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Cover photographs. Front: *Guzmania wittmackii* 'Red' in the nursery of Corn. Bak, Assendelft, Holland. The text is on pages 195–197. Text and photos by J.M. Manzanares. Back: *Aechmea aquilega*, called "Gravisia aquilegia" by the Fosters, was one of their early sightings in Bahia. Text is on pages 222–227. Photo by M. Lecoufle.

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Guzmania wittmackii in Ecuador

José Manuel Manzanares

Photographs by the author

Edouard François André, during his trip through Colombia, Ecuador, and Venezuela in 1875, found for the first time in a dense and humid forest between Altaquer and El Paramo in the southwestern Andes of Colombia the bromeliad that he named *Thecophyllum wittmackii*. That name honors Max Karl Wittmack, the learned publisher-in-chief of GARTENFLORA.

André wrote in his report of the expedition: "It is hard to believe in the strange, although admirable, appearance of this plant when seeing it for the first time decorating tree branches. Its tall spikes grow at right angles to the trees and have very long, richly colored bract-like leaves, recalling the branches of a candelabra."

Earlier, Ruiz and Pavon had, in 1802, established the genus *Guzmania*. Carl Mez (in 1896) transferred *Thecophyllum wittmackii* to *Guzmania* to become *Guzmania wittmackii* as we now call it.

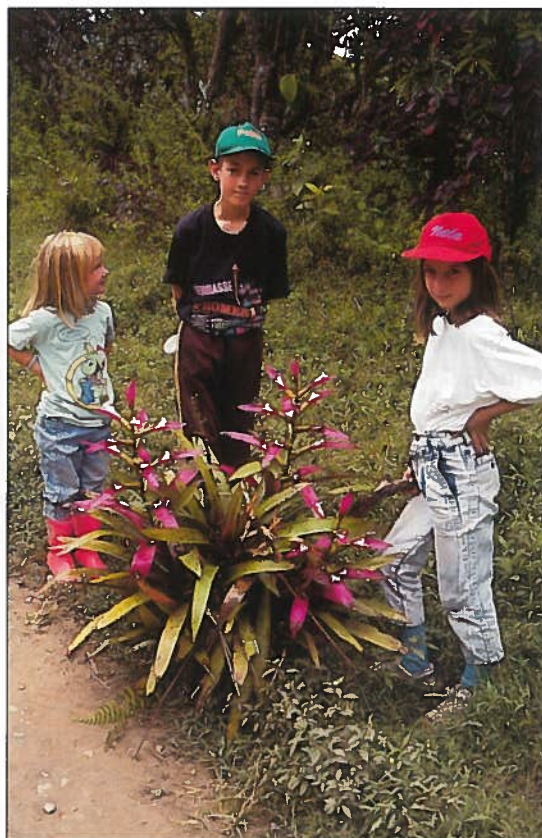
In time, this guzmania became one of the most commercial in Europe, sold as *Guzmania wittmackii* 'Red'. In 1986, the firm Corn. Bak of Holland introduced *Guzmania wittmackii* Purple in very large quantities. That guzmania has been used in the hybridization of many plants now on the market.

As with many South American countries, Ecuador has been and remains the source of many new plants that can be used for crossing and to obtain new hybrids that the market wants. Many collectors have searched the deep jungle that remains in the Occidental Mountains and found *Guzmania wittmackii* in many different colors of the primary bracts, floral bracts, and flowers.

If we look into the virgin forest of the southeast, close to Molleturo in the province of Azuay, at about 900 meters altitude, we can see the red kind 40–50 cm tall with white floral bracts and flowers. A larger form, a bigger plant, is common in the coastal mountains, especially in the province of Manabi. More to the north, in the province of Pichincha, in the deep jungles and in many trees that grow in pasture land there is a purple form with white floral bracts and flowers (figure 1). That type is frequent at altitudes of around 900 meters. Close to the border of Colombia, in Chical in the province of Carchi, the form with orange floral bracts and flowers covers the trees (figure 2), offering the spectacle described by André.

It is not so easy to find the white type. Sometimes you can look for one specific bromeliad and the harder you look the less likely you are to find it. Other

Figure 1.
Nele, Pablo, and Rebeca
Manzanares show the purple
form of *Guzmania wittmackii*.



days, when you are not making a specific search, there it is. This is the case of the white type of *Guzmania wittmackii*. Once, when my friend Esteban Riofrio of Quito and I travelled to Quito from Santo Domingo de los Colorados, we could not find a single petrol station with toilets. That was how we happened to find this exceptional type (figure 3).

In conclusion, we can say that in Ecuador it is possible to find *Guzmania wittmackii* in the following colors: red, purple, orange, and white. Let us hope that we will find others in the future.

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Smith, L.B., R.J. Downs. 1977. Tillandsioideae. Flora Neotropica. Monograph, no. 14, pt. 2. New York: Hafner Press: 1275–1285, 1342.
There are also color photographs in JOURNAL 1977, page 240 (A. Hirtz) and 1979, page 116 (V. Magnuson).

Quito, Ecuador

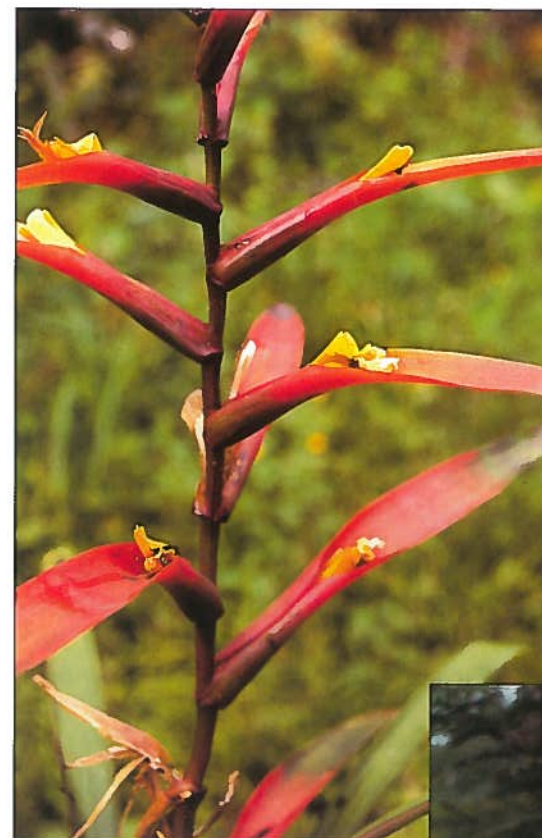


Figure 2.
Guzmania wittmackii,
orange form.

Figure 3.
Guzmania wittmackii,
the white form.



What is a "Type"?

Botanical descriptions of genera, species, and varieties follow the rules stated in the INTERNATIONAL CODE OF BOTANICAL NOMENCLATURE. The code has been adopted by the International Botanical Congress and is amended from time to time. There is usually no reason for the hobbyist to study the code but it would be useful for her or him to know some of the words. For example, Elton Leme in one of his interesting works of detection has reported on one plant that has endured two names and explains why one should take precedence over the other. In his description he uses three terms to explain the materials that he has examined or that he knows about: type, holotype, isotype. Why isn't one "type" enough? Read on.

Nomenclatural type. The specimen of a plant family, genus, species, etc. (a taxon) to which the name is permanently attached, whether as a correct name or as a synonym; the nomenclatural type is not necessarily the most typical or representative element of a taxon. The type of the species *Tillandsia utriculata* for example, is a nomenclatural type for the genus *Tillandsia*. It has those particular characteristics that identify it as being distinct from other genera.

Holotype. The one specimen or other element used by the author in preparing the original description. The official definition includes modifications of this statement. Holo- means whole, complete.

Isotype. A specimen that is a duplicate of the holotype. Iso- means equal.

Lectotype. A specimen that is the same as the original material (the type) but is so named when there is no holotype (for whatever reason). Lecto- means picked or chosen.

Neotype. If all the material on which the name of the taxon was based is missing, a specimen or other element may be selected by a later authority as a nomenclatural type. The neotype lacks the authority of the original but indicates the sense in which the later authority designating it considers the name should be applied. Neo- means new.

Syntype. If a holotype is not designated or if two or more specimens are simultaneously designated as types, a later authority may cite any one of them when preparing a description. Syn- means with, along with, together.

