just completed his second year as recording secretary.

Jack says, in the form of an inaugural address: "I thank the members of the Board for electing me president. I want to assure all members that the directors and I are going to communicate with you about how the BSI hopes to serve you better. We do care about all of you as individuals and as members of affiliated societies and we want it to show. The Board hopes to 'show and tell' what the BSI is committed to. You will hear from us. We hope to hear people saying, 'I'm glad that I am a part of the BSI'. I hope to see a great number of you during the next three years. Now, go take care of your bromeliads."



Fig. 7. William E. Frazel

William E. Frazel of Fort Lauderdale, Florida, was elected vice-president. Bill has been an avid collector of bromeliads for some 15 years. He and his wife Maureen have an extensive collection of some 1,000 different plants, which they like to use in landscaping.

Bill is past-president of the Bromeliad Society of Broward County and past-chairman of the Florida Council of Bromeliad Societies. He is completing his first term as director-at-large. During the past three years he has been chairman of the Judges Certification Committee, a judge and teacher at schools for judges. He is a lecturer on bromeliad subjects and is possibly best known for having served as auctioneer at the last four world bromeliad conferences.

We congratulate Jack and Bill on their election.

## Special Announcement

At its annual meeting in May 1988, the Board of Directors of the Bromeliad Society, Inc. decided to increase the annual membership cost for all classes of membership except Life by \$5.00 and to increase the airmail postage fee by \$2.50.

Expenses during the past three years have averaged just over \$7,000.00 more than income. Consequently, two kinds of corrective action are overdue: to increase income and to apply restrictions on expenditures.

The *Journal* is the major expenditure. It accounts for over 50% of the total expenses and while production costs are carefully monitored and savings are made wherever possible, they continue to increase chiefly because printing and paper cost more each year. It does not appear that we could benefit by changing printers because other bids have been consistently higher.

Another major cost is postage. There have been two postal increases in recent years and the more recent, in April 1988, was severe. That was the reason for the airmail postage fee increase.

The income of the society is almost entirely derived from membership dues and with the membership scattered around the globe special fund-raising events are just about out of the question. Many members, including affiliated societies, enjoy contributing to our general fund for operating expenses or to the color fund for *Journal* illustrations. Members also contribute regularly to the conservation committee and to the Victoria Padilla Memorial Research Fund from which awards are made for research activities. These gifts are greatly appreciated, but the basic and supplementary incomes have not been meeting expenses.

We recognize the fact that increases in cost will be felt especially by members who live outside the United States. For many of them unfavorable rates of exchange and bank charges are already factors to be considered. We especially regret the effect of the increases on those members.

The prices of back issues from 1976 through the current year were also increased. They are listed inside the front cover.

The Board voted to make the increases effective on 19 May 1988 and upon subscription or renewal.

Linda Harbert  
Membership Chairman

## A Bromeliad Treasure Racine Foster

On the banks of the famed Wabash River, in the heart of southern Indiana, is Vincennes, an old French outpost known for the victory of George Rogers Clark in his fight against the Indians. This spot is now a national shrine, the George Rogers Clark Memorial Park, where a large rotunda depicts the episodes of the warfare on this early frontier.

Part of this park contains the Old Cathedral, its library, a replica of the first church erected on these grounds and a log cabin in an excellent state of preservation.

In the courtyard to the left of the Cathedral, is the recently built library which is open to visitors. It is one of the oldest libraries in the United States; the contents were derived, mainly, from Bishop Brute, a man of noble and wealthy background. This library contains over 11,000 rare volumes, most of them printed in the 15th, 16th, 17th and 18th centuries. On display are rare, old Bibles and books on history, philosophy, geography, law, medicine, and Indian lore. They are written in Greek, Latin, Arabic, Hebrew, Chaldean, French, Italian, and English.

In August 1973, I was driving north to visit my mother in Wisconsin. A long rough detour took me through Indiana where I chanced to find a bromeliad treasure. I visited the Old Cathedral Library where one surprise after another greeted me. Imagine finding a complete set of Diderot's old French encyclopedia. Also, a priceless item of ten giant volumes of a Bible printed in matching columns in Greek, Latin, Arabic, Hebrew, and Syriac. What a great experience!

It was thrilling, to put it mildly, to view and handle the very rare book of Champlain's *Discoveries in North America*, dated 1615-1619; in 1973 valued at \$50,000. This, of course, is guarded in the vault where I was given special privilege to explore.

All of the above was indescribably exciting, but the absolute pinnacle of excitement for me, a bromeliophile, was to see in rather startling color, a hand-tinted print of *Bromelia pinguin* Linnaeus, determined to be *B. balansae* Mez (in 1891). This was on full display behind locked glass doors, but, because of evident sincerity and knowledge of the plant, I was privileged to hold and examine the book at length.

On the title page, in Italian was:

The subheading under *B. pinguin* was: *Ananasso del Brasil*. Eight pages of description stated that it had flowered in Rome during July and August (presumably a year or two previously) along with many details of how the Brazilians used it. I vowed that I would return, one day, with a translator who could enlighten me on those very details.<sup>1</sup>

Seeing a painting of a bromeliad in this old book made a difficult detour a happy adventure in history and one more title to add to my bromeliad records.

1. I regret that I have not been back to that library. Maybe a reader in the Vincennes area could do the job for me.

The SAN DIEGO BROMELIAD SOCIETY and the Horticulture Department of the San Diego Wild Animal Park celebrated the ground breaking for the San Diego Bromeliad Society Garden at the Park on 30 July 1988. We salute the society for its ambitious project.

The HAWAII BROMELIAD SOCIETY is working hard to develop and maintain a bromeliad garden at the Lyon Arboretum in Honolulu. We would be happy to learn about similar activities of other affiliates. —Ed.

## RESEARCH GRANT AVAILABILITY

Proposals are solicited from qualified persons wishing to conduct research on bromeliads. Grants normally not to exceed \$500.00 are available from the Victoria Padilla Memorial Bromeliad Research Fund. Proposals dealing with either applied or basic problems are encouraged. Interest, for instance, has been expressed in finding ways to improve seed storage and in circumventing self-incompatibility in rare species or those represented in culture by a single clone. Individuals wishing to submit proposals should contact David H. Benzing, Department of Biology, Oberlin College, Oberlin, Ohio 44074.

The seventh part of the Dutrie series on "Hybrids of the Vrieseas" will appear in the November-December 1988 issue. To respond to a recent question, the series was published originally in *Bulletin Horticole*, Ghent, Belgium, between 1 August 1946 and 1 January 1948.

## On the Bromeliads of Central Veracruz and Adjacent Parts of Puebla, Mexico [continued from page 199]

• *T. recurvata*. (Linn.) Linn. ("Tencho"). Epiphytic on trees in the same types of vegetation as *T. schiedeana*, but can be seen also on the high plateau on the branches of juniper, piñon pine, *Cupressus benthami*, *Yucca periculosa*. It also has the ability to thrive on telephone wires. MCH3782.

• *T. usneoides* Linn. ("Paxtle" or "Heno," also "Spanish moss"). This moss-like bromeliad is very abundant on the trees, hanging from the limbs and attaining two or more meters in length. It can be seen on oaks, *Ficus*, piñon pines. It is used in religious ceremonies for decorating the nativity scene.

• *T. fasciculata* Swartz ("Tencho"). A common epiphyte that forms dense colonies on oaks. Purple flowers appear during March and April. MCH1278.

• *Aechmea nudicaulis* (Linn.) Grisebach. Terrestrial, occasionally epiphytic, with broad leaves, spines along the margin, inflorescence with showy red bracts, yellow flowers, and yellow fruits. Collected at La Laja, near Corral Falso. MCH4690.

The following named species can be observed in oak forest:

• *Tillandsia juncea* (Ruiz & Pavon) Poiret. Very abundant on oak and ash (*Fraxinus*) limbs. MCH15125, 4692.

• *T. filifolia* Schlechtendal & Chamisso. With pink flowers during April and May 1982 at Seco Pimiento, Veracruz. The type locality is Hacienda de la Laguna, located south of Tepcela, Veracruz (no longer in existence).

