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Hoya verticillata (Vahl) G. Don

INTERNATIONAL HOYA ASSOCIATION

P.O. Box 5130
Central Point, OR 97502 (503) 664-6808
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Bulletin published quarterly.

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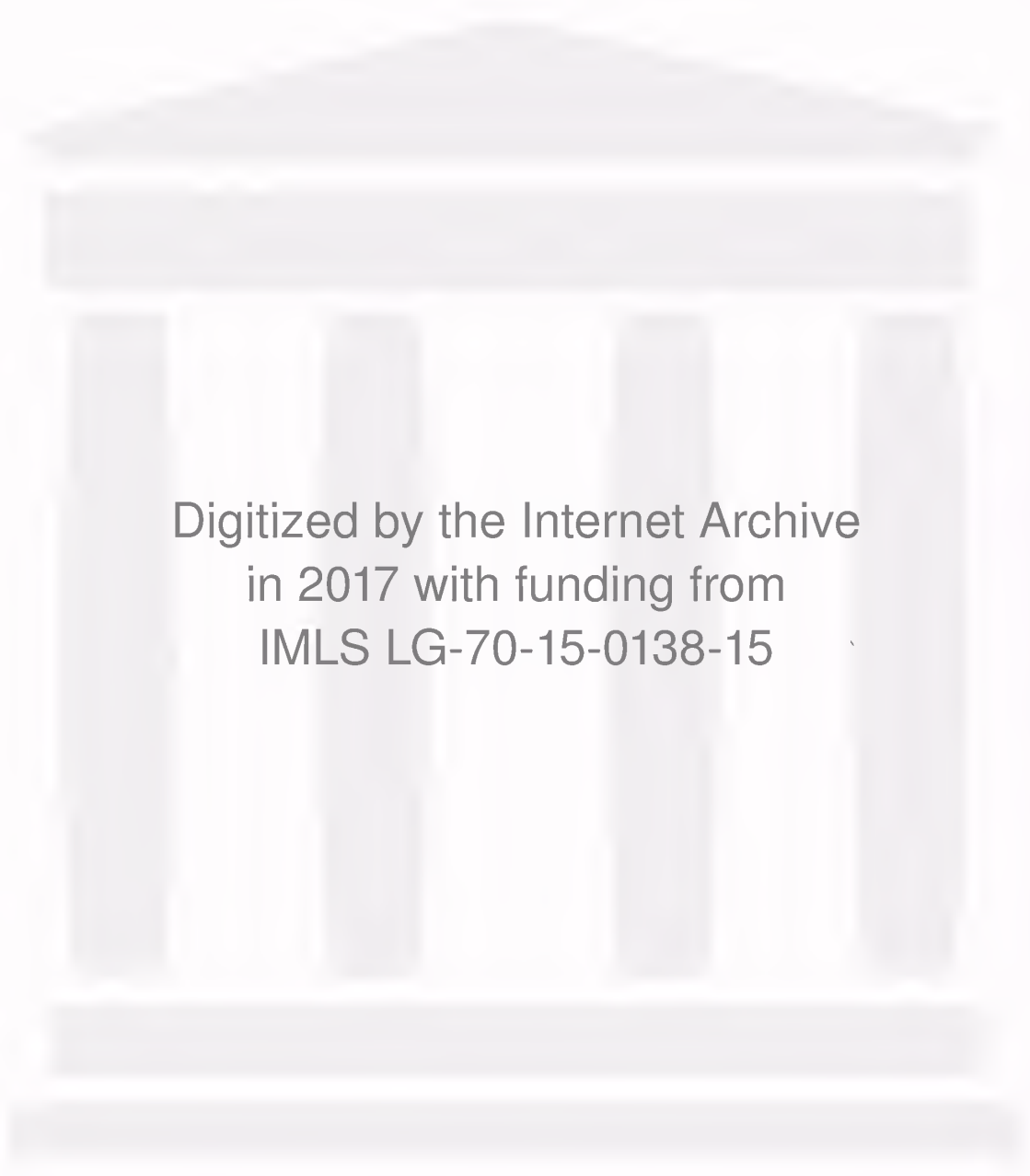
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Errors of fact may occur from time to time in "Fraterna". It is the policy of the IHA to publish corrections of fact, but will not comment on matters of opinion expressed in other publications.

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The President's Message

by Dale Kloppenburg

1995 was a great year as the I.H.A. Membership is up, articles are getting better, and more members are coming forward to help the Society. Our overseas affiliates are expanding rapidly, 172 members in Sweden alone!

In 1995 I visited Southern California twice --- both times to attend the San Diego Hoya Group meetings (September and December), and to attend the annual board meeting of the International Hoya Association. The San Diego Hoya Group continues to be a very energetic growing organization, averaging 50-60 people per meeting. They have come out with a handbook on "How to Form a Hoya Club". If any of you members would like a copy of this handbook, it is available for \$5.00. Just write to Chuck Everson at 1444 E. Taylor St., Vista, CA., and he will see to it that you get one.

At this time, I would like to welcome two new Board Members to the I.H.A. Virgie Demanski (Southern California) and Ted Green (Kaaawa, Hawaii). Both were approved at the last Board Meeting, and appear energetic and eager to get on board with their duties. Virgie has taken over the Dealer's List, making it as accurate and timely as possible for our members. Ted will be a regular contributor to our Fraterna bulletin.

Since Jerry Williams has taken over the duties as I.H.A. Slide Program Director, there has been a marked improvement in the quality of the program and the slides. I was able to observe the show this winter and was amazed to see how really great this program is. The slides are beautiful and the script is very informative. All club members are eligible to borrow this unique slide program. Details can be found in the advertising section of our bulletin on where to write concerning the slide program.

And finally, a closing thought: although we are a society who does not hold monthly or quarterly meetings, we nonetheless are a society devoted to disseminating information about hoyas and their relatives. If any of you out there have any suggestions on how we can better serve you or what articles you would like to see in our Fraterna or anything you want to talk or write about, I welcome your comments.

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Towards A Better Understanding

by Dale Kloppenburg

Subject: Our cover species.

A name is a name, is a name. Well not always and sometimes not forever! I'm sure most people prefer to be called by their correct name. In the plant world the "correct name" is the earliest name that is properly applied to a given species. Herein lies the basis of our story. Many growers are familiar with the name *Hoya parasitica* Wallich. Many have clung to that name in spite of the fact that the name *Hoya acuta* Haworth predates it and is considered the same species. The names were considered synonymous.

Some of us like to dig around in the literature searching for what we like to think of as the ultimate truth. When I started to study and write a book on the "bilobed hoyas species" which were so prevalent among Philippine hoyas species, I kept puzzling over a piece of literature published in 1857. These bilobed species were placed in a Section called *Sperlingia*. The description however contained the phrase "corolla conduplicate" and it is the lobes of the crown that have the keels or bilobed extensions. In the beginning I passed this off as a typographical error and felt the author (Miquel) must have meant corona conduplicate. I even put together (1994) a whole book of 131 pages of these bilobed species and labeled it "Hoya *Sperlingia* (Vahl) Miquel". I even published it and distributed copies.

The discrepancy kept troubling me so I wrote to Dr. Veldkamp at Leiden Univ., The Netherlands regarding my concern. Dr. Veldkamp pursued the matter and obtained Vahl's original hand written descriptions of his two species (1810): *Sperlingia verticillata* and *Sperlingia*

opposita. In addition he obtained the original herbarium sheets from Bertel Hansen in Copenhagen, Denmark. G. Don in 1837 recognized that these species belonged to *Hoya* R. Brown. Ruurd van Donkelaar our I. H. A. representative in central Europe recognized that the plants on the herbarium sheets were *Hoya parasitica* (acuta). This determination meant that all the bilobed species did not belong in the Section *Sperlingia*. Subsequently I revised my publication and wrote up a new section to house these species. The Section *Sperlingia* book became the Section *Acanthostemma* publication.

The point of our discussion is that our familiar *Hoya* now has a new name. ***Hoya verticillata*** (Vahl) G. Don (1837). So if you recognized our cover picture as one you are familiar with you were correct. It is hoped that now you will call it by its new name.

This brings me to another point about synonymy. Just because someone publishes a synonymy (as above) doesn't necessarily make it correct. Most likely the author had very good reasons and data to make the connection. Acceptance or rejection is up to each individual. It usually takes time, however to discover discrepancies and in many cases new knowledge or techniques and to finally arrive at a consensus. Miquel's discrepancy remained uncovered since 1857. The same can apply to species or other publications. It is my firm belief that we should constantly doubt what we have fixed in our minds as the truth, in order to finally progress.

We were granted permission to republish the following article from *Blumea* 40 (1995) 425-428 and it is presented here. It is quite technical but hopefully you can wade through it and see the taxonomic implications of *Sperlingia* Vahl.

The Identity of *Sperlingia* Vahl (Asclepiadaceae)

J. F. VELDKAMP, R. VAN DONKELAAR & R. D. KLOPPENBURG

SUMMARY

Sperlingia Vahl (Asclepiadaceae) is a synonym of *Hoya* R. Br. sect. *Hoya* (Asclepiadaceae). Its two species are identical. The lectotype, *S. verticillata* Vahl, is the basionym of *H. verticillata* (Vahl) G. Don, the correct name for *Hoya parasitica* (Roxb.) Wall. ex Wight.

INTRODUCTION

At the end of the 18th century a Danish mission was active in SE India at Tranquebar. Some of its employees, the most famous of which was J. G. Koenig (1728-1785), collected plants and sent them home. One of these was P. J. Floer or Flohr, who apparently between 1760 and 1777 sent living specimens to Vahl in Copenhagen. Among these specimens were two which Vahl thought to represent a new genus, *Sperlingia*, named after Otto Sperling (1602-1681), a medical doctor in Copenhagen and Keeper of a royal private Garden at Rosenborg Castle. Vahl thought that there were two species, *S. verticillata* Vahl and *S. opposite* Vahl. In 1837, G. Don realized that these belonged to *Hoya* R. Br. and made the necessary combinations. He remarked that they "are probably identical with two of those described above", but as he did not know which ones, these combinations are validly published.

It may be noted that Don thought that *Sperlingia* was an older name for *Hoya*, but he referred to the publication of R. Brown 'On the Asclepiadeae' of 1811, apparently not knowing there was a preprint of it published on 3 April 1810. Mabberley (1985) stated that it was published a week earlier, on 27 March, in the *Prodromus*, which is against Stearn's (1960) citation of the unpublished council minutes of the Linnean Society, which to him suggested that both works were published on the same day, 3 April. This is in direct contradiction to Stearn's own remark a few lines earlier, that a handwritten note by R. Brown in the copy of the *Prodromus* says that Brown gave 20 copies to the publishers Miles & Hunter in March. We therefore agree with Reveal & Hoogland (1992) and Liede & Albers (1994: 222) and disagree with Brummitt (1994).

The exact date of Vahl's publication is not known. The type sheets are annotated '(1804) 1810'. Warming (1880) said that the Society ceased to exist in 1804 and that the paper was published in 1810, while Christensen (1924) said it was published in 1818. It may be that the paper was read in 1804. Dr. B. Hansen (C) informed us that "there is no doubt that it was printed and released from the printer office at some date in 1810." We will at present accept that it was later than Brown's publication; if it can be shown that it was earlier, *Hoya* must be conserved!

Blume (1826-1827) divided *Hoya* into four parts, three unnamed, the fourth with the remark '(*Acanthostemma*)'. This is a validly published name without rank (Art. 35.2) and not a section as is sometimes said (e.g. by Liede & Albers, 1994: 220). In 1849 he mentioned it as a section of *Hoya*, thereby clarifying his intention, but at the same time elevated it to generic rank. Is this a validation according to Art. 35.Ex.2? Some have accepted it as such, see e.g. Bullock (1979) and, more recently, in various treatments of the species in issues of *The Hoya* (e.g. Burton, 1985, 1991).

Miquel (1857) used the name *Sperlingia* (as '*Sperlengia*') again for a section of *Hoya* in which he also included *Acanthostemma* Blume. (That it is a section and not an unnamed infrageneric entity is shown by his remark under sect. *Physostelma*.) If Blume indeed has validated sect. *Acanthostemma*, sect. *Sperlingia* Miq. is superfluous, but not illegitimate, as the basionym is legitimate (Art. 63.3).

Miquel did not include any of Vahl's species, probably because he thought that they did not occur in the Dutch East Indies. This has induced some to select one of the included species as the lectotype of sect. *Sperlingia*, but this is obviously erroneous: type and name are irrevocably linked, and one of Vahl's original

species must be selected. The most obvious choice as the lectotype is *S. verticillata*, as after Don *S. opposita* was even more neglected and almost forgotten, and we agree with Hill's choice (1988) followed by Liede & Albers (1994: 224). The necessary lectotypification of *Acanthostemma* was also made by Hill who chose *H. rumphii* Blume, a combination with a chaotic nomenclatural history and identity that will have to be dealt with elsewhere. Teijsmann & Binnendijk (1863) have used the name *Acanthostemma* at an infrageneric level, but it may for differing reasons be regarded as NOT validly published as a section here. Some argue that the word 'section' is not used here, but a paragraph sign. Others regard '*Acanthostemma folia enervia*' as a strophe-name.

One of us, Dale Kloppenburg, has extensively studied this section, and distributed working copies of various stages of the manuscript to interested persons. These writings must therefore NOT be regarded as effective publications with validly published names or combinations! Dale Kloppenburg had the suspicion that *S. verticillata* did not belong to this section, however, and so Dr. J. Veldkamp asked the type material on loan from (C) Copenhagen. Ruurd van Donkelaar inspected these and concluded that they were conspecific with each other and with the widely spread, polymorphous *H. parasitica* (Roxb.) Wall. ex Wight. As the latter was published in 1834, *H. verticillata* (Vahl) G. Don is the correct name for it. The consequence of this is that the name *Sperlingia* for a genus or section becomes a heterotypic synonym of *Hoya* sect. *Hoya* ('*Eu-Hoya*' auct.), and that the species included in sect. '*Sperlingia*' auct. belong to a different section:

Hoya R. Br. section **Acanthostemma** (Blume) Blume

Hoya § *Acanthostemma* Blume, Bijdr. Fl. Ned. Indie 16 (1827) 1065 (no indication of rank). *Hoya* sect. *Acanthostemma* Blume & *Acanthostemma* Blume, Rumphia 4 (1848) 49. - Lectotype: *H. rumphii* Blume.

Hoya R. Br. sect. *Sperlingia* auct. non Miq.

Further study will very likely reveal further additions to the list of synonyms. At present the synonymy for *H. verticillata* seems to be:

Hoya verticillata (Vahl) G. Don

Hoya verticillata (Vahl) G. Don, Gen. Hist. 4 (1837) 128. - *Sperlingia verticillata* Vahl, Skr. Naturhist.-Selsk. 6 (1810) 113. - Type: *Flohr* in *Hb. Vahl* (C holo, labeled IDC neg. 72 II, 6-7).

Sperlingia opposita Vahl, Skr. Naturhist.-Selsk. 6 (1810) 114. - *Hoya opposita* G. Don, Gen. Hist. 4 (1837) 128. - Type: *Flohr* in *Hb. Vahl* (C holo).

Hoya acuta Haw., Rev. Pl. Succ. (1821) 4. - Type: Extant? 'In regio horto kewense A. D. 1819' (see note).

Hoya pallida Lindl., Bot. Reg. 10 (Feb. 1826) t. 95 1. - Type: Extant? 'Duke of Northumberland' (see note).

Hoya lanceolata Lindl. in Donn, Cat., ed. II (early 1826) 92. - Type: (see note). *Hoya angustifolia* Traill, Trans. Hort. Soc. London 7 (Nov. 1826) 29. - *Hoya pottsii* Traill var. *angustifolia* Tsiang & Li, Acta Phytotax. Sin. 12 ('January' 1974, rec. in L 23-4-1974) 124; Fl. Hainan. 3 ('October' 1974) 272. - Type: *Potts* extant?).

Hoya pottsii Traill, Trans. Hort. Soc. 7 (Nov. 1826) 25, t. 1. - Type: *Potts* (extant?, if not: Traill's plate).

Hoya nicobarica R. Br. ex Traill, Trans. Hort. Soc. London 7 (Nov. 1826) 28. - Type: *Hb. Banks* (13M holo).

Hoya albens J. Miller, Bristol Cat. (1826). - Type: unknown (see note).

Hoya hookeriana Wight, Contr. Bot. India (1834) 37. - Lectotype: *Wallich Cat.* 8153-A (K holo).

Asclepias parasitica Roxb., [Hort. Beng. (1814) 20, nom. inval.] Fl. Ind. ed. 2, 2 (1832) 42. - *Hoya parasitica* Wall. ex Wight, Contr. Bot. India (1834) 37. - Type: *Hb. Roxburgh* (BM holo; K, plate).

Hoya parasitica Wight var. *geoffrayi* Constantin, Fl. Gen. Indo-Chine 4 (1912) 136. - Type: *Geoffray-fray* 382 (P holo).

Hoya parasitica Wight var. *spirei* Constantin, Fl. Gen. Indo-Chine 4 (1912) 136. - Lectotype: *Spire* 1529 (P holo).

Hoya globiflora Ridl., J. Fed. Mal. States Mus. 5 (1915) 164. - Type: *Robinson* 5756 (SING holo) from S. Thailand, not *Ridley s. n.* from Sumatra as cited by Rintz (1978, as '*globifera*').

Some other names may belong here as well:

Hoya ridleyi King & Gamble, J. As. Soc. Bengal 74 (1908) 575. - Lectotype: *Ridley s. n.* (CAL holo; K) (appointed by Rintz, 1978, but three Ridley collections were cited by K & G).

Hoya rigida Kerr, Kew Bull. (1939) 463. - Type: *Put* 3034 (K holo).

Hoya obscurinervia Merr., Philip. J. Sc. 23 (1923) 263. - Type: *McClure* 9819 (PNH holo, lost; HK, SYS).

Note - From Traill (1826) it becomes obvious that *H. acuta*, *H. pallida*, *H. lanceolata*, and perhaps *H. albens* were all based on cuttings from a Wallich accession in K first described by Haworth (1821). These names are not homotypic (see Art. 9.5): later collections from a living specimen that originally provided the material for the holotype or its generative or vegetative descendants are not considered to be iso-types, or even fragments of the holotype. Such things may be called merotypes. Contrary to a remark by Britten (1898), Traill did not validate *H. parasitica* Wall.: he cited the name in synonymy under *H. pallida*. Rintz (1978) has treated *H. citrina* Ridl. as a variety of *H. parasitica*. We have the impression that it is a distinct, but closely related species, perhaps identical with *H. macrophylla* Blume. *Hoya cinnamomifolia* Hooker is usually cited as identical, but differs in leaf shape and the corona; it also grows at higher altitudes.

ACKNOWLEDGMENTS

We want to thank Dr. B. Hansen, Copenhagen for the loan of the type material of Vahl's species and the translation of Vahl's introduction to *Sperlingia*. Mr. David Liddle, Mareeba, Australia, and the late Dr. Benjamin Stone, Manila, Philippines, who very much encouraged Dale Kloppenburg to study this section.

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IN SEARCH OF HOYAS

by Jerry Williams

In mid-October, 1995, I was fortunate enough to be a part of a very exciting trip to the Philippine Islands. I was invited to spend 16+ days in one of the most interesting hoya habitats in the world to view Hoyas and Dischidias in the wild. Others in the party were Ted Green and Edward Gilding (both of Hawaii), Eva-Karin Wiberg (Sweden), and Dale Kloppenburg and myself (California). This is the first time I have ever been on a trip to see Hoyas in the jungle. I had no idea what to expect. Would I have to tread through marshy swamps, fight pesky mosquitoes, poisonous snakes, slimy leaches? What about typhoons? I heard that October was typhoon month in that part of the world. Dale and Ted told me not to worry, as most of the problems I mentioned were merely figments of the imaginations of people who've never gone on these types of trips. I sincerely hoped so!