A New *Neoregelia* Species From Petrópolis, Brazil

Elton M.C. Leme

Illustrations by the author

Neoregelia petropolitana Leme, sp. nov. (figures 4 and 5)

A *N. fluminensis* L.B. Smith, cui affinis, laminis foliorum glabrescentibus lucidisque, bracteis scapalibus glabratiss, bracteis floriferis glabratiss altitudinem pedicellorum aequantibus, floribus manifeste pedicellatis, pedicellis 25–27 mm longis differt.

Type. Brazil: Rio de Janeiro, Petrópolis, Rocio, about 1000 m s.m., Oct. 1986; flowered in cultivation Feb. 1995, *E.M.C. Leme 1002* (holotype: HB).

Plant propagating by short basal stolons. **Leaves** ca. 22 in number, subspreading at anthesis, forming a broad and subdense crateriform rosette; **sheaths** elliptic, 11 × 7 cm, densely brown-lepidote on both sides, purplish inside; **blades** sublinear, very inconspicuously narrowed at base, apex subacute to broadly rounded and apiculate, apiculous ca. 3 mm long, 20–25 × 4 cm, margins laxly serrulate, spines ca. 0.5 mm long or smaller, glabrescent, green, lustrous, soft in texture; **scape** ca. 1.5 cm long, ca. 1.2 cm in diameter; **scape bracts** broadly ovate, obtuse and apiculate, entire, membranaceous, ca. 2.8 cm long, glabrous, the upper ones (involucral bracts) about equaling the pedicels. **Inflorescence** capitate, simple, umbellate, sunk in the center of the rosette, ca. 5.5 cm long, ca. 3.5 cm in diameter, densely flowered; **floral bracts** equaling to slightly shorter than the pedicels, membranaceous, glabrous, entire, ecarinate, the outer ones narrowly ovate, obtuse and apiculate, 27 × 12 mm, the inner ones linear-lanceolate, shortly acuminate, 24 × 4–5 mm. **Flowers** ca. 45 in number, ca. 50 mm long (excluding the petals), pedicels 25–27 mm long, ca. 2 mm in diameter, glabrous, the outer ones slightly broader and complanate toward base; **sepals** asymmetric, oblong-elliptic, shortly acuminate, 16–17 × 5 mm, connate at base for ca. 4 mm, entire, ecarinate, reddish toward apex, glabrous; **petals** subspathulate, acuminate, 28 × 6 mm, connate at base for ca. 10 mm, spreading at anthesis, white toward base, greenish at middle and lilac toward apex, bearing two well-developed callosities at the base of the lobes; **filaments** adnate to the petal tube and free for ca. 4 mm above it; **anthers** sublinear, ca. 4 mm long, fixed near the middle, base obtuse, apex apiculate; **stigma** conduplicate-spiral, ellipsoid, white, margins lacerate; **ovary** ellipsoid, ca. 11 mm long, ca. 5 mm in diameter, glabrous, white; **placentae** apical; **ovules** many, obtuse; **epigynous tube** inconspicuous.



Figure 4.
Neoregelia petropolitana. Inflorescence detail of the new species

Neoregelia petropolitana, named in reference to the county of Petrópolis, is closely related to *N. fluminensis*, which is known from the type locality. It was described on the basis of a fruiting-stage specimen. Considering the description and the phototype of its closest relatives, this new species can be distinguished by its glabrescent and lustrous leaf blades (vs. leaves completely covered with coarse scales), glabrous bracts, floral bracts equaling the pedicel in length (vs. floral bracts surpassing the ovary to equaling the middle of the sepals in the phototype), and by the very well developed pedicels, which are 25–27 mm long (vs. pedicels ca. 14 mm long).

This new species grows epiphytically on the lower parts of tree trunks in the high-altitude forest where the vegetation, composed of low trees and shrubs, is frequently shrouded in dense fog. The soft texture of its leaves and its delicate appearance suggest the dependence of *N. petropolitana* to high humidity levels, which predominate in its habitat.

Rio de Janeiro, Brazil

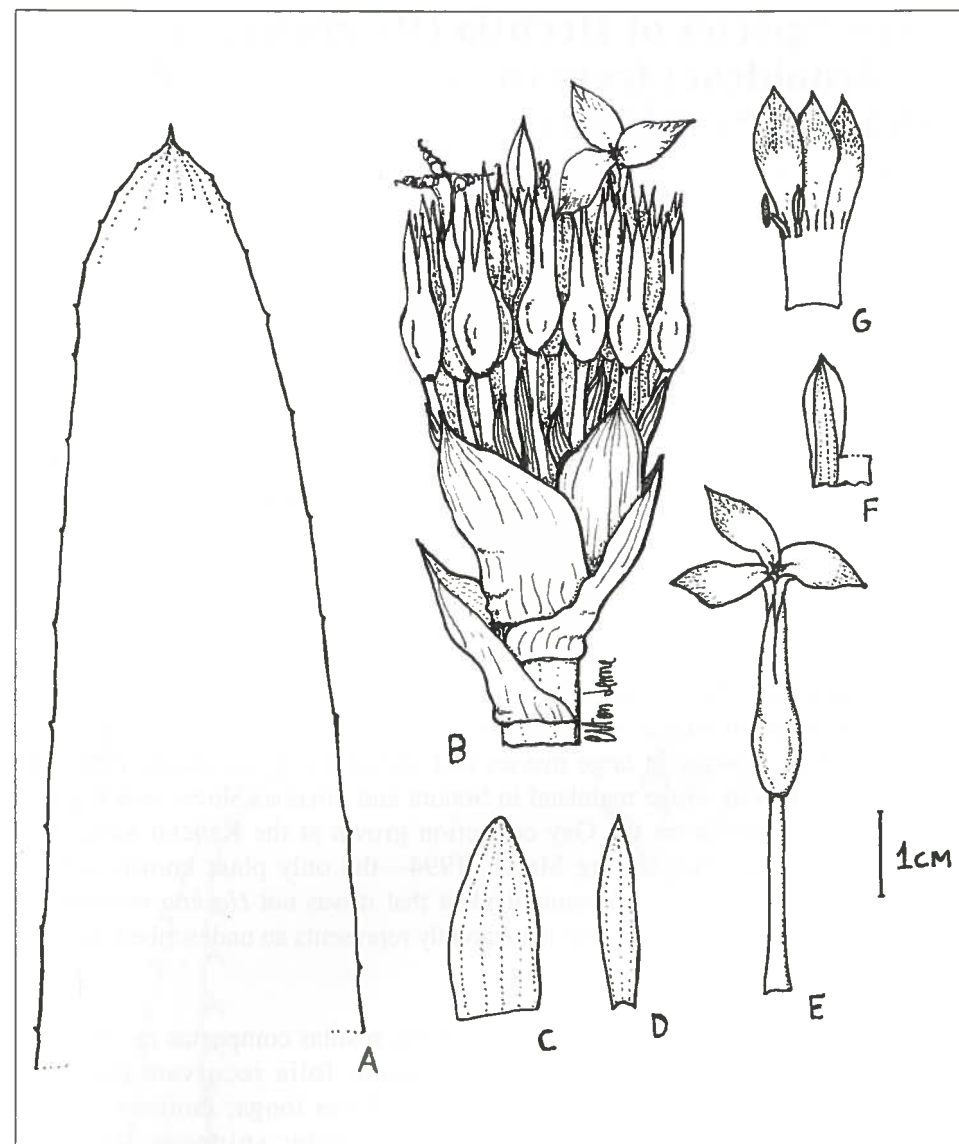


Figure 5.
Neoregelia petropolitana (A-G): A) leaf-apex; B) inflorescence; C) outer floral bract; D) inner floral bract; E) flower; F) sepal; G) petals.

A New Species of *Hechtia* (Bromeliaceae, Pitcairnoideae) from the Cape Region, Baja California Sur, Mexico

Lee W. Lenz¹

ABSTRACT

Hechtia gayii is described and illustrated and its relationship to other members of the genus is discussed.

In the spring of 1968, Ed and Betty Gay of Tarzana, California, discovered, in a small cañada near the beach west of San José del Cabo, a hillside "covered with hechtias" (Gay 1969). Propagules were collected, some of which were later presented to the Huntington Botanical Garden, San Marino, California, and subsequently introduced into the horticultural trade under the name *Hechtia montana* 'Burgundy.' The clone name was in reference to the distinctive red coloring of the leaves as seen in cultivated plants.