• *T. polystachia* Linn. In flower in March 1982 at Barranca San Antonio, Veracruz.

• *T. dasylirifolia* Baker. In flower in May 1982 near Chavarrillo, Veracruz. MCH4088. [= *T. limbata* Schlecht.]<sup>4</sup>

The cloud, or montane, rain forest is the richest in epiphytes with respect to both the number of individuals and species. They include:

• *T. punctulata* Schlecht. & Cham. Inflorescence with three spikes, red bracts, and purple flowers that emerge from December through March. Type from Xalapa, Veracruz. It is sold in Xalapa city market. MCH1609, 1630, 2749, 4080, 4231.

• *T. deppeana* Steudel. With long and numerous spikes, red bracts, and blue flowers. Xalapa, Veracruz. MCH1490.

• *T. butzii*. Mez. Purple flowers in May 1982 at Juzgadillo. Type from Xalapa, Veracruz. MCH2554, 4236.

- *T. leiboldiana* Schlecht. In flower, June 1982 near Patlanalan, Puebla.
- *T. gymnobotrya* Baker. In flower from February through October. MCH4042, 4123a.
- *T. kirchhoffiana* Wittmack. In flower May 1982 at Juzgadillo, Veracruz. MCH4051.
- *T. grandis*. Schlecht. Usually on rocky cliffs. Inflorescence up to 2 meters tall. White flowers appear during March. Type from Hacienda de la Laguna, Veracruz.
- *Pitcairnia ringens*. Klotzsch ex Link. Growing on rocks as well as on the cliffs in the Pixquiac ravine. Flowered in May 1981.
- *P. heterophylla* (Lindley) Beer. Colonies were seen in a ravine near Xico, Veracruz.

Also found growing in this belt—

- *Catopsis aloides* (Schlecht. & Cham.) Baker.
- *C. apicroides* (Schlecht. & Cham.) Baker.
- *C. nutans* (Sw.) Griesb.
- *Vriesea* sp.

In the oak-pine-arbutus forest there are fewer bromeliads than in the cloud forest. Among them are:

- *Tillandsia imperialis* (E. Morren ("Suchil")). With blue flowers from December to April. Type from Orizaba, Veracruz. MCH3990.
- *T. violaceae* Baker. With hanging inflorescence, red bracts, and blue flowers from September through January. MCH3991.
- *Catopsis morreniana* Mez. An abundant epiphyte that grows on pines and elders. Leaves glaucous underneath, white flowers during the summer. MCH1622, 3406, 4394, 4043.
- *Greigia oaxacana* L. B. Smith ("pina de monte," "wild pineapple"). Terrestrial. Rosette leaves with spines along the margin, spikes hidden among leaf bases, pink flowers during May and July. Small berry, orange when ripe, delicious taste, flavor similar to pineapple. MCH3855.

On the high, semiarid plateau, growing in oaks, pines, and junipers the only bromeliads to be found are:

- *Tillandsia benthamiana* Baker [= *T. erubescens* Schlecht.]
- *T. recurvata*.
- *T. usneoides*.
- *Hechtia roseana* L.B. Smith. A terrestrial, found with *Agave horrida* in dense patches on the slopes of hills.

## Country List

Name	Distribution
1. <i>Aechmea bracteata</i> (Sw.) Griseb.	Mexico-Colombia
2. <i>A. mexicana</i> Baker	Mexico-Ecuador
3. <i>A. nudicaulis</i> (Linn.) Griseb.	Mexico-Brazil
4. <i>Ananas comosus</i> (Linn.) Merrill	Cultivated, native of Brazil
5. <i>Bromelia pinguin</i> Linn.	Mexico-Honduras
6. <i>Catopsis aloides</i> (Schlecht. & Cham.) Baker	Mexico
7. <i>C. apicroides</i> (Schlecht. & Cham.) Baker	Mexico-Panama
8. <i>C. morreniana</i> Mez	Mexico-Costa Rica
9. <i>C. nutans</i> (Sw.) Griseb.	Florida-Mexico-Ecuador
10. <i>C. paniculata</i> E. Morren	Southern Mexico & Central America
11. <i>Greigia oaxacana</i> L.B. Smith	Mexico: Veracruz-Oaxaca-Chiapas
12. <i>Hechtia roseana</i> L.B. Smith	Mexico: Veracruz-Puebla
13. <i>H. stenopetala</i> Klotzsch	Mexico
14. <i>Pitcairnia heterophylla</i> Lindley ex Beer	Mexico-Ecuador
15. <i>P. ringens</i> Klotzsch ex Link	Mexico
16. <i>Tillandsia balbisiana</i> Schultes filius	Mexico-Venezuela
<i>T. benthamiana</i> Baker see <i>T. erubescens</i> Schlecht.	
17. <i>T. brachycaulos</i> Schlecht.	Mexico-Panama (type from Hda. de la Laguna)
18. <i>T. bulbosa</i> Hooker	Mexico-Ecuador
19. <i>T. butzii</i> Mez	Mexico-Panama (type from Xalapa)
20. <i>T. caput-medusae</i> E. Morren	Mexico-Panama
21. <i>T. caespitosa</i> Schlecht. & Cham.	Mexico-Costa Rica
[= ? <i>T. multicaulis</i> Steudel]	
<i>T. circinnata</i> see <i>T. paucifolia</i>	
22. <i>T. concolor</i> L.B. Smith	Mexico-El Salvador
23. <i>T. chaetophylla</i> Mez	Mexico
<i>T. dasylirifolia</i> see <i>T. limbata</i>	
24. <i>T. deppeana</i> Steudel	Mexico
25. <i>T. erubescens</i> Schlecht	Mexico
26. <i>T. fasciculata</i> Swartz	Mexico-Colombia
27. <i>T. filifolia</i> Schlecht. & Cham.	Mexico-Costa Rica (type from Hda. de la Laguna)
28. <i>T. grandis</i> Schlecht.	Mexico-Honduras (type from Hda. de la Laguna)
29. <i>T. gymnobotrya</i> Baker	Mexico
30. <i>T. imperialis</i> E. Morren	Mexico (type from Orizaba)
31. <i>T. ionantha</i> Planchon	Mexico-Costa Rica
32. <i>T. juncea</i> (Ruiz & Pavon) Poirer	Mexico-Bolivia
33. <i>T. kirchhoffiana</i> Wittmack	Mexico
34. <i>T. leiboldiana</i> Schlecht.	Mexico-Costa Rica
35. [ <i>T. limbata</i> Schlecht.]	Mexico-El Salvador
36. <i>T. lucida</i> E. Morren ex Baker	Mexico-Honduras
37. <i>T. multicaulis</i> Steudel	Mexico-Panama
38. [ <i>T. paucifolia</i> Baker]	Florida-Honduras
39. <i>T. polystachia</i> Linn.	Mexico-Bolivia
40. <i>T. punctulata</i> Schlecht. & Cham.	Mexico-Panama (type from Xalapa)
41. <i>T. recurvata</i>	United States-Argentina
42. <i>T. rodrigueziana</i> Mez	Mexico-Honduras



- |     |  |  |
|-----|--|--|
| 43. | <i>T. schiedeana</i> Steudel                   | Mexico-Costa Rica                        |
| 44. | <i>T. streptophylla</i> Scheidweiler ex Morren | Mexico-Honduras                          |
| 45. | [ <i>T. setacea</i> Swartz]                    | Mexico                                   |
| 46. | <i>T. tricolor</i> Schlecht. & Cham.           | Mexico (type from Xalapa)-<br>Costa Rica |
| 47. | <i>T. usneoides</i> Linn.                      | United States-Argentina                  |
| 48. | <i>T. violaceae</i> Baker                      | Mexico                                   |
| 49. | <i>Vriesea</i> sp.                             | Mexico                                   |

#### NOTES:

1. First published in *Cactaceas y Suculentas Mexicanas*. 32:27-37; 1987. Revised and translated by the author.
2. My usual work is with the Symplocaceae (sweetleaf family), the Theaceae (tea family), and the Loranthaceae (mistletoe family) of Mexico.
3. Voucher specimens were deposited at the following herbaria: INIREB Xalapa, Veracruz (XAL); Biology School, Veracruz University-Xalapa (XALU); Univ. of Wisconsin-Madison (WIS), and Botanical Institute, Univ. of Guadalajara (IBUG). I identified the material and Dr. J.F. Utey verified my work in most cases.
4. Material in brackets [ ] was supplied by H.E. Luther.