So with my trusty camera, rain gear, hiking boots, baseball hat and backpack, I departed San Diego to meet up with Dale & Paz Kloppenburg in San Francisco, then pick up the rest of our party in Hawaii, and then on to the Philippines. I found out one thing about airlines pretty quickly, they never depart on time! After a delay of 15 hours at the airport, we finally departed at 4:00 a.m. Monday morning, October 16th. We picked up our other "Hoya buddies" in Hawaii, then we were "winging" it to the far east. A good flight, but 10 hours is a very long time to be on a plane at one sitting. Customs was a snap and we were in and out of the Manila airport within an hour. Our first stop was an hour outside of Manila to the home of relatives of Mrs. Paz Kloppenburg. They had a wonderful treat for us: "Buko pie". This is a traditional dessert made from young coconuts. Very tasty! They lived in Los Banos which is a resort town on the side of Mt. Makiling. Our hotel overlooked the Laguna Los Banos. A very quaint lagoon but very polluted, and the aroma makes you want to keep your room door closed at all times! This will be one of the nicest hotels we will stay in during our trip. We had air conditioning and a very nice restaurant. The shower was typical. The shower head did not work, so we had a bucket and a little pail to pour water over ourselves. Later that afternoon we walked to town. It was very interesting to see the vendors on the side of the road. Everyone in a row, selling the same thing. It wasn't necessary to shop around, as it was all the same. What you must do is to get the best price. This is where your bartering expertise comes in. If you don't have any, you'd best acquire it pretty quick as this is the way the Filipinos do business. You go from one stand to the next to get the best price! For dinner (and throughout the trip), we had Pancit, noodles with vegetables and chicken. This is the standard food fare throughout the country.

Our first full day on the trip started out with a visit to the University of the Philippines. Our car ("jeepney") trip cost \$0.07 each for the 20-minute ride. We were able to see herbarium specimens of Hoyas that were housed there, and got permission to go to Mt. Makiling. Our next stop was at Professor Juan Pancho's nursery. There are eight other nurseries on his road--all backed up to one another. We saw all kinds of Orchids and other native Philippine plants. On the front fence of Juan Pancho's yard were Hoyas, Passion Vines, and even a Pereskia. Inside the yard you could see a vast Cycad garden full of *Cycas revolutas*. Beautiful! Hoyas were growing all up in the trees, just like a jungle! It was a beautiful garden. One large tree had a plant of *Hoya crassicaulis* growing all the way to the top. It had several umbels about ready to open. Juan gave cuttings to all who wanted them. In other trees we saw Dischidias, Aeschynanthus and Orchids.

We visited Mt. Makiling the next day. The entire mountain was covered in rich and varied flora of the area but unfortunately we didn't see many Hoyas or Dischidias except for *Dischidia oiantha*, and probably *Hoya crassicaulis*. At the end of one trail we came across some steaming mud pots where steam escapes from a boiling cauldron of mud, very humid area. Elevation was 2700 feet, and we hoped to see lots of Hoyas---but no luck.



***Hoya imbricata* Decaisne**
On fallen Mango tree, Palawan, Philippines



***Hoya el-nidicus* Kloppenburg**
On beach boulders Sebang, Palawan, Philippines.

October 20th found us up and eager for our next journey--back to Manila for our flight to the city of Legazpi. A one-hour journey, this is the Bicol Province of southern Luzon. Upon landing we were greeted with a wonderful view of the Mt. Mayon volcano. Smoke and steam are puffing out of the cone at all times. This was the place where we had hoped to see quite a few Hoyas (maybe even some new ones!). In fact, on our first outing near Lake Buluson, we found *Hoya merrillii* growing on a lava outcropping. The area was rich in asclepiads. *Hoya heuschkeliana*, *H. bordenii*, and *H. bilobata* were abundant everywhere. But by far the most Hoya in abundance was *Hoya imbricata*. It was everywhere! Overall, this was a good day as we observed and photographed about 20 different Hoyas---- no new ones, but a good day nonetheless.

The next day, bouncing out of bed at 5:00 a.m., toast and tea at 6:00 a.m., we were off and running. We first went to a local park where plant vendors would bring in plants they had collected off the volcano. Sometimes this is the best way to acquire new things, let somebody else climb a mountain and bring it down. Here we found several plants of Hoyas and Dischidias, all of which turned out to be *H. crassicaulis* and *D. oiantha*. And possibly *H. madulidii*. Traveling all day in a jeep, dodging pot holes in substandard roads for miles at a time, we spent the day foraging through the countryside, looking for areas where Hoyas may be growing. We went for walks to look at the plants in people's yards. Generally the day was a bust when it came to Hoyas.

The next morning we headed northeast to a spot on the Mt. Mayon volcano where Dale saw a bright red flash in a tree. We stopped and climbed the bank and found a beautiful specimen of *H. imbricata* with four or five flowering umbels. This was the large-flowered clone of *H. imbricata*, with the round red bodies attached to the trees. Again, more plant vendors were spotted selling plants along the roadside. We found a pot of *H. densifolia* and purchased it, cutting it up so everyone could get cuttings. The vendor said he collected it high on the volcano. Ted and Dale were not aware of *H. densifolia* ever being reported this far north. Continuing our journey, Eva-Karin spotted a light lilac flower on a vine, and upon investigation found it to be *Dischidia livida*. Really quite beautiful and very scarce in collections. Soon it started to rain and we all agreed it was a good idea that we got out of the jungle.

Our next day had us up at 4:00 a.m. with a parade going by our hotel and a blaring brass band! Local holiday. We returned to Manila, in the rain, stayed the night and the next morning we flew to the island of Palawan to Puerto Princesa. The plane was one hour late. Took an A-300 Airbus (as big as a Boeing 747!) for the one hour flight. Palawan is known for having the heaviest concentration of dense rainforests in the Philippine Islands. Many Hoyas come from this island. We were eagerly looking forward to viewing many in their habitat. And we weren't too disappointed. Sebang (a beach park) was 2 1/2 hours from our hotel. We got there by a narrow dirt road--it started raining, and a few of us were "under the weather" as the bacteria in our bodies didn't jell with the bacteria in some of the food we had eaten. But we trudged on. With our luggage in tow, we got to "Mary's Cottages" facing the South China Sea. Each of us had our own cottage. Very remote, but absolutely beautiful scenery! A Carabao (water buffalo) took all of our luggage down the one-mile walk along the sea to the cottages. We felt like we were Robinson Crusoe of the Philippines. Along the cliffs of the cottages there was *H. el-nidicus* growing right out in the salt spray. More *H. imbricata* were observed, and Ted said that *H. imperialis* was nearby. For dinner that night, Mary went out and killed a chicken, fixed rice and fresh papaya. After dinner we watched the surf in the moonlight and the fireflies, then off to bed.

Our next day there we walked all day. *H. imperialis* was found by Ted exactly where he saw it two years ago. That man has a photographic memory when it comes to finding Hoyas! We couldn't see them growing in the mangrove trees, but Ted saw them right away.

As a side trip that afternoon we took a boat trip into the underground river where we saw bats swooping down and diving right into the lights of the boat. Spooky, but quite unique and extraordinary.



**Carabao Luggage Transportation
On the way to Mary's Cottages, Sebang, Palawan, Philippines**



**Sebang Bay, Palawan, Philippines.
R-L: Eva-Karin Wieberg, Edward Gilding and Jerry Williams**

Back to Hoya hunting. We finally found *H. imperialis*, 40 feet of it growing upon a mangrove tree. We arrived back to our cottages late that afternoon, exhausted and thirsty, so we walked further down the beach to Bob's Canteen and had spring rolls and bought water for the next day's trip. After a little dinner of Pancit, we were off to bed.

The next few days we searched for Hoyas via boat (no luck), and a hike further south to a waterfall. Again, nothing new, same Hoyas. Back in the jeep, we decided to check out a hilly area about 16 miles from our starting point. We found an asclepiad that was all over the place. At first glimpse we thought it was a Hoya with fuzzy leaves, but it was not a Hoya. We found the largest concentration of *H. el-nidicus* that Ted and Dale agreed (they BOTH agreed, that's something!) that they had ever seen in one habitat. It's now raining cats and dogs. We walked along a trail to a waterfall. The Hoyas that were there are now gone except for, you guessed it, *H. el-nidicus* (or if you prefer maybe *H. diversifolia*).

On the way back, Ted is looking for the area where he found *Ceropegia cumingiana* on a past trip. He took us to the very spot and to the very same plant! The people that lived there thought we were pretty strange since they could not eat the vine and they had no interest in it. They couldn't believe we would come half way around the world to look for plants such as this!

Our luck started to turn sour when word that a typhoon had hit the north end of the island. For us, all we got was rain, rain and more rain. The next day we drove five hours to a place called Quezon, stopping at many intervals for a short trip into the thickets. Another Hoya bust day. The trip was long; our bodies ached from the uncomfortable seats and the bad roads.

November 1st, we headed south again to a prison camp using an honoree system. The prisoners grew their own food, taking care of a park within their camp. We found a line of mango trees just loaded with *H. imbricata*. The leaves had many different colors, some bright green, some yellow, some red. All very beautiful. We were able to collect several seed pods from this stand. We returned to our hotel wet and tired that night.

Starting out the next day on a fairly new road, with trees at eye level, we spotted *Dischidia rafflesiana* (*D. major*), a large Calatropis flower of light lavender surrounding a white center. Many side roads were washed out from the typhoon. We stopped and waded in a mangrove swamp looking for *H. imperialis*. We spotted a huge vine with about 4 umbels high in the tree. Magnificent!

Upon hearing the news of another huge typhoon heading for northern Luzon, we decided to call it quits, head back for Manila and see if we could get out of there before we got caught in the middle of it. Well, we were lucky in one sense. We didn't get hit by the typhoon, but we were delayed about 2 days, as everything got backed up by airline cancellations. The airport looked like the evacuation of Saigon. People everywhere trying (fighting) to get tickets, places in line, baggage on board.

Finally we managed to secure our flight confirmations, get our luggage on board, and ourselves on board. We arrived back in the United States safely, but tired. I will say that this was a great trip. I'm not sure that I would spend three weeks there again, but one week in the Philippines would be okay. I would certainly want to go to some other areas to see Hoyas in habitat. It was definitely an experience I will never forget.

What's Happening in the Hoya World 1995/1996

by Chuck Everson

The I. H. A. slide show was sent to New Zealand last year, as the Auckland Epiphyllum & Hoya Society proudly presented it as the main event at their annual convention. Other places shown in 1995 were at the: Cactus & Succulent Society of California meeting, the Poway Garden Club meeting in Poway, California, and the Sacramento Cactus & Succulent Society meeting. In 1996, I will be giving a Hoya lecture at the Southeast Cactus Conference in Miami, Florida in February. Later in 1996, the I. H. A. slide show will be shown at one of the San Diego Hoya Group's meetings.

The San Diego Hoya Group had four great meetings in 1995. With an average 55 members attending, the meetings consisted of a Hoya auction, a member-panel discussion on which Hoyas were considered to be the best to grow in Southern California and why; a lecture from a special speaker, our I. H. A. Editor, Ann Wayman, and a marvelous slide show shown by Dale Kloppenburg at their annual Holiday dinner.

1995 was a year for "Hoya Hunting in the Philippines" (see article by Jerry Williams in this issue).

This year there will be a trip to Borneo by two of our members; a slide show for San Diego members from Jerry Williams on his Philippine trip, plus another slide show by Dale Kloppenburg about his Hoya trip to Sulawesi, Indonesia.

Last, but not least, editor Ann Wayman has promised exciting pictures of new Hoyas in upcoming issues of *Fraterna* in 1996. Should be a good year for Hoyas!

OPEN LETTER TO THE MEMBERSHIP

It is with deep regret, but great necessity, that the Board of Directors of the International Hoya Association announce a rate increase for 1996 membership.

In the past year, it has become apparent that the price of paper, envelopes and postage has greatly exceeded our income. For example: paper and envelopes have risen as much as 30%; postage has risen 10% for domestic and 20% for overseas mailing. With this in mind, the Board felt compelled to raise dues to \$18 (was \$14/year) for United States membership and \$25 (was \$18/year) for guaranteed, airmail shipment, overseas membership.

This action was not taken lightly. Even with this increase in rates, effective in 1996, we will still be operating at a deficit until the increase dues catch up to expenses. Any member who would care to donate additional monies to overcome this projected deficit, may send any additional funds to the Association.

Questions and Answers

Question: I have a seed pod developing on my Hoya. What do I do ? K.P.Fla.

Answer: As the pod develops and nears maturity I would suggest that you place an end of an old silk stocking over the pod. The reason for this is one of these mornings as the sun heats things up the pod will burst and seeds will disperse on the slightest of breeze. Even if they disperse all over the adjacent area, you can still salvage many. The seed is attached to a silky white tuft of fibers. Remove the silky como (parachute). If they are in the stocking they can all be removed and placed in a loose potting mix with a thin layer of fine peat beneath and on top of the seeds, barely covered. Be sure the media and pot are sterile. The fresh seed germinate readily. Their worst enemy is damp off organisms and slugs and snails. It is a good idea to spray lightly with a weak fungicide solution to inhibit damping off. Keep the seed pot in a warm location, I'd say at least 70 ° F.; bottom heat may help in cooler months.

Question: There was something published as to the word "bullate" meaning small blisters on a leaf surface, but I see it used in catalogs in connection to puffy leaves. Explain please. R.L. Neb.

Answer: The basis for this word is "bulla" a.e., f. (bullo) *Any object swelling up, and thus becoming round.* Well it is easy to see it can be blisters and also round puffed up leaves as with *H. darwinii* Loher. In this Hoya the leaves consist of two hemisphere shaped bulla along each side of the stem. (For this term, also "blisters on the surfaces")

Question: Do I plant long stems received as cuttings ? What about single node cuttings? C. R., CA.

Answer: It would probably be best to make a number of short cuttings. The cut length depends somewhat on the humidity of the surrounding air. Long cuttings have more surface from which to transpire (lose moisture) and from which evaporation can occur. The less humidity the higher the rate of evapo-transpiration. The cut must establish roots before it wilts. It is best to immerse at least one node into the potting mix as the growth hormones are concentrated at the nodes and it is from there that the cutting will form roots first. Single node cuttings are adequate with the large leafed Hoyas. In these species the leaf blade remains out of the potting mix even with the node and petiole covered.

Question: I'm new at growing Hoyas. What can I expect in the way of pests ? T.P., OR.

Answer: Tough question! The usual encounters as far as insects are concerned are mealy bugs and aphids. Both of these can be eliminated with Malathion. If you do not like harsh chemicals I'd say try an atomizer filled with rubbing alcohol. A fine spray where you see these two pests will kill them on contact. Persistence is the best control. Look over your plants each day. Look in the nodes and especially on the new tender growth. A daily routine will all but eliminate these two pests. Snails and slugs outdoors or in greenhouses can be devastating. Snail bait or "Liquid Deadline" can solve this problem. These pests will return to the same plant night after night, so a flashlight and a night collecting journey might be in order. Red spider might be a problem if you have very dry conditions. Keep the humidity up if possible, as prevention is much easier than cure. Scale insects can cause problems. Remove and spray with alcohol or insecticide (always follow label directions for use).

BIRD TRACKS

Robin #5. 20 October 1995, Harriette Schapiro, Calif.....I have found that *H. polyneura* seems to like to blossom in the fall in cooler nights. If it is kept too warm at night it does not seem to bloom as well. I did get a *H. nummularioides* started. *H. kerrii* is one of those that drip sap from the flowers when it blooms. Be careful of this in the house. It can get almost as messy as having aphids on plants spitting sap around.

Everyone else will get tired of hearing this but I have two recommendations for mealy bugs. First, try a cotton tipped swab dipped in alcohol and wipe off the little devils. Then try either Safer Soap, liquid kitchen detergent or, best of all, Amway's LOC diluted FRESH at 1 Tbs. per gallon. If you spray every third day for several weeks you should wipe out the problem. But do notice the use of the word FRESH. The LOC at any rate, biodegrades so fast that you have to make it up and then use it. It does not stand well at all. Also, just in case, try dredging the soil. You may be getting soil mealies which are creeping up on to the plant. Soak the soil in one of the detergent solutions a few times.

Robin #5. 31 October 1995, Carita Fosberg-Heikkila, Finland.....What can you tell me about *H. subquintuplinervis* (starting from the name - what does it mean)? Something to do with nerves? Is it very difficult to grow? And another question, to all of you too, of course: how to grow a Hoya called *H. sp.* "Gold Star". It is the only Hoya I have which has not grown after potting it. Some new leaves, and that's all. I really don't know anything about this one, I bought it because it should have big yellow flowers. I suppose I will have had my 100 birthday before this blooms, if the growing rate is this. It is not happy, I can see it, but I don't know what to do. It has not died, but the leaves are pale green (they were already pale when it arrived typical to it?) and the new leaves are small. Help! Good advice needed! I know Hoyas can stand and "wait" for long times, I have had those too, but this is different.

Robin #5. 9 December 1995, John Scoville, Calif.. If there are two Hoyas I cannot seem to grow furthermore bloom they would be *H.*



polyneura Hook. f. and *H. nummularioides* Cost.. Number three would have to be *H. globulosa* Hook.. My next investment is going to be bottom heaters and maybe that would help these miserable winters here.

I believe *H. subquintuplinervis* Miq. got its name from the leaf base, four veins surrounded the base vein and travel as a raised pattern almost to the margin. Very attractive plant but I have never been able to bloom it.

H. Section Eriostemma Schlechter sp. "Gold Star" was introduced from Jackson's Greenhouses and Liddle lists it as IML 143, bought as *H. sp.* 77/32. I am the last person to give growing advice as I have no luck with *H. coronaria* Blume, *H. ciliata* Burton, *H. guppyi* Hemsley, and *H. lauterbachii* K. Schumann. Maybe one of our robins has had success with these "toughies".

Maria, *H. multiflora* has very thin leaves. As such, it is not very succulent. Using "African Violet methods" (a Wick) to water could really help. It probably doesn't like to dry out totally between waterings. Therefore, with the wick providing some water, but not wet feet, it should do well. Now that you have one terrarium, when you get another one, try to obtain a heating coil so you can provide bottom heat. It is the best way to get cuttings started.



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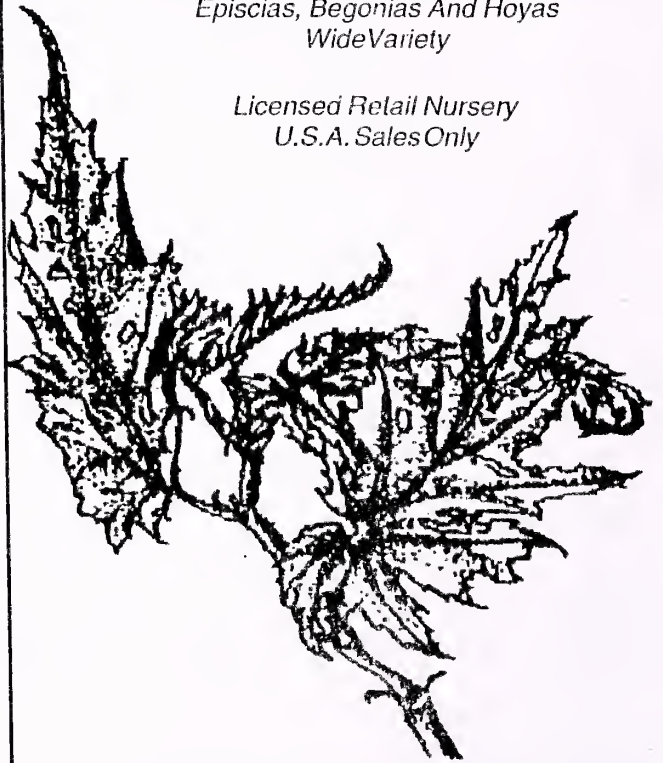
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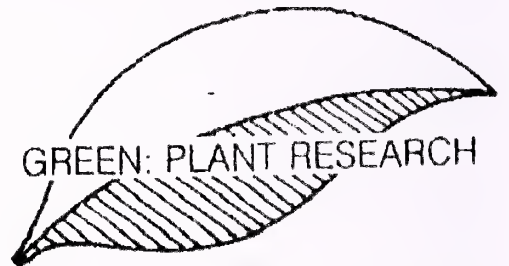
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Ted Green

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strange sounding names**

FRATERNA

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We also accept advertising on a per year basis. You may deduct 10% for the same ad running consecutively in four issues. Payment in advance please!

Back Issues

We now have the thirteen original issues of the Hoya Society-West Coast bulletin bound as one publication. The price of this bound text is \$25.00 U.S. and \$35.00 shipped surface overseas. Due to the extra pages and pictures in our new publication "Fraterna", we must, out of necessity, increase our prices for back issues of "Fraterna" to \$5.00 per issue, \$7.00 per issue shipped surface mail overseas.

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Editorial Policy

Errors of fact may occur from time to time in "Fraterna". It is the policy of the IHA to publish corrections of fact, but will not comment on matters of opinion expressed in other publications.

