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Editor: Mark Randal

Chief Researcher: Rachel Colette Conroy

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On the cover: a reworking of a sales flyer from B. L. Cobia, Digital manipulation by Mark Randal.

From the garden of the leprechauns - B.L. Cobia Inc.

Michael Green IG: @thehoyaarchive

You would be hard pressed to find a person in the Hoya community who hasn't heard of KRIMSON QUEEN (*Hoya carnosa* 'Tricolor') and KRIMSON PRINCESS (*Hoya carnosa* 'Rubra'), but few know their history and the story of the originator behind these plants.

In the world of horticulture, few names shine as brightly as Barnell Larry Cobia. Known for his work producing *Hoya* and *Schlumbergera* (Christmas Cactus) cultivars, his innovative contributions have left an enduring influence on the industry, with many of the popular Hoya cultivars we treasure in our collections to this day tracing their origins back to his pioneering breeding efforts.

"Mother Plants" of B.L. Cobia Hoya varieties in production trials- including *Hoya carnosa* 'Tricolor', 'Rubra' and 'Verna Jeanette'

Photo Credit: JC Raulston Arboretum at NC State University. Originally taken by James Chester Raulston, December 1970

His deep passion for plants and entrepreneurial spirit were clearly reflected in the path his career took. Before launching his own business, Mr. Cobia worked as the manager of another plant nursery in Apopka, Florida, gaining valuable experience and insight into the industry. In June of 1960, at just 29 years old, Larry and his wife, Verna, made the bold decision to start their own business. Motivated by a shared desire to delve deeper into the world of horticulture and to expand Larry's growing expertise, the two purchased a large property in Winter Garden, Florida (near Orlando) and constructed a series of greenhouses.

As the business grew, Larry also made a point to involve his family in the operations. He employed several close relatives, including his sons; Michael, who served as the Business Manager, and Mark, who took on the role of Director of Research after the departure of the previous holder of the role, Steven Griffith. Larry's cousin, Robert Cobia, worked alongside them as the General Manager. He oversaw the intense day to day operations of the business including growing, sales and distribution.

Larry and Verna Cobia with their 4 children.

Larry and Robert Cobia showcasing new *Hoya* and *Schlumbergera* cultivars.

Their facilities began at a modest size of 5 acres in 1960, growing to 15 acres by 1968, the space allowing for over 100,000 square feet of growing area, with 12,000 square feet dedicated to the research and development of new cultivars. In an article in the Tampa Tribune in August of 1970, it was said that every member of Mr. Cobia's staff of 150 was constantly on alert for the slightest change in any plant in their care, and if a sport of any plant was found to be worth propagating and introducing to the trade, the staff member who first brought the plant to the attention of management would be given a bonus.

A few years into the operation Larry saw the need for unique branding material to distinguish his products in the market. Though the business did have a logo, their branding mascot was much more well known, which was the leprechaun. The branding artwork for the company was all designed-in house by Larry and Robert Cobia.

Cobia's first and likely most famous *Hoya* creation was *Hoya carnosa* 'Tricolor', patented on December 9th of 1969, which he also trademarked under the (now expired) name of KRIMSON QUEEN on January 12, 1971.

Between 1969 and 1978, Cobia patented and trademarked 8 varieties of *Hoya*, in the following order: *Hoya carnosa* 'Tricolor', *Hoya carnosa* 'Krinkle 8', *Hoya* 'Mauna Loa', *Hoya carnosa* 'Rubra', *Hoya* 'Regalis', *Hoya carnosa* 'Argentea Picta', *Hoya* 'Marginalis', and *Hoya carnosa* 'Krinkle 8 Variegata'. There were also at least 2 Hoyas that Cobia propagated as varieties that he did not trademark; those being *Hoya carnosa* 'Verna Jeanette' and a selected seedling of *Hoya pubicalyx* called 'Silver Pink'. All of these patents have since expired but through the company's descriptions and photos, all have been have been established as cultivars in the International Cultivar Registration Authority for the genus Hoya. Cobia's patenting of his plants was considered controversial at the time to some, sparking debate amongst growers about access and the commercialization of cultivars (Conroy, *Stemma Journa*l 4(1):36).

In his 1986 book, *Farther Afield: A Gardener's Excursions*, garden columnist Allen Lacy recounts Mr. Cobia's experience, stating that for every selected cultivar that reaches the market, tens of thousands of other cuttings have been rejected and burned; a measure Mr. Cobia saw necessary, otherwise the garbage at the Cobia nursery would be a goldmine for industry competitors.

Photos credit: JC Raulston Arboretum at NC State University. Left photo originally taken by JC Raulston, January 1974.

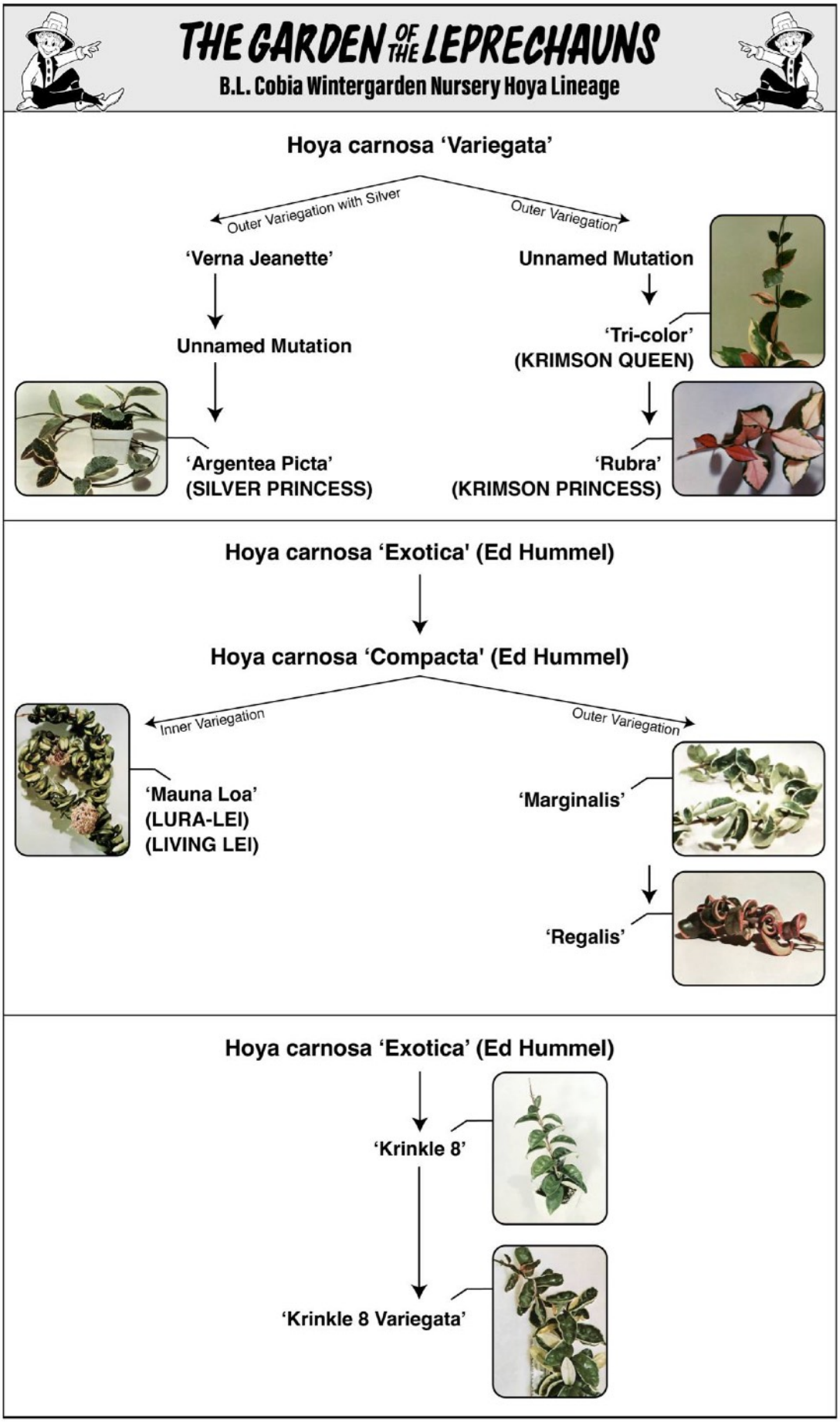
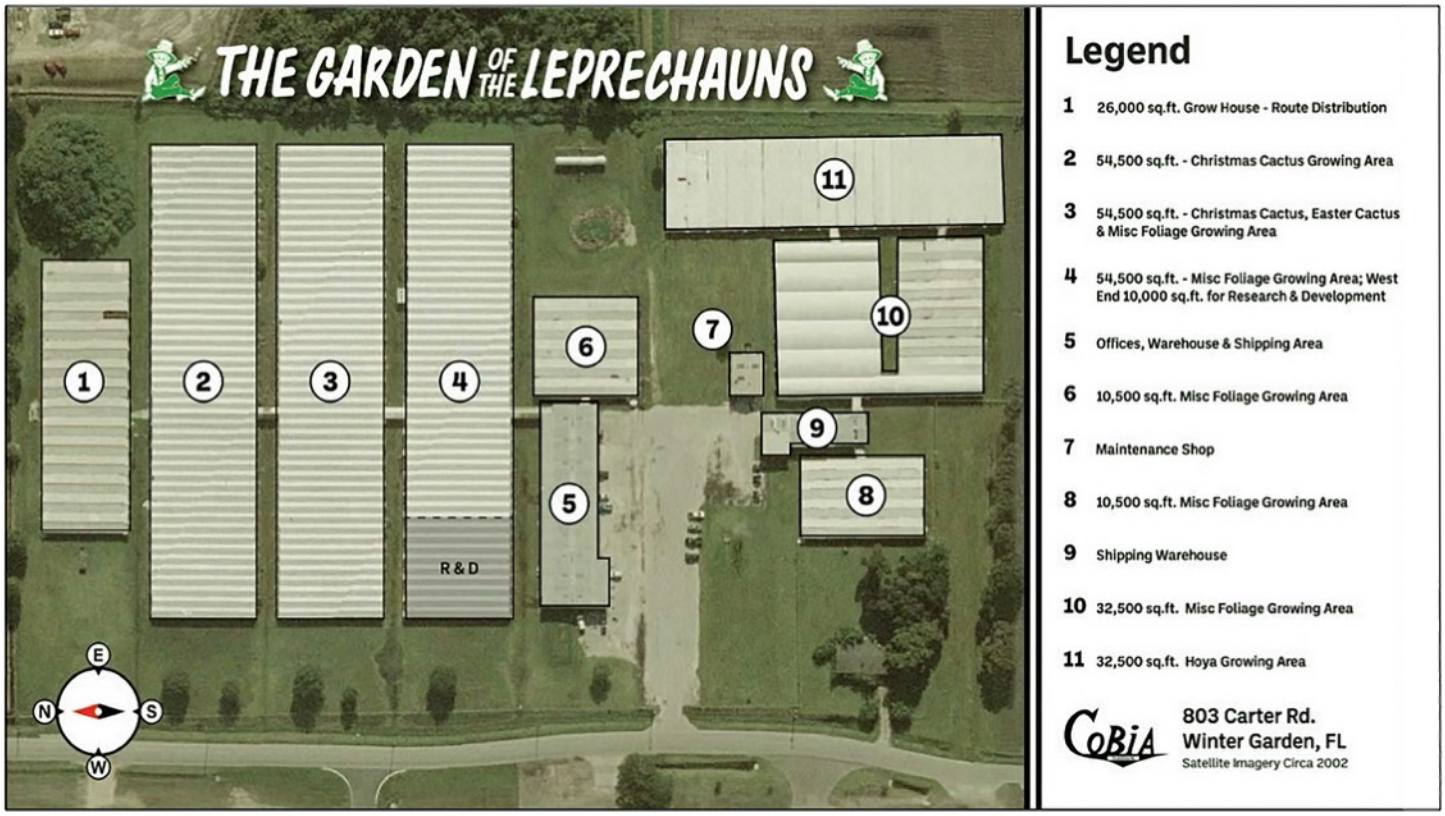