#### ACKNOWLEDGMENTS:

Thanks are offered to: Dr. John F. Utey, University of New Orleans for encouraging me to write this paper in English; to Dr. Bruce F. Benz, Laboratorio Natural Las Joyas, Universidad de Guadalajara for reviewing the manuscript and for his useful comments.

I must mention the financial support from Consejo Nacional de Ciencia y Tecnologia, Mexico, D.F., through scholarship no. 11277 during 1984-1996, which allowed me to learn botany as well as English at the University of Wisconsin-Madison under the direction of Dr. Hugh H. Iltis.

I greatly appreciate the help of my wife Patricia Hernandez de Chazaro, who besides typing the manuscript has been my field companion for many years.

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*Instituto de Botanica, Universidad de Guadalajara  
Jalisco, Mexico*

## Misnamed Bromeliads, 1

### Harry E. Luther

Over the past several years a number of misnamed or unnamed bromeliads well represented in horticulture have been brought to my attention. As they frequently appear in shows and sales I hope to clear up the identities of these troublemakers by means of this occasional series. One way of keeping track of these notes is to make suitable entries in your copy of Victoria Padilla's *Bromeliads*, that indispensable companion.

• *Canistrum triangulare* L.B. Smith & Reitz, 1963. This plant is universally grown as *Canistrum fosterianum* 'var. pardinum', a name of no official standing. As this species infrequently flowers in cultivation, few growers have had the opportunity to see how different it is from true *C. fosterianum*. At least two forms are grown: a narrow-leaf and a more common blunt, broad-leaf selection.

• *Neoregelia farinosa* (Ule) L.B. Smith, 1939 'Roseostriata'. Commonly grown as *Neoregelia carolinae* 'var. roseostriata'. This cultivar bears little resemblance to *N. carolinae* even out of flower, but the original, incorrect epithet has persisted for at least 15-18 years unquestioned. First collected by Alvim Seidel, "many years ago, a unique plant, in Santa Theresa, Espirito Santo . . ." (A. Seidel, pers. comm., 1981).

• *Vriesea lubbersii* Baker E. Morren ex Mez. 1894.<sup>1</sup> For many years this plant was known as *Vriesea corcovadensis*, later it was occasionally labeled *V. triangularis* in collections. This is another bromeliad that rarely blooms and the true identity could not be completed. It was quite certainly not *V. corcovadensis* as that species has much more numerous and narrower leaves (like *V. flammea* and *V. poenulata*). *V. lubbersii* with its laxly flowered, compound inflorescence is easily distinguished from *V. triangularis* which has a simple, dense inflorescence. The latter species is not known by me to be in cultivation.

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

1. Drawing from Smith & Downs *Tillandsioideae* Fig. 417.



## Bromeliads and Philately

[Some time ago, Kenneth Robert Wright sent us a reminder of the paucity of postage stamps with bromeliad themes and finding only three articles in the Bromeliad Society Bulletin and the Journal<sup>1-3</sup> I let his article rest while hoping for inspiration to pursue the matter. This spring, however, there were two bromeliad stamp releases so now we shall ask Ken to give us some history and then describe the new releases. Further information on this interesting subject will be welcomed. —Ed.]

Many people regard philately as being almost as fascinating as the cultivation of bromeliads. Certainly there are enough variations of either to satisfy all tastes. Apart from the traditional practice of collecting stamps by country, there has been an increased interest in collecting on the basis of themes or topics which can vary from artists to zoos. In fact, the American Topical Society lists over 460 recognized themes, of which one is flora.

Collectors of flora on stamps have extensive stamp issues to draw on. Countries are ignored and the array of stamps available is more than sufficient to fill a worldwide botanical garden with stamps. I have for some time accumulated flora stamps as a sideline to my main interest of George VI and ships on stamps which show the transition of sail to steam, and how have about 800 different flora stamps.

Of the 800, I have only two showing bromeliads. Both were issued by Belgium to commemorate different Ghent flower shows. The first was issued in 1965 and the 1 f stamp shows a "Vresia" (s.g.1916). The second was issued 10 years later when *Neoregelia carolinae* was depicted on the 4 f 50 stamp (s.g. 2578). Both are in full colour.

One would expect to see a number of issues by Central and South American countries showing bromeliads, but to date the only flora stamps I have from that part of the world are mainly colourful orchids.

P.O. Box 47221, Greyville 4023, South Africa

[In February, we received the following information from Dr. Thomas Zanoni.]

### BROMELIAD POSTAGE STAMPS FROM THE DOMINICAN REPUBLIC

On 3 February 1988, the Instituto Postal Dominicano issued a set of four stamps featuring native bromeliads (Fig. 8). The set is expected to be part of a series called "Flores Nacionales."



Fig. 8

First-day-of-issue cover of a bromeliad postage stamp series issued by the Dominican Republic in February 1988, received from Dr. Thomas Zanoni.



Fig. 9

In March 1988, we received this special cover of bromeliad stamps issued by the German Democratic Republic from Thomas Dehn of Grimma. Note the special cachet of *Tillandsia walter-richteri*.

The plants, illustrated in natural color, are *Bromelia pinguin*, *Tillandsia compacta*, *T. fasciculata*, and *T. hotteana*. All are found without cultivation in the Dominican Republic.

The artist, Pascual Bailón, used lived plants in the Jardín Botánico Nacional to draw the *Bromelia* and *Tillandsia fasciculata*. The latter is the one found at lower elevations in the mountainous region of the island of Hispaniola (Dominican Republic and Haiti). The *T. compacta* and *T. hotteana* were drawn from color slides and then checked against live plants later collected in the high parts of the Sierra de Bahoruco. The form and color of the plants are typical of the plants found in nature.

The stamps were issued in sheets of 50 of each design, four sheets completing the issue. Offset printing was done by Litgrafía Ferrúa & Hermanos, C. por A. in Santo Domingo. Three hundred thousand stamps of each design were prepared.

Each stamp is marked fifty centavos. A first-day cover was printed with a design based on *Guzmania lingulata*. A folder describing the issue, also designed by the same artist, shows *Ananas comosus* on its cover.

Jardín Botánico Nacional  
Apartado 215-9

Santo Domingo, República Dominicana

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[In March, we received several examples of another set of stamps and Dr. Werner Rauh volunteered the description which follows.]

#### BROMELIADS ON STAMPS; AN EDITION OF THE GERMAN DEMOCRATIC REPUBLIC

As bromeliad collecting, especially tillandsias, becomes more and more popular, with East Germany being no exception, the German Democratic Republic decided to print a set of bromeliad stamps (fig. 9), perhaps the first series printed in Europe. The DDR is well known by philatelists for its artistic, valuable stamps of landscapers, historical monuments, animals, flowers and so on.

The first-day edition of the bromeliad series shows on the envelope a typical deciduous forest as an example of the habitat of many atmospheric tillandsias.

The series consists of four stamps with different values. The lowest value (10 pfennig) shows *Tillandsia macrochlamys* Baker from Mexico; the second (25 pfennig) shows the widespread *T. bulbosa* Hooker; the third (40 pfennig) represents the attractive *T. kalmbacheri* Matuda; the highest value (70 pfennig) shows *Guzmania blassi*, recently described by Rauh in honor of the well known

German tillandsia collector Alfred Blass. The first-day edition is provided with a special cachet of *T. walter-richter* Weber to honour the noted German bromeliad and orchid collector and breeder.

The selection of the stamp subjects was made by Dr. Peter Schneider (DDR).

Heidelberg, West Germany

#### Notes:

1. Bulletin. 6:34; 1956. An editorial note with black and white cut of Costa Rica 65 centimos airmail stamp showing a pineapple in fruit. The "grey, blue and white" stamp was issued to note the 1950 National Agriculture, Live Stock and Industrial Fair.