Catalogue Requests

The IHA office does not have dealer catalogs available. Please address your catalog requests to the individual dealers, or write to our Board Member **Virgie Demanski**, who will have a listing of mail order dealers available. Please send a self-addressed, stamped envelope. Virgie's address is P.O. Box 1239 El Cajon, CA 92022-1239 U.S.A. In some instances there may be a charge for these catalogs.

The President's Message

by Dale Kloppenburg

Here we are with the 1996 growing season well under way. In the colder regions of the world it is always nice to be greeted again by good Hoya growing weather. Now that summer is approaching, special attention must be given to our watering schedule, pest management, repotting and other chores. What applies here and now may apply later in Finland or Sweden and possibly not at all in Florida or Hawaii. Down under, our members are looking to fall preparation. This year we are off to a good start and here in our second edition we again find some new and interesting articles and comments. Our slide presentations have been well utilized and praised by users. We would like to expand our Robin groups, so look for Dr. Harriette Schapiro's message in this issue.

We are busy gathering new and interesting articles for some future issues of *Fraterna*. Best of all we continue to find Hoya species and clones not yet available in commerce. It is always exciting when there are new introductions and it seems there will be many new things offered in plant vendors 1997 catalogs. Plants collected from the expedition to Sulawesi in 1994 should be available soon, followed by new ones from the 1994 trip to the Philippines. There are some spectacular clones and species arriving from Borneo and also more from New Guinea. As you see in this issue we have a new narrow leafed subspecies from Malaya. More new species and clones are becoming available from Sumatra, Borneo and New Guinea. Look forward to finding out about them in future issues of *Fraterna*.

Our membership is increasing and participation by overseas groups has been spectacular. There is an ever increasing interest in our favorite plant, the Hoya. If you have friends whom you believe would like to join us, encourage them to become a member. Better still, for the price of a good dinner out, give them a gift of a year of *Fraterna*, and a reminder of you four times a year ! My final thought: I know a lot of you have questions, even more have interesting observations we wish you would share with us. Questions and observations by you make a good basis for our Question & Answer section, the basis of articles members would like to read, and above all gives the editor an idea of what you want or need in the way of future articles. So sit down and send us a note, a page or a complete article.

Dale Kloppenburg
6427 N. Fruit Ave.
Fresno CA. 93711
Ph. or fax (209) 439-8249

Subject: Our cover species.

Hoya **diversifolia** Blume was first described in the publication *Bijdragen tot de Flora Nederlandsch Indië* by Dr. C. L. Blume in 1825 on page 1064. It is a very short description in Latin as follows: H: folliis aveniis ovalibus acutisculis orbiculatisve carnis glabris, corollis intus sericis (Rumph. Herb. Amb. V. 175 fig. 2.) *Crescit:* in calcaris Kuripan et circa Bataviam. *Floret:* Omni tempore. Corolla quinquefida, reflexa; corona staminea basi tubalata; coronae foliolis angulo exteriori et interiori longiter productis integerrimis.

Translated: Hoya: leaves without perceptible lateral nerves oval acute orbicular, fleshy, glabrous, corolla inside silky hairs, (Rumphius Herbarium Amboinensis Volume 5 page 175 figure 2.)

Growing: in calcareous Kuripan and near Batavia. Flowers: the whole time. Corolla five-fid, reflexed; staminal corona with tubular base, with the lobes of the corona exterior lobe angular and with the inner (lobe) absolutely entire produced far inward.

Our cover article is the product of our European representative. Ruurd van Donkelaar has from time to time produced a newsbrief for the benefit of Dutch reading enthusiasts. We were fortunate in having him give us permission to duplicate his work here in *Fraterna*. This article was kindly translated for us by Dr. Albert Hofman. We look forward to additional translations of this fine plantsman's articles.

Translation of. **Hoya diversifolia en verwanten**

Author: **Ruurd van Donkelaar**

In: **Hoya Nieuwsbrief No 7:2-13, 1989**

Hoya diversifolia and relatives.

On the continent of south-east Asia you will find some Hoyas which are very diverse in appearance and have a large area of distribution. One of these species is **Hoya diversifolia** Blume. It is a species, that we can find in herbaria as well as in living collections often. This often indicates that this species is common in its natural habitat. This causes often a great variability, which is the case with this species. Apart from the species *H. diversifolia* there have been described several synonyms and some related species.

All species and forms that belong to this group are strong vigorous plants with thick leather-like or fleshy leaves which are often strong succulent. They are climbing and/or trailing plants, which are terrestrial or above all grow epiphytic in trees or on limestone rocks.

We find these plants in eastern India, Burma, Thailand, Vietnam, South - China offshoots to Indonesia, Sumatra, Java, Celebes and possibly even more south. There are rather a lot of names that apply to the species of this group. It is a question whether they all belong in this group or not. We estimate that the major part are synonyms.

Hoya diversifolia Blume: Stem: strong, fleshy and bold, often with a lot of air-roots. Leaves: broad, elliptic or obovate to 20 cm. long and 7 cm. broad, with a cuneate base and obtuse or subacute. The upper-surface is smooth and bare, dark-green with often irregular silver spots, lower surface smooth and bare, light-green; the leaf-margin is sound and often curled-down a bit. Leaf-stalk is short, 1-3 cm long. Veins are not clearly visible. The flowers globose umbels of oblique peduncles of 3 to 5 cm. long. Pedicels about 2 cm. long, up to 20 flowers per umbel. Corolla is flat, lobes broad triangular with an outward backfolded top, the inside is fuzzy, denser and longer, eyelash (ciliate) like along the margin, bald on the outside, rose, white, yellow or even red. Corona more dark rose tinted violet red, outer corona lobe oval with a rounded top, hollow with a small elevation in the middle, standing straight off, inner corona lobe triangular, sharp oblique top towards the stylar center. Pollinia oval, winged, caudicle round, not winged, retinaculum oval. Pods up to 15 cm. long and 6 mm. cross. The species originates from Thailand, Burma, Malaysia, Indo-Chine, Java, Sumatra and Borneo in the lowlands, along the shore and on limestone hills.

The first who described this species was Rumphia (1747) as **Sessuela esculenta**, but this pre-Linnean name has been cancelled. BLUME described the species according the Linnean rules in his BIJDRAGEN FLORA NEDERLANDSCH INDIE in 1826. He had collected several species on Java. These species have pure elliptical to round leaves with the broadest point in the middle. He also named some species **H. heterophylla**. These species have more obovate leaves, with the broadest point above the middle. He didn't publish the name **H. heterophylla**, and I only saw this name on herbarium sheets. The name **heterophylla** has the same meaning as **diversifolia**: leaf unequal, leaves with a different shape; the first epithet is Greek, the second comes from Latin. Could it be that Blume first used this name for the plant but preferred the Latin name when he made the description?

KING & GAMBLE (1908) mentioned as synonyms **H. orbiculata** Wall. ex Wight. This is a species with almost round leaves. The description of Wight (1834) could apply very well to **H. diversifolia**. A specimen of ZOLLINGER in the Rijksherbarium at Leiden shows only some leaves and no flowers. Never-the-less I think that the shape of the leaves and the stem-part are a confirmation of the opinion of King & Gamble. In 1936 TSIANG re-uses the name **H. esculenta** (Rumphius) Tsiang. He gives this name priority above title by him, and mentioned synonyms **H. diversifolia** and **H. orbiculata**. Although Rumphius introduced the epithet **esculenta** only six years before LINNAEUS wrote Species Plantarum, the International Code definitely marks 1753 as the limit. If Blume had adopted the name it would be fine. Now the name used by Blume is the first (and) official one. R. C. BAKHUIZEN V.D. BRINK (1949) mentions as synonyms **H. crassipes** Turcz. and **H. zollingeriana** Miquel., but the first one with some doubt. The first one has been described already in 1848 and refers to **H. diversifolia** forms with obovate leaves and a thick stem. The specimen of **H. crassipes** in the Leiden Herbarium were merely collected by KOORDERS and have some spatulate leaves besides the oval, obovate leaves. There is not much to say about the name **H. zollingeriana**. It had been collected only once by ZOLLINGER and described by MIQUEL. The only difference to **H. diversifolia** he mentions are the less sharp corolla lobes and the longer corona lobes. Herbarium material has disappeared probably. I think it is obvious that the large variability in leaf shape and flower color, even in the same plant, will lead to more synonyms in further treatments of the genus Hoya.

Several species are related to **Hoya diversifolia**. The most well known is **Hoya kerrii**. It is a typical, undeniable plant which is wrongly named **H. obovata** in many collections.

Hoya kerrii Craib: climber with thick fleshy stems, bald, some juvenile parts with slight velvet hair. Leaves thick, leather-like and fleshy, obovate with a strong emarginate top and a rounded cuneate base, 5 - 9 cm. long and 5 - 9.5 cm. broad. The leaf-stalk is short and thick. As well as the lower and the upper surface smooth and bald, only in juvenile parts some velvet hair. Leaf margin is sound and bald, sometimes some velvet hairs. Veins not visible, because of a vault is the centervein (midrib) visible. Color of the upper side light-green, lower side some lighter than upper side. Peduncles 2 - 6 cm. long with globular umbels. Pedicels 1.2 - 2 cm. long, slightly haired, thin. Sepals small round to short oval with irregular lash-like margin. Corolla lobes broad oval with sharp top, curled back to the backside. Corolla diameter 10-14 mm, flat. Lower surface bald, upper surface light hairy. Sharp top bald. Colors vary from white-yellow, greenish to rose-red. Corona lobes short oval, boat shape, outer lobe nearly round, hollow and partly globular, top truncate, inner lobe triangular, top sharp laying oblique towards the stigma. Corona color dark-rose to purple. The species appears in Northern Thailand, Laos and Cambodia. The species has been discovered by Dr. A. F. G. Kerr in 1911 in the jungle near Chiang-mai in Northern Thailand. W. G. CRAIB wrote about in the same year in Kew Bulletin and named it to the discoverer. He starts his description with mentioning the differences with **H. obovata**: similar to it, double leaves in the top, lobate flowers half-size and folded backwards.

CONSTANTIN (1912) described **H. kerrii** as a variety of **H. obovata**. The name is **H. obovata v. kerrii**. Whether he is right or not, it could be. Unfortunately there is not much known about **H. obovata**. DECAISNE described the species in 1844. He gives the following description:

Hoya obovata Decne: Climber, leaves obovate, top rounded or seldom with emarginate, base getting smaller into a thick leafstalk, blade warty-glandular, margins folded back, both sides smooth. Peduncles short, leafstalk even shorter. Corolla smooth on the outside, papillose on the inner side, lobes oval and dull. Corona leaves nearly diamond shape, umbilicus like impressed, inner lobes smaller, longer and bending towards each other. Flowers as large as **H. carnosa** or a little larger. The original habitat is the island Boeton on the south eastern part of Celebes.

In the literature several other species, which may belong to this group, have been described. **H. bandaensis** Schlechter and **H. mucronulata** Schlechter could belong here as well as **H. liangii** Tsiang, which is as I think probably a synonym of **H. diversifolia**, seeing the description and illustration of TSIANG. And there is also a great misunderstanding about a plant which belongs to this group, but the name attached to it not correct. In CURTIS BOTANICAL MAGAZINE tab. 4684 (1852) there is a beautiful picture of a **H. diversifolia** type with the name **H. fraterna**. Blume describes this species as similar to (*fraterna* = brother) **H. coriacea**. This is a very different **Hoya** with thin leaves and an other leaf-shape. The plant figured in Curtis has been sent to England by Mr. Thomas Lobb with the label **H. fraterna** but it should be **H. diversifolia** or so. In the text accompanying this plate is written that it is strange that this plant is so very similar to **H. coriacea** according to Blume, which is clearly wrong. KOORDERS (1912), Backer en Backhuizen (1949) consider this species only as small form of **H. coriacea** and lists it as a synonym. Blume's type in the Herbarium at Leiden justify their supposition. So **H. fraterna** is synonym with **H. coriacea** and has nothing to do with **H. diversifolia**. One should re-label the many plants in Europe and America with this name. The question is which one? In my opinion they are all different forms of **H. diversifolia**. A further study of these plants is necessary to make a refinement eventually.

Culture:

The culture of the plants in this group is not very difficult. We have some dozens of the plants. Many are doubtless the same species, others differ strongly. Of the species mentioned above, we are sure we only have **H. diversifolia** and **H. kerrii** in culture. They are all large plants, which are not suitable for amateurs with little space. The plants are not difficult. Full light and a warm place are important for flowering. Allow a lot of aridity. The winter temperature should not be under 60° F. Summer temperature is allowed to raise above 85° F., preferably with a proper humidity. We have many forms of **H. diversifolia** in our collection. They all have broad oval leaves, clear dark-green, glossy and with silver-white spots. Most forms have many air-roots. In our collection the **IPPS 101**, **IPPS 103** from the Malayan peninsula have strongly spotted leaves, **IPPS 193** from Sonakla with many air-roots, **IPPS 450** from Sumatra (Lake Toba), **IPPS 195** from western Java with strongly spotted short broad oval leaves and **IPPS 281** from Java with small and large leaves up to 20 cm. belong here. Not all the plants have flowered with us. **IPPS 103** and **IPPS 450** seem to be the most free-flowering. The flowers produce a lot of nectar, which causes a glossy discoloration on the corolla.

We also have several plants with the name **H. crassipes**. Their leaves are not or almost not spotted. **IPPS 100** has thick broad leaves, **IPPS 95** has small narrow leaves 7 - 10 cm. long, **IPPS 96** has long leaves of 10 - 15 cm. All three have rose flowers. I think they are forms of **H. diversifolia** also. Even longer leaves has number **IPPS 112**, initially offered as **H. fraterna** number **IPPS 176** which we received from India and **IPPS 117** running under the name **H. gonoloboides** in collections, a name which belongs to another plant, probably even not a Hoya.

In the United States there is a plant in circulation with gorgeous very long leaves up to 30 cm. They claim it would be the true **H. fraterna** from CURTIS BOTANICAL MAGAZINE. It is a magnificent plant but as I wrote before the name **H. fraterna** is really a synonym of **H. coriacea** and should not be on the label of this plant. In our collection we put the number **IPPS 273** on it. An enrichment for amateurs with large space.

We have two plants of **H. kerrii**, **IPPS 144** and **IPPS 145** in our collection. It is not a very fast growing species, its leaf shape makes it a very distinguishing one in a collection. Flowering is no problem. It raises peduncles, which produces flowers year after year, on nearly every node. The flowers 'bleed' nectar even stronger than **H. diversifolia**. The flower color depends strongly on the light situation. We have constantly different colors between green, white and rose on the same plant. Very recommended for the amateur. Another plant in our collection is **IPPS 226**. This plant is put in the market by our colleague Ted Green. The origin is unknown. This plant is very free-flowering and has oval round silver spotted thick leaves. It does not grow fast. The plant is as free flowering as **H. kerrii**. The flowers are rose with a larger corolla as **H. kerrii** and diamond shape corona lobes. The leaf-top is sometimes a bit emarginate. Green thought at first it could be a hybrid between **H. carnosa** and **H. kerrii**. Now he considers it as a real **H. obovata**. We had a comprehensive discussion about it last year, but we have not a final agreement yet. I have my doubts and am still thinking of a hybrid which originated in a collection. Any way it is a good enrichment. A very beautiful species is a plant in our collection coming from the Celebes, **IPPS 167**. The slow growing plant has large obovate leather like thick leaves with a round top and a wedge-like (cuneate) base. The leaves are completely bald and smooth, the flowers are very beautiful. The color of the corolla is magnificent rose, fuzzy

and eyelash (cilia) like along the margin. The flowers are 1.5 cm. across. The corona is purple red. The lobes are boat shape, compact and hollow in the middle. We still do not have an idea what name this plant should bear, may be it is **H. obovata**. We do not venture to say anything about the species **H. bandaensis**. The plant we received from the garden at Bogor resemble **H. diversifolia** more. The plant coming from the Utrecht Botanical Garden, **IPPS 81** could eventually be it. It did not flower yet. It would not surprise me if it turned out to be **H. australis**. We have several other nameless plants from the Banda Islands. May be there is a good one amongst them. All other plants we received as **H. bandaensis** were wrongly named.

In our collection there are some other interesting plants which could belong to this group. At first there is **IPPS 286**, received from Ted Green, who thinks it could be **H. meliflua**. We looked at herbarium material together and it could be right. Green did see flowers already, I did not. I wait for it, to be a little bit more certain. The last species in this context I like to mention is **H. species Nepal IPPS 270**. The flower of this plant needs to give some more indication. The plant has beautiful, glossy green oblong leaves sharp towards the top. Considering the anatomy of the stalk and leaves, I think this plants belongs in this group, although it does not resemble another plant in our collection.

In this article we brought several species with each other in connection. It is clear that you can not see most species of Hoyas apart from each other. To find out the relationship between the species will be quite an investigation, never the less I think that this investigation will give more clarity on the variability of species and the real differences between the species.

RVD.

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Note: **IPPS** is a numbering system used by Ruurd and stands for International Plant Preservation

New Hoya Variety

Dr. Ruth Kiew is a Biology professor at the University of Pertanian in Malaysia. The following Hoya variety has recently been published by her in Sandakania 6 (1995) 63-71. She has granted us permission to reproduce it here in Fraterna.

Hoya parasitica (Roxb.) Wall. ex Wight var. **hendersonii** Kiew, var. nov. a **Hoya parasitica** (Roxb.) Wall. ex Wight var. *citrina* (Ridl.) Rintz foliorum angustioribus et tenuioribus diagnoscenda. Typus: Henderson SFN 23668, Peninsular Malaysia, Cameron Highlands, Ringlet (holotypus SING).

Glabrous climber; stem with conspicuous lenticels, c. 5 mm thick. Petiole stout, 2 cm long, 3 mm thick. Lamina narrowly ovate to oblong, 11.5-17 x 5-6.5 cm, base rounded, slightly cordate at petiole (i.e., cordate base does not extend beyond width of petiole), margin slightly recurved drying undulate, apex acuminate; main pair of secondary veins parallel to midrib and reaching apex, basal pair of weak veins parallel and close to margin, tertiary veins forming a fine much-branched reticulum, in dried state midrib, secondary and tertiary veins slightly prominent above and beneath, in life veins slightly prominent above but plane beneath, thickly coriaceous but not rigid, green above and beneath. Inflorescence axillary, umbellate, peduncle 2.75-7.5 cm long, 2 mm thick, stiff, erect, many-flowered (15 flowers in *Md Nur s.n.* and 25 in Henderson SFN 23668), flowers forming a hemisphere. Pedicels slender, of equal length, 1.3-2.5 cm long. Flower 11 mm wide, corona 8 mm wide; calyx tube 0.5 mm long, lobes acute 3 mm long, 1 mm wide at base narrowing to a rounded apex, appressed to corolla, corolla tube 3.5 mm long, lobes 5.5 mm long, 4.5 mm wide in basal half narrowing to an acuminate apex in upper half, glabrous to naked eye, minutely pubescent at x 30 magnification, corona lobes elliptic, 4 x 2 mm, not curved, both outer and inner phlanges narrowed to apex; anther 0.6 mm long, caudicle short without wings, pollinia ellipsoidal with narrow longitudinal wing; stigmatic surface slightly depressed. Follicles not known.

DISTRIBUTION. Endemic to Peninsular Malaysia, known only in Pahang at Cameron Highlands and Fraser's Hill.

HABITAT. Lower montane forest, 1200-1260 in altitude.

SPECIMENS EXAMINED-PENINSULAR MALAYSIA: Pahang, Cameron Highlands, Boh Plantations, *Md Nur s. n.* 29 April 1937 (SING); Fraser's Hill, R. Kiew & S. Anthonyamy RK 3531, 23 April 1992 (UPM).

Of the 26 Peninsular Malaysian hoyas, few live above 1000 in altitude. Only four, **H. lacunosa** Bl., **H. micrantha** Hook. f. *H. wrayi* King & Gamble and this new variety of **H. parasitica**, are found in lower montane forest. No species is found in upper montane forest. In addition, **H. parasitica** var. **hendersonii** is rare, being known from just three collections.