Diagram of the three *Hoya* plant breeding lines at B.L. Cobia Inc. showing base material and descendants.

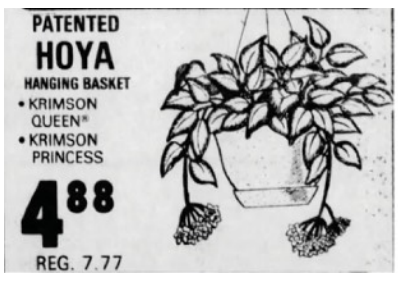
Mr. Cobia explains of his process (from Lacy's book): "After you have developed one perfect plant of a new variety, it still takes at least four to six years in production build-up before the first sale. This means the average total time to develop, prepare and commercially introduce a new plant of the *Hoya* type is five to 10 years. It is not recommended for one with an impatient personality."

At its peak, the B.L. Cobia Nursery shipped plants to the entirety of the United States, as well as Canada and Europe. They were widely known as the largest producer of *Hoya* and *Schlumbergera* in the United States, propagating between 2 and 3 million cuttings annually of Christmas Cactus.

Patenting his plants was of the utmost importance to Mr. Cobia, and indeed he patented at least 20 *Schlumbergera* cultivars in addition to the 8 *Hoya* varieties previously mentioned. He did this to protect his cultivars from unauthorized propagation by other businesses, and also trademarked the names associated with each cultivar. By patenting and trademarking his inventions, Cobia was able to charge royalty fees to growers who wished to propagate his plants, using the money to further continue his extensive breeding programs.



Satellite imagery of B.L. Cobia Inc. Nursery in 2002 shortly before demolition. Buildings labelled by Robert Cobia.



Larry Cobia sold the company to Joseph Waechter (Weecher Enterprises Inc.) on December 2nd, 1998, but the company became defunct after a few years. In the present day, the property is now a parking lot. Larry Cobia passed away in August of 2003, and his wife Verna Jeanette Cobia passed away in June of 2021. Cobia's legacy lives on through the numerous cultivars that he developed. He is remembered fondly by those who knew him, and his contributions to the genus in cultivation will forever be cherished by this author.

Through my research and a little bit of searching on social media, I discovered that Robert Cobia, the nursery's general manager from 1967 to 1995, is still alive and well, living in Apopka, Florida, not far from Wintergarden. Some questions had been lingering with me that I feared may be permanently left unanswered, and so with fingers crossed, I reached out to him in August of 2024. Robert was immediately enthusiastic about the prospect of an interview and was happy to help me in any way that he could. We set a date to speak, and I conducted the interview with him on September 11th, 2024.

Michael Green: There has been speculation for years that radiation was used to create some well known Hoya cultivars during the 1950s and '60s. Were any of the Cobia Hoya plants created with use of either radiation or chemicals?

Robert Cobia: We did have one plant that we picked out of a group of highly radiated material, through our work with Dr. Margaret Gilbert, the coordinator of the biology department at Florida Southern College. She made several trips to the nursery, and we made a couple trips down to the school, it's about 50 miles apart, no big deal.

She took a group of *Hoya* to the Lakeland General Hospital where she had some connections with their radiation department. At her request, they radiated a group of *Hoya*, and we got one good plant out of that that was called *Hoya carnosa* 'Krinkle 8'. That was one of the plants that we picked out of that group and stabilized it enough to get it so it would reproduce. Everything else that we produced was a natural mutation that we found growing in our production areas.

MG: Were any of the Hoya that you released (or did not release) grown from seed? In the magazine *Plants Alive!* (5(6), June 1977), Steven Griffith, your research director, mentioned the desire to begin growing Hoya from seed, but I couldn't find any records of if there was any success in this.

RC: Steve was our research director for about five years. He eventually decided that he wanted to go into the nursery business by himself. So when he left us, that kind of put these sorts of responsibilities back on Larry and I. The only plant we had produce seeds was a *Hoya pubicalyx* 'Silver Pink'. It had solid green leaves, with a lanceolate shape, and it had little silver specks on it. It would vary in the amount of silver on each leaf. One leaf might be about 50 or 60% speckled and the next one might be 10 or 20% speckled. That one was a bit inconsistent; it would repeat on propagation though, and we grew quite a bit of it for several years.

In terms of volume sold, that was a mediocre plant at best. I mean, it just didn't have the appeal because of the longer leaves and the longer internodes. It was okay, but it certainly was not one of the more popular ones. It was a good plant for a *Hoya* assortment shipment, but seldom would anybody ever buy it in a case by itself.

The plant we had a seed pod develop on was one of the large hanging baskets that we had in research of the 'Silver Pink' variety - but that was self pollinated. We never could really dependably get our *Hoya* to bloom. They seem to bloom on their own accord and it was difficult to predict. Once we found a bloom, we discovered that once we got down to the pollen on the bloom, they were actually in pollen sacks. But no, we never were able to hand-pollinate any of our *Hoya*. We made several attempts at it, and even Dr. Gilbert worked on it without success. We just weren't successful at that. And nobody else that I know of was either. There was a gentleman in California and he was a *Hoya* specialist by the name of Ed Hummel.
I went to visit him a couple of times and he didn't really have anything that was particularly spectacular when I visited, and he never had been able to pollinate them, but he had several seed pods that I saw when I went through the greenhouse with him. But he didn't have any variations, sports or anything like that, that I'm aware of that came from those seeds. They were all true to form apparently.

MG: There are two hybrid Hoya cultivars that are attributed to Ed Hummel, 'Minibelle' (which is named after his wife) and 'Shepherdell' (etymology unknown). He didn't mention these?

RC: I've never heard those names before, so that might've been after my visit..

MG: Were there any prospective Hoya cultivars in development that weren't released for one reason or another? I saw in a newspaper article that there were as many as 50 different cultivars under development.

RC: No, that's not the case. The only thing that might explain that - and I'm just speculating here, Steve Griffith was the one that was planting the seeds and trying to find new varieties from the seedlings. We probably had 50 seedlings of Hoya from that 'Silver Pink' seed pod that had germinated and were growing, but they were all, like I said, true to form… but perhaps Steve put that information out during his tenure there, based on the seeds that he had germinated and sprouted, but I don't know any(thing) further about that.

MG: Can you tell me more about Hoya carnosa 'Tricolor' <u>KRIMSON QUEEN</u>?