The only *Hechtia* recorded in Baja California is *H. montana* Brandege, which, though described by Smith and Downs (1974) as imperfectly known, is a common plant on mountainous hillsides in the Cape Region of southern Baja California, often growing in large masses and known locally as *magueycillo*. The species also is known on the mainland in Sonora and Sinaloa (Shreve and Wiggins 1964). When a plant from the Gay collection grown at the Rancho Santa Ana Botanic Garden bloomed during March, 1994—the only plant known to have bloomed under cultivation—it became evident that it was not *Hechtia montana*. A search of the literature discloses that it apparently represents an undescribed species.

Hechtia gayii L. W. Lenz, sp. nov. Fig. 6

Plantae saxatiles, parva per generis, acaules, rosulas compactas ca. 30 cm in diametro facientes; propagula basi numerosum; folia recurvata (hortensi sanguineo-grisei), dense imbricata, usque ad 15 cm longa; laminae lineari-triangulares, acutae, 2–3 cm latae, marges fortiter spinosae, dentibus unciformibus brunne-vinosibus, infra lepidotae; scapus erectus, cylindraceus, ca. 65 cm longus, ca. 7 cm in diametro, simplex; rami simplices usque ad 7.5 cm longi, horizontales vel ascendentes, tomentosi; rachis crassa, cristis tenuibus decurrentibus intra flores descententibus; bractae infimae foliiformes dentibus unciformibus; bractae summae reductae, triangulares, sine dente; flores non congestae, ca. 20, singulares levites longior quam pedicelli; flores pistillatae infra, flores perfectae paucae ad centrum inflorescentiae; flores pistillatae parvae, non expansae, pedicelli ca. 5–7 mm longi; sepala triangularia, pubescentia, basi

¹ Rancho Santa Ana Botanic Garden, 1500 North College Avenue, Claremont, California 91711-3107



Figure 6.

Hechtia gayii. 1. Plant habit, $\times 0.25$.—2. Leaf, $\times 1$.—3. Portion of inflorescence: a, pistillate flower; b, perfect flower; c, staminate flower. All $\times 3$.—4. Transection of leaf, $\times 1.25$

brunneolia, usque ad 3 mm longa; petala viridis, obovata, usque ad 3 mm longa, apex acutus; stamina imperfecta inclusa; ovarium superum, laeve, glabrum, penitus 2–3 sulcatum inter carpellum; flores staminati crateriformia, saepe 4-merous; apices cuspidati; pedicelli brevi; longitudo staminum prope longitudo petalorum; fructus ignotus. Typus *L. W. Lenz: 9401: RSA*.

Plants saxicolous, small for the genus, acaulescent, forming compact rosettes ca. 30 cm across; offsets basal, numerous; leaves recurved, gray-green (reddish green in cultivation), densely imbricate, to 15 cm long; blades linear-triangular, acute, 2–3 cm wide, margins strongly spinose with reddish-brown, uncinuate teeth, lepidote on the under side; scape erect, cylindric, ca. 65 cm long, ca. 7 cm in diameter, simple; branches simple, to 7.5 cm long, horizontal to ascending, tomentose; rachis stout, with fine ridges decurrent from the flowers; lowermost bracts leaflike, with uncinuate teeth; upper bracts reduced, triangular, without teeth; flowers not congested, ca. 20 borne singly, slightly longer than the pedicels; pistillate flowers below, staminate flowers above; perfect flowers toward the center of the inflorescence, few; pistillate flowers small, not spreading, pedicels ca. 5–7 mm long, sepals triangular, pubescent, brownish at the base, up to 3 mm long; petals greenish, obovate, up to 5 mm long, with acute tips; nonfunctional stamens included; ovary superior, smooth, glabrous, deeply 2–3-sulcate between carpels; staminate flowers bowl-shaped, often 4-merous, tips cuspidate, pedicels short, stamens nearly as long as petals; fruit unknown.

Etymology.—Named for Mr. and Mrs. Ed. Gay, collectors and students of the Cactaceae.

Type.—MEXICO. Baja California Sur; 9.4 mi [along old road] W of San José del Cabo; abundant on granite outcrops in small cañada not far from beach [s.n.]. Known only from the type collection made by Ed. and Betty Gay, April, 1968. Cultivated offset from original collection (RSA propagation number *BC183308*) *L. W. Lenz 9401* (HOLOTYPE: RSA [two sheets]).

Relationships

Hechtia gayii differs from all other described hechtias in being monoecious; however, in other species some remnant of the nonfunctional sex is usually present (Smith and Downs 1974). In many of the species of *Hechtia* differences between the sexes is often so extreme that it is necessary to key them separately (Smith 1937).

In their treatment of the neotropical members of *Hechtia* (Smith and Downs 1974), *H. gayii* keys out most closely to *H. pedicellata*, a saxicolous endemic known only from a barranca near Guadalajara, Jalisco (figure 7). The latter differs from *H. gayii*, however, in having a densely cylindric bipinnate inflorescence.

In *Flora Novo-Galiciana* (McVaugh 1989) *Hechtia gayii* keys out most closely to *H. subalata* L. B. Smith of southern Durango, southern Zacatecas,

northern Nayarit and northern Jalisco (figure 7), and *H. jaliscana* L. B. Smith, an endemic known only from rocks in the barranca of Río Grande de Santiago, Jalisco (Fig. 7), where it grows at elevations of 700–800 m. Other than being monoecious, *H. gayii* differs principally from *H. subalata* in being smaller, in having flowers not congested on the stem, and in having ovaries deeply sulcate between the

carpels. It shares with *H. subalata* a subterete rachis with fine ridges decurrent from the flowers and fiercely spinose-margined leaves. Both species occur on rocks and bluffs, *H. subalata* in the *matorral* associated with *Acacia*, *Cercidium* and *Fouquieria* at elevations of 800–1500 m, and *H. gayii* (Fig. 7) in the San Lucan thorn scrub growing with members of the above three genera but at nearly sea level. *Hechtia gayii* differs from *H. jaliscana* in having a smaller nonbranched inflorescence, with flowers not congested along the branches, whereas, so far as known, *H. jaliscana* has a twice compound, loosely branched inflorescence ca. 1 m high (McVaugh 1989) with flowers densely congested along the branches. *Hechtia jaliscana* occurs on rocks at elevations of 750–800 m.

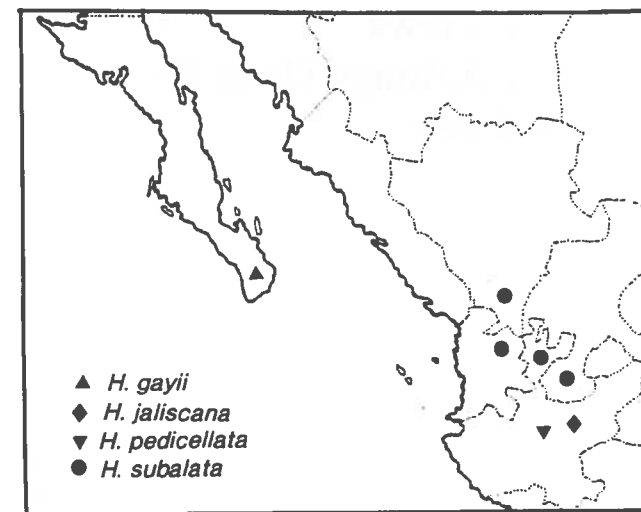


Figure 7.
Distribution of four species of *Hechtia* in Mexico.

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Book Reviews

Selected Writings About Bromeliads

Jason R. Grant

Several recently published books have devoted chapters to bromeliads. While the information is often basic, it is intriguing material for both the general reader and the bromeliad enthusiast. Two such chapters are summarized here.

Bernhardt, Peter. 1989. WILY VIOLETS & UNDERGROUND ORCHIDS; Revelations of a Botanist. New York: W. Morrow. Chapter 12., "Hanging by their Heels."

This is one of several chapters about botanical oddities. It is a neat and concise overview of bromeliad biology. Nearly all aspects of bromeliads are discussed informally including such varied topics as ecology, morphology, growth and reproduction, pollination, ethnobotany, and modern uses. Much emphasis is given to the genus *Tillandsia*. There are line drawings of *T. caput-medusae* and *T. grandis* as well as the trichome shield that we have seen so often. The author notes that CURTIS BOTANICAL MAGAZINE "has not featured a *Tillandsia* species in over thirty-five years." How strange. This journal has given an almost preponderate amount of space to that genus.