This new variety has flowers which are closely similar to those of **H. parasitica** except that the corolla lobes on Henderson SFN 23668 are not reflexed and are almost glabrous. However,

towards the end of the flowering period the corolla lobes of **H. parasitica** var. **parasitica** partially close. It is possible that the flower of var. **hendersonii** were collected at this stage. Rintz (1978) describes the corollas of var. **parasitica** and var. **citrina** (Ridl.) Rintz as pubescent and his illustrations show them as conspicuously and very densely pubescent. However, in the flowers I examined they were only minutely pubescent, appearing almost glabrous to the naked eye.

The three varieties can be distinguished on leaf characters (Table 1). Var. **hendersonii** is more similar to var. **citrina** in its ovate leaf, slightly cordate base, venation and longer petioles but differs in the leaf being less rigid and proportionally narrower. Another apparent difference according to Rintz (1978) is in pedicel length which he recorded as *c.* 3 cm long in var. *citrina* and var. *parasitica*, but examination of specimens does not support this as pedicel length ranges from 2 to 3 cm in these two varieties and so is not different from that in var. **hendersonii**.

In Peninsular Malaysia the varieties are separated ecologically. As mentioned above, var. **hendersonii** grows in lower montane forests between 1200 and 1260 in altitude, the other two are lowland species. Var. **parasitica** is common in strand forests especially on islands, while var. *citrina* is common on limestone (though it is rarely found in flower) and sometimes in riverine fringe forests.

Although Ridley (1923) named var. **citrina** for its yellow flowers, flower colour is variable in both var. **citrina** (light yellow or white with a deep red or pinkish red centre) and var. **parasitica** (white to pinkish-white with pink or red centre). Flowers of var. **citrina** are fragrant, sometimes producing a strong gardenia scent. The flower colour and scent of var. **hendersonii** were not recorded.

Table 1. Characters which distinguish the three Peninsular Malaysian varieties of **Hoya parasitica**.

	var. parasitica	var. citrina	var. hendersonii
Lamina			
shape	elliptic	ovate	narrowly ovate-oblong
length (cm)	(6.5-)11(-13.5)	10-18.5	11.5-17
width (cm)	(3-)4.5(-6)	6.5-8.5	5-6.5
width: length ratio	1: 2.5	1: < 2	1: 2-3.5
base	cuneate	cordate	cordate
texture	succulently coriaceous	rigidly coriaceous	coriaceous

Venation

prominence	obscure	conspicuous	conspicuous
lowest pair of lateral veins extending	about halfway to apex	to apex	to apex
Petiole length (cm)	0.5-0.75	1.5-2	2

This taxon is deemed worthy of varietal status not only because it is readily distinguished from the other two varieties by leaf characters, but also because of its montane habitat. It is named for M. R. Henderson, who made the first collection.

New Combinations

Hoya verticillata (Vahl) G. Don var. **hendersonii** (Kiew) D. Kloppenburg. **comb. nova.**

H. acuta A. W. Haworth, in Rev. Pl. Succ. (1821) 4. Type: extant ?

Hoya parasitica Wallich ex Wight in Contrib. Bot. Ind. (1834) 37. Type: hb. Roxburg (BM holo; K, plate).

Hoya parasitica (Roxb.) Wall. ex Wight var. **hendersonii** Kiew var. nov. Typus : Henderson SFN 23668, in Sandakania 6 (1995) 66-67.

Hoya verticillata (Vahl) G. Don in Gen. Hist. 4 (1837) 128 — *Sperlingia verticillata* Vahl, Skr. Naturhist. Selsk 6 (1810) 113. Type: Flohr in Hab Vahl (C holo, labeled IDC neg. 72 II, 6-7). Identity in Blumea 40 (1995) 425-128.

Hoya verticillata var. **citrina** (Ridley) D. Kloppenburg **comb. nova.**

Hoya acuta var. **citrina** (Ridley) D. H. Kent in Hoyan 11 (1989) 2/ I.

H. acuta A. W. Haworth, in Rev. Pl. Succ. (1821) 4. Type: extant ?

Hoya parasitica Wallich ex Wight in Contrib. Bot. Ind. (1834) 37. Type: hb. Roxburg (BM holo; K, plate).

Hoya parasitica (Roxb.) Wall. ex Wight var. **hendersonii** Kew var nov. Typus : Henderson SFN 23668, in Sandakania 6 (1995) 66-67.

Hoya verticillata (Vahl) G. Don in Gen. Hist. 4 (1837) 128 — *Sperlingia verticillata* Vahl, Skr. Naturhist. Selsk 6 (1810) 113. Type: Flohr in Hab Vahl (C holo, labeled IDC neg. 72 II, 6-7). Identity in Blumea 40 (1995) 425-128.

Correction: the photo on page 4 of the 2nd. Quarter 1995, labeled **H. quinquenervia** Warburg, is actually a picture of **H. merrillii** Schlechter. Note that the coronal lobes are not horizontal as in **H. quinquenervia**. Here the outer lobes are raised. You may want to make a note near this photo. The correct spelling for this species is as above.

Hoya phyllura Schwartz The tailed leaf Hoya

by Ted Green

After *H. meridithii*, I nominate *Hoya phyllura* as the most beautiful leaved Hoya from Borneo. As you can see from the accompanying photo, there is handsome venation on the leaf blade, that may reach 12" long, with 1" of it being "tail". Incidentally in Greek, *Phylla* = leaf and *ura* + tail.

A thumb nail sketch of this species is: a robust epiphytic tropical vine with thick pinnately veined leaves, 12 x 4 inches, but usually 9 x 3 inches; flowers ½ inch in diameter spread out, but normally ¼ inch with the corolla reflexed, buff with maroon tips; 30 - 35 flowers. Equal pedicels, in the globose umbel on persistent peduncle. It has a modest musk fragrance. Sap is milky white.

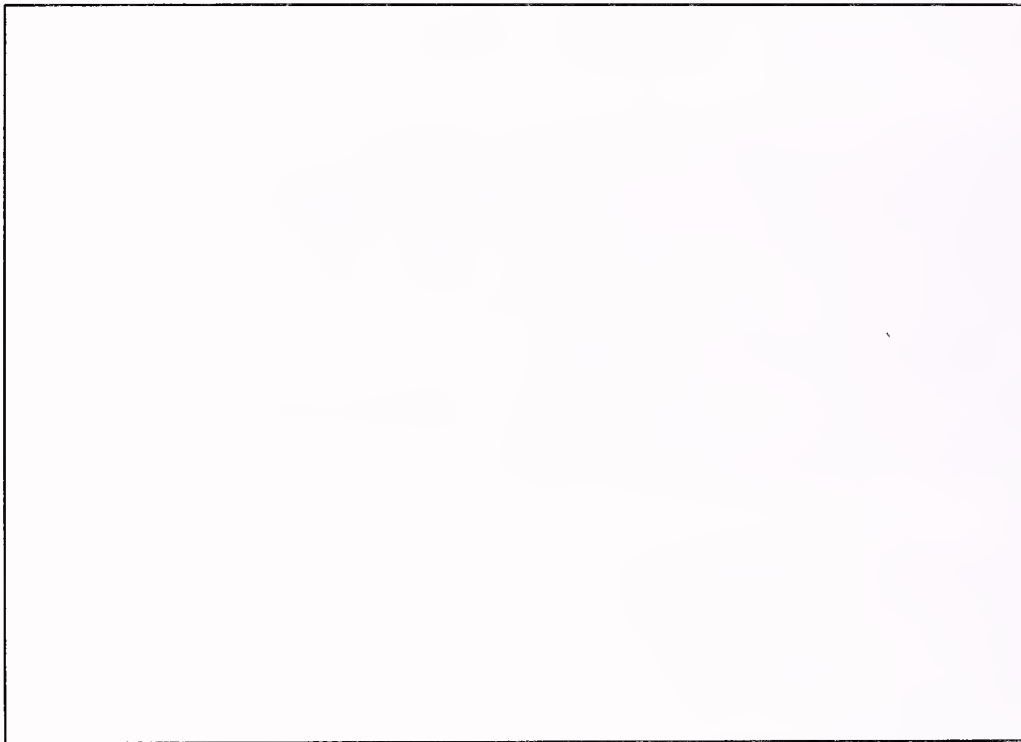


Photo of Hoya phyllura leaf by Ted green.

I have several collections of *Hoya phyllura* but the one pictured here was collected from the Rafflesia Preserve in Sabah, Malaysia. This preserve (of the giant flowered Rafflesia) is in the Crocker Range at about 5,000 feet elevation. The two, heavy leaved cuttings I acquired, had fallen from the top of one of the highest forest trees. This was one of the results of my 1993 study trips to the Philippines and Borneo. Here it lives as a succulent. The leaves were nearly ¼ inch thick and like concrete, from being in the sun at the top of the tree canopy.

In contrast to my collection, the original (Type) species of Schwartz (collected by Hans Winkler 24 Nov. 1924 near Lebang Hara, West Borneo) was from coastal virgin forest and at relative low elevation. From my observation personal observation and herbarium sheets that I have seen it is a widespread species, even occurring on the lower elevations of Mt. Kinabalu. I have observed that with good sunlight and dry conditions, the leaves ticked, become a dark green and a bit silver flecked.

Culture:

This species, *Hoya phyllura*, is quite easily grown as a basket plant. I would plant it in a light mix with good drainage. Keep it warm and spare the water and give it adequate light if you want to see the heavy, succulent growth, typical of jungle plants. If you keep it in the shade you will end up with 12 inch long leaves on a scrambling vine that certainly is not typical.



A Photo of the Flower umbel
Photo by Ted Green

IN MEMORIUM for Geoff F. C. Dennis

by Dale Kloppenburg

I was preparing an article of Geoff's writings, when I received a call from Ted Green in Hawaii informing me that he had heard Geoff Dennis had died in August 1995. Geoff was well known to many in the Hoya world. Over the years, he supplied many species and clones, in the form of cuttings, that we now have in our collections. He was in the forefront of conservation efforts in the Solomon Islands. He was constantly concerned about habitat destruction, and climatic changes which he felt were a result of over-logging and deforestation. Geoff was ever ready to guide visiting scientists into the interior areas of Guadalcanal, whether their interests were fauna, flora or geology. He had accompanied many Hoya collectors including, the late Peter Tsang from Australia, David Liddle of Australia, Ted Green from Hawaii and myself in my 1987 visit there.

Geoff F.C. Dennis was born in 1918, making him 77 years old at the time of his death. He was educated in Melbourne, Australia, becoming an ardent naturalist. He was a self taught botanist, ecologist and student of ethno-botany and local cultures. He was always ready to help the older natives with plant seeds and advice to raise their living standards. He worked in approximately sixteen vocations from the age of 14, in shops, factories, offices, and on sheep and cattle (ranches) stations in Australia. From 1939 to 1946 he was a cadet field manager and assistant entomologist with the Colonial Sugar Refining Company, a storeman with the American Red Cross and as reliever for coconut plantation managers. He also worked as a storeman accountant on a gold mine, as a second mate on an inner island passenger and cargo ship in the Fiji Islands. It was here in Fiji that his mother had a store and through Geoff became interested in native arts of all kinds. As a buyer for his mother's store he developed a keen interest in the Solomon Island art and its peoples. It was on one such buying adventure that he met his wife Nora, a native of the island of Santa Anna. He moved to Guadalcanal and the Honiara area in 1946 where he worked 22 years with the British Colonial Service retiring in 1968, after serving as lands draftsman, surveyor, registrar of titles and O. I. C. Lands and Mines department. From this he was transferred to the Forestry Department conducting innumerable surveys of tree species, botanical surveys and collecting, eventually as a botanist and herbarium officer.

He is remembered for his recommendations and the establishment of the Queen Elizabeth National Park, which lies behind the town of Honiara on Mt. Austin, a 520 meter high (a little over 1,700') limestone forested ridge. In addition he is responsible for the establishment of the Honiara Botanical Gardens established in 1965, which is formed along a small creek. It includes extensive areas of native trees and plants complete with a native village at its inland head, with many hoyas, palms and some large forest trees. Hoyas found here are *H. inconspicua*, *australis* and *naumani* among others. There is an administrative building which houses the herbarium for which Geoff was the primary contributor, acting as honorary curator for 13 years from the mid 1950's.

In his honor are named the mountain Robin *Petroicor multicolor dennisii*, the palm *Physokentia dennisii*, an orchid *Bulbophyllum dennisii* a heliconia *Heliconia dennisiana* and *Hoya dennisii*. It is easy to see from these honors his wide range of interests. In addition to the foregoing he was also a collector of sea shells, having collected many vary rare specimens which he occasionally

released to an ever responsive market. Geoff wrote to me after my trip there to say he had led an expedition inland four or five hours from the Teneru river to Betilonga village. His notations said "... the ridges may harbor an unrecorded Paphiopedilum species and I believe I discovered an unnamed palm, about 60 feet tall, along the way." Since his letters were so filled with interesting observations I will in a subsequent issue of "Fraterna" proceed with my original thought of bringing this unusual man's observations to you. I am sure I speak for many in saying we have lost an extraordinary friend who has done so much for so many people and societies. We will miss him.



Geoff F. C. Dennis & Sue Wickson (botanical Artist)
On Mt. Austin, Guadalcanal.

Questions and Answers

Question: Do Dischidias require the same techniques and care as Hoyas for rooting? A.T. Colorado

Answer: If anything Dischidias may be easier to root. They do well in the same media (well drained). Or in water, continuous mist or other rooting method. Most dischidias are very strong but usually compact growers. There are some, however, just as with some Hoyas that need tender loving care and are delicate. In this later category *D. lancifolia* and one sold as IPPS 2030 come to mind. The various clones of *D. hirsuta* are intermediate and a little slow at first.

Question: The large Hoyas are taking over my yard! Which small species would you suggest? L. O. Southern CA.

Answer: What a nice position to be in! The following species should not take over the place: *Hoya gracilis*, *tsangii*, *wayetii*, *loheri*, *bella*, *Minibelle*, *shepherdii*, *shepherdell*, *paziae*, *cumingiana*, *bilobata* and *lacunosa* to name a few. Many of these are danglers and do not tend to climb readily. A few actually have a growth habit more like bushes (*cumingiana*). Maybe you would like to make some half baskets stapled to walls or tree trunks for these dangling species. These could be made from chicken wire and lined with burlap or sphagnum.

Question: I'm having trouble getting my hoyas to bloom. Can you give me a list of some that I should be able to bloom. T. J. Alaska.

Answer: There are so many variables determining bloom it makes it difficult to give you a specific answer. As for a list of easy species to bloom try these: *Hoya pubicalyx* and all its forms or varieties. *Hoya obovata*; most of the clones of *Hoya obscura* are easy to flower. If

this question came from Hawaii or Florida or even Germany the answer might be different. Each climatic ecosystem has species which do better there than others. Those species mentioned should be universally easy to flower. Strive to grow your plants better each year. Learn what is successful and try different conditions. In many instances if the plants look healthy added light may surprise you with its benefits. Keep trying and don't give up.

Question: Are there any really orange colored blooms in Hoyas? L.C. Oklahoma.

Answer: The best example is a new one. The *Hoya waymaniae* produces a truly clear orange flower. Colors vary somewhat from clone to clone and also form many environmental factors. Colors usually have more depth when the buds develop in cool weather. You might consider some of the clones of *Hoya obscura* to be orange, however none are as pure orange as *H. waymaniae*. Color of flowers reminds me that blue is a rather rare color in many genera of plants including the genus *Hoya*.

Question: How much fertilizer should I use on my hoyas? L.P. Bakersfield, CA.

Answer: I need a more specific question. As a general rule always apply less than you think necessary. The answer depends upon how large the plant is, the time of year, when were they last fertilized, what fertilizer you are using and other factors. In most cases use a complete fertilizer and use it sparingly or if a solution, weakly. Light applications every 10 days or so in the growing season are more advised than one strong application. If the potting mix is new, you probably do not need to fertilize for a time. I would say do not fertilize new cuttings until a new root system is well developed.

BIRD TRACKS

From: Robin Director

Harriette Schapiro
5217 Cassandra Lane
San Diego, CA 92109
(619) 273-4267



I know that you are interested in Hoyas because you are reading this note. Do you like to write letters ? How would you like to make some new friends with Hoya lovers from all over the world ?

Every three to six months, a Robin flies into the mail box ! You read (and copy what you wish) each letter from your Robin friends, remove your old letter and write a new letter which you add to the stack. Put it into the mail so it will return again to you soon. Topics are supposed to be about Hoyas but sometimes may be about most anything. We discuss soils, techniques, insecticides, pests. For some reasons one Robin went on a discussion of the best way to get rid of rats. Believe me they can mow down Hoyas with relish ! After a round or two, you feel as though you have great friends with common interests from almost all over the world.

If you are interested in joining a Robin write me at the above address. Come on, become involved. I hope I have the chance to meet more of you.

Robin #5 Harriette Schapiro, California. Maria, *H. multiflora* has very thin leaves. As such, it is not very succulent. Using "african violet methods" (a wick) to water could really help. It probably doesn't like to dry out between waterings. Therefore, with the wick providing some water, but not wet feet, it should do well. Now that you have a terrarium, when you get another one try to obtain a heating coil so you can provide bottom heat. It is the best way to get cuttings started.

Doris, everyone else will get tired of hearing this but I have two recommendations for mealie bugs. First, try all, Amway's LOC diluted fresh 1 tbs. per gallon. If you spray every third day for several weeks you should wipe out the problem, but do notice the word **FRESH**. The LOC at any rate, biodegrades so fast

that you have to make it up and use it. It does not stand well at all. Also, just in case, try dredging the soil. You may be getting soil mealies which are creeping up on the plant, soak the soil with the detergent solution a few times.

Robin #5 Carita Fosberg-Heikkila, Finland. Maria, you told me plants which need much water have a hard life in your home. I have it no better. I have killed one (not water enough) *H. multiflora* variegata and now I have a new one. This time I put it in a plastic pot, which has a water container under it -do you know the type? *H. lanceolata* and *H. neoebudica* I got from you are still alive, but the winter is a hard time for new cuttings. Let's hope they survive.



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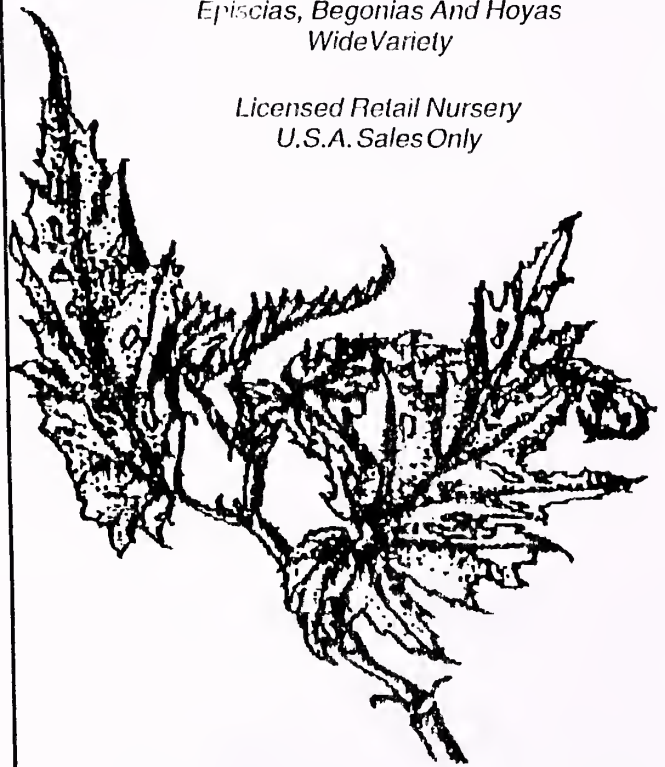
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Jed Green

Write for my latest Asclepiad or Orchid Lists.
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strange sounding names

R35
1996
#3

FRATERNAL

3rd Quarter

Official Bulletin for
INTERNATIONAL HOYA ASSOCIATION

1996



Hoya diptera Seemann
Published in *Flora Vitiensis* 1866.

INTERNATIONAL HOYA ASSOCIATION

1444 E. Taylor St.
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1996 rates for a 1 year membership (USA), which includes our quarterly publication are \$18.00 per year. Outside the United States: \$25.00 per year, sent via airmail.

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Back Issues

We now have the thirteen original issues of the Hoya Society-West Coast bulletin bound as one publication. The price of this bound text is \$25.00 U.S. and \$35.00 shipped surface overseas. Due to the extra pages and pictures in our new publication "Fraterna", we must, out of necessity, increase our prices for back issues of "Fraterna" to \$5.00 per issue, \$7.00 per issue shipped surface mail overseas.