RC: So <u>KRIMSON QUEEN</u> was a mutation that occurred from Hoya carnosa 'Variegata'. We found a sport on 'Variegata' and started propagating from it, doing extensive selection on it and eventually selected a variety that was more compact and a little more upright and sturdy than the original variety. It also had in the new growth that red tint that the 'Argentea Picta' had. But 'Argentea Picta' was a distinct sport of its own, also being obtained from Hoya carnosa 'Variegata', which occurred at the nursery. SILVER PRINCESS was the registered trade mark for 'Argentea Picta'.

MG: So 'Argentea Picta', came from a cultivar that was not patented, called 'Verna Jeanette', correct?

RC: Correct. 'Verna Jeanette' was, like you said, a non-patented cultivar and it was already there when I came. It was a sport from 'Variegata'. Larry named it after his wife, Verna Jeanette.

MG: Would you say that the main thing that distinguishes 'Verna Jeanette' and 'Argentea Picta', would be that the new growth on 'Argentea Picta' has the red-pink tint to it?

RC: Correct. 'Verna Jeanette' did not have that red-pink tint characteristic. And I'll tell you something before I forget it, that we kept a secret for many years, and I've never actually told anybody this because I've never talked to anybody that had questions similar to yours since I left the business. That red color that develops in the new growth and then gradually fades away in the older growth- we actually eventually determined that to be transmissible.

That was some of the stuff that Roger Martin[1] got involved in. The way we eventually checked that and determined it was transmissible from one plant to another was we grafted a plain variegated plant onto one of the crimson colored plants, and all of the new growth immediately became tinted with pink or red. That's the way we found that it was transmissible. I know Roger was really intent on that, and he was really excited when they found that out. I think that was something that he and Dr. Gilbert worked on together.

We were keeping it secret. Larry and I did all of the grafting that occurred to create new varieties with the crimson, making them red growth instead of just plain white variegated. But that was more of a Roger Martin project or discovery or whatever you want to call it. For years, in fact, in any discussions we ever had about it, we always called it the *X Factor*.[2]

MG: Do you recall who created the graphics, like the leprechaun, or the little man with the flute on the carpet that was playing a melody with a little *Hoya compacta* plant?

RC: Larry created the first graphic that was on the *Hoya* 'Compacta' plant sleeve. It's supposed to be a Hindu person sitting, I guess, playing his flute on the mat, kind of charming the plant like a cobra snake or something. But anyway, he created all that himself. That was before I got there. Sometime after I started working there, we got into doing other sleeves for other varieties, which he and I both worked on together utilizing different ideas. He and I collectively put all that other stuff together, like the posters that we put out in each garden. As for the leprechaun. Larry and I both worked on it, but it was his idea. If we were somewhere and saw a leprechaun, if we were in a situation where we could buy it, we would buy it, and we would bring it back to the office

[1] Roger Martin was the Cobia's patent attorney.

[2] B.L. Cobia may have done further research on this X-Factor that we have not seen. This grafting experiment is one that could be repeated to try and duplicate this finding.

and sit down and study the position that the individual was in, and the clothing they had on, as well as the expression on their face and all the features it had. There were two different graphics we created for the leprechauns, but the one with the finger pointing was the one that wound up being the most predominant one. For many, many years it wound up on most of our boxes, most of our blockers that we put in, and the sleeves that we put around the plants.

MG: What was it like working with Larry?

RC: Larry and I were always absolutely the best of friends that there's ever been. He was a person that always looked for the good in somebody, not the bad… and was always probably the world's most optimistic person I've ever met. Morals and ethics that have never been beaten… Nothing to do with growing the plants, but Larry Cobia was unquestionably the finest human I've ever known, and probably always will be. But of course, he's passed on now, and so has his wife.

MG: Robert, thank you so much for your time. You've been immensely helpful.

RC: It's my pleasure.

A sea of *Hoya carnosa* 'Tricolor' KRIMSON QUEEN growing at B.L. Cobia Nursery for distribution

Photo Credit: JC Raulston Arboretum at NC State University. Originally taken by JC Raulston, December 1970.

The Genus *Hoya*

Photographic collection and descriptions

Mark Randal

***Hoya fungii* Merr.**

Hoya fungii Merr., described in 1934, has been in cultivation since at least 1983 (Burton, 1993). It is most closely related to *H. carnosa, H. dasyantha, H. bonii and H. jianfenglingensis,* all of which are scrambling vines with stems up to 10m in length, with shiny, elliptic to cordate leaves and globular clusters of fragrant, fuzzy, white to soft pink flowers. *Hoya fungii*, when compared with these other species, generally has larger (sometimes to over 8 x 14cm), more showy leaves, larger flowers and flower clusters, and an early blooming habit. This last trait in particular is very different from many clones of *H. carnosa* and *H. dasyantha*, which often want to grow into a larger sized plant before they will begin to form peduncles.

All images of *H. fungii* by M. Randal.

Hoya fungii was originally collected in Hainan, an island province in southern China, and occurs westwards throughout Laos and Vietnam at a wide variety of altitudes, from sea level to 1200m, and in a variety of environments, from damp shaded riversides to relatively open rocky escarpments (Averyanov et. al., 2017). This adaptability is reflected in its ease of care in cultivation- it grows vigorously in average home or greenhouse conditions and can live outside year-round in mild climates which stay above 5C (40F). Despite being from cooler climates and being quite cold tolerant, *H. fungii* and its relatives actually grow best when given some warmth, from around 20-27C (68-80F), and reportedly even tolerate the heat of Bangkok which can often exceed 32C (90F) (pers. com. S. S. Riampreeda). It can withstand partial sun to bright indirect light and has a vigorous root system that is not easily prone to rot.

H. fungii's large heads of off-white flowers are among the most fragrant in the genus. The scent is similar to that of some heirloom *carnosa*s (the larger leaved non-variegated types that are found primarily in old collections) and seems quite different from scent of the Hummel and Cobia *carnosa* varieties like 'Tri-color' or 'Compacta'. Those varieties have less fragrant flowers, the scent of which is often compared to that of Tootsie Rolls (a cheap, artificially chocolate flavored candy). *H. fungii* in comparison has a strong, heady fragrance with some notes of chocolate but also floral and spice notes and a warm fruity base that the Hummel and Cobia *carnosa*s lack.

H. fungii belongs to *Hoya* section *Hoya*, along with *H. bonii, H. carnosa, H. dasyantha, H. jianfenglingensis, H. monetteae, H. nutans, H. oreogena, H. pubicalyx and H. vangviengeinsis*. This section, since it contains *H. carnosa*, the type species for the genus, is automatically named "*Hoya*" after the genus. Section *Hoya* species are characterized by having: pubescent, rotate corollas with recurved margins; corona lobes which are rhomboid with raised inner processes; short anther appendages which stand higher than the inner corona processes; clear or yellowish sap; and thick fleshy leaves. The species in section *Hoya* that are morphologically closest to *H. fungii* all hail from northern SE Asia and the Himalayas. The current system of classification for these closely related northern species relies in many instances on leaf size or shape, numbers of vein pairs per leaf or very fine variance in pubescence, traits which might be considered to fall within the limits of species variation. Additionally some new wild collections of *Hoya* of this type cannot be matched to any of these species descriptions, showing small variances from one or another of them, or having forms which are intermediate between two of these species descriptions. This suggests that there may be a either a smaller number of more variable species present in this group or that some of these taxa naturally cross with others, forming hybrid populations. ——-

Hoya platycaulis Simonsson & Rodda forms graceful, arching, basally branching stems up to 1m long that bloom profusely during warm weather with many clusters of long-lasting, shiny, citron-colored flowers with reflexed corollas. The flowers have a mild citronella fragrance which can create a cloud of scent that can fill a room when many flowers are open at once. When only a few clusters are open, however, you will have to get quite close to catch this species' pleasant scent.

H. platycaulis is a low montane species that occurs in cooler regions of the Philippines with vigorous air movement. In cultivation it dislikes hot, still cabinets with poor air flow, but does well in average home conditions, especially when placed near an often open window. It does like bright indirect light, tolerating some direct sun. Like all of its close relatives, *H. platycaulis* has an aggressive root system, requires more water than most *Hoya*, and dislikes drying out completely.

This species was first collected in the early 2000s in Laguna in The Philippines, and propagated and distributed by Merlin Sy's Pinoy Plants Nursery in The Philippines and Sutthisak Sanghakorn's Apodagis Nursery in Thailand. It was distributed as "*Hoya* sp. flat stem" (which it appeared as in *Stemma Journa*l V2(2), 2008) until it was published as *Hoya platycaulis* Simonsson & Rodda in 2009.

***Hoya platycaulis*, showing its trademark flat stem segments. Each segment is oriented 90 degrees from its predecessor. All images of *H. platycaulis* this page and previous by M. Randal.**

H. platycaulis is a member of *Hoya* section *Centrostemma*, a group of bushy, non-twining species with thin, ovate-lanceolate leaves, clusters of flowers with reflexed corollas and upright coronas and, often, temporary peduncles concentrated on new growth that drop after flowering. Some other *Centrostemma* species are *H. multiflora, H. lockii, H. occultata, H. decipulae* and the two species which *H. platycaulis* is morphologically most similar to, *H. medinillifolia* from Borneo and *H. lasiantha* (syn. *H. praetorii*) from Thailand, Malaysia and western Indonesia. These three species have conspicuously flattened juvenile stem segments, blunt upright coronas, and leaves with brochidodromous venation, which sets them apart from the other species in *Centrostemma*.