Loewer, Peter. 1993. THE EVENING GARDEN. New York: Macmillan Publishing Company. Chapter 4: "Night-fragrant Bromeliads."

The chapter begins with the first two verses of a poem that assuredly captures the image of some exotic tillandsias; a poem known by all readers of Hart Crane and the rest of us who have worn out the pages of Victoria Padilla's best book, BROMELIADS; A DESCRIPTIVE LISTING [let's quote all four verses for our own pleasure] ...

The Air Plant

This tuft that thrives on saline nothingness,
Inverted octopus with heavenward arms
Thrust parching from a palm-bole hard by the cove—
A bird almost—of almost bird alarms,

Is pulmonary to the wind that jars
Its tentacles, horrific in their lurch.
The lizard's throat, held bloated by a fly,
Balloons but warily from this throbbing perch.

The needles and the hack-saws of cactus bleed
A milk of earth when stricken off the stalk;
But this,—defenseless, thornless, sheds no blood,
Almost no shadow—but the air's thin talk.

Angelic Dynamo! Ventriloquist of the Blue!
While beachward creeps the shark-swept Spanish Main
By what conjunctions do the winds appoint
Its apotheosis, at last—the hurricane!

The author visited Tropiflora, the Cathcarts' nursery in Sarasota, Florida, and came away with information about bromeliads that he was happy to pass along to his readers. There is a fair amount of general information on bromeliads including basic biology, care and propagation but much of the chapter is about fragrant tillandsias. We are told that there are night-fragrant tillandsias and those that give out an odor both day and night. Some are moth-pollinated while others are bat-pollinated.

Among the night-fragrant plants mentioned here are *Tillandsia acostalisii*, *T. cornuta*, *T. dodsonii*, *T. duratii*, *T. narthecioides*, *T. scaligera*, and *T. triglochinides*. Day- and night-fragrant tillandsias include *T. crocata*, *T. cyanea*, *T. mallemontii*, *T. straminea*, *T. streptocarpa*, *T. usneoides*, and *T. xiphioides*. The fragrance of Spanish Moss is emphasized as a surprising fact. Besides the pleasant-smelling, perfume-like, moth-pollinated, night-fragrant tillandsias we are informed that there are malodorous, bat-pollinated, night-fragrant guzmanias and vrieseas including *Guzmania confusa*, *G. mucronata*, *Vriesea bituminosa*, *V. fenestralis*, and *V. gladioliflora* (= *Werauhia gladioliflora*).

This is an interesting body of information that should be expanded. To describe the various floral scents used by bromeliads to attract their pollinators would be an ideal next step.

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A Monograph of Bromeliaceous plants has been awaiting notice for some time.¹ It forms one of the series of monographs of flowering plants instituted by the late Alphonse De Candolle on the termination of the *Prodromus* and is the work of Dr. Carl Mez. The Bromeliads have been favourite subjects of study with such botanists as Karl Koch, Regel, Ed. Morren, Wittmack, and other Continental botanists; whilst in this country, Mr. J.G. Baker has added to his many services to horticultural botany by the publication in 1889 of his *Handbook of the*

Bromeliaceae (George Bell & Sons). Mr. Baker adopted thirty-one genera, and about 800 species, stating that in all probability this number would be largely increased. And so indeed it has proved, for Dr. Mez recognises forty-five genera, and nearly a thousand species, not including many doubtful horticultural forms.

As an order the group is very distinct, and easily recognisable. The leaves are usually in dense tufts or rosettes, and it is but rarely that a development in length of the leafbearing stem takes place as in some Puyas. For the most part of the species are epiphytes growing on trees, but some are terrestrial. Many are propagated naturally by offshoots or by easily separable branches, and flowers and fruits are correspondingly rare. The inflorescence is generally terminal, and either contracted or elongated, often furnishing excellent specific characters, and the bracts which it bears are very often highly coloured as in many Tillandsias, and constitute the chief feature of the plants from a cultural point of view. The leaves crowded in rosettes often form cups in which the rain-water is retained in such quantities as to be serviceable to travellers though the water contained in the leaf-cups is mixed with decaying vegetable and animal matter. These decaying matters afford a supply of nitrogen. Acting on this hint, our late much-regretted friend, Professor Morren, scattered fragments of ammonium carbonate among his plants with great advantage; and Dr. Mez tells us that he himself kept a plant of *Vriesea carinata* in good health for a whole year—until, in fact, fruits were produced. The plant was destitute of roots, but the leaf-cups were kept filled with a 5/10 per cent. solution of ammonium carbonate, together with small portions of nitre, phosphoric acid, and sulphates of lime and iron. The general appearance of the leaves of these plants is sufficiently familiar to our readers to preclude the necessity of any lengthened reference to it. Their thick dry epiderm, scaly surface, and often spiny edges, are so many indications of their power to resist undue evaporation, to protect the young flowers from climatal inclemencies or injurious insects.

As to the flowers, they present little variation in essentials, though the details are diversified. The most interesting feature connected with them is the fact that some of the groups have uniformly a superior, others as constantly an inferior ovary, so that a character important enough, and constant enough, to distinguish one order from another, as Lilies from Amaryllids and Irids, is in the Bromeliads, of such minor degree of constancy as only to be available for distinguishing certain tribes. The presence of certain scales or “ligules” on the petals is very characteristic of many of the genera. As to the colour of the flowers, it is noteworthy that in the same group, yellow is represented together with blue—the xanthic and cyanic series in this case occur in one flower.

The pollen grains are sometimes furrowed, at other times porous, and this character has been deemed of sufficient importance by Dr. Mez to be employed

as a means of distinguishing the primary sub-divisions of the order. Dr. Mez has some interesting statements as to the relation between the varied forms of pollen-grains, and the way in which the flowers are fertilized by insects or by the agency of the wind.

Without entering into technicalities, which are not desirable in this place, we cannot enter into further detail on the conformation of the flowers. The reader will find in Dr. Mez’s introduction numerous interesting and suggestive notes, in which the co-relation between the structure and conformation and the manners and customs of the plant are pointed out, this adding interest to the dry descriptive details.

The Pine-apple (*Ananas*) furnishes an unique example, wherein the axis of the inflorescence and the bracts, all become fleshy and incorporated with the ovaries into one mass, which we know as a Pine-apple, it having as little to do with a Pine as with an Apple! The seeds furnish valuable points of distinction, some being provided with wing-like processes, by which their dissemination is effected.

The internal anatomy of plants so peculiar in their habits, and in their appearance, must need be of great interest, but for the details we must refer the reader to the text, merely mentioning that the scales, which occur so abundantly on the leaves, play a double part. Sometimes they act as absorbent organs, whilst in other parts they are protective, and prevent undue evaporation. The white, powdery substance on the inflorescence of the *Bilbergias* [sic] is composed of isolated ovoid cells. The *Bromeliaceae*, like the *Cactaceae*, are exclusively of American origin, extending from 38° N. latitude to 43° S, in Chile. Mexico, Ecuador, and South-east Brazil are the head-quarters of the order so far as the number of indigenous species is concerned.

Dr. Mez divides the group first of all into those with inferior ovaries, indehiscent fruit, and wingless seeds, including *Bromelia*, *Nidularium*, *Aechmea*, *Bilbergia*, and many other genera; secondly, to those with superior or partially superior ovaries, capsular fruit, and winged seeds, including *Pitcairnia*, *Puya*, and others. A third group has a superior ovary, capsular fruit, and plumose seeds. This group includes *Vriesea*, *Tillandsia*, and others.

Subordinate divisions are founded on the nature of the pollen-grains—smooth and destitute of furrows or pores—wind-fertilised plants, which Dr. Mez characterises as *Archaeobromeliae*, as if they were the original types. In the second group, *Poratae*, the pollen-cells are provided with pores, through which the pollen-tubes pass; whilst in the third group the pollen-cells are sulcate or furrowed. The relative position of the ovary and the nature of the seed furnish, as has been already said, other points of distinction.

¹ *Monographiae Phanerogamarum* ... editore et pro parte auctore, Casimiro de Candolle, vol nonum, *Bromeliaceae*, auctore Carolo Mez, Parisiis sumptibus, Masson & Cie.

[continued on page 213]

Some Bromeliads Flowering at the Marie Selby Botanical Gardens

Harry E. Luther

Photographs by Vern Sawyer

Here are pictures of three bromeliads now flowering at the Marie Selby Botanical Gardens in Sarasota, Florida:



Figure 8.