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Errors of fact may occur from time to time in "Fraterna". It is the policy of the IHA to publish corrections of fact, but will not comment on matters of opinion expressed in other publications.

Catalogue Requests

The IHA office does not have dealer catalogs available. Please address your catalog requests to the individual dealers, or write to our Board Member **Virgie Demanski**, who will have a listing of mail order dealers available. Please send a self addressed, stamped envelope. Virgie's address is P.O. Box 1239 El Cajon, CA 92022-1239 U.S.A. In some instances there may be a charge for these catalogs.

The President's Message

by Dale Kloppenburg

As I promised in the last issue, we have been busy gathering new and interesting articles for you. One starts in this issue. We have many more to come.

At our last Board of Directors meeting, we anticipated the growing need for a redistribution of responsibilities. This has a two fold objective. Firstly, to give our Editor, Secretary/Treasurer time to recuperate from an unexpected illness by relieving her of some of the stressful work for a while. Secondly, this shift in positions should better serve the members of this growing organization.

The new assignments are:

Membership	Jerry Williams	Attention:Membership Renewal 1444 E. Taylor St. Vista, CA 92084 Phone renewals (619) 758-4290 Fax renewals (619) 945-8934
Correspondence	Harriette Schapiro	5217 Cassandra Lane San Diego, CA 92109
Advertising	Chuck Everson	1444 E. Taylor St. Vista , CA 92084
Temporary Editor	Dale Kloppenburg	6427 N. Fruit Ave Fresno, CA 93711
Treasurer	William J. Wayman	P.O. Box 5130 Central Point, OR 97502
Affiliate Group Coordinator	John Scoville	651 Aram Ave. San Jose, CA 95128

These are temporary changes. You can always contact me by phone or fax (209) 439-8249) or mail with your comments, questions or concerns.

Special notice: Please check your Expiration Date on the label of the envelope. If it is highlighted in *yellow*, this is your last bulletin. Send your renewal payments of, \$18 domestic; \$25 international, made out to I.H.A. to our Membership Secretary, Jerry Williams.

THE BIGGEST HOYA VINE A HOYA DIPTERA

by Ted Green

The biggest Hoya vine that I have ever seen was on the island of Efate, Vanuatu (formerly the New Hebrides) a few miles north of the town of Port Vila. This Hoya vine took over the whole undercover of a large Banyan tree (Ficus). Starting about 5 feet above the ground, it went up 40 feet, spread out about 30 feet in all directions and then trailed down at the tips 10 to 15 feet. This was a plant of *Hoya diptera* Seemann, and was the granddaddy of them all.

Hoya diptera, generally pronounced *dip-tera* when actually it should be *di-ptera*, with a silent p, (because of two wings), is usually a modest plant with slender stems, and leaves about 1 x 2 inches. The flowers of both the Vanuatu and the Fiji Islands forms are about $\frac{3}{4}$ inches in diameter and pale yellowish-green in color, repeated in the corona of the Vanuatu form but rose colored in the Fiji Islands form. Both forms have about 15 flowers in the umbel and with persistent peduncles. It is easy to grow and attractive with its nearly flat, clean looking leaves.



Steve Green's Hoya diptera

Now the meat of this story: My son Steve went collecting with me in Australia, New Guinea, the Solomon's and the New Hebrides in 1976. He was the climber and the one who berated me (as a born-again) for invoking the Lord's name as I slipped over a cliff or fell down a muddy

trail. Anyway, Steve was the one who collected a piece of **Hoya diptera**. Both of us still have plants from the original collection. Mine is growing on a Christmas Berry Tree (*Schinus*) and his is in a hanging 8 inch plastic pot.

Steve's plant has survived very well as a house plant both in Arcata, California (with wood-stove heat) and now near Grass Valley, California (with gas-heat) and through at least 5 household moves. I assume that the coldest it has survived is 40° F., in Arcata, and the hottest, 100° F., in Grass Valley. I don't know what he uses for fertilizer. It stays indoors all the time, in the living room, and the light in both instances has never been greater than 100 foot candles and it blooms all the time !

Remembering the heat and humidity in Efate, I can't believe that this plant can do so well under such contrary conditions. Compared to the number of flowers that were on the original giant, Steve's has more flowers. In addition he is not a hoyia grower.

Ted Green, Green Plant Research, P. O. Box 597, Kaaawa, Hawaii 96730

Our Cover Picture: **Hoya diptera** Seemann was mentioned by name in the publication *Bonplandia* on 15 September 1861, it was specimen #320, having been discovered on the island of Viti in the Fiji Islands. Dr. Berthold Seemann published its description in Latin in *Flora Vitiensis* in 1866: 163. His # 320 at the British Museum Herbarium is of foliage only. He described it as: A climbing glabrous plant with 4-angled branches; leaves ovate-elliptic, acuminate, with an ovate base, fleshy, pinnately veined; peduncles flattened laterally, somewhat winged, longer than the petioles; with yellow flowers.

A. C. Smith in *Sargentia "Fijian Plant Studies"* 2 (1942) 113 has a very complete description in English as follows: Vine with slender glabrous or distally puberulent branchlets, sometimes the branches short, lateral, densely foliaceous; petioles rugulose, 5-15 mm. long, pale puberulent or glabrous, leaf-blades subcarinose, elliptic or ovate-elliptic or narrowly oblong, 3.5-8 cm. long, (1-) 2-3.2 cm. broad, obtuse at base, cuspidate or obtusely short-acuminate at apex, pinnate-nerved, the costa slightly impressed or plane above, subprominent beneath, the secondary nerves 3 or 4 per side, ascending, oriented from costa toward base, prominulous on both surfaces or subimmersed, the veinlet-reticulations immersed; inflorescences axillary, umbellate, the peduncle 10-45 mm. long, glabrous or obscurely puberulent, ellipsoid-capitulate at apex, sometimes verrucose for the distal 5 m., the bracts inconspicuous; flowers 5-10 per umbel at anthesis, the pedicels slender, 8-20 mm. long, glabrous or sparsely puberulent; calyx-lobes membranaceous, inconspicuous, deltoid, 0.7-1.1 mm. long and broad, glabrous except at the ciliolate margin; corolla submembranous, 11-16 mm. in diameter, yellow, copiously and conspicuously puberulent within, the lobes deltoid or ovate-deltoid, 4-6 mm. long and broad, often recurved at margine, the sinuses acute; lobes of corona thick, oblong, 3-4.2 mm. long, 1.6-1.8 mm., broad, obtuse at apex, acuminate at base, flattened above, rounded beneath; pollinia 0.5-0.6 mm. long; carpels glabrous.

As represented by the cited specimens, this species is characterized by inconspicuous calyx-lobes, a comparatively thin corolla which is yellow and perhaps reddish tinged at base within, and by the ascending secondary nerves of its leaf-blades. The cited type duplicate does not show the flattened subalate peduncles mentioned by Seemann, and I am inclined to believe that this character, apparently the source of the specific name, was due merely to the degree of

pressing of the actual type. In foliage the type duplicate is an excellent match for the other cited specimens.

Note: I have examined my *H. diptera* and do not find the stems 4 sided nor the flattening of the peduncles as mentioned above. The nodes do, however exhibit considerable flattening. In addition I have observed that occasionally peduncles or even new growth on some succulent species do show a flat growth characteristic. I believe it is possible for this condition to occur from time to time under some environmental circumstances. It does not seem to be characteristic of this species.

The following article is republished from Asklepios 66 (1995) by reciprocal agreement. Since this article is so long it will be published in three subsequent issues of our bulletin "FRATERNA". This was an botanical expedition of Dutch botanists, photographers and plant enthusiasts joined by Ted Green of Hawaii and Dale Kloppenburg of California. In addition to the main contingent of 9 people we were joined part of the trip by Juul & Evert Wessels and D. M. Dideribe of the Netherlands.

SULAWESI TENGAH 1994

Paul Shirley

In November 1994 a group of 9 people spent 3 weeks on Sulawesi, the former island of Celebes. Our purpose was to study and photograph Hoyas, Dischidias, Orchids and other interesting succulents and epiphytes. Ruurd was also allowed to take back cuttings of Hoyas and Dischidias, as part of the Flora Malesiana research project and we could collect seed of all sorts from other plants. About the area where we were to go to, Central-Celebes, or to give it its Indonesian name Sulawesi Tengah, almost nothing was known as regards Hoyas. Only from the northern peninsula Minahassa had some material been taken and described at the beginning of this century. What we were going to find was therefore more or less unknown.

Indonesia is comprised of 13,670 islands covering 752,400 square miles (1,948,700 square km). The tropical climate is hot and humid with temperatures ranging from 23-31 degrees C. with heavy rainfall throughout the year. Indonesia is bordered by Papua New Guinea and the Arafura Sea in the east, by the Indian Ocean in the south and west, by the Andaman Sea in the north-west, and by the Strait of Malacca, the South China Sea, the Celebes Sea and the Western Pacific Ocean in the north.

Sulawesi is the third largest island in Indonesia and lies to the east of Borneo. Due to its position it has a drier climate than most of the other islands in the region. The dry period occurs between May and November. It was at the end of the dry period that we visited Sulawesi.

Wednesday 16 November and Thursday 17 November 1994

It is a nice day today, sunny and it made for a good start of the trip to Indonesia. I took the bus to Leiden and from there the train to Schiphol. Because of a hold up on the track I arrived just after 12 o'clock and was the last one of the group to arrive. There were six of us traveling to Sulawesi, Ruurd van Donkelaar, Cees van de Wouw, David Klein, Geerdien van der Hijden, Hans Schellart and myself. The seventh member of the group, Eric Taucchio, who was also our guide, and the two Americans, Ted Green and Dale Kloppenburg were already in Indonesia. Our flight from Schiphol was on a Boeing 747.400 with landings in Berlin, Abu Dhabi, Singapore, Jakarta and finally Denpasar (Bali). The plane was no more than half full, so there was plenty of room to stretch out and get some decent sleep. This way none of us had any problem with jet lag when we arrived. The flight took three hours longer than planned, due to a delay at Berlin.

Friday 18 November

We arrived at the hotel in Denpasar just after midnight and booked into the hotel. It was so warm that some of us took a midnight dip in the pool. We had to be up again just five hours later for the plane to Ujung Pandang. At the hotel we saw our first chic chac geckos on the hotel walls. Morning soon arrived and we met the two Americans who were joining us on our trip, Ted and Dale. We flew from Denpasar to Ujung Pandang and then on to Palu, a coastal town on the west coast of central Sulawesi. From Palu we took a night bus through the mountains to Tentena, where our base camp was. Tentena is situated exactly in the middle of Sulawesi near the very large and deep Lake Poso, and it is surrounded by mountains and hills. On the west side are the Tineba mountains and to the east hilly country-side all the way to the coast. We had our first glimpses of the forest at night. I tried to see something of the forest life and got only a little bit of sleep. In Ujung Pandang we had 'Es Buah', a delicious sweet made from crushed ice put on top of fruit, topped with condensed milk.

Saturday 19 November

We arrived at Tentena, our destination, at about 6 o'clock in the morning, much the worse for wear after having a very uncomfortable night in the bus with little sleep. We were shown our quarters and unpacked. I shared a room with Cees. It was a three-bedroom apartment with toilet and 'mandi' and shower-head attached to a hose. After unpacking we had breakfast outside our rooms; scrambled eggs and bread. Hans and myself explored around the lake. I saw my first wild *Passiflora foetida*. We had a taste of things to come. *Mimosa pudica* (the sort that is offered by the seed catalogues) grew in abundance on the side of the roads. Some plants we could not identify, such as a large fruit on a branch. Along the lake lay pieces of wood, stones, etc. These I turned over to see what was under; millipedes, but not much else. A number of butterflies, dragonflies and suchlike were constantly on the wing. It was near the lake that we found our first *Hoya* and *Aeschynanthus* sp. A white-headed hawk flew overhead. On the way back to the 'losmen' Victory we found a *Mimosa infessa*, which is more of a shrub, 2 to 3 meters high with seed that I collected. It proved to be the only specimen we saw of this plant during the whole trip. Back at the losmen we had a sleep for a few hours. Later in the afternoon a few of us (David, Geerdien, Cees and myself) visited the skull caves. We found a tuberous rooted plant and collected seed from various Ipomoeas. David, Geerdien and myself walked back to Tentena,

the others had already gone back earlier. On the way back we saw our first cicada and various Hoyas and Orchids. Tomorrow we will have our first jungle trip. Ruurd explained to us that when looking for Hoyas, Dischidias and Asclepiads in general, a good test to see if it was a plant in this group, was to break off a leaf. If milky sap came out it was an asclepiad. If not, it was something else. One group of plants, the *Aeschynanthus* species, were very difficult to tell apart from Hoyas (Figures 1 & 2).

Our first night in the losmen went well. It was rather warm, and we had no problem with mosquitoes. At 5 o'clock the Muslim chant began. We were woken up at 6 o'clock, the usual time during the holiday. Breakfast was at 7 with a choice of eggs + bread or nasi goreng and to drink: tea, coffee or milk. We were ready for our first jungle trip, which was to Toenosu on the west side of lake Poso, about 15 km from Tentena. This area was situated on a 'chalky' hill at the base of the Tineba mountains. We arrived at the point of entry, immediately followed by a very steep climb. There I saw my first *Tacca* sp. of which I collected a few tubers. We found some more *Taccas* in the jungle, but left them. We made our way through the jungle which looked just like an ordinary woods, but without paths. The group got split up, so eventually we had to wait for the rest of the group to catch up. Ruurd, David, Geerdien, Cees and Eric had stopped close to the edge of the jungle where they had found their first *Hoya imbricata* on a tree that had been felled. This species is described from the Philippines under this name. From the island of Minassa¹ it is known as *Hoya maxima*, but it was not known to occur anywhere else on Sulawesi. David and Geerdien made detailed notes of where the plant grew, how high it was in the tree, the diameter of the tree, the tree sort, the type of soil, the presence of ants and other useful information. David collected the ants and during the next few weeks he 'harvested' many more. There were many birds singing, but we could not see them. We saw, however, plenty of butterflies. As my field of interest is not only plants, but also the fauna, I tried to see as much as possible of both, now that I was in a country I was not likely to visit again soon. For example, I turned over a log and under it I found a scorpion (Figure 3). Almost immediately cameras were clicking. We stopped in a clearing where the trees had been felled. We found many Hoyas, Dischidias and Orchids, which normally grow high up in the tree tops. We moved on, crossing a stream, seeing more Hoyas, finally reaching a rice field. In some of the trees we saw Orchids, in others Hydnohytums and a *Hoya aff. incurvula*. The water in the rice field lapped over our boots. Besides plants such as *Asclepias curruacea*, lots of butterflies, egrets and herons were to be seen in the rice fields. It was a successful first day in the jungle, enjoyed by all.

Monday 21 November

We heard Muslim chant again this morning, plus the noise of an engine and a vehicle being unloaded at ± 5 o'clock in the morning. We bought postcards today and sent them off, hoping they would arrive before we did. This morning we visited the Sulewana rapids and we found a few small *Taccas*, which we collected, and a large tuber of possibly a *Dioscorea*. Ruurd found a large flowering *Hoya* close to the river and he collected a few cuttings. It was one of the large-flowering *Hoya* species, *Hoya sussuela* -with large oval leaves. We found a stick insect and a very large orb spider, photos taken of course. It was hot, and unlike yesterday, we were more in the open and in the sun, which made it more tiring. This afternoon we visited a friend of Eric's. His house is situated on the edge of the jungle and has a large garden. The washing facilities were outside. Here was where the collected *Hoya* and Orchid plants were kept and

¹ This is a province in the district of Manado at the North Eastern end of the Sulawesi, spelled on most maps as "Minahassa".



Figure 1: Aeschynanthus sp. (Lipstick vine).



Figure 2: Hoya sp.

looked after. We had coffee and tea there with fruit and took a look around the garden, which contained many interesting plants, such as Hoyas, Ipomoeas, *Mimosas pudica* and Orchids. I saw my first praying mantis here. After an interesting afternoon we made our way back to the losmen where, later, Ruurd and Eric joined us. They had brought back pancakes and loempias, which were really very nice. I collected seed from *Mimosa pudica* and *Ipomoea sp.*

Tuesday 22 November

Today we traveled to Kolonodale which was to the NE of Tentena, about 100 km away, and it took us 13 hours to get there. The car was a converted Toyota minibus, which reminded me of a Camel Trophy vehicle. The road was reasonably good most of the way, but a lot of repair work and road building was in progress. Many ground Orchids were growing on the side of the road. Ruurd spotted the first *Nepenthes* of many *Nepentheses* we were to see in the next few weeks, and of course, many photographs were taken of the plants. We did not take any cuttings of the *Nepenthes* as it is on the CITES list. We stopped one more time on the journey to investigate some interesting trees that could contain Hoyas or Dischidias. A large tree, a few hundred meters from where we had stopped, was inspected. *Hoya aff. parasitica* hung from it along with 2 other species of Hoyas. After collecting material and ants, a shout from across the road brought us running. Hans had found *Hoya imbricata* growing on one of the trees. It was very well camouflaged. The rest of the trees in the area were searched, but no more plants were found. Growing on the side of the road we saw some of the large-flowering pea plants, *Clitoria lernatia*, of which I collected some seed. We saw evidence of slash-burn-building of new communities on the way to Kolonodale. The trip was very dusty. We stayed at the losmen Lestari. After settling in, some of us went for a swim to cool down and wash the dust off. That night I shared a room with Ted and Dale. Ted had some biscuits in his bag which a rat found, took out, and proceeded to eat under my bed.

Wednesday 23 November

Two prauws, a type of canoe, were hired to take us on the primitive leg of the trip. We were going to the Morowali reserve and spent the night there. We traveled over Lake Tomori* , passing wonderfully shaped rocks, waterside dwellings and lines of mangroves. Finally sailing up the river seeing many wonderful birds, fishes and plants. We reached our camp about midday. It was a primitive hut made from bamboo and palm leaves on stilts in the middle of the forest (Figure 5). The family who lived in it cooked for us. Our midday meal was rice, meat, fish and later on that afternoon we had baked cassava. The mandi was a small uninviting pool just behind the dwelling. We did see one or two Archer fishes in it. We didn't use the mandi, but went instead down to the river to wash ourselves and have a swim. Back at the hut we were given a demonstration of the blow pipe, how it was made from rattan and how to fire it. Rattan is a viciously barbed plant that can cause an unwary traveler much pain and suffering if caught by it. That evening we ate rice and meat from a banana leaf. Night falls early, around 7 o'clock, and we watched the bats, nightjars and fireflies flying round in the twilight. We slept in the hut, at least, most of us did, for some people it was too hot and they slept outside in the open. I slept under a klamboe along with David and Geerdien. It was not comfortable and I did not sleep well.

* This is actually the sea of Tomari, a large inlet dotted with numerous islands on the Eastern coast of Central Sulawesi.

Thursday 24 November

We were up early today, as usual, and I went with Ruurd bird-watching. We saw what we thought was a donga, but little else. We went back to the camp for breakfast. We saw, from the camp, orioles, parrots, hornbills and kingfishers. After breakfast we had a walk in the area. We were shown the holes where the bush turkeys lay their eggs. We saw more of the slash and burn. After the walk we made our way back to the camp and then on to the river for a swim. The river was in ebb and much lower than the day before. After the swim we waited on the bank in the shade. In the mud by the water, fiddler crabs, who are about 3 cm long and have large white claws, make their homes. We left at about 12 o'clock, because it was then flood tide. We split into two groups, some of us heading for the Morowali river, and the rest heading back to Kolonodale. We traveled the river together seeing again many plants and animals including a varaan. At the sea we split up and our boat headed for the Morowali river. We saw egrets on the way. The water was still in flood, but it was not deep enough to allow us to sail up the river. A suggestion was made to walk over the mud flats that were lying exposed. It turned out later that part of the mudflats was quicksand, so it was fortunate that we didn't press on. We headed back towards Kolonodale and some of the islands still had the original flora growing on them. We visited one of the islands* and landed on the beach. The water was lovely and warm. We set out looking for Hoyas and other plants. We found no less than 6 kinds of *Hoya* growing there, including *Hoya australis*, *Hoya sussuela*, and also a *Dischidia bengalensis*. It was getting on in the afternoon and we had to leave the island because it wasn't wise to be sailing after dark. On the way back we saw our first frigate birds, very high up, but easily recognizable by their forked tails. We got back to the losmen just before dark. We fully expected to see the rest of the party there, but they were not there. They should have been back in the afternoon. The local police were warned and a search party was organized. A motor launch went out with Eric, our tour leader, because he knew the route that they had taken and could speak the language. The other boat was eventually found on one of the islands. The boat had had engine trouble and they were stranded on one of the islands which we had passed on the way back, but we hadn't seen them. They arrived back at about 11 o'clock at night. They were modern castaways, complete with cameras to record their experience.