R. D. Kloppenburg published a very similar species, *H. amrita* Kloppenb., Siar & Ferreras, in 2011. *H. amrita* may, as is often the case with Kloppenburg's later publications, prove to be a taxa better regarded as a variation of a pre-existing species. *H. amrita* often has a rounded-oblong leaf shape and longer calyxes than typical for *H. platycaulis*, but they otherwise do not differ significantly. (Insight into *H. platycaulis* & *H. amrita* in habitat and their taxonomy provided by Derek Cabactulan, insight into variation in both species provided by Surisa Somadee Riampreeda.)

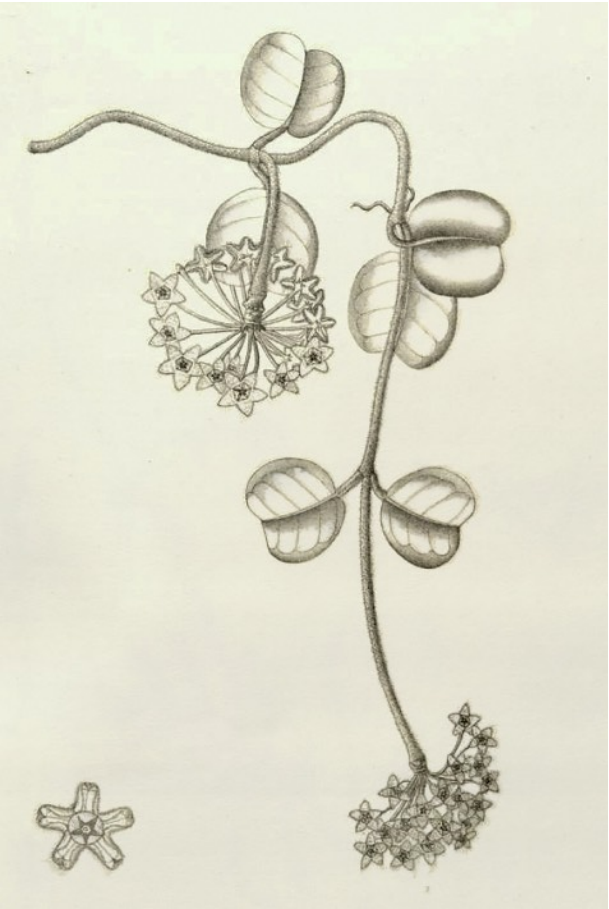
Images of color variation in *H. platycaulis*, above, by @life_greened_forever (left) and Julie Kennedy (right).
Images of *H. amrita*, below, by Julie Kennedy (left) and Eloisa Budhrani (right).
The image of *H. amrita* SR-2017-012, lower left, shows the especially long calyxes that have led this clone of the species to be dubbed "Frog Foot". ——-

Hoya obcordata Hook. f. is an old publication (1883) but has not been in cultivation until recently, several clones of it having appeared in the market in 2023- one from Tibet with generally short obcordate leaves which matches the type sheet in leaf morphology, and a second clone from China which often has obtrullate leaves.

H. obcordata appears to be a relatively easy *Hoya* in cultivation, so long as it is grown in cooler conditions and is kept uniformly moist. Plants that are left dry for any length of time are subject to the dying off of growth tips or whole stems. It does not twine, so will not wrap itself around a support, but does well on a small trellis or hoop if it is assisted to wrap around them. It also does well as a hanging basket plant, though with its small leaves and relatively widely spaced nodes it does make a rather sparse basket, so looks more presentable if given an attractive pot.

H. obcordata and its close relatives have a strong, sweet scent, with notes that many find unpleasant, described variously as like plastic, medicine, Band-Aids or urine. I am unaware of any chemical testing of the scent of any species in this complex, but a possible culprit (judged by my own sense of smell) is cresol, which can have a dry, sharp phenolic scent and can be produced by *Hoya* flowers as it has been detected in the fragrance of *Hoya cagayanensis*. (Basir et. al., 2022). Cresol is used as an antiseptic in many products: mouthwash (Cepacol), medicines (insulin), and previously in Band-Aid brand bandages. This seems to be an uncommon scent in *Hoya*, but interestingly a similar compound seems to be also present in *H.* sp. IM08, from Papua New Guinea, which does not appear to be closely related to *H. obcordata*.

Above: *Hoya obcordata* in bloom, image by Julie Kennedy. Below: Leaves of *H. obcordata,* China clone (right) and Tibet clone (left), images by Surisa Somadee Riampreeda.



Above: *Hoya obcordata* in bloom, image by Julie Kennedy. Left: Illustration of *Hoya obcordata* (as *Hoya obreniformis* King) by G. C. Dass from Ann. Roy. Bot. Gard. (Calcutta) 9(1): 51, plate 64, 1906.

J. D. Hooker's description of this species from his 1883 publication reads:

"H. obcordata, Hook. f.; stem very slender minutely rough and here and there hairy, leaves obcordate or obreniform.

SIKKIM HIMALAYA; Chakoong, alt. 4-6000 ft., J. D. H., Yoksun, *Clarke*.

Stem creeping and rooting. *Leaves* 1/2 in. long, sometimes broader than long, lobes rounded, sinus acute, base rounded or subacute, rather thin, opaque, nerves obscurely reticulate; petiole 1/16 - 1/10 in. *Flowers* in a drawing in Herb. Kew (by Jerdon)[3] in a loose peduncled umbel; pedicels slender. *Corolla* 1/2 in. diam., white, lobes triangular with villous margins.— Possibly a form of *H. nummularia* or *serpens*, but if so a very remarkable one."

The last observation of Hooker's is astute- now that living material of both *H. serpens* and *H. obcordata* is readily available, it is obvious that the two species are very closely related, and that both are closely related to *H. tengchongensis* and *H. thomsonii* (they are all small mat forming plants with thin non-twining stems, small rounded leaves with prominently raised veins, pubescence on all plant parts except the exterior of the corolla, and small, rotate or slightly cupped, tomentose flowers) forming a group which could be called the *H. serpens* complex.

This complex primarily occurs high in the Himalayan foothills and southern China in cool, moist environments. Also morphologically similar is *Hoya lyi* and a group of species which closely resemble it: *H. spectatissima, H. longlingensis, H. rostellata, H. siamica, H. sichuanensis, H. tamdaoensis,* and *H. yuennanensis*. These species are vegetatively diverse, some being creeping mat formers and others being twining vines. They do all share similar rotate or slightly reflexed pubescent corollas and flat-topped coronas. These species also occur in the Himalayan foothills but spread south into mainland SE Asia. Together the *H. serpens* complex and the *H. lyi* complex could be described as a section of *Hoya*, or as two closely related sections, but their relationship to one another and to some larger species that share similar floral morphology (*H. shepherdii, H. longifolia, H. megtzeensis*, *H. globulosa*, etc.) should be further defined through broadly sampled phylogenetic analysis. ——-

A flower of *H. tengchongensis*, morphologically very similar to *H. obcordata*, which shows the characteristic tomentose corolla pubescence of the *H. serpens* complex. Image by M. Randal.

[3] The drawing accompanying this publication is by G. C. Dass.

Image of *H. biruensis* by Aileen Duran.

Hoya biruensis Rodda & Rahayu is a newly published species which has previously been traded as *H.* sp. aff. *spartioides*. *H. biruensis* has non-twining stems with very closely set nodes. This species has long, very narrow, canaliculate leaves and long, persistent green peduncles, both averaging ≈ 15cm long. The leaves and peduncles greatly resemble one another, and may all be mistaken for needle-like leaves at first glance. The green peduncles evidently perform photosynthesis for the plant, as *Hoya spartioides*, a sibling species to *H. biruensis*, has no leaves at maturity, only similar persistent green peduncles. *H. biruensis*' flowers occur singly or rarely in a pair, and usually last for a night or two. *H. biruensis* has two sibling species, *H. spartioides* and *H. retrorsa,* all three of which seem to be very closely related based on their unique peduncle morphology, growth habit and pollinaria shape; but their flowers vary wildly, so that one might not guess they were closely related based on their floral morphology alone.

H. biruensis has only been found in one locale, the hot lowland forest of Bukit Biru, in West Kalimantan, Indonesia on the island of Borneo. *H. spartioides* is also found in warm lowland areas while *H. retrorsa* comes from higher, cooler elevations. All three appear to be endemic to Borneo. The publication of *H. biruensis* does not specify its preferred growing locations, but the publication of *Hoya retrorsa* reports that species and *H. spartioides* as commonly growing out of holes in trees, and describes its possible method of seed dispersal thusly: "It is associated with ants that appear to carry seeds into holes of branches or tree trunks of understory trees, where rotting has occurred." (Lamb et. al., 2014). *H. biruensis*, being morphologically so similar to those species, may also employ this strategy (see image page 22).