2. Bulletin. 8:81; 1958. A pasted-in stamp (in the BSI library copy) with the description: "This postage stamp from Jamaica, showing two pineapples, indicates the importance of the fruit in the economy of this British West Indian Island."

3. Journal. 28:80-81; 1978. "Why Neoregelia," by L.B. Smith, illustrated with a Brazilian stamp commemorating bromeliads.

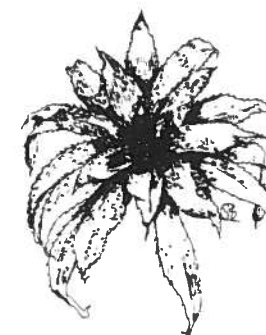
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#### *Neoregelia* 'Marble Throat' Cleared [continued from page 224]

who tacked the name *N. chlorosticta* var. Marble Throat on it. I don't believe it has any validity other than to sell plants. I question whether it is even a *chlorosticta*."

Harry Luther says, "'Marble Throat' is a minor variety of *Neoregelia chlorosticta*, a good cultivar."

That should rest the case, but I shall ask Elton Leme if he would care to add a few words. Will some one please send me 35 mm color slides of habit (side view) and inflorescence (straight down) of a specimen? —Ed.





# A New Species from Mexico: *Tillandsia schusteri*

Werner Rauh



Pamela Koide

Fig. 10.  
*Tillandsia schusteri*, a new species from  
Oaxaca, Mexico, shown in its habitat.

*Tillandsia schusteri* Rauh, sp. nov.<sup>1</sup> (fig. 10)

*Plant* stemless, but with short stolons, flowering up to 45 cm high. *Leaves* form a 25-cm high and 40-cm wide rosette. *Sheaths* more or less conspicuous, up to 4 cm long, 3.5 cm wide, dark brown, lepidote on both sides. *Blades* narrow triangular, attenuate, up to 30 cm long, 2.5 cm wide above the sheaths, densely gray lepidote, slightly banded, carinate below, erect to recurved. *Scape* erect, green, round, up to 20 cm long. *Scape bracts* imbricate, the basal ones subfoliate, the upper with a long, reddish brown sheath and a short, recurved blade. *Inflorescence*

1. The Latin diagnosis was published in: Rauh, W. Bromelienstudien 18:37-41. Tropische und subtropische Pflanzenwelt 58; 1986.

laxly bipinnate, up to 28 cm long and 4 cm wide, with 4-6 erect spikes. *Inflorescence axis* green, glabrous, somewhat angled. *Spikes* up to 14 cm long, 2 cm wide, with a sterile, foliate, 2.5-cm long base, complanate, with 8 to 10 flowers. *Primary bracts* shorter than the spikes, erect, long-lanceolate, attenuate, up to 4 cm long, 1.5 cm wide, reddish brown, sparsely lepidote. *Floral bracts* imbricate, erect carinate, 35 mm long, 15 mm wide, green, apex red, sparsely lepidote beneath, densely lepidote above, slightly exceeding the sepals. *Rachis* 4-angled, green, at anthesis hardly visible (post floral clearly visible). Flowers subsessile, 5 cm long, erect. *Sepals* 28-30 mm long, narrow-lanceolate, attenuate, the posterior carinate, green, free. *Petals* narrow-linear, their blades somewhat recurved, forming a narrow, yellow-green tube. *Stamens* exserted, style with green stigmas, exceeding the stamens.

**Holotype:** B.G.H. 66 720, leg. Wayne Schuster, Chula Vista, California (May 1984), in Herb. Inst. System. Bot. Univ. Heidelberg (HEID).

*Institute for Systematic Botany and Botanical Garden  
of the University of Heidelberg, West Germany*

## Note to Authors and Other Contributors

Please send material proposed for publication in a specific issue of the *Journal* at least 60 days before the mailing date which is usually the next-to-the last Monday of the month. For example, since the planned mailing date for the January-February 1989 issue is 19 December 1988 the closing date is 24 October. We cannot promise that show calendar notices, advertisements, and the like will be included if received after the closing date.

Photographs with proposed articles are always welcome but if in color they must be 35 mm slides or glossy black and white prints. Color prints cannot be used unless of exceptional importance because of the additional cost involved and the possibility of poor color reproduction. Other illustrative material such as line drawings in black and white or color can be reproduced readily and present no problems. A release to copy all illustrative material for BSI purposes should accompany the material.

All copy should be typewritten and be double spaced to reduce the chance of error.

Address any questions concerning material to the editor. There is a continuing need for material, especially for personal experience with all aspects of bromeliad culture. All material will be acknowledged, proposed substantive revisions will be discussed with the author. All original illustrative material will be returned unless permanently released.



# Notable Leaf Markings in Guzmanias

Werner Motschenbach

Bromeliads have become more and more popular in the last few decades. The new cultivars in particular catch our eye with their interesting inflorescences and their splendidly colored spikes and bring a breath of the tropics to any winter garden or window sill. In addition, we have the tremendously long durability of the blooming plant and the rich selection of species and varieties.

One group of the family, from which I would like to introduce a few representatives, gains the admiration of the observer by its especially beautiful leaf markings. Even in their nonblooming state, color-tinged bands, hieroglyphic-like stripes, and irregular patterns on the leaves, combined with the geometrical rosette growth habit, make these bromeliads the gems of the plant kingdom.

As in other plant families, it is often noted that plants distinguished by special leaf coloration possess plain-looking inflorescences. *Guzmania lindenii* Mez is in this category. The leaves, which are up to 70 cm long, form a funnel-shaped rosette. They are brown at the base and yellow-green with dark green to brownish green bands of reticulated markings in the upper portion. In cultivation, we have observed that the leaves become yellowish rather quickly and the zoning becomes weak and irregular; the beauty is thus lost. This phenomenon has always been attributed to too much light.

I am of the opinion, however, that in collections in which all the plants are grown much the same there is too little attention given to the required cloud-forest conditions. We have kept *Guzmania lindenii* in various climatic conditions and have thus been able to determine that in a cooler location the loss of chlorophyll is considerably less (figures 11 and 12).

Although André described this species as *Messangea lindeni* in 1878, the precise habitat was not known. Professor Werner Rauh along with Klaus von Bismarck then found *Guzmania lindenii* in Peru in July of 1967 growing epiphytically in the mountain forest at a height of 1,200 meters. It is also known to grow in the Chanchamayo Valley up to 2,500 m.

We soon got seed from the Botanical Garden at Heidelberg and managed to create a nice stand of them in the Palmengarten [in Frankfurt am Main]. Although the plants are healthy, we are still waiting for a bloom even though in the winter of 1985-1986 we lowered the temperature for one part of them to stimulate flower formation. In November 1985, we treated one plant with 6 cm of a 2.5% solution of Ethrel poured into the funnel. Ethrel is a liquid chemical that is used today in many commercial nurseries to control and hasten the bloom period

of bromeliads. If one follows the precise instructions, it is effective not only in funnel-shaped bromeliads but good results have also been accomplished in epiphytic tillandsias, even in cases in which the grower had waited over ten years for an obviously mature plant to bloom.

A plant hobbyist who is growing just a few bromeliads presumably will not readily buy Ethrel, especially since it is available only in large amounts with the commercial grower in mind. I would, therefore, like to mention another, simpler method that can be used with equally good results. The bromeliad that one wants to force into bloom and which is also in generally good condition is enclosed in a clear plastic bag along with a big, ripe apple. The bromeliad and the apple are kept in the bag for about three weeks. The ethylene gas released in small amounts by the apple also has a bloom-promoting effect.

In the case of the plant that we treated, the first phase of the development of a bloom spike was visible after just eight weeks. Growth proceeded uninterruptedly and by October the panicle-like inflorescence was already about 1.10 m tall. In November and December growth stopped. My colleague gave up hope that flowers would still develop. The hibernation, however, did not last long, and in January 1987 the flowers did indeed appear—white and unassuming, nighttime flowers, as in many other guzmanias, that are closed come daybreak. We carefully watched the appearance of the flowers and pollinated them first thing in the morning. Now we are hoping for seed.