Friday 25 November

After a good breakfast we started back to Tentena. We planned to stop once or twice in a suitable location to hunt for plants. We had seen one or two likely locations on the way up. We avoided areas where people were working on the road. Our first stop, which was quite a long stop, was close to some rapids. We spread out into different directions in order to find more plants, or so we hoped.. By this time I had gotten used to spotting the plants. I went back the way we came for a few hundred meters and then went into the forest. Looking around by the water I saw plenty of butterflies, dragonflies and other insects. Hanging from one of the trees was a large-leaved *Hoya* sp. a few meters long, but it stopped about 3 meters above the ground. I tried to break off a piece with a large branch, but to no avail. Only a leaf fell off, which I collected anyway for lack of a bigger piece. After scouting round I found no more Hoyas, but I took photographs of many other things, such as tadpoles and Orchids.

* This island was called Balasika, with many *Hoya* and *Dischidia* species.



Figure 3: "I turned over a log, and under it I found a scorpion."

To be continued in 4th quarter 1996 issue:

What's New With the San Diego Hoya Group ?????

Chuck Everson

To those of you who follow our little San Diego Hoya Group, we're still alive and kicking! At our April meeting, we had Jerry Williams present a slide show of his recent trip to the Philippines with Dale Kloppenburg, Ted Green, Eva-Karin Wiberg and Edward Gilding. It was a real treat to see Hoyas in the wild, and how these people trekked the forests and rivers to find them. In June our meeting was held at Rainbow Gardens with Dale Kloppenburg as our main speaker talking about how to grow special Hoyas. Since we meet quarterly, it is a special event to meet and talk with fellow Hoya lovers, have lunch, listen to other people's viewpoints on how to grow Hoyas, and then top it off with a giant plant raffle. If anyone is interested in coming to any of our meetings contact me for more information. Chuck Everson, 1444 E. Taylor St., Vista, CA 92084--- (619) 758-4290.

Corrections to Article "*New Hoya Variety*" 2nd Qtr, 1996 *Fraterna* New Combinations (revised)

Hoya verticillata (Vahl) G. don Var. *hendersonii* (Kew) D. Kloppenburg. *comb. nova*.

Hoya parasitica Wallich ex Wright in *Contrib. Bot. Ind* (1834). Type:hb. Roxburg (BM holo; K, plate).

Hoya parasitica (Roxb.) Wall. ex Wight var *hendersonii* Kew var. nov. Typus: Henderson SFN 23668, in *Sandakania* 6 (1995) 66-67

Hoya verticillata var. *citrina* (Ridley) D. Kloppenburg *comb. nova*

Hoya acuta var. *citrina* (Ridley) D. H. Kent in *Hoyan* 11 (1989) 2/I

H. acuta A. W. Haworth, in *Rev. Pl. Succ.* (1821) 4, Type: extant ?

A Primer of the Central Hoya Parts

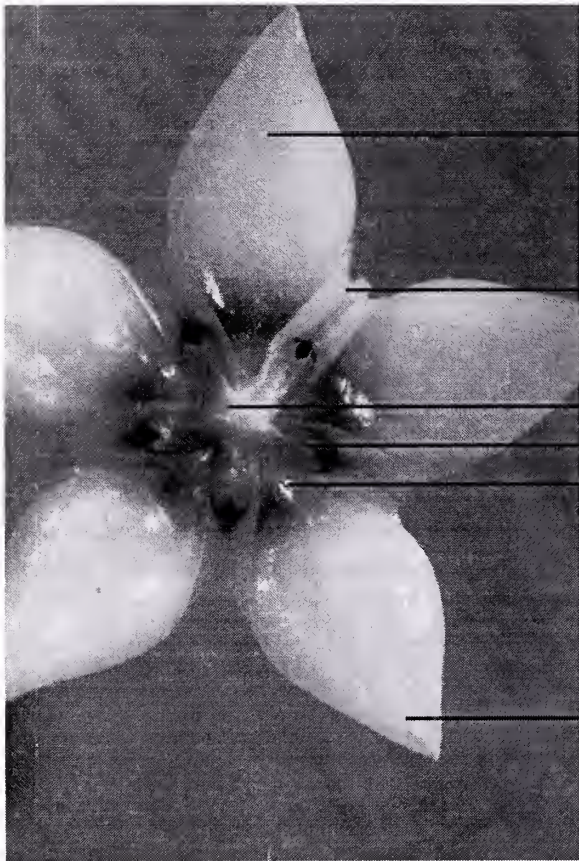
by Dale Kloppenburg

The Corona of the Hoya Flower (see labeled picture on the following page) is the waxy, fleshy inflated central portion of the hoyia flower. It forms a star, made up of 5 parts (scales). Each scale has an inner and outer end or lobe. These scales alternate with the corolla lobes below (not shown in the photo) pointing to the sinus. In the very center of the flower the apices of 5 anthers meet. Each anther is a membranaceous triangle fused to the lower inner coronal lobe surface and also fused below to the edge of the stylar table. Each anther contains two pockets along its free edges in which are housed pollinia from adjacent pollinarium. The 5 dark spots in the first picture is the retinaculum, the only structure of the male reproductive organs visible in the natural state. As I am sure you have observed the size, shape, thickness and configuration of the various parts differ from species to species. They are excellent for taxonomic comparisons and aid greatly in distinguishing one hoyia specie from another.

Our second picture sheds more light on what lies beneath the coronal scales, mostly hidden from view. Here again the dark retinaculum is visible and attached pollinia. Leading outward from the retinaculum is a modified edge of the anther termed wings "anther wings". This is a rather rigid cuticular material as opposed the membranaceous inner portion of the anthers. The anther wings are made from two adjoining anthers and form a hollow channel leading to a stigmatic receptive area, which lies below the retinaculum not visible without dissecting these structures. The center (here a dome) of the flower is not the stigma as widely misconceived but rather is made up of fused stylar material. This material makes up a pentagonal table (shield) with the central dome. Its size, shape and configuration varies among the hoyia species.

As stated above, the anther is fused to the edge of the stylar table. At each corner is a dark retinaculum. Below each retinaculum (5 per flower) are fused stigmas (10 per flower). The stigma is the gland which secretes the retinaculum and the two arms one leading to each pollinium. In the picture you will see that the retinaculum has a groove down its middle. It is bisymmetrical due to its having been secereted from the tip surface at the fusion line of the stigma. This receptive surface of the stigma lies below the stigma, is mostly cup shaped, of damp spongy material, ideally suited to receive germinating pollen tubes. The receptive area is at the inner end of the cutinous anther wings. Remember all this is hidden from normal visual inspection under the coronal lobes and anthers. The anther wing, anther appendage (inner apex) and the dark retinaculum is all that is normally visible. Even then pick a big hoyia flower and maybe a magnifying glass to see what is depicted here. The whole male reproductive structure is a Pollinarium (plural pollinaria). The sack containing the pollen is pollinium (plural pollinia).

Corona of a Hoya Flower



Coronal scale

Anther wings, sides forming
the channel to the stigmatic
receptive area.

Anthers (5) meeting in center.

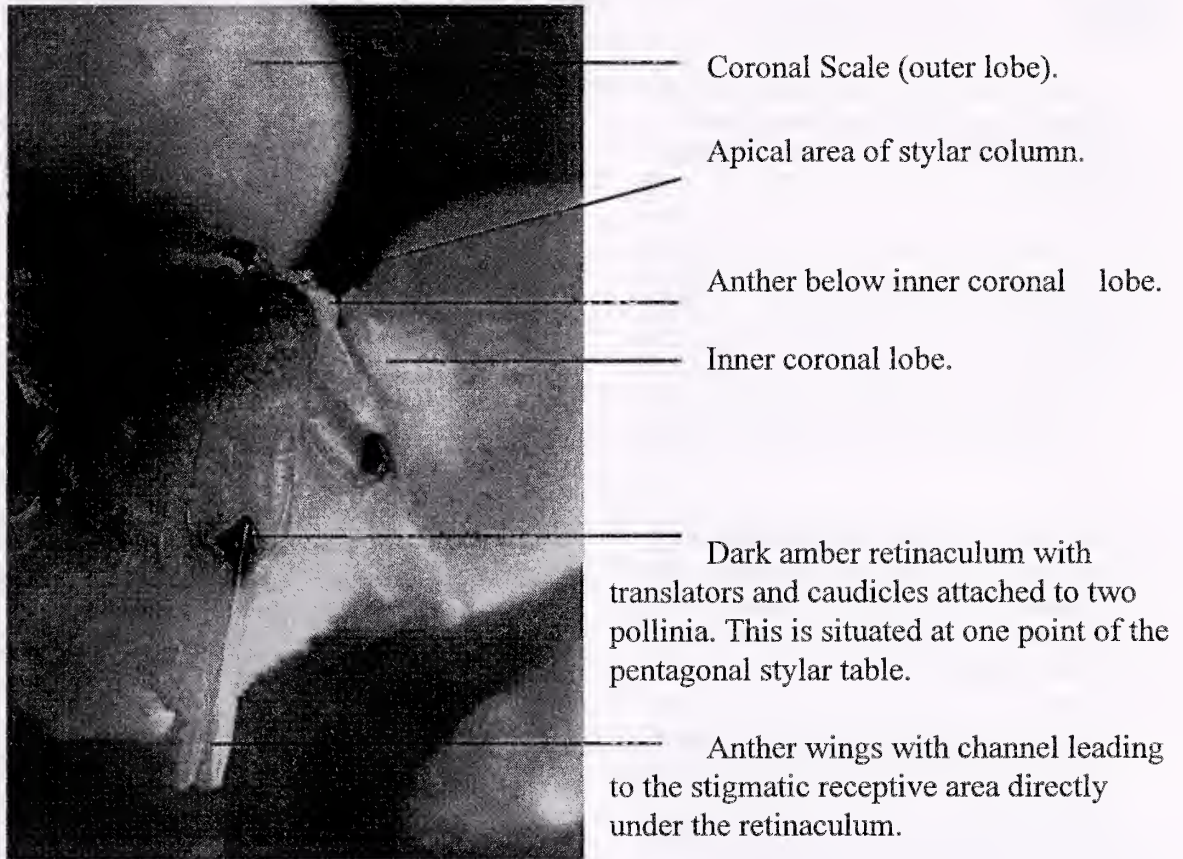
Retinaculum

Inner lobe of coronal scale.

Outer lobe of coronal scale.

Photo of hoya flower crown (corona), a top view
magnified approximately 15 times.

Stylar Table of Hoya Flower



Picture of a hoya pentagonal stylar table. Three coronal scales and the underlying anthers have been removed to show the relative position of the pollinarium. Two scales remain, one at the right side and one above. Magnified approximately 45 times.

Q & A

Questions and Answers about HOYAS

1. **Can you give me a list of cold tolerant hoyas ? W.J. CO.**

You are in luck! Two of our members are working on a list now. You will soon see an article in Fraterna on this subject. Please wait.

2. **I've seen Ann Wayman's mention of Leica stone. Do you know of other such products ? Are they useful ? O.B. NC.**

I've heard of others e.g. "grow rock" is one. They are a type of clay pebble. Reports by our members are very favorable. "It really works. Difficult cuttings like *H. linearis*, *H. serpens* and *H. campanulata* have taken off in this media."

3. **Last year I bought a Hoya with small oval leaves, *H. nummularioides*. After it bloomed in the fall the flower stems fell off. Is this normal and will it bloom again? J.S. CA.**

Yes it will bloom again and usually consistently from most every node in the fall, putting on new flowering spurs. Before attending the San Diego Hoya Society meeting in June I would have said this species always loses its peduncles (flower stems). My plants are now 17 years old and I have never noticed a persistent peduncle. I did, however, see persistent peduncles on an old plant of this species at the San Diego meeting. I will now check my plants most closely to see if some of mine stay put. By now you should see new peduncles forming.

5. **The new growth on some of my Hoyas has turned yellowish or red**

and these leaves are dropping off, what is wrong ? J.R. NE.

The stem you sent has leaves that appear very thin and as you say yellowish and stunted. My guess is that you have over-fertilized. Either too much, too strong or too often. In any case water heavily so as to wash out the excess nitrogen. As long as the base of the plant remains healthy it will recover. If my guess is correct remember to always use diluted or small amounts of fertilizer and not too often. I'd say never fertilize new cuttings or even precious small plants. Let the potting mix provide the nutrients as it breaks down.

6. **I have a Hoya labeled *H. sp. Sabah*. Can you identify it for me ? D.F. FL.**

No ! If I had a stem and flower cluster, possibly. There are probably 3, 5 maybe more species that have been collected in Sabah (The Malaysian portion of Borneo). All might be labeled, if unknown as to species, as *H. sp. Sabah*. Where Hoyas are found there are most likely several species even in a limited area, often several species in one tree. Next time it blooms, send a leaf and one flower and I will try to identify it. From whom did you get it -- do they know ?

7. **Can I purchase rooted cuttings ? M.J. St. Thomas.**

Yes. A few nurseries offer rooted cuttings. My question would be why ? It is so easy to root almost any Hoya in a loose potting mix, and most dealers sell only cuttings. Some countries and states restrict plants from entry, in soil due to possible root borne diseases and nematodes. On the other hand the rooted cutting will probably be already putting on new growth.

BIRD TRACKS

From: Robin Director

Harriette Schapiro
5217 Cassandra Lane
San Diego, CA 92109
(619) 273-4267



Attention all IHA members ! Take time to get involved in your association. Join a robin and meet nice people, exchange ideas, learn new things about Hoyas, exchange cuttings, increase your collection and have fun doing it. Give a membership to IHA to a friend, a plant enthusiast, a family member. Above all, enjoy life.

Editors Note: I'm going out and buy some ant killing gel since the whole yard is crawling with little red ants. I squash a snail and the next time I pass there are a million ants on it. Leave the cat dish out and it is swarming with ants. No Christmas trees for the greenhouse either.

Robin #3 Benigne, Florida. Sure enough like the swallows of Capistrano, the ants are back! By the experts, beyond a shadow of a doubt, they are leaf cutter ants. Since this is new to Florida, Texas was contacted: Unfortunately the most effective products won't work here because of the high water table. Whatever the treatment is, you have to find the nest; this is not easy since the ants travel up to a mile each day searching for food, having chambers of up to 3,000-4,500 sq. ft (one nest). After many, many hours of watching for the ants and observing their behavior we believe we have found their entry and exit into our garden, maybe like ramps on a freeway ? I decided to try Drione, a silica gel powder that interferes with "the growth cells" of the ant, drops them dead in their tracks. So far the fire ants, black ants and leafcutters I have used this powder on are all dead ants. The 7/95 issue of National Geographic has an article on leafcutter ants.

Robin #3. Harriette, CA. The growth on my *H. linearis* looks better than ever before. My experiment of planting in a very well drained old redwood hanging pot and old, reused soil and sort of ignoring it seems to work. We never did get over half the normal rainfall. With only about 10 inches a year normal that means it has been dry. That, in turn, means I have lost no Hoyas in the yard to root rot.

Robin #5. Carita, Finland. In the Christmas I realized the same phenomena as last Christmas: Hoyas, especially *H. compacta*, is very sensitive to the Christmas tree. We use *Picea abies* as a

Christmas tree, and the fact is that tree produces some gas (ethylene ? like from apples) which makes plants "feel sick". In Christmas 1994 I nearly lost a *H. compacta*, and a Christmas cactus, *Zygocactus truncatus*, lost nearly all its leaves. Knowing that the tree could be guilty I took as many Hoyas as possible to other rooms. Some were left in the same room, now after 1.5 months my *H. carnosa* var *compacta* "Regalis" has lost a long stalk and many leaves.

Robin #5. Maria, Germany. Carita, I made the same experience with Christmas tree. Experts tell us over and over again that it is the lack of light and not the Christmas tree. My *Hoya burtoniae* was enjoying life and flowering just before Christmas. Two days after we got our tree inside all the flowers were gone and another two days leaves were turning yellow and fell off. I doubt we will have a real tree next year!

Robin #5. John, CA. *H. pubicalyx* var *chimera* is a true variegated blossom as the plant can have light red colors like the usual varieties, very dark colors like "Red Buttons", and also varieties of both on the same flower. And if that weren't enough these unusual blossoms can appear as the usual "quint" and even "quad" of four sepals, corollas, and coronas.

Editors Note: I'm going out and buy some ant killing gel since the whole yard is crawling with little red ants. I squash a snail and the next time I pass there are a million ants on it. Leave the cat dish out and it is swarming with ants. No Christmas trees for the greenhouse either.



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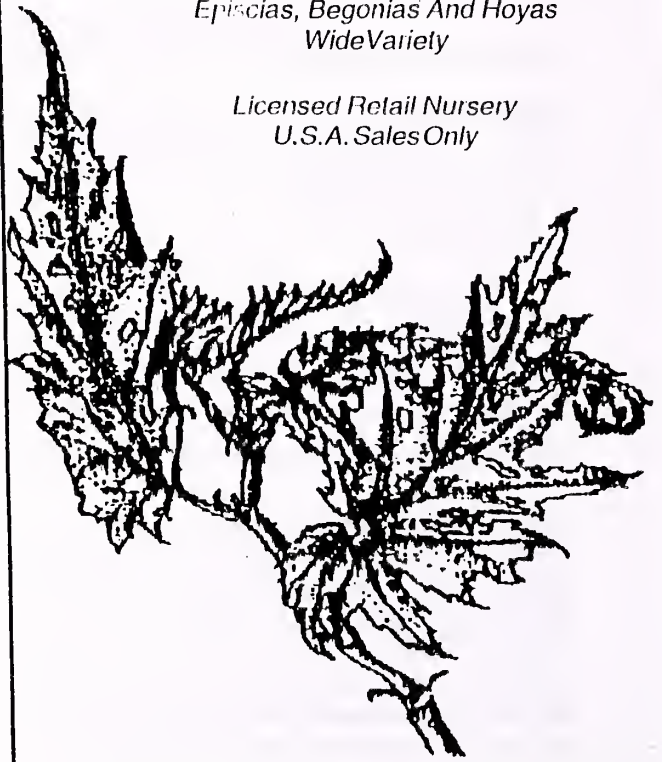
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IMPORTANT ANNOUNCEMENT

THE OFFICIAL I.H.A. SLIDE PROGRAM IS NOW
AVAILABLE TO ALL MEMBERS!

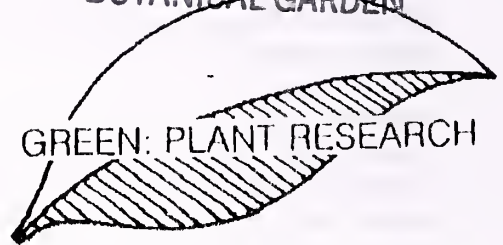
140 beautiful slides of hoyas (flowers
and foliage shots)! If you would like to
show these 35mm slides to your local
garden or succulent club (or to get a
few members together to see the lovely
presentation), please write to the
person listed below on how to obtain
the slide show.

SLIDE SHOW C/O Gerald Williams
1444 E. Taylor St.
Vista, CA 92084

OCT 15 1996

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GREEN: PLANT RESEARCH



P.O. Box 597, Kaaawa, Hawaii, 96730

Ted Green

Write for my latest Asclepiad or Orchid Lists.
Always something new from far away places with
strange sounding names

35
96
4

FRATERNAL

4th Quarter

Official Bulletin for
INTERNATIONAL HOYA ASSOCIATION

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Hoya pubicalyx cv. 'Jungle Garden'
Photo by Eva-Karin Wiberg.

INTERNATIONAL HOYA ASSOCIATION

1444 E. Taylor St.
Vista, CA 92084
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E-Mail: RBGdns@aol.com
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1997 rates for a 1 year membership (USA), which includes our quarterly publication are \$18.00 per year. Outside the United States: \$25.00 per year, sent via airmail.

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We have advertising available at the following rates:

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February 15 for the March issue.

May 15 for the June issue.

August 15 for the September issue.

November 15 for the December issue.

We also accept advertising on a per year basis. You may deduct 10% for the same ad running consecutively in four issues. Payment in advance, please!