The consensus from surveyed growers is that *H. biruensis* is an adaptable species that can grow well in average household conditions, unlike *H. spartioides,* which seems to need more heat and care in cultivation, despite both of these species being from warm lowland areas of Sabah. While this species generally produces a peduncle at every node at maturity, it often will grow only leaves on young plants and when stressed (pers. com. Surisa Somadee Riampreeda & Maj April Frostvittra). It appears from reports from cultivation that the flowers of *H. biruensis* can last longer than two nights (as written in its publication), in some cases up to a week. The reason for this variability has not been determined yet, but may be related to cooler growing conditions. Rooting *H. biruensis* does not seem to be difficult so long as the cutting is stabilized in its rooting medium so that it doesn't shift around, which can damage tender emerging roots. (Cultivation data shared by Tímea Valéria Takács.) ——

Above: comparison of growth forms of sibling species in the *H. spartioides* complex- *H. biruensis* (right), *H. retrorsa* (left) and *H. spartioides* (center). Upper right: an open flower of *H. retrorsa* (bottom) compared with a bud of *H. biruensis* (top), both photographs by Libo Yu. Right: different clones of *Hoya spartioides* showing variation in flower size and pubescence. This species blooms with clusters of ≈ 6 flowers, unlike the single or paired flowers of *H. retrorsa* and *H. biruensis*. Image by Surisa Somadee Riampreeda. ——

H. spartioides, growing from rotten cavities in living tree trunks. On the main image, the specimen retains juvenile leaves at its base. In the inset is an older plant. *H. biruensis,* being very similar in form to *H. spartioides*, likely has a similar growth habit. Photo by the late Anthony Lamb, from the 2014 paper The *Hoyas* of Sabah. Permission given for reproduction by *Sandakania* and by his co-author on that paper, Alex Gavrus. —-

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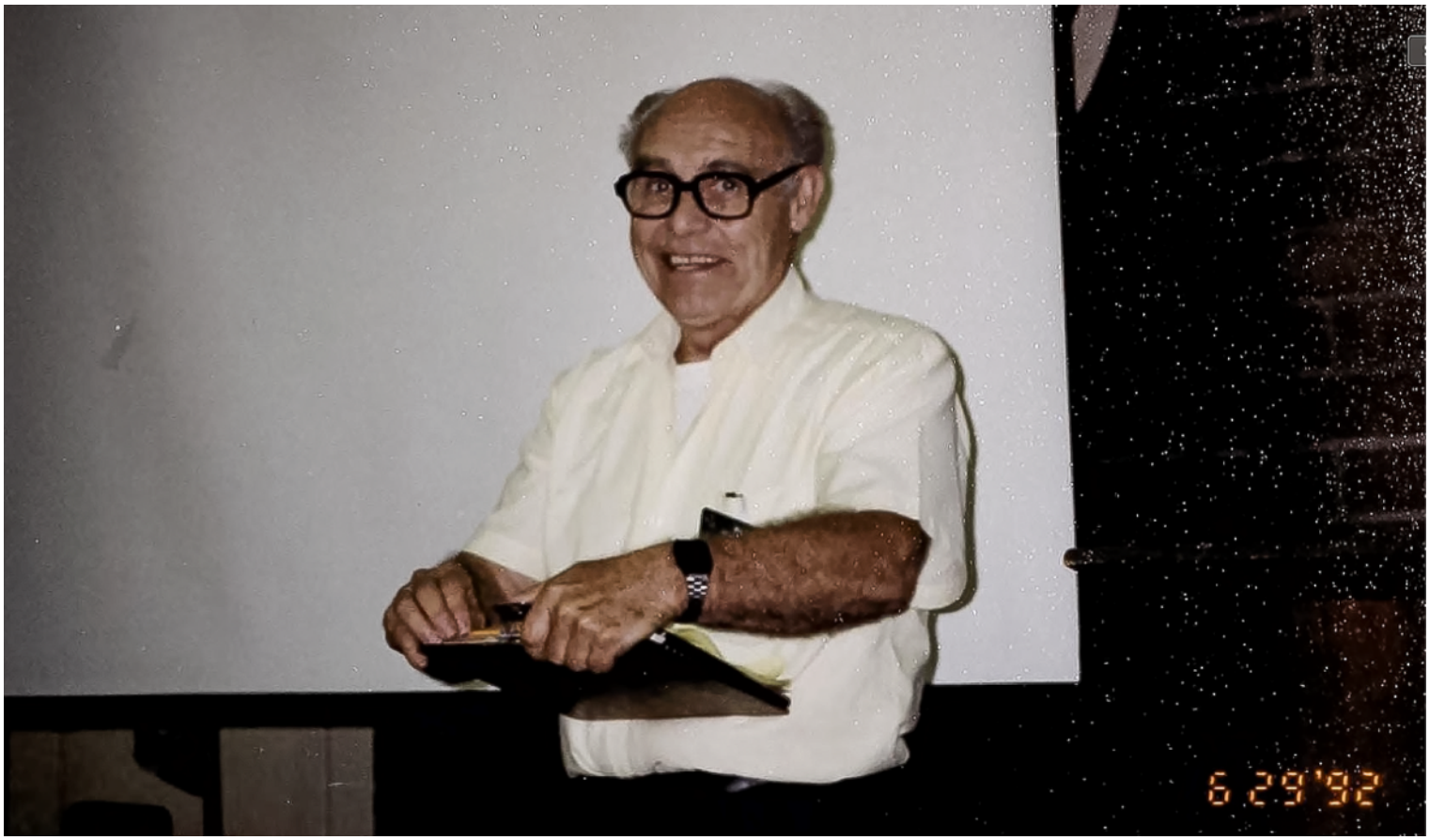
The Legacy of Robert Dale Kloppenburg

A personal history and an evaluation of his contributions

Mark Randal



Robert Dale Kloppenburg (1921-2022) was the most prolific botanist working in *Hoya* taxonomy in the 1990s, 2000s, and 2010s. Kloppenburg published approximately 310 species, subspecies, new combinations or sections in the genus *Hoya* and its sister genera (*Dischidia, Clemensiella* and *Marsdenia*). He worked closely with the late *Hoya* hunter and researcher Ted Green, and together they introduced dozens of new *Hoya* species into cultivation from their many collecting trips to SE Asia and Oceania. Kloppenburg was president of the International *Hoya* Association for many years and was the editor or prime content provider for the IHA's bulletin *Fraterna* from 1990 until it ended publication in 2010. He wrote two monographs on the genus *Hoya* (The Hoya Handbook, 1992 & The World of Hoyas, 2007), a collection of new translations and species updates of the *Hoya* publications of Rudolph Schlechter (1993) and produced checklists of *Hoya* species for: The Philippines (1991); Malaysia (2004) and Samoa (2014). Mr. Kloppenburg received criticism throughout his publishing career (most notably from Christine Burton, the editor of *The Hoyan*, the bulletin of the *Hoya* Society International) for unpolished work, failure to seek peer review, lack of response to critique, and for excessive publishing of *Hoya* species.

Here we'll take a closer look at Dale's life, and at what factors may have motivated his work with the genus *Hoya*.

A vista in the Stanislaus National Forest in northern California, where Dale spent his early childhood. The area is at high altitude, with snowy mountain tops arching over river and lake strewn meadows and conifer forests. Photo courtesy of the USDA Forestry Dept.

Childhood through college entrance

Mr. Kloppenburg was born in Fresno, California, but before he was a year old his family moved to the Stanislaus National Forest, near Yosemite Park, in northern California in the USA, when his father started work there as a federal park ranger. The Kloppenburgs lived full time in the park for ten years, and still spent much time there after moving back to Fresno in 1931.

Even for an era when children were often left to their own devices for long periods of time, Dale and his younger brother Blaine led seemingly highly unsupervised lives, where the two were often in the woods on their own for extended periods of time. When Dale was under 10 they frequently traveled on their own to visit relatives or work on ranches.

Kloppenburg attended an integrated elementary school which was predominantly composed of Native American children, an unusual experience at a time when segregation in US schools was standard and the repressive Native American Boarding Schools system was still in effect. In Dale's memoir (an unedited collection of remembrances, a copy of which he sent to me in 2006) he recounts that "The Indian kids liked to have story-names or nicknames for their friends, like "Edwin Tully fell in a gulley, fell on a snake long as a rake", "Virgil Kelly cut the belly", or Blaine, who was big for his age, was called "Tonto" (bull) and they called me Robert Dale cottontail- "Taa-ah-wa"."

While Dale sometimes traveled around the park with his father while he worked, he also spent time with Native American friends and their families, and seemed to be fascinated with their cultural practices. He shares many anecdotes about them, including the following two:

"… one summer there were swarms of thousands of buckeye butterfly that laid eggs on the Ceanothus bushes. Their caterpillars stripped all the bushes of foliage, then the Indians stripped the branches of the chrysalises, laid them on old bed springs to dry and fall to a tarp below, and saved them for a later meal."

"…during the process of drying beef Jerky, yellow jackets would land on the strips, roll up balls of meat and fly away with them. The Indians would take the hind leg from a grasshopper, put a small downy feather in the small end, stick it on a tiny piece of meat, then hold it up under one of the yellow jackets which would grab it to take to its nest. They followed the feather and marked the ground where its nest was. In the fall when there were lots of larva, they'd build a fire above the nest and cover it with green needles so that it smoked, and blow the smoke down the hole to stun the yellow-jackets so that they could only crawl sluggishly around on the ground. Then they'd dig up the nest and collect all the juicy white larva for food."