In 1983, Professor Rauh described a variety that he had collected with Mr. von Bismarck in the distribution area of *Guzmania lindenii*. This plant remains smaller. The leaves reach to 50 cm and only in their juvenile stage have dense reddish-brown hieroglyphics in diagonal lines, which nearly disappear with maturity. In so doing, the plant appears to be one solid color, thus leading to the name *G. lindenii* Mez var. *concolor* Rauh.<sup>1</sup> This variety is less attractive but blooms quite readily. It has bloomed several times already for us, but it has not formed seed.

The third type in this series, and in my opinion the most interesting and most impressive, is *Guzmania bismarckii* Rauh. This species was discovered in 1980 by Professor Rauh and Klaus von Bismarck in northeast Peru where it grows at a height of 800 m in the deep shadows of the humid, hot, rain forest on swampy, sandy soil. *G. bismarckii* was described in 1984 as a new species by Professor Rauh and was named after Klaus von Bismarck who has accompanied him on many collection trips.<sup>2,3</sup>

Although *Guzmania bismarckii* can be categorized with *G. lindenii*, there are, nevertheless, basic differences especially in the nonblooming stage such as, for example, the stiff, upright funnel rosette which can attain a height of 1.5 m and a diameter of over 1 m. When in bloom the plant reaches up to 2.5 m! In addition,



Fig. 11



Both photographs by the author.

Fig. 12

*Guzmania lindenii* showing not only the beautiful markings of both plants but the effects of cool and warm growing conditions. Above, warm; below, cool.

in *G. bismarckii* the leaf markings stay; in cultivation there is no loss of chlorophyll as in *G. lindenii*. Also *G. bismarckii*, in contrast with *G. lindenii*, is found growing as a terrestrial.

The plants that Professor Rauh collected for the Palmengarten have also kept their splendid markings. They have become larger and more beautiful in the three years and I hope that I shall yet see a bloom.

As smaller representatives of this series I would like to introduce two other species, which are good in the home in a sunny window or in a special plant area. *Guzmania musaica* Mez comes from Panama and Colombia where it grows epiphytically in mangrove swamps and in the rain forests of the plain up to an altitude of 500 m. The reddish orange inflorescence has a dense head, is very attractive, and lasts for a long time, which makes the plant especially to be recommended.

More delicate and graceful, but also more demanding in regard to higher humidity, is *Guzmania vittata* Mez. It comes from Colombia and Brazil where it grows as an epiphyte at altitudes of 200 to 500 m. The inflorescence, however, is not as striking as in *G. musaica*. The beauty of this species lies especially in the elegance of the leaves with their lovely markings.

Reprinted from *Der Palmengarten* 2/87:84-87. By permission.

Translated by Harvey L. Kendall

#### Notes:

1. Rauh, Werner. *Guzmania lindenii* (André) Mez var. *concolor* Rauh var. nov. Bromeliadenstudien 14:41-46. Tropische u. subtropische Pflanzenwelt. 43. Akad. d. Wiss. u. d. Literatur, Mainz. Wiesbaden: F. Steiner Verlag; 1983.
2. \_\_\_\_\_. *Guzmania bismarckii* Rauh sp. nov. 15:19-22. Tropische u. subtropische Pflanzenwelt 50; 1984.
3. \_\_\_\_\_. *Guzmania bismarckii*, a new species from northeastern Peru, J. Brom. Soc. 34:114-116; 1984.

The National Serial Data Program of the Library of Congress has assigned International Standard Serial Number (ISSN) 0007-2184 to *The Bromeliad Society Bulletin*. That number provides a clear identification of the *Bulletin*. It is of particular significance to holders of large collections of serials. The *Journal* was assigned ISSN 0090-8738 several years ago. —ED



## Regional Reflections

### SECRET REVEALED

Do you want to know how to harvest your “brom” seeds? I will give you the secret in exchange from some of your seeds for the HBS Seed Bank. This month we will do tillandsias. They are the easiest since the “pods” are exposed. The seeds take a long time to mature—from 6 months to as long as 12–14 months.

1. The seed pods are about  $\frac{3}{4}$  to  $1\frac{1}{2}$  inches long.
2. They are normally dark green.
3. When they are mature the seed pod turns a light brown.
4. Patience is the policy. The seeds will not pop for as long as another 3–4 weeks after they turn brown.
5. You can use a nylon stocking net to cover the seed pods while you wait for the seeds to pop.
6. Check your seed pods regularly. Rock the pod from side to side. If the pod rocks easily it is time to pick.
7. Pick the pods and drop them in a clean, dry jar. Place a piece of waxed paper over the top and secure with rubber or string. Punch some holes in the waxed paper and wait for your seed pod to go “POP”!

Atsushi Shirai

*From Hawaii Bromeliad Society Newsletter, March 1988.*

### WHAT IS “BEST” FOR GROWING BROMELIADS?

I don’t know whether there is a “best” medium for growing bromeliads. They are so adaptable they will grow in almost any mix if it provides aeration to the roots, retains water without becoming soggy and holds the plant in place.

Most bromeliads are epiphytic and normally grow with their roots exposed. The roots hold the plant in place, absorb moisture and any food that may come from a compost of leaves, droppings, dead insects etc.

Most plants are designed to hold water and organic material in their cups. The white scales on many plants also absorb ions of moisture and nutrients from the air.

I have grown bromeliads in a number of different media and will tell you how they function for me. You can decide for yourself what is “best” for your plants under your conditions and your watering practices.

Bromeliads purchased from a plant shop or nursery are usually growing in a mix of peat moss and perlite. The peat moss holds moisture and provides an acid

medium for the plant. The perlite provides some aeration. This mix works for awhile but then breaks down and forms a solid soggy mass. If you unpot the plant you’ll find a small ball of viable roots. The rest have rotted away. The only thing keeping the plant alive is the water and fertilizer you provide in the cup and moisture and humidity from the air or from spraying.

The following are potting media I have tried:

1. **ORCHID SEEDLING MIX**—consists of fine fir bark, tree fern fiber, redwood and coarse perlite. It provides aeration, acidity, retains water and does not break down for at least two years or more unless you keep it continually moist.

This is good for small plants, seedlings or plants that require moisture at their roots, but it does not provide the support or secure footing for plants with small or no roots.

2. **ORCHID MIX**—consists of larger chunks of tree fern fiber, fir bark, redwood and perlite. It has the same qualities as the seedling mix but should only be used for larger plants with an established root system. Even then, there are times when a plant will need support.

3. **OSMUNDA FIBER**—takes more time to pot up a plant, but done correctly, it provides moisture and provides nourishment as it breaks down. On the other hand, it is expensive, difficult to find, and it is hard to remove the roots after it has broken down.

4. **TREE FERN FIBER**—takes much longer to decompose, provides aeration, acid pH, does not hold much moisture and does not provide a secure footing for the plant. It is too loose a mix, used by itself.

5. **NEW ZEALAND SPHAGNUM MOSS**—is relatively new on the market and the plants are very happy with it. It is much coarser than the sphagnum moss we’ve been accustomed to and it sops up water like a sponge. It provides aeration, acid pH, and the amount of water it retains is up to you.

When packed around the plant it provides a fair amount of support. It lasts several years, depending on your watering habits but will then break down and cause roots to rot if kept overwatered.

6. **TURFACE**—is clay rock in the form of pebbles. The bromeliads love it. It provides excellent aeration, retains water and yet makes it impossible to overwater the plants. It is inert, therefore you have to supply the nutrients the plant needs. It keeps the plants secure and is heavy enough to keep the larger plants from tipping over in their pots.

Turface is my favorite mix for bromeliads. It even discourages the insects you usually see in bark mixes such as snails, slugs, pill bugs, centipedes, etc.

7. LAVA ROCK—provides the same features as Turface, but it is much more porous and holds more water than Turface and it provides better air circulation. Neither Turface and Lava Rock will break down. Therefore, the only reason you would have to repot would be if the plant outgrows the pot.

8. RAND POTS—In addition to the type of potting mix to use, you also have to consider the pots holding the plants. I find Rand Pots especially good for bromeliads. They are clear plastic, square pots with extra aeration at the base of the pot.