Guzmania bessae Luther. Epiphytic and terrestrial and widely spread from Bolivia to Ecuador. The bract color varies from red to light orange. The plant is about 45 cm tall. The description was published in SELBYANA 5:310-2; 1981. This is the first photograph of this species in color.



Figure 9.

Guzmania rubrolutea Rauh. A terrestrial or lithophyte from northeastern Ecuador. It is usually found in very wet areas, often even growing near waterfalls. It has been used in the production of commercial hybrids. The plant is about 75 cm tall. The description was published in Bromelienstudien, 8. Mitteilung, Trop. u. subtrop. Pflanzenwelt 27 (1979): 20-23. There is a color photo of the inflorescence detail by Heinz Hemker on the back cover of the JOURNAL 1989, no. 6.

Figure 10.
Vriesea sagasteguii is an epiphyte and lithophyte from northwestern Peru. See p. 212.



Vriesea sagasteguii

[continued from page 211]

The flower petals appear to be purple-rose in color but are actually cream densely covered with coalescing spots of lavender-rose. The pictured plant is about 40 cm tall although the type was described by Lyman Smith as "flowering 75 cm high." The type specimen was collected by Lopez and Sagástegui on rocks in the department of Cajamarca, Peru, May 1965, at an altitude of 1500–2000 meter. The fact of its flowering in Florida at near sea level indicates its adaptability.

The original description was published by L.B. Smith in *PHYTOLOGIA* 16:82, pl. 2, fs. 12, 13; 1968. It appears in the Smith and Downs *TILLANDSIOIDEAE*, *Flora Neotropica* monograph volume 14, part 2, page 1252 and figure 413 G–H, page 1254.

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

Anniversaries

The members of the Sacramento Bromeliad Society are to be congratulated on the 25th anniversary of their society. They had a picnic at Chet Blackburn's property in Ophir (that's in California) for "fun, food, and botanical "ooh" and "ahh"ing to celebrate. Our best wishes are offered to the society and especially to Dan Horton, editor of *The Bromeliad News*.

Selby Gardens, Sarasota, Florida, home of the Bromeliad Identification Center among many other activities observed its 20th anniversary on July 7th with refreshments served in the banyan grove. The anniversary observation date coincided with the opening of Selby Gardens, July 7, 1975. The many bromeliad friends of the Gardens will join us in offering congratulations.—TUL

Monograph of Bromeliaceous plants

[continued from page 209]

Dr. Mez's work is purely botanical, hence, unless incidentally, he says little as to their culture. In this country, in spite of their often brilliant coloration and easy culture, they are little grown. On the Continent, it is far otherwise. In almost every market-place the visitor sees little plants of *Nidularium*, excellently suited for room-plants; and one of our compatriots, at least by birth, Mr. Wood of Rouen, has a nursery largely and almost exclusively devoted to the culture of these plants for the Paris markets.

The origin of our cultivated Pine-apples ascribed without any hesitation to *Ananas sativus*, Schultes, a native of Central Brazil. The Smooth-leaved Cayenne and other spineless forms, belong to the variety *lucidus*. It must have been introduced to Europe since the discovery of America, and is consequently not mentioned in works previous to the period, and is one of the few cultivated plants the origin of which is known with anything like certainty.

From the GARDENERS' CHRONICLE, July 25, 1896

Recent Gifts to the Society

We are happy to acknowledge gifts from the following named members and friends who have contributed to the Color Fund, to the BSI general fund, or to the Bromeliad Identification Center, some to all three:

Bromeliad Society of Central Florida	Ed Doherty
Alberta Evans	Eleanor Kinzie
Roger Lane	Virginia Lowe
Tom Naylor	Geoff Nicholson
A.M. Oshag and Ann Stuckey	Peter Tristram
Neal White	

Checks or international money orders should be made payable to The Bromeliad Society, Inc. They may be mailed to Membership Secretary Linda Harbert, 2488 E. 49th St., Tulsa, OK 74105 or to Editor T.U. Lineham, 1508 Lake Shore Drive, Orlando, FL 32803-1305.

Help Needed for Las Cruces Biological Field Station

Hattie Lou Smith¹

Time after time changes over which we have absolutely no control confront us. We watch helplessly as both regulation and nonregulation threaten areas that are important to us. We often wish that we could **"do something."** In this case we can.

Bromeliad enthusiasts are familiar with the work of Robert and Catherine Wilson. They left a memorial of valuable publications on bromeliads including the classic *BROMELIADS IN CULTIVATION*. At a time when much of the rain forest of the world was, and still is, being destroyed at an alarming rate, the Wilsons worked to create a unique tropical garden dedicated to preservation rather than destruction of tropical plant species.

The Robert and Catherine Wilson Botanical Garden is part of La Cruces Biological Field Station in the county of Coto Brus in Costa Rica. It is operated by the Organization for Tropical Studies, a nonprofit consortium of universities in the United States, Costa Rica and Puerto Rico, which provides leadership in education, research, and the wise use of resources in the tropics.

In November 1994 the main building of the Center, which housed the library, researchers' laboratory, administration offices, dormitories, dining and kitchen facilities, laundry, and conference hall was consumed in a matter of minutes by fire. No one was injured, but the loss of all that property was a major blow to efforts to develop Las Cruces into a primary research and training site.

Students and biologists depending heavily on library and lab resources have been severely affected by the fire. The library was heavily used by Organization for Tropical Studies graduate courses in tropical ecology and plant systematics with the bromeliad family playing a prominent role in those studies.

Although work has begun toward rebuilding the destroyed facilities, funds are badly needed and research materials still must be replaced. The Bromeliad Society, through its affiliates and individual members, has a unique opportunity to join with other plant and animal enthusiasts to rebuild this field station, including its research library and laboratories.

Members may wish to share books such as the Smith and Downs *BROMELIACEAE* (Flora Neotropica monograph number 14, parts 1-3), or David Benzing's *THE BIOLOGY OF THE BROMELIADS* and his *VASCULAR EPIPHYTES*, or other

¹ Mrs. Smith is a BSI director representing the Florida Region.

publications. The BSI has sent a copy of all available volumes of the *BULLETIN* and *JOURNAL* in binders.

In addition, the second building phase will require \$75,000 in order to keep on schedule. It is this immediate phase that we wish to urge you to help. The funds must be available by mid-November of 1995.

This is an urgent appeal to you to make a generous donation now. I know that most of the annual shows and sales have taken place but it is not too late to hold special sales or auctions, or even to dip into treasuries for this purpose.

The following list will give you idea of the needs and cost:

2 student tables, or ten chairs, or one desk	\$100
A large projector screen.....	\$250
An overhead projector	\$500
A new bathroom, or sixty reading lamps, library shelving	\$1,000
A new computer system for researchers or lab instruments	\$2,000

This is your opportunity to DO SOMETHING. Please send checks and publications to: OTS-Save the Garden Fund, Box 90630, Durham, North Carolina 27708-0630, or to Clyde Jackson, BSI Treasurer, 21 Sherwood, Dayton, TX 77535, with gifts marked for OTS-Save the Garden Fund



RLANDIANA 96

Twelfth World Bromeliad Conference • Orlando Florida

July 1-8, 1996

Did you read in the last report about the 1996 Orlando world bromeliad conference that the highest point in Florida is 898 feet above sea level? The truth is that Iron Mountain (Polk County), bird sanctuary, home of Bok tower with its carillon, is 325 feet above sea level. Let us not exaggerate these wonders. Come see for yourselves.

In the next several issues, look for the names and topics of the speakers and the schedule of events. Think about how you will arrange your time in order to attend conference events and to visit the natural and otherwise wonders of the area.

Please see page 235 for the conference registration form.

Introducing: *Aechmea brassicoides*

Harry E. Luther

Aechmea brassicoides was last noted in the JOURNAL more than 30 years ago (volume 13:57–58, 1963) as a species of the defunct genus *Gravisia*. Readers familiar with the name *Gravisia* probably also remember 25¢ cups of coffee.

Aechmea brassicoides was described by Baker in 1882. The type and all subsequent collections have been from the vicinity of Kaietur Falls in Guyana. The plant is usually an epiphyte (figure 12).