Young Dale on the steps of the Park Ranger Service home he resided in, 1928.

One example of just how wild Kloppenburg's childhood was can be seen in this anecdote, which seems to have taken place when Dale was about 13 and his brother Blaine about 11: "One spring after school was out Blaine and I decided to backpack into the back country. We took the packhorse to the end of the road to the east of Cascadel, and Grandpa brought all our stuff up by truck to load onto the horse. We started on the old trail to Chiquita Creek Crossing with our dog following behind. We had the horse so loaded that occasionally it would just lay down and we had to unpack it and then reload it after it had rested. We finally made it to lower Chiquita Creek Crossing and there was a lightning storm. Lightning hit a pine tree near us and splintered it, sending the horse and dog scrambling sideways. About this time a local rancher was driving his cattle across the river and he loaned us a horse so we could tie the pack horse to him to help pull him across. The dog got washed down the stream, but later that night showed up, so I guess he finally made it to the north bank further downstream. Next morning we took off north and that night slept in a cave in a large rock near a road. We followed the dirt road to the creek past Long Meadow. It was too swift for us to pull the horse across, so we took our axe and cut a tree down across a narrow portion of the creek and carried all the pack material across and also the dog. Then I took the horse to the more shallow crossing and we swam across. Its a good thing we did not get washed down river into the rocks!

Dale at around 11, with the dog that accompanied him and his brother on their backpacking trip to Bass lake.

Then we repacked the horse and proceeded toward Beasore Meadow. Near here was a mileage sign so we knew we had 13 miles to get to a new camp site. At the lower edge of the meadow we camped for the night in light ground snow. Cold, but we had some trout and also a venison steak, so the dog got to eat too! Next on to Bass Lake up the hill out of the meadow. The snow was deep and the road was covered in snow. The horse was stomping its feet as I guess they were frozen. After the top of the hill it was easier, we made it to the lake, where there were some houses, but were nearly frozen ourselves, so we called Grandma and she came in the car with an Indian boy who rode the horse home (about 16 miles) after we put our junk in the car. We were probably gone over 2 weeks, maybe 3."

Many times in Kloppenburg's stories of his time in Stanislaus Forest he recounts very dangerous incidents, such as being caught in a forest fire (of his own making), nearly drowning in fast flowing rivers several times, being poisoned by tainted water, and once while skiing being catapulted some distance after his skis went under a water pipe buried in the snow and snapped in two.

In 1931 the Kloppenburg family moved back to Fresno, where Dale's father bought and operated a gas station for a few years. Kloppenburg's parents divorced in 1935. His father rejoined the Forestry Service and moved to near San Bernadino, CA and his mother took a job as a postmistress in Mathers, CA, near Sacramento. Dale's mother took his younger brother Blaine with her, leaving 14 year old Dale to live alone in a hotel room in Fresno so he could finish his studies at Fresno High School. It was here where he made the acquaintance of schoolmate Ted Green, who he would later work closely with in procuring and publishing new species of *Hoya*.

After graduating from High School, Dale began attending Fresno City College but suspended his education to serve in the United States Navy, and saw duty in the Pacific Arena for the last two years of World War II.

Military service during World War II

From the spring of 1944 Dale was was stationed aboard the USS Alderamin, a transport vessel which moved troops, supplies and heavy machinery. He spent two years in combat zones where enemy ships and submarines could strike at any moment, the tense waiting broken up by frequent on board fires, treacherous minefield navigations, and occasional typhoons. Not all of this time was grim though- Dale and his compatriots were also exposed to the unique beauty of the Southern Pacific Islands, as there was ample opportunity for them to experience their landscapes and culture during shore leave.

Kloppenburg wrote of his military experiences just after returning home from the war, and includes these writings in his memoir. He wrote quite candidly of the often-times tedious nature of being at sea and how that meshed oddly with the constant low grade fear of unseen enemy submarines lurking below; but his text comes alive when he describes some of the experiences he had while observing or exploring the Pacific Islands, many of which he would return to decades later to hunt for new *Hoya* species. He describes with keen interest parts of Fiji, New Caledonia, Papua New Guinea, Guam, and Vanuatu.

Dale in the US Navy ca. 1944.

The USS Alderamin, Dale's ship, at Shanghai in 1945, loading returning US troops in preparation for her final journey before being decommissioned. Photo courtesy of Nelsyn Wade and the National WWII Museum.

Of visiting Bougainville he wrote "its peaks rose almost from the sea into the heavy clouds which covered their summits most of the day. When the clouds did lift we could see the smoldering volcanoes in the distance. The island is heavily wooded, having large teak, mahogany and banyan trees. The low sandy places in the jungle area are covered with high stalky grass, jungle vines, and in areas, heavy growths of dwarf pine." He also wrote about passing between Pentecost and Ambrym Islands in the Vanuatuan archipelago- "As we passed astern between them through a narrow channel we could see the native villages' thatched huts on the island shores. At dusk we sighted the flames of a volcano on Ambrym Island. A red shower of flames and sparks lifted upward to fade into a roiling mass of smoke and cloud. All night we maneuvered about under the volcano and its beautiful glow. Many are agreed that it was the most beautiful sight we'd seen in all our time in the Pacific."

Kloppenburg remained highly curious about other cultures, as he had been as a child, and writes interesting passages about walking up a trail lined with human skulls to meet a village chief in Samoa, and about burial tomb practices on the island of Okinawa. Dale, maintaining his close childhood connection with the natural world, hunted and fished on several islands and somehow managed, even with limited personal space, to amass a large collection of coral and seashells.

During his years at sea his life was in constant jeopardy, but his closest call occurred while docked at Treasure Island in the Fijian archipelago. One of the Alderamin's LCVPs (landing craft vehicle, personnel- a fairly large 11 x 3m vehicle) came loose at night during rough weather on his turn at deck watch. Rather than calling for assistance, Dale kicked off his shoes and leaped into the water solo to retrieve it. Failing to grasp the high, greasy sides of the vehicle to pull himself up into it many times and nearing exhaustion, he mustered one final desperate effort and got aboard, at last retrieving the LCVP.

Kloppenburg was at Okinawa when the Japanese surrendered in August of 1945, officially ending the war. Dale returned safely to the US, and to civilian life, in December of 1945.

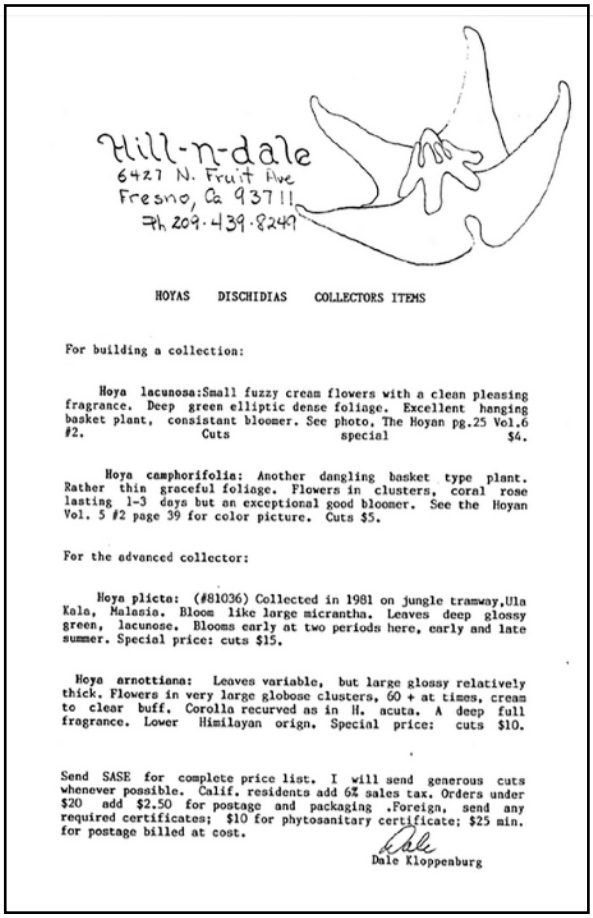
Working life

As a result of his military service Dale benefitted from the G. I. Bill, which paid for tuition and living expenses for military veterans attending college or vocational school. Dale transferred to UC Berkley and graduated with a degree in plant genetics.

At 25, here was the adult Dale Kloppenburg- a young man with an admirably wide open mind and an enduring curiosity for the natural and human world around him, but also with a certain recklessness and a habit, learned by necessity as a child, of doing things his own way.

From the 1960s through the '80s Kloppenburg worked in a variety of jobs: commercial plant hybridizer; research agronomist; seed salesman; and for a time he owned and ran an arts & craft store.

Aside from always having a full time job, he always seemed to have two part-time jobs and an exhausting (to me, at least) array of hobbies and interests; including; painting and writing poetry (he was quite prolific in these last two interests), skiing, fly fishing, hybridizing orchids, amateur hypnotism, and uranium mining. Yes, incredibly, Dale spent time in the Mojave desert with a geiger counter and excavated (read: blasted) his own uranium mine.