The advantages of the Rand Pot are:

- a. that you can see what is happening to the roots and potting mix.
- b. You can tell whether the mix is wet or dry.
- c. the square bottom prevents the pot from tipping over even with a large plant.
- d. you get extra aeration.

Rosalia Rau

From *Bromeliana*, The New York Bromeliad Society, Inc., March 1988.

[All of the potting mixes mentioned can be ordered from OFE International, Inc., P.O. Box 161302, Miami, Florida 33116. Their telephone number is (305) 253-7080. Another source is Tropical Plant Products, Inc., 1715 Silver Star Road, P.O. Box 547754, Orlando, FL 32854-7754, (407) 293-2451. T.P.P. does not list Turface.]

## HOME REMEDIES FOR PLANT PESTS

The following remedies are from an ancient Heloise column.

Red spider mites: four tablespoons of dishwashing liquid or one-half cake of yellow soap dissolved in one gallon of water. Spray weekly until mites are gone and then monthly to keep them from returning.

Hardshell scale: Mix one-fourth teaspoon olive oil, two tablespoons baking soda, one tablespoon mild liquid soap in two gallon of water. Spray or wipe on once a week for three weeks. Repeat if necessary.

Mealybugs: wipe with cotton swabs dipped in alcohol. Spray larger plants weekly with a solution of one part alcohol to three parts water until the bugs no longer hatch.

From River Bend Views, River Bend Bromeliad Society  
Gretna, Louisiana

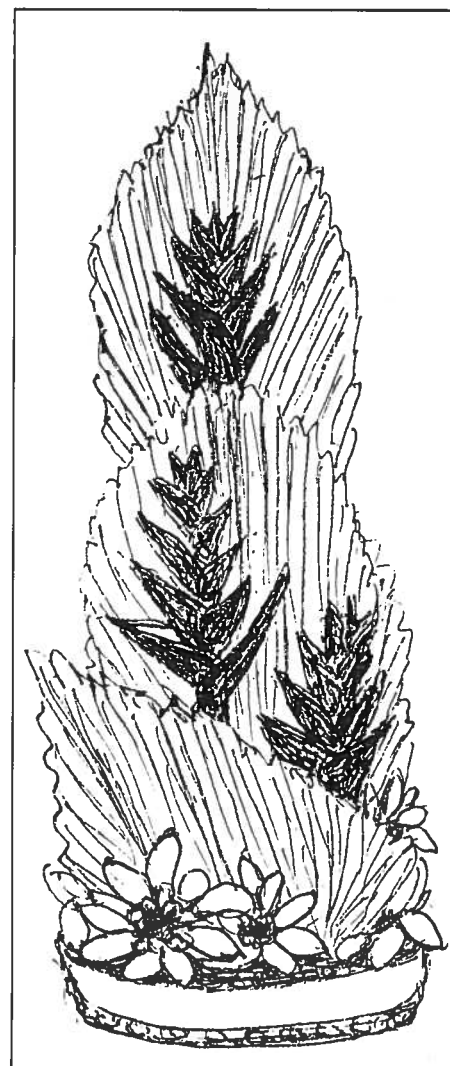
## Bromeliad Arrangement: *Neoregelia compacta* with Heliconia and Chinese Fan Palm

May A. Moir

For flower arrangements, I have found that *Neoregelia compacta* is one of the most useful bromeliads in my garden. It is such a rampant grower that there is always a wealth of it so I do not hesitate in cutting a number of plants at time. When not in flower it is a good green filler in bouquets. When its cherry red cup is added in the spring it is excellent to use as a repeat of this particular red color that is found in other plant material. In this strong arrangement of *Heliconia caribaea* var. *purpurea* and Chinese Fan Palm the red of the *purpurea* is repeated in the *Neoregelia* and gives the arrangement a good finish to the base.

There is always interest in the preparation of the Fan Palm to produce the lovely celadon green color. As soon as the green leaves are cut from the palm the wicked thorns should be removed. This is done with a sharp knife from the leaf down the stem on both edges. The tips of the leaves are cut where they become joined together. The leaves are allowed to dry in a cool shady place for a week or until the dark green has changed to this pale color. During the drying process they look blotchy and unattractive.

To put this arrangement together the tallest heliconia is well pounded into a very large kenzan (needle holder). Next, the palm leaf is placed in back of the heliconia and pinned and wired. Next another palm leaf is pinned to the front of the heliconia stem. Then, the two other heliconia stems are added in the kenzan and the final palm leaf is pinned to the heliconia. The *N. compacta* and some rocks are placed at the base and plenty





of water added. The arrangement should be good for two weeks provided the heliconia is fresh. Water should be added to the center of the neos about twice a week. (photograph on back cover)

Honolulu, Hawaii

## Neoregelia 'Marble Throat' Cleared

The January-February 1988 issues of the Bulletin of the Bromeliad Society of New Zealand and the May-June 1988 Bromeletter of the Bromeliad Society of Australia include no less than five short articles expressing questions and opinions about the cultivar *Neoregelia* 'Marble Throat'.

To begin, Len Trotman (NZ Jan.) wrote that he is uncertain if the plant is a species or a hybrid, but knows that it is delightful with its white flowers. He has observed its tendency toward being prolific. Harry Martin (NZ Mar.) says that he saw the plant in Hawaii in 1987 and regrets not having a photo. He notes, "one of our members has now produced some hybrids from this plant. One, the result of crossing with *N.* 'Oh No', and another with 'Pink Polka Dot'. Results not yet known." To these communications, Bea Hanson, editor of the Bulletin, adds (NZ Mar.) "A friend and I bought one each in Honolulu some years ago. The plants were both the same size and really beautifully marbled. They produced offsets quite soon after we brought them home. One day she rang me and in a disgusted tone told me her plant had lost its marbles and how was mine? I said mine was fine and looking even better than when we brought them back here. The solution was to take the sickly plant out of the greenhouse and to put it in the open air. There it began to pup madly plus all the pups and the mother had their marbles back again."

In the Bromeletter, Olwen Ferris, then editor (BSA May-June) adds some confusion stating that three years ago June Bennett gave her an offset of an unnamed plant received from Lotus Osiris. At about the same time she got a seedling that Ruby Ride had raised from seed gathered in Brazil. Some time later, Ruby gave her an offset labeled *Neoregelia chlorosticta* 'Marble Throat'. All three plants are identical and when grown in nearly full sun the soft green and white is suffused with faint pink. All was fine, she says, until Vic Przetocki wrote in the January 1988 Bromelink of the Bromeliad Society of Western Australia that *Neoregelia chlorosticta* cv. White Marble was his favourite bromeliad.

Enter Derek Butcher (same Bromeletter): "The name is 'Marble Throat'. It is listed in Brian Smith's Manuscript." Derek suggests that the plant grown from seed cannot be a hybrid.

Back to the United States. Kathy Dorr says in a recent letter that *Neoregelia* 'Marble Throat' is a plant Bill Sanborn acquired with no name and, "he is the one  
[continued on page 213]

## Questions & Answers

Conducted by Eloise Beach

All readers are invited to send their questions and observations about growing bromeliads as a hobby to the editor. Answers will be sent directly to you and some questions will be published.

### Q. Are you really sure about the correct spelling of *Cryptanthus* 'Pink Starlite'?

A. According to Barnell L. Cobia, the inventor of this patented bromeliad, the correct spelling is *C.* 'Pink Starlite'. Mr. Cobia named it, applied for a U.S. Patent and assigned all rights to B.L. Cobia, Inc. of Winter Garden, Florida. U.S. Plant Patent #3689 was issued on March 11, 1975 and somehow the name was incorrectly spelled *C.* 'Pink Starlight'. B.L. Cobia, Inc. continues to advertise and sell this plant under the intended name *C.* 'Pink Starlite' and uses that spelling on the patent labels accompanying the plants.

### Q. Is it possible to grow bulbous tillandsias in pots?

A. It would be best to mount most bulbous tillandsias because it is easy to over-water them in a pot, but if you like to experiment, try growing one of these in a container: *Tillandsia streptophylla*, *T. caput-medusae*, *T. seleriana*, *T. ehlersiana* or *T. bulbosa*. The larger forms of these species are especially well-adapted to pot culture. Use any type of container filled with a well-drained potting mixture. It would be better to have a drier mix rather than one that was soggy. Grow in high light and don't use much fertilizer or you will have elongated leaves. When grown in pots, these tillandsias can form perfectly symmetrical shapes since they are no longer restricted by a flat mounting surface.