Back Issues

We now have the thirteen original issues of the Hoya Society-West Coast bulletin bound as one publication. The price of this bound text is \$25.00 U.S. and \$35.00 shipped surface overseas. Due to the extra pages and pictures in our new publication "Fraterna", we must, out of necessity, increase our prices for back issues of "Fraterna" to \$5.00 per issue, \$7.00 per issue shipped surface mail overseas.

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Editorial Policy

Errors of fact may occur from time to time in "Fraterna". It is the policy of the IHA to publish corrections of fact, but will not comment on matters of opinion expressed in other publications.

Dealer Catalog Requests

The IHA office does not have dealer catalogs available. Please address your catalog requests to the individual dealers, or write to our Board Member **Virgie Demanski**, who will have a listing of mail order dealers available. Please send a self addressed, stamped envelope. Virgie's address is P.O. Box 1239 El Cajon, CA 92022-1239 U.S.A. In some instances there may be a charge for these catalogs.

The President's Message

by Dale Kloppenburg

At a time when the new year is upon us, I believe it is appropriate to thank all the members of the association for their continued support. "Thank you all for your past, present and continued support". Our association is bigger, better and stronger than ever. We are part of an ever expanding worldwide interest in *Hoyas*. Our affiliate group in Sweden is showing strong interest and continued growth with nearly 300 members. From Germany, I am receiving reports that nearly every household has at least one hoyo plant. It is a good feeling to know we are all part of an ever expanding group interested in *hoyas*.

For our part as promised, we're continuing our quest for new, informative and interesting articles for your enjoyment and education. I will appreciate additional suggestions for articles of interest to you, what information do you need and which articles would be helpful to you. This is your hoyo association so help us tailor it your needs. Send in your questions to fill our basket for the Q & A section. Above all, help expand your association. Let us double our membership this coming year! As I've suggested (and now is a good time of year) give at least one membership to an interested person. Support FRATERNA by sponsoring at least one photo in the coming year.

Our team of "secretariats" is functioning smoothly, they all stand ready to serve you. We are starting a new series of short articles by Ted Green entitled "Why?". We will continue from time to time the articles "For a Better Understanding", "Other Asclepiads" and, hopefully, some more travelogues, articles from affiliate groups and more notifications of what is occurring in the HOYA WORLD.

Special Notation: Check your expiration date on the label of the envelope. If it is highlighted in *yellow*, this is your last bulletin. Send your renewal payments, \$18 domestic; \$25 international, made out to I.H.A., and mail to our new membership Secretary at:

I.H.A.

Attention: Membership Renewal

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Vista, CA 92084

Phone renewals Okay: 1-619-758-4290

Fax renewals Okay: 1-619-945-8934

You can always contact me by phone, or mail, about your questions, comments or concerns.
THANK YOU.

Dale Kloppenburg, President I.H.A.

6427 N. Fruit Ave.

Fresno CA 93711

Phone and Fax: (209) 439-8249

SULAWESI TENGAH 1994

Paul Shirley

* Continued from the fall issue (3rd Quarter) of FRATERNA and regressing to start at Feb. 25.

Friday 25 November

After a good breakfast we started back to Tentena. We planned to stop once or twice in a suitable location to hunt for plants. We had seen one or two likely locations on the way up. We avoided areas where people were working on the road. Our first stop, which was quite a long stop, was close to some rapids. We spread out into different directions in order to find more plants, or so we hoped.. By this time I was used to spotting the plants. I went back the way we came for a few hundred meters and then went into the forest. Looking round by the water I saw plenty of butterflies, dragonflies and other insects. Hanging from one of the trees was a large-leaved *Hoya* sp. a few meters long, but it stopped about 3 meters above the ground. I tried to break off a piece with a large branch, but to no avail. Only a leaf fell off, which I collected anyway for lack of a bigger piece.

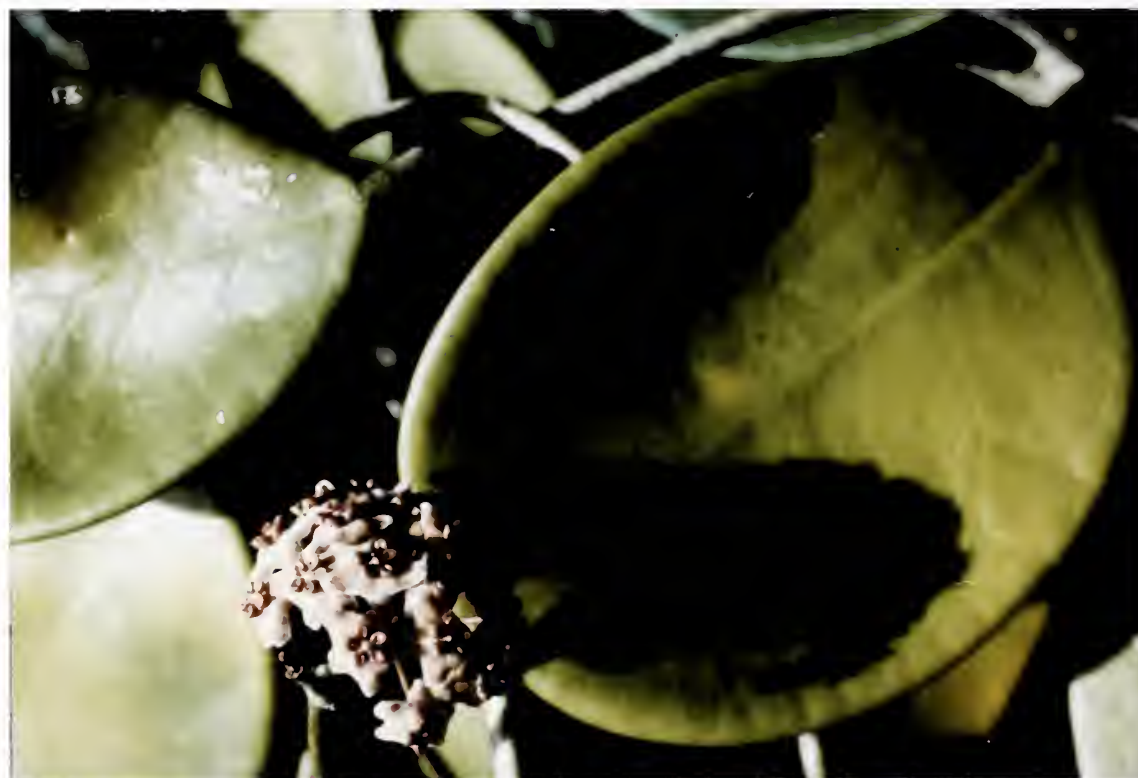


Figure 5: *Hoya excavata* -- Photo: T. Green

After scouting around I found no more Hoyas, but I took photographs of many other things, such as tadpoles and Orchids. Back at the bus I showed Ruurd the *Hoya* leaf that I had found and we went back to the where it was growing. A few meters away there were some more growing

which I had missed and which could be easily reached, so we collected some of that. At this stop 5 collections were made. After being there for about one hour we piled into the bus and headed for Tentena. Growing along the side of the road I saw what appeared to be large-leaved Ipomoeas or perhaps Cucurbits, but always without flowers. Then I saw some yellow flowers and we stopped to look. This confirmed that they were Ipomoeas (in fact they were *Merremia peltata*) with large golden yellow flowers. I was able to collect some seed. Further up the road we had to make a diversion because the bridge was being repaired, so we went via the temporary bridge. Further up the road we stopped to have a look at some white-flowered Orchids which had been seen growing in a tree. They were too high up to take a specimen. The ground under the tree had been cleaved and there we saw some damaged tubers of a plant I had already collected, which could be either *Dioscorea* or a sort of pea, but I haven't seen any flowers on it anywhere. Ruurd, David and Eric went to Eric's friend's house to check on the Hoyas already collected. Each evening the geckos assembled under the lamps to wait for any insects. You only saw the adults. The young ones kept well out of the way, otherwise they would be eaten.



Figure 6: *Hoya susseula* --Photo: T. Green

Saturday 26 November

Pancakes were added to our choice for breakfast in the morning and we could also have hot milk to drink along with the coffee and tea. On the banana plant just outside our losmen was a caterpillar munching away happily on a leaf. It was very hairy and one is very wise to leave well alone as the hair can cause a great deal of irritation. The species was unknown to me. The Landrover arrived after breakfast and we loaded up our gear. We had been told that it was not a good road and often it was quicker to walk. In the early days before the road was built it took two days to walk to the Bada valley. We duly set off and by the time we reached the bottom of the mountain, the surface of the tarmac road had given way to a mud path. A little way up the mountain the car stopped. While it was being repaired we all got out and started walking to see what we could find. Our first *Hoya* species was soon found on one of the bends in the road. The Landrover was repaired and it picked us up and we headed up the mountain road again. It soon (after about 15 min.) broke down again and we started walking again, leaving Eric and the driver to repair the car. We thought that they would pick us up again further up the road. A large tree that had fallen attracted the attention of a group of us and we inspected it to see what Hoyas or Dischidias were growing in it. We found three species which we collected along with the ants. Other plants were beginning to appear in the higher altitudes that we hadn't seen before, a *Medinilla* sp., an *Ipomoea* sp., white with a yellow and dark centre. Also rhododendrons, of which there are about 18 species on Sulawesi, were starting to make their appearance because of the colder conditions. The one we saw had a red clock flower hanging downwards. There were spiders in abundance: crab spiders, jumping spiders and orb spiders. It was also very moist here and there were plenty of ferns and nepenthes. Close to where we saw the *Rhododendron* an *Asclepias* sp. with red flowers was found, possibly a *Dregea* sp. The car seemed to be taking longer than usual to repair; it turned out that the pulley had broken and the radiator had a hole in it. David and Geerdien had decided to walk on, but would turn back at 3 o'clock if the Landrover hadn't appeared. In the meantime a Toyota Landcruiser had a flat tire next to our car, and this was repaired on the spot. The Landcruiser waited for us to see if the repairs were successful. After a trial run it turned out that the car would not make it to the Bada valley, so we turned back. The Landrover was left with one of the helpers while the driver had a lift in the Toyota to go and get help. The rest of us started walking. Some were able to get a lift from a passing vehicle. The last of us, Ruurd, David, Geerdien and myself were picked up by the owner of the vehicle just before dusk, at about 6 o'clock. Walking back towards Tentena we found a *Sarcostemma* sp., but it dried out before I got it back to Holland as it was not a succulent sort. It was decided to make the following day a rest day and to move everything up one day.

Sunday 27 November

We did not have to get up so early today and breakfast was about 7 o'clock. Ruurd and Hans went to Eric's friend to make sure that the plants were all right. Ted and Dale sorted their own plants out at the losmen. Eric had to change some flight reservations. Geerdien and David walked along the road and I went to do some bird watching by the lake. I went to the same place as we had been to on Saturday the 19th. and saw pacific reed egret (dark phase), kingfisher, brahminy kite, white breasted waterhen and pacific swallows. I was fairly early, so I was able to see a reasonable number of birds, but as the morning drew on, there was more activity on the

water and land which disturbed the birds. A road ran along the lake, so I decided to walk along it to see if there was anything of interest along the verges. I found an *Asclepias* sp., but did not collect it as it was not a succulent and probably wouldn't survive. Further along the road I met Geerdien and David who had found *Hoya sulawesi* in flower, one of the larger flowering *Hoya* sp. Further up there were paddy fields and at the back of them they had found the *Hoya*. I walked in that direction. I soon came to the rice fields and it started to rain which was actually very nice. I walked to the stretch of land that was between the rice fields and the lake. There were one or two small logs on the land which I turned over. Underneath were a couple of frogs, well camouflaged, a green and a brown one. I went and had a look in the coppice that was near the rice fields. There trees there were full of Hoyas and Dischidias. I saw *Hoya* aff. *incurvula*, *Dischidia major*, *Dischidia nummularia* and *Dischidia imbricata*. A little further up the beach I found another kind of frog. I walked back to the losmen. The *Hoya* site was already known. Eric had brought me back some branches of cassava (*Manihot esculata*) which I wanted to try and grow in Holland. The tubers that are available over here have no eyes and therefore cannot grow.

Monday 28 November

We left with some trepidation after breakfast in two Toyota Landcruisers for the Bada valley, covering the same route we took the day before yesterday. We saw the spots where we had walked, where the car had broken down, and where we had found various plants. The road was very rough in places with many potholes and the bridges in a very poor state of repair, and it proved to be a wise thing that we had done in turning back with the Landrover. Our first stop was near a stream. One of the cars had to top up with water. It was about midday, so we had our packed lunch and then explored the area. We found some large-leaved *Hoya sussuela*. Some plants are impossible to spot from a distance, but as you can see in Figure 7 there is a *Nepenthes* growing in the middle of the sphagnum moss. One or two ground Orchids were also found there. Ruurd, Geerdien and myself decided to walk the last few miles to the Bada valley. We found various clones of *Hoya parasitica* and other *Hoya* species, *Myrmecodia* and *Hydnophytum*. A *Hoya* was also found growing out of a *Myrmecodia*. Beautiful *Asplenium* like ferns were growing around the trees, *Lecanopteris celebica* and *L. balgooyi* (Figure 8). Further up the road we found a Cucurbit with large fungus-like balls. We came across heavy earth-moving vehicles which were smoothing out the road. We remarked that if it should rain the surface would be very slippery. Just before it got dark, one of the Landcruisers picked us up and took us the last few kilometers to Bomba in the Bada valley. It was dark when we arrived and there was a power cut. The generator at the house did not work so we had to use oil lamps. There were two mandi's and only one toilet for all of us.

Tuesday 29 November

Breakfast consisted of bananas, cassava, kroepoek, egg in herb soup. We had a choice of routes we could take today; the long or the short route. Because of the marshy nature of the walk Hans and Eric chose the short route because the wounds they had were to be kept dry. Cees joined them. The others took the long route, which consisted of hot water springs, the galithsand

a water fall. The short route would take them to a few megaliths and the waterfall. Our group went by Landcruiser from Bomba to Gintu where we were dropped off. With a guide, we were able to walk back to Bomba. The bridges along the way had seen better days, but they still had to be crossed. Walking past many of the old trees we saw that they were covered in Hoyas and Dischidias, some with flowers and some with seed pods. I had the chance to observe how good the camouflage of the green grasshopper is. There were many butterflies around, making full use of the Lantanas (*Lantana camara*) that grew in abundance. The Indonesian name for Lantana means 'chicken manure'! Another well known plant that grew here was *Euphorbia pulcherima*, better known as the Poinsettia. We made our way to the hot springs and saw to our disappointment that they were very small. We had had the idea that we could have a swim there, but we had to wait to swim at the waterfall. The springs smelled of sulphur. We made our way to the rice fields where the megaliths and stone pots were. They were lying in the fields. Some of them had been connected by means of paved paths. At the end of the path was a large covered structure where we had our lunch. Close to the building where we were, there were trees covered in Hoyas and Dischidias. *Hydrophytum* was found growing there too, as well as *Hoya sulawesi*. We were now getting a good picture of the distribution of the Hoyas and Dischidias on Sulawesi and also of which ants lived in symbioses with these plants. We made our way to the last megalith and on the way it started to pour down with rain. There was nowhere to shelter, so we put on our rain coats and carried on walking. After the megalith the next item on the list was the waterfall. The rain stopped as suddenly as it had started. The sun began to shine and the idea of going for a swim by the waterfall grew again. When we did reach the waterfall Ruurd and myself did try the water, but it was far too cold to go for a swim. Ruurd drew our attention to a large bean pod hanging close to the waterfall which he plucked. It was very hairy and as we got dressed we discovered the fine hairs of the bean were everywhere and had got into our clothing and it itched. On getting back to the losmen we stripped off and had a good wash. The clothes I had on that day I gave away to the people of the house. After the evening meal while sitting on the veranda we watched the bats fly to and fro.

Continued next Quarter



Figure 7: *Hoya imbricata* on a fallen tree -- Photo: T. Green

GROWING HOYAS IN SWEDEN

by Eva-Karen Wiberg

My Hoya interest started approx. 10 years ago. This Hoya (pictured on our cover page) was my first. It grew like a weed for me. So my curiosity for this family woke up for real. In some way I got in contact with Dale Kloppenburg. I am now a total freak ! Hoya idiot if you prefer. I have now over 200 different Hoyas, at least I think they are different. My first "overseas" Hoya species were, *H. crassipes*, *H. obovata* and *H. neo-ebudica*. *Hoya obovata* is growing very well and blooms for me almost every year. But the other species have never bloomed for me. I take cuttings of my plants all the time. I think that is the problem. I have heard from those who have got cuttings from me that their plants have bloomed. My first *Hoya macgillivrayi* plant, I bought approx. 7 years ago. After seeing a picture of a blooming mac I just wanted my mac to bloom. But it took 5 years for it to bloom for the first time. But it was worth waiting for. I studied the buds every day. When they were ready to burst, they were as big as ping-pong balls. When they bloomed it was a gorgeous sight. What a fragrance, like a Gardenia. It had 3 blooms on it the first year, but this year there were 5 blooms. One *H. macgillivrayi* flower is bigger than the whole cluster, of 7 blooms, on my *Hoya lanceolata* (see photo on the following page).

Some of my favorites of the Hoya family are: *H. chlorantha* with beautiful green flowers. All the different pubicalyx cultivars with their beautiful leaves and flowers. *H. kerrii*, I love both the flowers and leaves on this one too. *H. magnifica* with beautiful big white flowers, but the fragrance is too heavy. My purpureo-fusca bloomed for the first time one month ago, it was a "Big Hit". The leaves and flowers on it are wonderful. There are several others that have bloomed for me, but I will tell you more about them another time.

I also have started to collect a Hoya relative, and that is Dischidia. I think if you are getting problems with space, a Dischidia will always fit in. They are so small and do not take up much space in the windowsill. The flowers on a Dischidia are modest compared to Hoya flowers. But prettier than any other flower. My favorites among Dischidia are: *hirsuta*, *livida*, *imbricata*, *lancifolia* and sp. Thailand, etc....

I grow most of my Hoya plants on shelves under artificial lights. They seem to like that. When I plant new cuttings they get roots very quickly under the lights, mostly because of the heat from below. I always root my new cuttings in soil.

My "Big Adventure" happened last year in October. I got the opportunity to follow Ted Green and Dale Kloppenburg to the Philippines. It was a little bit thrilling because I had to do my own flight reservations, both the flight to the Philippines and home again. We should, hopefully, arrive and leave on the same day. Then I had to make reservations for the domestic flights that

had already been done in the USA. I looked in a Travel magazine and found a company that specialized in travels to Asia. Only one phone call and everything was fixed. Amazing !! I got a letter from Ted with a "Checklist" telling me what to bring on the trip.

On the flightday I was very nervous. Would I take the right plane? Will I be robbed? Maybe killed????!!.. After this conversation with myself I thought "What the heck...." The flight



**Hoya macgillivrayi 'Pandanas Creek'
and Hoya lanceolata**

took 27 hours! So when I finally got to the Manila airport, I was totally exhausted, I wanted a taxi as quickly as possible so I could get to the hotel where Ted, Jerry and Edward were staying. It was a 45 minutes travel by taxi. Finally there at the hotel, I got the message "I was wanted"! The receptionist called for Ted to come and welcome me. I was a little bit nervous about that, because I had only communicated with Ted by letters before. This was the first time I would talk to him "live". After approx. a one minute talk with him, I knew I didn't have to be nervous any more. The next day I got the opportunity to meet Jerry and Edward. Then for the final meeting with Dale, would we all be gathered! I think I was more nervous about meeting him. I had known him for about ten years, but never met him before, but why did I worry? What a lovely bunch of guys I had met.

We found a whole lot of different Hoya species on the trip. Some new and some that we already had. We also found some different Dischidias.

I hope that I will be able to do a trip like this again, and with the same traveling companions! I want to go to several other places and find new Hoya and Dischidia species. I think being out in a jungle, slippery mountains, to bump on a bumpy road, to shiver in a rainforest rain to not know what happens around the next corner, "That is Life".

Two years ago I started a Swedish Hoya Society. I didn't know then what the interest for these flowers were in Sweden, but I tell you it is BIG! We are now 223 members, and that includes Finland, Denmark, Iceland and Norway. We give out a magazine four times/year, that is called "The Hoyatelegraph". I am also trying to translate "The Hoya Handbook" into Swedish. I also have plans on writing my own "Hoya book". Maybe when I am 100 years old all my dreams will come true.