Hill-n-dale
6427 N. Fruit Ave
Fresno, Ca 93711
Ph 209-439-8249

HOYAS DISCHIDIAS COLLECTORS ITEMS

For building a collection:

Hoya lacunosa:Small fuzzy cream flowers with a clean pleasing fragrance. Deep green elliptic dense foliage. Excellent hanging basket plant, consistant bloomer. See photo, The Hoyan pg.25 Vol.6 #2. Cuts special $4.

Hoya camphorifolia: Another dangling basket type plant. Rather thin graceful foliage. Flowers in clusters, coral rose lasting 1-3 days but an exceptional good bloomer. See the Hoyan Vol. 5 #2 page 39 for color picture. Cuts $5.

For the advanced collector:

Hoya plicta: (#81036) Collected in 1981 on jungle tramway,Ula Kala, Malasia. Bloom like large micrantha. Leaves deep glossy green, lacunose. Blooms early at two periods here, early and late summer. Special price: cuts $15.

Hoya arnottiana: Leaves variable, but large glossy relatively thick. Flowers in very large globose clusters, 60 + at times, cream to clear buff. Corolla recurved as in H. acuta. A deep full fragrance. Lower Himilayan orign. Special price: cuts $10.

Send SASE for complete price list. I will send generous cuts whenever possible. Calif. residents add 6% sales tax. Orders under $20 add $2.50 for postage and packaging .Foreign, send any required certificates; $10 for phytosanitary certificate; $25 min. for postage billed at cost.

Dale Kloppenburg

A 1986 ad for Kloppenburg's Hill-n-dale nursery from *The Hoyan* 7(4).

Early interest in Hoya, the HSI and the IHA

Ted Green was was working as a landscape architect for the city of Honolulu, Hawaii by the mid 1960s. Around this time he and Dale developed a shared interest in cultivating and hybridizing orchids. They gradually began adding *Hoya* to their plant collections after Ted was exposed to them on a job-related plant collecting trip in the Solomon Islands and Australia, during which he also met botanists Paul Forster, David Liddle, York Meredith, and Peter Tsang, all of whom went on to collect and conserve *Hoya* or work on *Hoya* taxonomy.

Dale and Ted's interest in Hoya grew steadily through the 1970s and '80s. By the late '70s Ted was going on frequent collecting trips to southeast Asia and would often take along other avid collectors, including Dale. Both men became active within the Hoya Society International, participating in Round Robins (forwarded snail mail letter chains, comparable to, though infinitely slower than, the Facebook/reddit groups of today) and exchanged letters and information on *Hoya* taxonomy with other researchers working with the genus. Dale and Ted wrote articles for *The Hoyan,* the bulletin of the HSI. Ted appeared in the first issue of the bulletin in 1979, where he solicited members for a collecting trip to The Philippines, Thailand and Malaysia. Both men started side businesses selling *Hoya* by mail.

Kloppenburg retired at age 65 in 1986 after working as a seed salesman for 17 years. He may have felt at loose ends to a degree, as do many retirees, especially ones who had developed the habit of filling every hour of their life with some activity. He may have wanted a new all-encompassing pursuit, one that would engage his keen sense of curiosity and allow him to make his mark on the world. Perhaps he found that in his rapidly growing interest in *Hoya* taxonomy.

Two species published by Kloppenburg: (left) *Hoya heuschkeliana*, one of his first 3 publications, which appeared in *The Hoyan* (Photo courtesy of Wenling Jia), and *Hoya loheri* (photo courtesy of Erin Brennan).

As Dale became more interested in *Hoya* he began amassing *Hoya* literature and eventually began publishing species (he published *Hoya panchoi, Hoya heuschkeliana*, and *Hoya burtoniae* in *The Hoyan* in 1988, 1989, and 1990 respectively).

Christine Burton, who co-founded the *Hoya* Society International in 1979 and edited their bulletin *The Hoyan* for 23 years, was a notoriously demanding, critical, and at times overbearing editor. She was quite free in criticizing and contradicting her contributors to *The Hoyan*, often breaking mid-flow into articles with editorial comments, and sometimes writing editorial notes which matched or exceeded the length of the original material they were attached to (*The Hoyan* 10(4): 93-94). Dale and Ted may have found writing with Christine at their editor somewhat confining.

Around 1987 Kloppenburg, Green, and Ann Wayman founded the Hoya Society West Coast with the stated aim of becoming an affiliate chapter of the HSI. They made some efforts to make that relationship an actuality by approaching Burton with applications to do so, but these efforts failed, with Burton claiming the HSWC had not met its affiliate status requirements. The HSWC began publishing its own bulletin which, though it made overt solicitations to Burton in its pages, began

receiving heavy criticism from Burton. In *The Hoyan* 10(4) P. 85 Burton writes "In the April 1988 issue of the Hoya Society West Coast newsletter, I found the following, which I quote. 'This Hoya plant (Bangkok-4) is defiantly Rigida,' I have never met a defiant hoya and never hope to meet one. It would be very frustrating to spend hours watering and fertilizing my hoyas only to have them close up their root cells and refuse to eat. But what if they should defiantly spit it out at me? I have heard of the "War of the Roses" but how about a 'War of the Hoyas'?" This is a typically Burtonesque criticism, with some genuine humor woven into a "you and I against the transgressor" narrative. Burton was particularly good at this kind of populist critique, often littering her prose with "friends" and "brother", drawing people into a polarized view of the *Hoya* community of that time.

It can be intuited from reading Dale's memoir that he was a man constantly trying to define himself and his place in the world through his conquests and contributions. He wrote a lot of poetry, produced a copious amount of paintings, engaged in an outsized number of hobbies, and married quite a few women during the course of his life. It seems that *Hoya* taxonomy was his new passion in life around this time, and he clearly threw himself into everything he did unreservedly. However, Kloppenburg, a man used to doing things his own way from early boyhood, seemed to have slight tolerance for criticism and was likely triggered by Burton's critiques of his publishing efforts. Burton, a woman of indomitable strength and persistence who had carved a niche for herself in a male dominated society and field, was rigidly concerned with her status and with control over the taxonomic discourse of the time. She likely felt threatened by Kloppenburg's ambition and blunt energy.

The relationship between Kloppenburg and Burton steadily eroded, with heavy public criticism from Burton of the Hoya Society West Coast bulletin (*The Hoyan* 10(3) p. 66-69) and a winding down of Kloppenburg's and Green's contributions to *The Hoyan*, until in 1990 Kloppenburg elevated the HSWC from aspiring HSI chapter to a full fledged society (as the International Hoya Association) with its news bulletin renamed to *Fraterna* and repurposed as a taxonomy publishing format for his own efforts. The choice of the name *Fraterna,* Latin for "brotherly", may have been a subtle middle finger to Burton's status as a female leader in the community. Burton took this as an all out attack and an undermining of her work with the HSI and *The Hoyan*. From this point on the two sides maintained a lifelong feud with Burton serving as a constant character foil to the two men and publishing reams of disparaging critiques of Dale's work in *The Hoyan* and later on in its online continuation *PS The Hoyan*. These critiques were often highly vitriolic and usually written in an entertaining style (if one was not their subject). They could become quite personal, with Burton often referencing Kloppenburg's many marriages.[4] The two acted on each other for the next few decades as a slowly corrosive acid, with Burton leaning into a laser focused and all-encompassing criticism of Kloppenburg which eventually dominated most of the content of *The Hoyan*, and that constant, bitter attention making Kloppenburg less and less receptive of critique and ramping up his insular tendencies.

Aside from the personal vitriol, Burton's criticism of Kloppenburg was often accurate. Kloppenburg could be a highly disorganized and careless writer, and at times his mistakes rose to the level that one wondered if he was being purposefully obtuse. For example, he (a degreed plant geneticist) consistently wrote "specie" as the singular form of species (it of course is "species") and misspelled The Philippines (as "The Phillipines") on the cover of his monograph on *Hoya* species from that country.

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[4] Dale's first marriage lasted 25 years and his second 9 years. He recounts four more marriages up to a divorce in 1988 when his memoir ends, and he was married at the time of his death, so he had at least seven wives- but those years between 1988 and his last marriage are matrimonially unaccounted for.

***Hoya gildingii,* published by Kloppenburg in 2002, named after Edward Gilding, who was a frequent participant in Dale's collecting trips. Edward also collaborated with Kloppenburg in transferring *Hoya* section *Eriostemma* to genus *Eriostemma* in 2001, though it has since been moved back to the genus *Hoya* and now technically stands as a section once again. Photo courtesy of Douglas Chamberlain.**

Kloppenburg's later period, 2000-2020

Over time Kloppenburg began publishing more and more species, and in inverse proportion to the quantity of his species publications, the quality of them decreased. In his early publications in *The Hoyan* there was some rudimentary peer review from Burton and others, but with the advent of *Fraterna* the publications there became increasingly isolated from external review. Through the 1990s the publications were occasionally problematic, but by the early 2000s species began to be published largely without illustration or photographs of living material and often based on minute claimed distinctions in corona, leaf or pollinaria morphology that ignored the very real factors of species variation and phenotypic plasticity. Many publications were presented with blurry, ill framed photomicrographs of dried plant material that were difficult to correlate to the poorly written descriptions of minute morphological distinctions that accompanied them (see *Hoya histora Kloppenb.*). Frequently, when Kloppenburg named a species after a place, the names were misspelled (*H. montelbanensis* Kloppenb. named for Montalban and *H. bunuabgensis Kloppenb.* named for Mt. Binuang, both being places in the Philippines).