Apart from having a somewhat attractive inflorescence, this species presents a notable growth habit reflected in its specific name. The “Cabbage Bromeliad” produces, at maturity, a series of densely overlapping, often imbricated leaves that effectively create a seal over the center of the rosette. The protected hollow formed may be advantageous in acquiring an ant colony. Many epiphytes in areas of poor soil form relationships with ants as part of their nutritional strategy. Ants bring all sorts of debris to their nest; this nutritious compost is usually rich in nitrogen and other minerals important for plant growth. Epiphytes with ants often grow more strongly than those without ants.

When *Aechmea brassicoides* comes into flower, the developing inflorescence punctures one or more of the overlapping, centermost leaves. This condition sometimes results in a plant with an inflorescence growing from one side of the rosette instead of straight from the center (figure 13). Judges should take note!

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



W.J. Kress

Figure 12.
Aechmea brassicoides growing
in habitat near Kaietur Falls,
Guyana.



Vern Sawyer

Figure 13.
The same collection flowering at the Marie Selby Botanical Gardens.

Report on the Eighth Bromeliad Conference, Adelaide

Olwen Ferris

Easter, 1995, saw about 70 bromeliad lovers gather at the Royal Coach Motor Inn in Adelaide, South Australia. It was great to meet up with so many old friends again.

I arrived the day before the conference started and was able to contact a cousin I hadn't seen for over twenty years and it was lovely to catch up on old times.

Renate Ehlers was the main speaker and her talks about her overseas trips to explore bromeliad habitats were given at various times during the two days of the conference. What a wealth of knowledge she has. We were all envious of her trips through Mexico, Argentina, and other places.

Other speakers fitted in to give Renate a break. They included Derek Butcher, who spoke on *Neoregelia* species here in Australia, Kim Chipper, who gave us a "Sandgroper's" view of climatic conditions in Western Australia, and Peter Franklin, who explained how he kept a check on his plants with computer control.

Sunday started with Renate helping us to identify tillandsias. Andrew Flower, from Wellington, New Zealand, showed us different ways to grow bromeliad seed. His methods are much like the way I had to grow seed when I lived in the cooler state of New South Wales (I find it much easier now in the warmer state of Queensland) so the growers in the southern states found the lecture most informative.

Adam Bodziock gave a talk on *vriesea* hybrids, Tom Kapitany of Victoria gave a talk on marketing bromeliads. Maurie Kellett of Victoria told us about a bromeliad safari.

On Sunday afternoon, buses took us to visit four collections. I saw a lot of plants that were new to me. Later that day we had a rare plant auction very well carried out by Len Trevor. There were lovely, scarce plants sold, and I'm sure the

Committee was well pleased with the results. When the raffles were drawn Patricia Perrott of New Zealand won a beautiful rug made by Grace Goode, Marie Daniels won a framed, hand-embroidered picture by Margaret Draddy.

At the conclusion of the conference the Committee presented me with a lovely, framed plaque that read:

*Grande Dame
of Aussie Bromeliads
Who
For over thirty years
has spread the word
and converted many to
our Bromeliad Family
both behind the scenes
and on Front Stage.*

My grateful thanks to all my bromeliad friends.

243 Hammond, 22 Hansford Road
Coobabah, Queensland 4216

Mrs. Ferris has been an honorary trustee of the BSI since 1970. After giving up her Bromeliad Display Garden in Paradise Point, Qld. and moving to a nearby retirement village she assumed responsibility for the seed bank operated by the Bromeliad Society of Australia, Inc. We offer our best wishes to our friend of long standing.—TUL

Brazil

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

When the Fosters finally received their collecting permits they travelled by steamship from Rio to Salvador (formerly São Salvador or Bahia) capital of Bahia state. They had to go there in order to catch another boat back down the coast to Ilhéos and the region that Lyman Smith had recommended to them. The straight-line distance from Rio to Bahia is 780 miles (1218 km) and from Bahia to Ilhéos is another 180 miles (228 km).

While embarking in Rio they were startled to see bon voyage bouquets and baskets of flowers including bromeliad bouquets—vrieseas, billbergias—50 stems of wild bromeliads to a basket. Such a profusion. Such a greeting.

While in Bahia they met Mrs. Marion Hart who was completing her round-the-world trip in an 80-foot ketch. That's how we know that the year was 1939.¹

They had to wait in Bahia for the little coastal steamer that would take them to Ilhéos and, naturally enough, they spent the time exploring. They digress in the narrative to describe Racine's hiking clothes (boots and breeches: immodest and undignified in the eyes of the Brazilians) and how they carried cameras, food, and blankets (in native baskets).



BAHIAN COUNTRYSIDE

Amid many stares one day we boarded the Brotas street car in our boots and breeches, carrying native baskets, cameras, food supplies and blankets. Street car fare is only a penny, but there is a charge for a package if it is on the floor beside one's feet. However, there is no charge if it is held on the lap.

We rode to the end of the line and then on foot followed a clay and sand road for several miles. After a tedious journey we reached an area of white sand dunes overlooking the ocean. Here we were surprised to find *Brassavola flagellaris* and many *Epidendrons* as well as other orchids growing in the pure sand. Also there was a huge bromeliad, *Hohenbergia salzmanii*, thriving on the sand dunes. It had extremely broad leaves edged with small brown teeth. The whole plant had a beautiful symmetrical shape; its perfectly formed center cup and spaces between the firm leaves were filled with water which was an ideal

¹ New York Times 7 Aug. 1939, 7:2.

drinking fountain or bath tub for small fauna, birds, lizards, frogs and insects. Nearer the ocean we found huge, mature specimens, nine feet in diameter, of this plant in full bloom, whose multi-branched flower stem reached 7 to 8 feet high. It was a first experience, that of standing alongside a bromeliad so huge that we could barely reach the flower stalk at its emergence from the center of the plant.

After passing the great coconut-palm-fringed lagoon, we soon reached a rocky section of the sandy shore. We walked many miles along this rocky beach, constantly alert to the bromeliads around, for here they grew in the sand and between the rocks very near the sea. One species, *Gravisia aquilegia*,² was rather common, but that did not satisfy. There must be other species nearby and Mulford was loath to give up the search although we were extremely fatigued, hot and hungry. He pushed on to what seemed a likely hiding place for bromels. Racine sank down in the hot sand for a rest even in the glare of the sun. Mulford, at quite some distance, gave a great shout which roused her. Another bromel! There beyond, across the little swamp in the most extreme conditions where few would even try to go, he was rewarded for his efforts in finding what was later determined to be a novo species, *Hohenbergia littoralis*. This proved to be the third new bromeliad thus far. And the thrill of it all has come since then.

It had been very isolated from the other bromeliads in this vicinity and itself in a very limited area where the slight height of altitude and soil conditions were quite different than those just a short distance away. Just what conditions prevail to create and keep alive a plant like this so exclusive from all its brothers and sisters in the same locality? How can its range remain so limited and what urge drove this plant collector on, over all the odds to ferret out this unknown plant? Other botanists have searched around Bahia for over a hundred years, yet it remained for us to find this new one here.

A little later it began to dawn on us that we could not make it back to civilization that day, so we found a good location to dig in for the night. Our rock-sided "foxhole" was located just as close to the high tide mark as possible, in order to be free of mosquitos which were blown landward by the sea breeze.

Being so tired that you can't keep awake and in a position so uncomfortable that you can't sleep leaves one in no spry condition the following morning for a tedious trek back, in spite of what otherwise might have been a romantic night under starry skies, lulled by lapping water and cooled by refreshing winds. When you have sacks of spiny plants, an herbarium press and other bulky paraphernalia, with no third person to help carry them, then do you realize that you have collected more than the capacity of two. To add to our difficulties we suddenly recalled that we had another big sack of plants to pick up from a hidden cache where we had left them the day before. We had to decide which plants to cast

² *Aechmea aquilegia*. See photo on back cover.

aside. With no food left we had to push on through a large, low, mosquito-filled swamp area before we reached the higher land again. Just at a time when it seemed that we could hardly pull one foot beyond the other, we chanced upon a native riding a burro. And if it had not been for that burro and the kindness of its master in carrying our sacks, we might still be trudging along toward Bahia!

OFF TO ILHÉOS

Our brave little ship *Itacaré* (pronounced E-ta-ka-ray), brought us at seven in the morning into one of the least pretentious but picturesque ports, Ilhéos (meaning islands), that we have ever seen. The founders probably followed the old custom of naming cities after the geographical condition, as Rio means river and Bahia, bay. Approaching our destination we saw the usual churches high on the low hills, the long rows of vividly colored houses, bordering the sea...