### Q. How can I remove the unsightly mineral deposits occurring near the overlapping leaf margins of my bromeliads so that I may enter them in a competitive show?

A. Apply undiluted white vinegar directly to the deposits with a cotton swab. Gently rub until the stains disappear. The vinegar does not have to be rinsed with water. Some leaf margins are easily torn and scarred so don't overdo it. This technique is not recommended for heavily scurfed leaves because the scales are easy to rub off.

### Q. Is it true that *Aechmea mariae-reginae* has male and female plants?

A. Yes, it is a dioecious species. The male and female flowers are on different plants. Botanists refer to males as staminate plants and females as pistillate plants (derived from the flower parts: stamen and pistil). Dioecious species

are also common in *Hechtia* and *Catopsis*. Normally you can only distinguish male and female plants when flowers are present.

**Q. After working with spiny bromeliads, my arms are always badly scratched. Can you suggest an easy way to prevent this?**

A. Long sleeve shirts help reduce injury, but an even better method is to wear socks on your wrists. The best type are those long athletic "tube" socks with no heel. Look for thick, cottony material because the thin ones just don't provide adequate protection. In the toe end cut 2 or 3 small slits to allow finger room. You will soon learn the right cutting pattern for your hand. For extra protection when potting, wear rubber gloves and "arm" socks. If you are handling bromeliads with large spines like *Aechmea bracteata*, use leather gloves with tall cuffs instead of socks and also wear protective eyeglasses.

**Q. Please recommend a chemical that will kill the algae growing on my bromeliads.**

A. An excellent product is R.D.-20 (formerly Physan 20). R.D.-20 is a disinfectant designed specifically for plant-related uses. It will help control algae, fungal, bacterial and viral plant pathogens, fungal and bacterial leaf rots, slime-forming fungi and odor causing bacteria. To kill algae on bromeliads apply solution directly to affected areas with a spray bottle (1 teaspoon R.D.-20 per gallon of water). You may also need to wash away the dead algae with water. R.D.-20 will not leave any visible residue on your plants. This product is made by R.D. and Associates of Pomona, California and should be available from your local garden supply or by mail.

**Q. My *Orthophytum fosterianum* bloomed and now it looks like little plants are growing on the old inflorescence. Is this normal? What should I do with them?**

A. Yes, this unusual Brazilian species does develop plants on the inflorescence after flowering. No other *Orthophytum* listed in L.B. Smith's *Bromelioideae* monograph has this characteristic. Cut them off when about 3 inches in diameter and peel the old bracts off the stem before planting. Remove all the plants before the inflorescence dries because they won't survive unless planted in soil. This species also produces offsets from the base.

**Q. People are often confused about whether a plant is "stoloniferous" or "caulescent." What's the difference?**

A. Those terms refer to the plant's growth habit. A stoloniferous plant produces stems or runners that ultimately form new plants at their tips. Examples are *Neoregelia* 'Fireball', *Aechmea zebrina* and *Vriesea espinosae*. A caulescent plant forms a leafy above-ground stem. The important point is that the stem has leaves. These leafy stems can grow long and are often curved. Examples are *Orthophytum vagans*, *Tillandsia albida* and *Vriesea ospinae*.

DIGEST OF THE MINUTES OF THE ANNUAL MEETING OF THE BROMELIAD SOCIETY, INC.  
BOARD OF DIRECTORS  
Miami, Florida, 18-19 May 1988

**General - Officers and directors present:**

George H. Anderson  
Ros Buchanan  
William E. Frazel  
Jack B. Grubb  
Linda Harbert  
Albert M. Hodes  
Paul T. Isley III  
Clyde Jackson  
Carol M. Johnson

Connie Johnson  
Thomas U. Lineham, Jr.  
Gerald A. Raack  
Gregory A. Reid  
Ronald Schoenau  
Edgar L. Smith  
William A. Soerries  
Valerie L. Steckler  
Harold W. Wiedman

Harvey R. Bullis, Jr., B. Dean Fairchild, and Wayne B. Guthrie were excused from attendance both days.

**New directors:** Ms. Ros Buchanan, Australia, was seated. She will serve through 1988. Mr. Clyde Jackson, Texas, was seated. He will serve through 1989.

**Session of 18 May:** The extra session was called to act on a draft revision of the bylaws. That draft was revised again by the Board in committee. Copies have been sent to all Board members for mail vote.

**Session of 19 May:**

**Minutes:** The minutes of the annual meeting held in Dallas, TX, 23 May 1987, were approved.

**Reports** were accepted from all of the officers and chairmen of standing and special committees except that there were no reports from the vice-president, the corresponding secretary, and the chairmen of the Awarded Cultivars Committee, and the Slide Librarian.

**Election results:** (The president and vice-president are elected for three-year terms; all other officers and committee chairmen to one-year terms.)

**Officers:**

President, Jack B. Grubb; Vice-president, William E. Frazel; Editor, Thomas U. Lineham, Jr.; Membership Secretary, Linda Harbert; Secretary, Bob D. Whitman; Treasurer, Gregory A. Reid.

**Chairman of Standing Committees:**

Affiliate Shows, Charlien Rose; Affiliated Societies, Carol M. Johnson; Conservation, Mark A. Dimmitt; Finance & Audit, Clyde Jackson; Hybrid Registration, Don Beadle; Judges Certification, Polly Pascal; Nominations, Gerald Raack; Publications, Annie A. Navetta.

**Chairman of Special Committees:**

M. B. Foster Bromeliad Identification Center, Harry E. Luther; Research Grant, David H. Benzing; Seed Fund, Harvey C. Beltz; Slide Library, Mary E. Massey.

**Treasurer:** 1. The financial report for 1987 and the tentative budget for 1988-1989 appear in addenda 1 and 2.

2. The treasurer moved that the proposed budget be for the 18-month period 1 July 1988 to 31 December 1989 and that future budgets and financial reports be prepared on the basis of the calendar year. Approved.

3. The treasurer proposed a six-month budget (1 July - 31 December 1988) using 50% of the values proposed by the outgoing treasurer; that he prepare a new 12-month budget for mail ballot approval. Approved.

**Editor:** Production and postage cost increases are projected to raise the overall costs of the *Journal* from the last budget figure of \$40,000 to \$44,000 for the six issues beginning July-August 1988. For this reason and considering the deficits of the past three years the Board reluctantly approved cost increases for all membership classes, except Life, of \$5.00 and for 1st class and airmail postage of \$2.50. These increases were made effective 19 May 1988 and upon subscription or renewal.

**Affiliated Societies Committee:** Mrs. Carol Johnson was directed to communicate to all affiliated societies the rules governing affiliation in accordance with action approved in 1987 minutes (par. 18a).

**Judges Handbook Committee:** 1. Mrs. Valerie Steckler was directed to prepare without delay an accounting of the printing costs of the *Handbook for Judges* and an inventory of the *Handbook*.

2. She was also directed to transfer all remaining copies of the *Handbook* on hand to the Publications Chairman.

3. A motion to increase the cost of the *Handbook* to \$20.00 plus \$2.50 for postage was approved.

**Publications Committee:** 1. A motion to examine the feasibility of revising the publication *Bromeliads, a Cultural Handbook* (1977) was approved.