With Love and Good Growing from a "Hoya fan" in Sweden
Eva-Karin Wiberg

WHY IS IT? - - - HOYAS AS SUCCULENTS

by Ted Green

Several years ago, I was asked to give a talk on Hoyas and Dischidias to a bunch of succulent types at their conference in San Francisco. I thought that it was crazy - for everyone knows that hoyas aren't succulents. Or, are they? As I started thinking about the slide-talk and all of the places that I had seen hoyas growing in the wild and the rough treatment that they get by Momma Nature, they have to be succulents for they sure fit the description.

One of the hardest things for me to do is **not** water. I have over watered and killed more orchids and hoyas than anyone I know - an orchid friend says that it is just that I have just lived longer than other growers!

Most terrestrial orchids and the average hoyas are built to withstand periods of dryness and in many cases, **no water** for 2 to 4 months. By the end of the period, the plants look sad but with the first rain, perk up and start to grow again. Many botanical descriptions of hoyas say that they are deciduous (in nature) and drop most of their leaves. The average grower wouldn't like the looks of the plants and think it a crime to make them suffer so - the plants should always look green and plump. Sort of un-natural like!

I will always remember a large, half dead **H. excavata** that I saw in a half dead Teak tree, above a very dead rice paddy on Sulawesi, Indonesia, in November of 1994. When we finally succeeded in getting a piece of it down, the leaves were like old rubber and the stem flexible as rope but when I got it home and started watering it, it quickly recovered. Its whole life had been with the same seasonal wets and dries - yet, it still grew and flowered. My piece from that plant is now always green and flowers in season just because I can't stand to see it as I remember it.

Another angle: I visited Michael Miyashiro's place last week and was again amazed for Michael keeps his plants part way up St. Louis Heights, which is one of the hottest, sunniest and driest places in Honolulu (but the humidity does stay at 40% or greater). Half of his plants are under a low fiberglass roof, where the temperature must get to 95°F. most days, the light about 5,000fc and there is very little breeze because it is in the lee of a retaining wall. He does have an automatic drip irrigation system of "spaghetti" lines that water each pot or basket. A real sauna - it is stifling to be in his greenhouse for 15 minutes and yet the plants are growing like weeds! Outside, and below the house and greenhouse, isn't much better for the light is about 10,000fc but with a breeze - if the NE trade wind is blowing. Without the trade wind, it is like the worst sauna. The plants are in pots, baskets and scrambling all over the trees and fences - growing like weeds and flowering regularly. Most of the leaves are greenish-yellow but many have developed dark reddish colors as protection from the sun. The substance of the leaves is terrific.

Michael's greenhouse plants all have the appearance of true succulents yet they are watered every morning for one minute. He says that even that is a bit too much.

In contrast to Michael's way of growing hoyas, most of my plants are in partial shade with full sunlight for about 2 hours a day. My newly-imported things are in partial shade for all of the day and where I can easily water (and kill) them. Some place between Michael's and my way of growing them must be right. He does admit that some of his plants end up in Hoya Heaven.

If you can create a place especially for hoyas (and Cactus and Crown of Thorns): Pick a lot of sunlight or high intensity light, provide air movement, good drainage and above all watch the watering. Try putting them out in the open all summer long but remember to start when the weather is mild so that they become acclimatized to the coming heat and bright sunlight.

Treat all of the hoyas with hard, thicker or hair covered leaves as true succulents and the rest as almost succulents. Come to think of it, my plants might do better if I didn't pay my water bill and then I wouldn't have the water to kill them with.

Ted Green
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Editors notation: I am cautioned to say, don't try limiting water in areas of low humidity! The old rule goes "you can't water too much but you can water too often". Watering depends on a whole range of factors as you probably already know. Included are: the porosity and water holding capacity of your planting mixture. The pot size in relation to the plant and its growth rate. The season of the year. Fundamentally the evapo-transpiration rate is critical. Moisture evaporation and transpiration from the plant are affected by many things, among them the exposure, humidity, wind, and temperature. In areas with low humidity the rate is elevated and the plant needs water in less time. In Fresno, CA. for example (summer temp. over 100°F. and humidity as low as 5%) I have lost many more plants to under-watering than to over-watering.

You must know your environment, know your plants, and above all learn by experience. As an added thought if you have alkali water this gives you another reason to water heavily when you do water, so as to flush out all excess dissolved and accumulated salts with each watering.

HOYAS IN THAILAND

by Dale Kloppenburg

Did you know that there are more than 1000 species of Asclepiadaceae in tropical Asia represented by over 100 genera. The development is greatest in Southern China, India and the Himalayan foothills.

The Asclepiadaceae have a greater range of adaptability to the environment than family Peripaceae of Apocinaceae

The following article is based on Obchant Thaithong's studies:
Department of

Botany, Faculty of Science, Chulalongkorn University, Bangkok, Thailand and other accumulated data.

At the present time there are 32 described species in Thailand along with 4 known unidentified species. In addition there is a group of taxa in the *Hoya verticillata* G. Don complex. Of these species 5 appear to be endemic to Thailand, however only 3 species are listed: *H. graveolens*, *H. rigida* and *H. subquintuplinervis*. What the other 2 species are I do not know. Nineteen species are common to the Malaya Peninsula, 4 are Eastern Indian species with an additional 6 also occurring in Indo China.

As has been determined in collecting in the Philippines, Sulawesi, the Solomons and other localities, many taxa and species occurrences remain to be found. Obchant Thaithong believes additional intense collecting, especially in the mountainous areas between Thailand

and Mayamar and Thailand/Laos will reveal new recordings.

The present 36 species, which will probably increase in the near future, have been itemized in Table 1, "A list of *Hoya* species in Thailand". Check the flowering month listed here against your flowering periods.

Seven (7) species occur in China: *Hoya fusca* Wallich, *Hoya kerrii* Craib, *Hoya longifolia* Wallich, *Hoya lyi* Leveille, *Hoya multiflora* Blume, *Hoya oreogena* Kerr, and *Hoya pachyclada* Kerr. Those species also found in India are: *H. fusca*, *Hoya lacunosa* Blume, *H. longifolia*, and *Hoya siamica* Craib. Many species also occur in Malaysia (see table). The Philippines is host to *Hoya coriacea* Blume, *Hoya curtisii*, *Hoya diversifolia* Blume? and *H. multiflora*. Finally those species extending their range into Indonesia are: *H. coriacea*, *Hoya coronaria* Blume, *H. diversifolia*, *Hoya latifolia* G. Don, *Hoya verticillata* G. Don, *Hoya parviflora* Schlechter and *Hoya revoluta* Wight. Following the table on the next page is a list of species occurrences in Thailand as set forth by Obchant Thaithong.

Table 1. A List of Hoya Species in Thailand

Species	New Record	Rare Species	Flowering Month
1. <i>coriacea</i> Bl.			July
2. <i>coronaria</i> Bl			November
3. <i>curtisii</i> K & G	X		November
4. <i>diversifolia</i> Bl.			June
5. <i>elliptica</i> Hook. f.	X		December
6. <i>engleriana</i> Hosseus.			October
7. <i>erythrina</i> Rintz	X		September
8. <i>erythrostemma</i> Kerr			Apr., Aug., Sept.
9. <i>finlaysonii</i> Wight			March-April, Sept.
10. <i>flagellata</i> Kerr		X	August
11. <i>fusca</i> Wall.			May
12. <i>graveolens</i> Kerr			June
13. <i>kerrii</i> Craib			April, Sept.
14. <i>lacunosa</i> Bl.			January-December
15. <i>lasianrtha</i> Korth.		X	August ?
16. <i>latifolia</i> Don ?			January-December
17. <i>lobbii</i> Hooker f.	X		June, September
18. <i>longifolia</i> Wall. ex Wight			June
19. <i>lyi</i> Leve.	X		July
20. <i>micrantha</i> Hooker f.			April-June
21. <i>mitrata</i> Kerr			July-August
22. <i>multiflora</i> Bl.			September
23. <i>nummularioides</i> Cost.	X		September-October
24. <i>obtusifolia</i> Wight			November
25. <i>oreogona</i> Kerr			October
26. <i>pachyclada</i> Kerr			April-August
27. <i>verticillata</i> G. Don			March-June
28. <i>parviflora</i> Wight			January-December
29. <i>revoluta</i> Wight ?	X		May
30. <i>rigida</i> Kerr			April-August
31. <i>siamica</i> Kerr			January-May
32. <i>subquintuplinervis</i> Miq.		X	February-March
33. sp. (NW)		X	
34. sp. (N1)		X	May
35. sp. (S)		X	March
36. sp. (N2)		X	

The following is the Thailand species of Hoyas along with their recorded occurrences.

Species

Occurrences

H. coriacea Blume, Bijdr. (1826) 1063. (PEN): Pattani, Trang, Nakhon Si Thammarat.

- H. coronaria** Blume, Bijdr. (1826) 1063 (PEN): Surat Thai, Nakkon Si Thammarat, Pattani, Songhla.
- Species
3. **H. curtisii** K & G, J. As. Soc. Beng. 4 (1903) 563. Occurrences
(PEN): Chumphon
4. **H. diversifolia** Blume, Bijdr. (1826) 1064 (PEN): Surat Thani, Chumphon, Nakhon Si Thammarat, Phuket, Songkhla, Ranong (SW) Prachuab Kiri Kahn (SE) Chon Buri.
5. **H. elliptica** Hook. f. FBI (1863) 5 (PEN): Narathwat.
6. **H. engleriana** Hosseus, Nat. Bot. Gart., Berl. 40 (1907) 315. (PEN): Chiang Mai, Mae Hongson
7. **H. cf. erythrina** Rintz, Malay Nat. J. 501. (PEN): Narathiwat.
8. **H. erythrostemma** Kerr, Kew Bull. (PEN): Chumphon, Nakhon Si Thammarat, Songkhala (1939) (SW): Parachuab Kiri Khan.
9. **H. finlaysonii** Wight, Cont. Bot. Ind. (1834) 38. (SW): Prachuab Kiri Khan. (PEN): Surat Thani, Phuket, Phang-nga, Trang.
10. **H. flagellata** Kerr. Hook.f. Ic. Pl. (1840). Satun, Trang.
11. **H. fusca** Wall., Pl. As. Rar. i (1830) 68 (N): Chiang Mai. (NE): Phetchabun. (E): Nakhon Ratchasima.
12. **H. graveolens** Kerr, Kew Bull. (1939) 418. (SE): Chon Buri. (SW): Prachuab Kiri Khan.
13. **H. kerrii** Craib, Kew Bull. (1911) 418. Widely distributed in Thailand except Penin.
14. **H. lacunosa** Blume, Bijdr. (1826) 1063 (PEN) Chumphon, Nakhon si Thammarat, Pattani, Yala, Songkhla, Ranong, Surat Thani.
15. **H. lasiantha** Koth, ex Miq. FBI 2 (1856) 526. (PEN): Phang-nga, Pattani.
16. **H. latifolia** G. Don, Gen Sys. 4 (1873) 127 (PEN): Narathiwat, Pattani.
17. **H. lobbii** Hook. f. FBI 4 (1883) 54 (SE): Chanthaburi. (PEN): Chumphon.
18. **H. longifolia** Wall. ex Wight, Cont. Bot Ind. (1834) 36. (N): Chiang Mai. (SW) Kanchanaburi.
19. **H. Lyi** Leveilla, Bul. Soc. Bot. 54 (1907) 369. N): Tak
20. **H. micrantha** Hook.f. FBI 4 (1883) 55. (N): Lampang, Phitsnulok. (NE): Petchabun. (SE): Chanataburi, Prachin Buri. (PEN): Chumphon, Phuket, Phang-nga.
21. **H. mitrata** Kerr, Ic. Pl. 35 (1940) t.3406 (PEN): Surat Thani, Chumphon, Phuket.
22. **H. multiflora** Blume Cat. Hort. Buit. (1823) 49. (SE): Chanthaburi. (PEN): Surat Thani, Chumphon, Pattani. (N): Chiang Mai.
23. **H. nummularioides** Cost. FBI 4 (1912) 129. (NE): Nangkhai. (E): Chaiyaphum, Prachin Buri.
24. **H. obtusifolia** Wight Cont. Bot. Ind. (1834) 38 (PEN): Nakhon Si Thammarat Chumphon.
1835. **H. oreogena** Kerr. Kew Bull. (1939) 461 (N): Chiang mai, Phitsanulok. (NE): Loei. (PEN) Chum.
1836. **H. pachyclada** Kerr Kew Bull. (1939) 462 (N): Lampang (NE): Khon Khan (E): Chaiyaphum (SW): Kanchanaburi.
1837. **H. verticillata** G. Don Gen. Hist. 4 (1837) 128. Widely distributed.
28. **H. parvifolia** Wight C. B. I. (1834) 37 (PEN): Surat Thani, Nakhon Si Tham., Ranonr, Phangnga (SW): Prachuab Khiri Khan.
29. **H. revoluta** Wight FBI 4 (1883) 55. (PEN): Songkhla, Yala.
30. **H. rigida** Kerr Kew Bull. (1939) 463. (E): Nakhon Ratchasima (SE): Chanthaburi, Trat.
31. **H. siamica** Craib Kew Bull. (1911) 419 (N): Chiang Mai. (NE): Loei (E): Nakhon Ratchasima. (SE): Chabthaburi (PEN): Nakhon si Thammarat.
32. **H. subquintuplinervis** Miq. A.M.B. (1856)141 (SW) Ratchaburi.

A

QUESTIONS AND ANSWERS ABOUT HOYAS

&

1. Where is the list of cold tolerant hoyas ? W.J. Co.

As I said "please wait". I believe it will show up in the next issue of FRATERNA.

Q

2. Editor's question: Has anyone been successful

growing *H. darwinii* in the clay pebbles ?

Write to me with your experiences using these clay pebbles. Local sources and product names will be appreciated. I will report the results in upcoming issues.

3. When I got *H. nicholsoniae* and *H. pottsii* they had deep maroon red leaves. After a while they turned green, why?
C.F.-H. Finland.

The solution may be two fold but revolves around one thing, Phosphorus. What is needed is an imbalance of this nutrient. First if possible, increase the light intensity. Next, especially in the fall, fertilize with a fertilizer high in phosphate. e.g. super phosphate, or 0-10-10 or any other fertilizer with a high 2nd number. The imbalance masks the chlorophyll allowing the Anthocyanin pigments to predominate. Cool spring weather enhances this effect by not allowing the roots to take up much nitrogen.

4. I have a serious problem. I was told by the local nursery woman it was mealy bugs. I've sprayed with Sevin but still have an infestation, what should I do ?
D.B. OR.

There may be as many answers as there are growers. I'd say a spray bottle of rubbing alcohol will take care of them. This may

require daily care, which your plants should get anyway. If the problem gets out of hand try Malathion in the same spray bottle. Always prepare according to the directions, the proper dilution and use. If you have plants you probably have mealy bugs. With constant control they can be all but eliminated. Don't give up, get even !

6. What is the *Hoya* sp. J.P. Ceram ?
A.G. Germany.

A misnomer for beginners ! J.P. in this instance stands for Juan Pancho of Libis, Laguna Philippines. The species in question was introduced into the U.S. in 1981 as #81079. It was collected on the Aviary fence at the memorial gardens in Manila, Philippines. This species was said to have been a gift to the director from Peter Tsang of Mareeba, Australia. This was supposedly collected by Peter's brother in *Ceram* (Sulawesi). This is conjecture as it does not appear in collections from there nor in herbarium sheets at the National Herbarium in Manila.

It was also sold as *H. sp.* Philippine. #3.

7. Should Hoyas be overpotted or underpotted ? A.L. FL.

Definitely underpotted! Well, what is underpotted ? You mentioned 12" pots, that in most instances is overpotting with new cuttings. Most cuttings could be started in a 2" pot or at best a 4" one. Move to a 6" pot or hanging basket when the plant is well along and growing vigorously. Strong growers like *H. kerrii*, *H. obovata*, *H. carnosa* etc. will, when large, prefer an 8" container or even larger. Keep it small, however.

BIRD TRACKS

From: Robin Director

Harriette Schapiro
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ATTENTION ALL IHA MEMBERS! Did you take time to get involved in your association? Did you join a robin and meet nice people, exchange ideas, learn new things about Hoyas, exchange cuttings, increase your collection and have fun doing it? If not be brave and do so now! Give a membership of IHA to a friend, a plant enthusiast, or a family member. This is the season of giving, so do so. Above all, enjoy life!

Robin #5 Harriette (California). Maria, many of the Hoyas are semi succulent and therefore do seem to like to be watered well but only occasionally. I have lost more Hoyas to too much water than too little water. This is especially true in winter. The combination of cold and wet feet seems deadly.

Robin #5. Carita (Finland). You told us plants which need much water have a hard life in your home. I have it no better. I killed one (not enough water) *H. multiflora variegata* and now I have a new one. This time I put it in a plastic pot, which has a water container under it (self watering type). This time hope I remember to water it enough.

Robin #5. Maria (Sweden). Recently I bought a terrarium which is now placed on the top shelf of my light stand - close to the ceiling. It is warm and nice and humid there, almost 30°C at daytime. I could see immediate results. Two months later it is beginning to get crowded, I need another one! My *H. chlorantha* had its bud blast over and over again but when placed in the terrarium it bloomed in three weeks. I liked its flowers a lot - they were even nicer than I had thought.

Robin #3. Tracy. All my plants are going through some major growing streaks. My *H. serpens* is looking like it is going to keep a couple of flower umbels, quite a few of them fell off in the beginning and now they stopped. My *H. longifolia* has been blooming for about a month now, really stinking up the kitchen, and now it is reblooming again. The smell is so strong that when we open the window and you walk out into the yard the smell is overpowering.

Robin #5. Benigne (Florida). Harriette: you Re: cold tolerant Hoyas - by accident I left *Hoya caudata* and *H. subcalva* out with the Epiphyllums in March when the weather turned much colder than expected. The temperatures dropped to 43°F, with a north wind of about 25 MPH. Both Hoyas wound up with burned leaves, but appear OK now. Our climate is cold enough in the winter that nothing can be outside between mid-October and mid-April unless it is deciduous or will go winter dormant. I have not tried experimenting with hoyas to find out what's cold tolerant and what's not. They all get moved inside when the temperatures go below 58°F at night.



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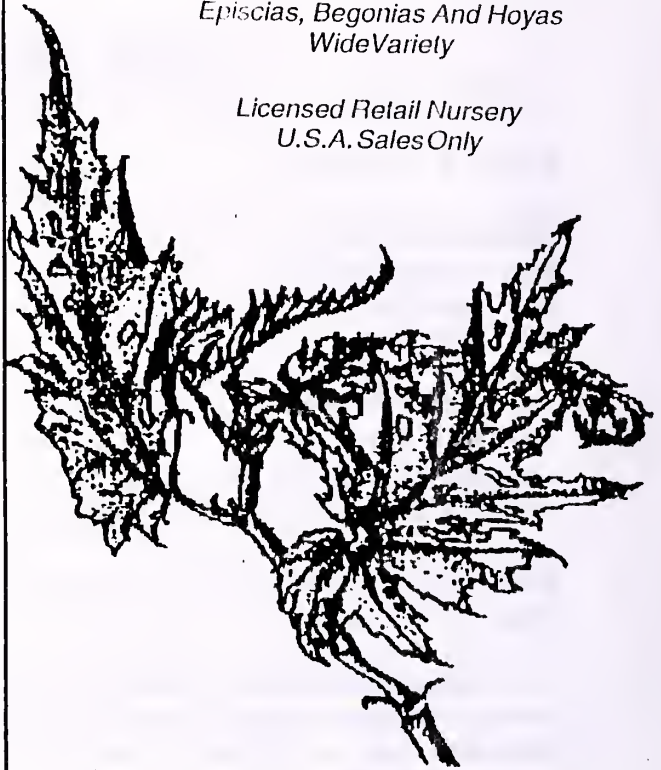
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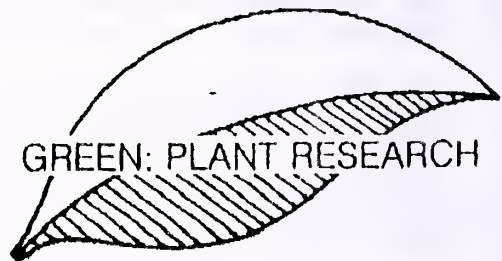
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IMPORTANT ANNOUNCEMENT

THE OFFICIAL I.H.A. SLIDE PROGRAM IS NOW
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140 beautiful slides of hoyas (flowers
and foliage shots)! If you would like to
show these 35mm slides to your local
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