[Here we omit the descriptions of the excitement of boarding, the tiny, hot stateroom, the crowding, the seasickness, and then the recognition that compared with travel in 1492, 1620, and even 1840 they were comfortable.]

STATE EXPERIMENT STATION

A day's rest is Ilhéos freshened us enough to tackle another jolting ride on the narrow gauge to Agua Preta (Black Water), location of the state Cacao Experiment Station. The director, Dr. Sothenes Miranda, his wife and their two lovely children made us feel very welcome even though they did not speak a word of English.

In visiting around the grounds of this station we were delightfully surprised to find a well-organized agricultural project. It was built up several years ago under the very active directorship of Dr. Gregor Bondar, a most enthusiastic, hard-working Russian botanist and entomologist. Here he had planted thousands of trees of many kinds, and although it is a station principally for the study and advancement of the commercial growing of cacao, it is also a center of other agricultural and scientific research.

After our first day around the station and a little jaunt into the forest, Racine questioned Mulford as he stretched out for a little rest, "Are you satisfied that there is something to collect and study here?"

"Indeed," he groaned, "but I am afraid you will have to call a doctor, I have an acute attack of plant indigestion!"

MONKEY-SHINES

Yesterday we had looked with despair at the bromeliads high up in the tall giants of the forest, but when we learned that the director had arranged for "monkeys," men who were adept at climbing these giants, we were more hopeful.

One carried our sacks and presses, another food and supplies, while two men were laden with ropes and poles, our safari, although miniature, was on the march. These "monkey" boys proved to be unmatched.

The living monoliths of this primeval forest were so huge that it was seldom less than forty feet up to the first limb. Generally the desirable bromels were beyond even these inaccessible first branches. In the evolution of bromeliads, the more advanced forms have taken to the trees for self-protection from an overcrowded forest floor. They have taken to the air, where, until now, man had left them unmolested. So highly specialized has their life become that they remain lofty and ethereal, defying intrusion to their arboreal penthouse. They ask only air and water for sustenance, taking no food from the branches to which they cling. These epiphytic bromels seem to typify the simple life toward which mankind is slowly striving. They are lessening their dependence on the earth and are becoming more spiritual.

Elsewhere, most of the species that lived high in the trees were rather small, but here in these great giants the air plants were so huge that it just didn't seem possible that they could survive so far from the ground.

If the bromeliads are small, such as *Tillandsias* or *Vriesias*, then they generally wing their way from tree top to tree top via their plumose or feathery seeds. But if they are the larger *Aechmeas* or *Hohenbergias*, then their tasty berry-like seeds are carried inadvertently to the big limbs by a monkey or a bird. Developing sweet, palatable fruits to encase their seeds, such as does the familiar pineapple, is a result of plant intelligence. It has become a clever means of distribution; the unwitting seed carrier is interested only in the sweet dividends.

Looking up and seeing a huge mass of *gravatás* (native word for air plant) growing more than a hundred feet from the ground, Racine sighed, "Well, there is a bunch of plants that you certainly cannot get, even a monkey would have a hard time climbing up there."

"Deseja Senhora?" (Do you desire them?) quickly inquired one of the "monkeys" eager to display his ability.

"Não, não, obrigado, Senhor, muito difícil," she hastened. (No, no, thank you, it is very difficult.)

Turning to Mulford he inquired, "Não gosta?" (You no like)

"Sim, sim, é formidável, si for possível o senhor, subir. (Yes, yes, marvelous, if possible for you to go up.)

No sooner mentioned than done. This was the opportunity he was looking for. In less than ten minutes Mulford was ready to call M. L. Davey of the Davey Tree Expert by long distance telephone, in Ohio, for we had some barefooted tree

climbers that could out-climb any "tree doctor" we had ever seen, and could these "monkeys" use ropes! Tarzan would have been put to shame !

The huge trunk, limbless for forty feet from the ground, defies ascent. Even a monkey or a squirrel wouldn't try that. In fact if a man wishes to reach the heights of that tree he must do just what the monkey or the squirrel does. To begin with, a tree possibly fifty or a hundred feet away provides the first steps of the ascent into this great foliage cathedral, and like the monkey, man must conquer this first low tree and work over to the next highest where the branches intermingle. Then from tree to tree higher and higher until he reaches the big branches of the giant who dared him. If there were any great vines they used them, but if there were none, they soon had their ropes thrown over to the nearest low tree and there made fast. Hand over hand with the deftness of an agile monkey they were over and ready to carry the rope higher, and over again until finally they reached the heights of the big tree. The process of reaching the upper branches of these great monarchs was a sight well worth observing. But it is a slow process and sometimes it took them two or three hours to finally and successfully dislodge a huge, well-armed air plant which had fastened itself to a smooth grey limb, a limb itself but little less than the size of an ordinary tree in the average forest.

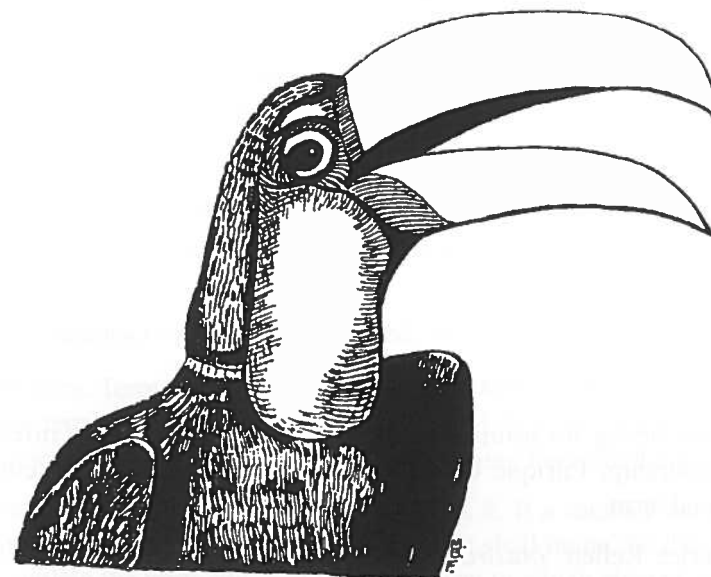
First much of the plant must be cut away, then securely tied to a rope, the cord-like roots are severed and the plant swings loose from its anchorage. "Look out below" may reach your ears just as you are taking an unexpected shower bath while watching and directing the operation from the ground. A shower bath like this will consist of a liberal quantity of rather putrid water, a few tree frogs, some beetles, perhaps a snake or two, and many other "varmints" too numerous to mention. The captive plant of the air is carefully lowered to earth.

One cluster of these plants often weighs 75 to 100 pounds, just living on the air! *Formidavel!* To most people who have seen nothing larger than Spanish Moss or a Florida air plant such as *Tillandsia fasciculata*, growing in a tree, it would be difficult to visualize a plant with leaves as tall as a man, and as heavy, holding two or three gallons of water, being supported high in a tree by only wire-like roots. What could this monster be? Its leaves six to seven feet long edged with a hundred sharp saw-like teeth, surrounding its massive fruit which looked like an overgrown pine cone, and weighed twelve pounds. Surely such an elephantine plant must have been found before, but no, not even our men had ever seen this great fruit. True, they had seen big plants in the trees, that is all; they had never examined the flower or fruit nor distinguished one from another. They were *gravatá* to them. It was a thrill to us, to see it now down from its perch, but it was a greater thrill when we learned, nearly a year later that we had discovered an entirely new species which Dr. Smith fittingly named, *Aechmea conifera*.

"More plants, senhor?" came from the tree tops.

"Yes, anything that you can find," Mulford shouted back. Soon there was a slight shower. The men had dislodged from the topmost branches, clusters of *Tillandsia bulbosa*, a little fuzzy bulb-shaped air plant three inches high which had been complacently keeping a grip on the tips of high branches where they thought they were secure until suddenly dislodged and captured. But they were willing captives, for now they are happily rehabilitated in our Florida "air garden" in company with many of their relatives.

This had been a very successful trek; finding about 20 different species, two of them entirely new and two others which had not been taken since their first collection, 125 years ago.



Toucan

We took many photographs in spite of the constant drizzling rain. One of the delights of the trip was the enthusiastic services of the entomologist, Pedrito Silva, who gave us much assistance.

Other trips in this vicinity yielded four more new species, *Hohenbergia minor*, *Aechmea depressa*, *Portea filifera*, and *Hohenbergia disjuncta*, as well as other bromels which have not yet been identified. . . .