2. A motion to authorize the rental of the video "A Garden of Grace" passed.

#### ADDENDUM #1A: FINANCIAL STATEMENT AS OF DECEMBER 31, 1987

##### ASSETS CURRENT ASSETS

Cash in Bank - Texas Commerce Bank #09-601908	\$ 8,426.22	
First Commerce Bank #02-0072-7	\$ 1,963.63	\$ 10,389.85
Dean Witter - Bromeliad Identification Account #015893649	\$ 9,969.41	
General Account #015860686	52,855.87	
Life Membership Account #015893630	8,559.11	71,384.39
Advances - Corresponding Secretary:	\$ 200.00	
Editor	500.00	
Judges Certification	200.00	
Membership Promotion	100.00	
Slide Library	375.00	
Affiliates Newsletter	100.00	
Publications	100.00	
Seed Fund	200.00	1,775.00

##### FIXED ASSETS

	Cost	Reserve For Depr.	Book Value	
Apple Computer	\$ 1,706.97	\$ 580.37	\$ 1,126.60	
Library	1,657.80	537.25	1,120.55	
Typewriter	814.62	446.00	368.62	
File Cabinet	169.00	57.46	111.54	
	\$ 4,348.39	\$ 1,621.08	\$ 2,727.31	2,727.31

Inventory	53,988.28
Stock - 2 Shares Burroughs Corp.	200.00

**TOTAL ASSETS** \$ 140,464.83

##### LIABILITIES CURRENT LIABILITIES

**NET WORTH** \$ -0-

**TOTAL LIABILITIES AND NET WORTH** \$ 140,464.83

#### ADDENDUM #1B: PROFIT AND LOSS STATEMENT FOR TWELVE MONTH PERIOD ENDING DECEMBER 31, 1987

##### GROSS RECEIPTS

Advertising	\$ 6,098.30
Back Issues	1,393.50
Books, Binders & Other Publications	7,198.77
Bromeliad Identification Center	120.00
Color Plates and Separations	1,349.00

Cultural Flyers	414.75	
Dividends	5.36	
Interest	5,330.25	
Judges Certificates	65.00	
Medallions/Trophies	1,451.77	
Padilla Research Fund	298.00	
Postage	88.17	
Seed Fund	818.09	\$ 60,792.05

##### EXPENSES

Affiliates Newsletter	\$ 268.58	
Bank Handling Charges (Foreign Checks)	51.00	
Books, Binders & Other Publications	4,373.98	
Bromeliad Identification Center	3,010.00	
Cultural Flyers	365.00	
Depreciation	507.78	
Director/BSI Meetings	613.86	
Dues - Council of Garden Clubs	15.00	
Editor Journal - General	\$ 1,702.96	
Vehicle	1,800.00	3,502.96
Grants		1,095.00
Hybrid Registrar		22.00
Journal		35,456.88
Judges Chairman		5,325.02
Medallions/Trophies		1,231.22
Membership - Chairman - Contract	\$ 5,400.00	
	1,311.65	6,711.65
Membership Directory		2,059.50
Parliamentarian - Fee	1,920.50	
Parliamentarian - Travel	120.00	2,040.00
Postage		135.56
Secretarial		156.81
Seed Fund		823.17
Slide Chairman		200.20
Storage Rental		240.00
Taxes - Franchise Tax		45.00
		68,250.17

**NET LOSS FOR TWELVE MONTH PERIOD ENDING DECEMBER 31, 1987** \$ (7,458.12)

#### ADDENDUM #2: APPROVED BUDGET FOR TWELVE MONTH PERIOD ENDING JUNE 30, 1989

##### PROJECTED RECEIPTS

Advertising	\$ 6,000.00	
Back Issues	900.00	
Books, Binders & Other Publications	3,694.64	
Cultural Flyers	350.00	
Dividends	5.36	
Interest	5,000.00	
Judges Handbook	6,800.00	
Medallions/Trophies/Entry Tags	- 0 -	
Membership	36,000.00	
Padilla Research Fund	500.00	
Seed Fund	600.00	
Slide Library	200.00	
Video Tapes	450.00	\$ 60,500.00
Transfer from Reserve Funds	\$ 2,500.00	\$ 63,000.00

## PROJECTED EXPENSES

Affiliates Newsletter	\$	250.00	
Books, Binders & Other Publications		835.00	
Bylaws Committee		100.00	
Conservation Committee		100.00	
Cultural Flyers		-0-	
Directors Annual Meeting		500.00	
Editor Journal - General	\$	2,000.00	
Allowance		1,800.00	
Grants		3,800.00	
Insurance		2,500.00	
Journal		500.00	
Judges Certification Committee		40,000.00	
Medallions/Trophies		250.00	
Membership - General & Postage	\$	250.00	
Labor		1,800.00	
Office Supplies & Stationery		5,400.00	
Parliamentarian - Retainage		600.00	
Parliamentarian - Travel		1,200.00	
Postage		450.00	
President		150.00	
Secretarial		100.00	
Seed Fund		135.00	
Slide Library		600.00	
Storage Rental		225.00	
Video Tape		240.00	
Victoria Padilla Memorial Research Fund		350.00	
Miscellaneous		2,500.00	
		120.00	\$ 63,000.00

## BOOK REVIEW

*The Mail Order Gardener; a Complete Guide to Sources of Flowers, Vegetables, Trees, Shrubs, Tools, Furniture, Greenhouses, Gazebos and Everything else a Gardener Could Wish for.* Compiled by Hal Morgan. Harper & Row, New York, NY, c1988. 28 x 21 cm (11 inches tall), 287 pages. Index. ISBN 0-06-096241-0 (paperback). Arranged by subject, this catalog includes a two-page list of commercial bromeliad growers most of whose names you already know from the *Journal* and the "Buyer's Directory." In addition to the categories named in the subtitle, you may find such useful information as where to buy worms and gifts for gardeners. We are named in the section, "Societies and Associations." Decorated with old fashioned vignettes. Interesting and useful.

—TUL

## Calendar of Shows [continued from back cover]

- September 24-25 River Bend Bromeliad Society Show and Sale. Belle Promenade Mall, Marrero, LA. Show hours Sept. 24, 1:30 to 9:00 p.m.; Sept. 25, 12:00 to 5:30 p.m.; Sale hours Sept. 24, 10:00 a.m. to 9:00 p.m.; Sept. 25, 12:00 to 5:30 p.m. JoAnn Smith (504) 392-1191.
- October 1-2 Sarasota Bromeliad Society Show & Sale. Selby Botanical Gardens, 811 South Palm Avenue, Sarasota, Florida. Saturday, 10:00 a.m. to 5:00 p.m.; Sunday, 10:00 a.m. to 4:00 p.m. Wally Berg (813) 924-0060.

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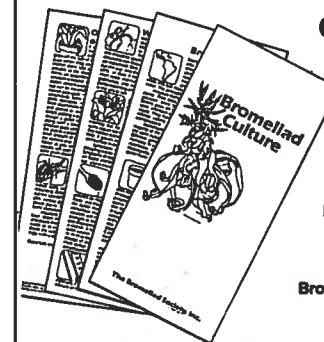
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Despite her protest that she can no longer create bromeliad arrangements on schedule, May Moir surprised us with this arrangement of *Neoregelia compacta*, *Heliconia caribea* var. *purpurea*, and Chinese fan palm.

(Article appears on page 223)

## Calendar of Shows

- September 2-4 Bromeliad Society of Central Florida Annual Show & Sale. Florida Mall, corner of Sandlake Rd. and South Orange Blossom Trail, Orlando. Friday and Saturday, 10:00 a.m. to 9:00 p.m.; Sunday, 12:30 to 5:30 p.m. Betsy McCrory (407) 348-2139, Edith Howells (813) 665-7678.
- September. 3-4 Southwest Bromeliad Guild 17th Annual Show and Sale, "Bromeliad Pow-Wow." Host, Sooner State Bromeliad Study Group, Tulsa Garden Center, 2435 South Peoria, Tulsa, Oklahoma. Saturday, noon - 5:00 p.m.; Sunday, 9:00 a.m. to 2:00 p.m. Hildegard Elliott (918) 749-3602 or Georgia Waggoner (918) 733-4602.
- September 17-18 San Diego Bromeliad Society Annual Show and Plant Sale. Balboa Park, Casa Del Prado, room 101, CA. Saturday, 1:00 p.m. - 5:00 p.m.; Sunday, 10:00 a.m. to 4:00 p.m. Admission is free. Show Chairman, Jennie Wisely (619) 469-9151.
- September 24-25 River Ridge Bromeliad Society 7th Show and Sale. Elmwood Center, Lagniappe Entertainment Complex, 1200 South Clearview Parkway, Harahan, LA 70123. Earl Vicknair (504) 737-2974.

[continued on page 230]