[To be continued]

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Notes from the June 1995 BSI Meetings

These notes are a digest of the draft minutes of the 1995 annual general and the Board of Directors' meetings held in St. Louis, Missouri on 3 June 1995. The draft has been circulated for comment and will be submitted for approval at the next meeting of the board.

1. The annual general meeting was convened on 3 June 1995 and then adjourned for lack of business.
2. The annual Board of Directors' meeting was convened immediately following the general meeting. All members were present except Maurice Kellett (*Australia*), Enrique Graf, and Jacqui Watts (*International*), Peggy Bailey (*Florida*), Fred Ross (*Louisiana*), and Sally Thompson (*Western*) whose absences were excused, and Linda Hornberger (*Central*), unexcused.
3. Changes in board composition (*please see the directory on page 239 for a complete list of officers, directors, honorary trustees, and committee heads*):
 - a. Directors.
 - 1) 1995–1996. The board confirmed the president's appointment of Thelma O'Reilly to fill the unexpired term of Lloyd Kiff (*California*) who resigned 15 December 1994.
 - 2) 1995–1997. John Anderson (*Texas*), Peggy Bailey (*Florida*).
 - 4) 1996–1998. Jacqui Watts (*International*).
 - 5) There being no nominations received for the other international directorship, Enrique Graf will remain in office until he completes a second term.
 - 6) Maurice Kellett, (*Australia*), having served two terms, is not eligible to continue, consequently that directorship is now vacant.
 - b. Officers and Committee Chairmen:
 - 1) Gerald A. Raack was elected president.
 - 2) Thomas W. Wolfe was reelected vice-president.
 - 3) Joyce Brehm was elected secretary.
 - 4) Flo Adams was elected Judges Certification Committee chairman.
 - 5) John Anderson resigned as Nominations Committee chairman.
3. Decisions:
 - a. Donation to "Save The Garden Fund," Las Cruces Biological Station, Costa Rica. An appeal will be published in the JOURNAL for contributions to be collected by the treasurer.

- b. Restatement of JOURNAL release policy. Permission is granted to reproduce material from the JOURNAL in print or by any other means provided that credit is given to the originator(s) and to the BSI, UNLESS the material is clearly identified as not to be copied.
- c. Increase in membership dues. Effective 1 November 1995 membership dues will be increased \$5.00 for all categories except life, and first class/airmail fee will be increased by \$2.50.
- d. BSI Glossary:
 - 1) The Publications Sales Committee chairman was authorized to reprint the 1977 edition of the GLOSSARY with expenses limited to \$100.00.
 - 2) Pamela Koide was authorized to revise and print a new edition of the GLOSSARY with total expenses not to exceed \$2,500.
- e. The membership secretary was authorized to print an additional 50,000 copies of the leaflet "Bromeliad Culture."
- f. The Publications Sales chairman was authorized to spend \$5,218 to procure an additional 10,000 copies of the 1992 cultural handbook.
- g. The 1996 budget was approved with amendments as published in the November–December issue of the JOURNAL.
- h. Bylaws changes:
 - 1) Officers. Terms of office. Art. IV A.4 b) Other officers shall serve two-year terms or until relieved by the board of their duties either at their own request or by the board for cause. (*Remaining lines unchanged*).
 - 2) Directors. Vacancies in office. Art. IV B. 8. If a vacancy occurs between August 1 and December 31, the president shall invite the director-elect to complete the term and then serve the term to which elected. Should there be no director-elect during that period, or if a vacancy occurs at any other time, the president shall name a voting member of that region to serve the remainder of the term subject to confirmation by the board at its next meeting.
 - 3) Committees. Vacancies. Art. VI A. 2. d) The president shall, with the consent of the other officers, appoint a voting member to fill any committee chairmanship that may become vacant during the normal one-year term.
 - 4) Distribution (of the bylaws). 1 copy to each officer and director, each chairman of standing committees, each president of affiliated societies; 1 copy permanent file. Voting members may request single copies from the secretary at cost.

- 5) Standing Rules. Publication Sales. S.R. 6.4.h. (1) Delete lines 3 and 4:
 "The chairman is authorized to spend \$20.00 per month for storage."
(Instead, the chairman will recommend annual budget changes).

4. Announcements:

- The Hanalei Hotel, San Diego, California, donated \$2,500 to be used to provide advances to future world conference host societies. The treasurer will establish a separate fund for that purpose.
- The membership secretary will distribute a new directory during 1995.
- The Board recommends that future affiliated show schedules state that the BSI donated the Mulford Foster and Morris Henry Hobbs awards.
- The Bromeliad Cultivar Registry will be ready for distribution at the 1996 world bromeliad conference.
- The Board recommends:
 - that the Judges Certification Committee devise and implement a method of training Australian judges before the 1996 Board meeting.
 - that the training of Australian judges be undertaken without travel to Australia by JCC representatives.
 - that the JCC describe the duties of that committee for inclusion in Standing Rule 6 of the bylaws.



You are cordially invited to become a member of The Bromeliad Society, Inc.

The Bromeliad Society, Inc., a nonprofit, educational, horticultural organization was formed to promote interest and disseminate knowledge in this interesting family of plants. Membership is worldwide, and includes apartment and home gardeners, greenhouse hobbyists, nurserymen, teachers, scientists, and directors and personnel of botanic gardens. Everyone interested in bromeliads, in learning more about them, in growing them, and participating in the activities of The Bromeliad Society is welcome to become a member.

The activities of the Bromeliad Society consist of

- The publication of the *Journal*, a bimonthly magazine for both amateur and professional, well illustrated in color and black and white.
- The publication of information booklets on bromeliads such as Cultural Handbook, Glossary, and the Handbook for judges and Exhibitors, etc.
- The fostering of affiliated societies. There are many such groups throughout the world.
- The sale of bromeliad seeds through the Society Seed Fund.
- The encouragement of correspondence among growers of all countries in order that bromeliads may become better known and more widely appreciated.

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- FELLOWSHIP:** Same as contributing, member will receive a copy of the Cultural Handbook.
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All memberships commence upon receipt of dues and include the next bimonthly *Journal*. Current back issues are available. Memberships are tax deductible. To learn more, fill out the form below and send it in today.

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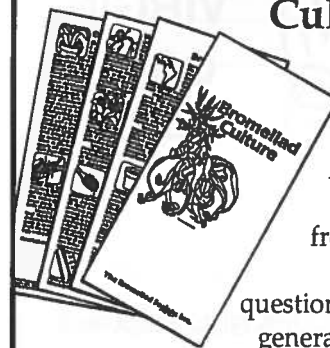
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(*Gravisia aquilega* (Salis. Mez), page 191 L.B. Smith, the BROMELIACEAE OF BRAZIL) was noted by the Fosters as "rather common" on the rocky beach near Salvador, Brazil. Text on pages 221–227.

Calendar

- 23–24 September River Ridge Bromeliad Society 14th Annual Show and Sale. City Park Botanical Gardens, Victory Ave., New Orleans, Louisiana. Show hours: Saturday, Sept. 23, 1 p.m. –5 p.m.; Sunday, Sept. 24, 10 a.m. –5 p.m.; Sale hours: Saturday, Sept. 23, 10 a.m. –5 p.m.; Sunday, Sept. 24, 10 a.m. –5 p.m. Tom Aldridge, 504-833-9859.
- 29–30 Sept. & 1 Oct. 5th International Cryptanthus Conference/Show combined with the 24th Annual Southwest Bromeliad Guild Show. Fort Worth Botanic Garden Center-Green Oaks Inn, 3220 North Botanic Garden Drive and 6901 West Freeway (I-30), Fort Worth, Texas. Registration Fee: \$35.00 (until September 14) \$45.00 after September 14. Registration includes entry in both shows, plant sale, reception, seminars, banquet, auctions, tours and more. Flo Adams, 3106 Clear Lake Court, Arlington, Texas, 76017. 817-467-7500.
- 30 Sept.–1 October Riverbend Bromeliad Society 17th Annual Show & Sale. Oakwood Center, 107–33 West Bank Expressway, Gretna, LA 70053. Show hours: Saturday, 1 –5 p.m.; Sunday, 12 noon –5 p.m.; sale hours: Saturday, 8:30 a.m. –5 p.m.; Sunday, 12 noon –5 p.m. Judged show. Free to the public. Laura Mesko, 504-362-7114 ; Clayton Williams, 713-782-9756.