This decline reached its nadir from 2011-2018, when Kloppenburg was in his nineties. It accelerated with the switch of formats from the printed *Fraterna (*after the International Code of Nomenclature began allowing digital publication) to publishing in a pdf series titled *Hoya New,* made available on Ted Green's sales website.

Always a splitter, who had separated species based on small morphological details, Kloppenburg increasingly published new species, mostly from the Philippines, based on finer and finer variation. Essentially, any herbarium sheet that Kloppenburg became aware of that had the slightest variance in measurable anatomical structures was published as a species. There was no consideration given to the ecology or habitat of these publications- often there is only mention of provenance in the type sheet reference, and sometimes not even there. He became particularly enamored with the idea of recognizing subspecies and began publishing more and more of them, which practice peaked in 2017 with 11 published subspecies. Sometimes he based new species or subspecies just on minor differences in the measurements of structures in collected plants which were structurally the same as another described species (*Hoya parvapollinia* Kloppenb. & G. Mend. vs *Hoya bilobata* Schltr., *Hoya lambioae* Kloppenb., Guevarra, Cajano, & Carandang vs. *Hoya benvergarai* Kloppenb. & Siar), varied in flower color or size (*Hoya wibergiae* subsp. *alba* Kloppenb.), varied in leaf size (*Hoya odorata* subsp. *taytayensis* Kloppenb.) or had tiny variances in corona shape or attitude (*Hoya taytayensis* Kloppenb. & Siar vs *Hoya incrassata* Warb.) or pollinaria size (*Hoya imbricata* subsp. *megapollinia* Kloppenb.). Author credits were rarely used in *Hoya New,* causing additional problems with citation.

Kloppenburg did make a few publications during this period that are widely accepted as validly published and representing distinctive new species, as in *Hoya linavergarae* Kloppenb. & Siar and *Hoya irisiae* Ferreras, Kloppenb. & Tandang.

Kloppenburg almost never published in peer-reviewed journals and rarely if ever responded to any critique of his work, which led to some isolation from the larger *Hoya* community and especially from more careful and precise botanists.

Robert Dale Kloppenburg died in November of 2022 at his home in Fresno, CA at the age of 101.

Kloppenburg's Legacy

Kloppenburg made many positive contributions to the *Hoya* community and the taxonomy of the genus. He published many species and made progress towards revising the genus at a time when interest in *Hoya* was recovering from its nadir (from 1950 to 1970 only 5 species were published, and then 13 from 1971 to 1980, and 25 from 1981 to 1990). He, along with Green, collected and introduced into the trade dozens of new species. He also was an avid and resourceful collector of *Hoya* literature, and made great efforts to make this information available to other taxonomists and to the public. His Passport *Hoya* series, first made available on disc and mailed to interested parties for a nominal sum, and later posted as free pdfs on his website, collected all known relevant papers and translated sections in Latin, Dutch or German into English. In typical Kloppenburg fashion though, his Passport Series was disorganized, with many species placed out of alphabetical order, commonly having sections of text missing or disarranged, and having different publications present or absent in the many variations of that series.

Kloppenburg was either the president of the International *Hoya* Association or the editor of its bulletin *Fraterna* for the duration of that organization's existence (1990-2010). He provided support and advice to the Svenska Hoyasällskapet (the Swedish *Hoya* Society) during its formation under Eva-Karin Wiberg, who was a close friend that traveled with Dale on several *Hoya* collecting trips.

Kloppenburg claimed to have written over 54 books, but this seems likely to be an overstatement. He seems to count many of his efforts which are more in line with unpublished journal articles (*Hoya* Pollinaria: a photographic study, 1996) (Ganges hoya, 2008) which were distributed on cds. He did unequivocally produce two print edition general audience books about *Hoyas- The Hoya Handbook* (Orca Publishing Co., 1992) and *The World of Hoyas* (Orca Publishing Co., 2007 ed.).

The Hoya Handbook contains a general introduction to the genus, cultivation guidance, and descriptions of about 145 species, 30 in detail and the remaining with brief descriptions. Some of the names of the species included there have changed over the years, and many new species have been discovered in the subsequent 32 years, but despite this and the book's technical problems (there are some factual and layout errors), it remains one of the best written and most comprehensive books on the genus to date alongside The Genus Hoya- Species and Cultivation (Wennström & Stenman, 2008). It must be said that there is a is a very low bar for choosing excellence in that field however. There is a vanishingly small pool to chose from, as less than a handful of serious books have been written which describe the cultivation and diversity of the genus *Hoya*.[5] *The World of Hoyas*, intended as an expansion of the previous book, does contain more species descriptions, but was produced in Kloppenburg's later period and has a much higher percentage of factual, technical, grammatical and taxonomical errors than the previous book. The images in *WOH* are generally of poor quality, and suffer from the unfortunate decision to place color flower images (often unacceptably blurry) over grainy scans of foliage photographs or type sheets to depict the species' leaves. Overall that book stands up much less well than *The Hoya Handbook*.

The most problematic aspect of Kloppenburg's legacy is the situation he has created for modern taxonomists. *Hoya* has never had a genus wide revision, and revising it now has been made an order of magnitude more difficult due to Kloppenburg's excessive publishing. Evaluating all of his publications will necessitate the review of his hundreds of type sheets (often not readily available or clearly referenced) and a lot of intensive work in parsing these publications and determining their distinctness or synonymy.

I did have a slight relationship with Kloppenburg in the 2000s and asked him about a few of his publications during that time. He rarely responded to my actual questions, choosing instead to change the subject or cite time constraints as a reason he could not reply. He did once tell me that "I'm not going to live forever! I have to publish everything I can right now. If its not right I'll fix it later". I understand the impulse to make ones mark on the world, and I do understand the sensation, as one ages, of time running out and compressing those things you thought you would accomplish into a smaller and smaller pool, its a very human experience that we will almost all one day face. However, I feel like his mad rush to publish in the last decade or so of his life did his reputation a great disservice.

Another negative aspect of Kloppenburg's legacy is the probably overstated popular sense of recent interest and species publication in the genus due to his efforts in his later years. The 359 Hoya species and subspecies published during the most recent 20 year period in which RDK was active- 2000-2020 is an all-time high, being roughly 2.75 times higher than the next most active twenty

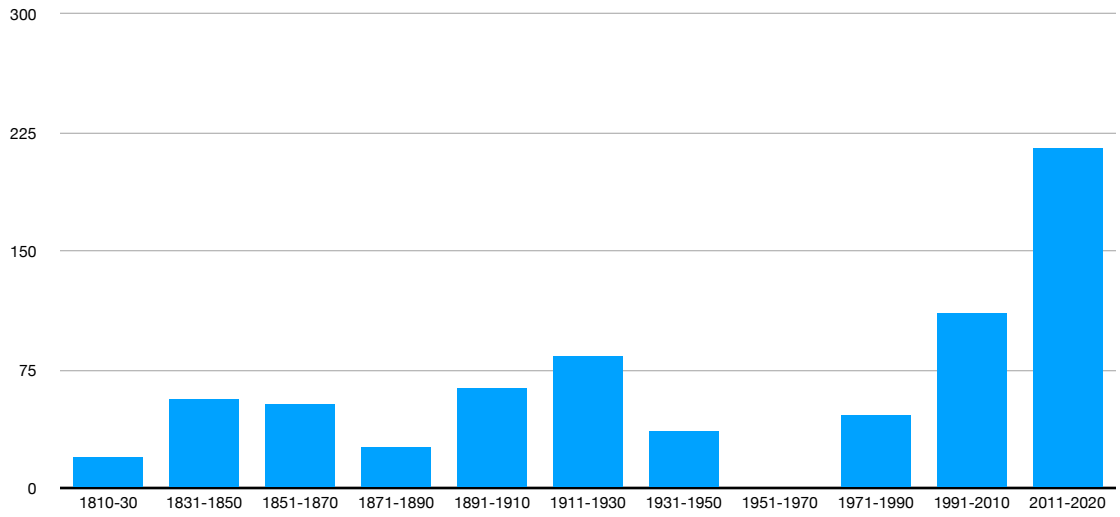
[5] The most well known general audience monographs on the genus *Hoya* are: The Hoya Handbook, Kloppenburg & Wayman, 1993; The Genus Hoya- Species & Cultivation, Wennström & Stenman, 2008; and The World of Hoyas, Kloppenburg & Wayman, various ed.s. There is a lesser known book from Christine Burton- Hoyas I know and Love, 1981, and a couple of self published books available on Amazon which have not been made available to *Stemma Journal* for review.

year period- 1900-1920 with 130 *Hoya* species and subspecies publications. However, the majority of publications from the 2000-2020 period are from Kloppenburg, and it is likely in this author's estimation that a large percentage of RDK's total publications will fall due to synonymization or rejection, which should bring the number of 2000-2020 species publications down dramatically. This should still represent a large increase in publication rates from the previous 20 year high, but not realistically the nearly tripling that the unrevised data suggests at first glance. See the next section of this article for some numbers on his publications and how they may skew the sense of the number of actual species publications for the genus over time.

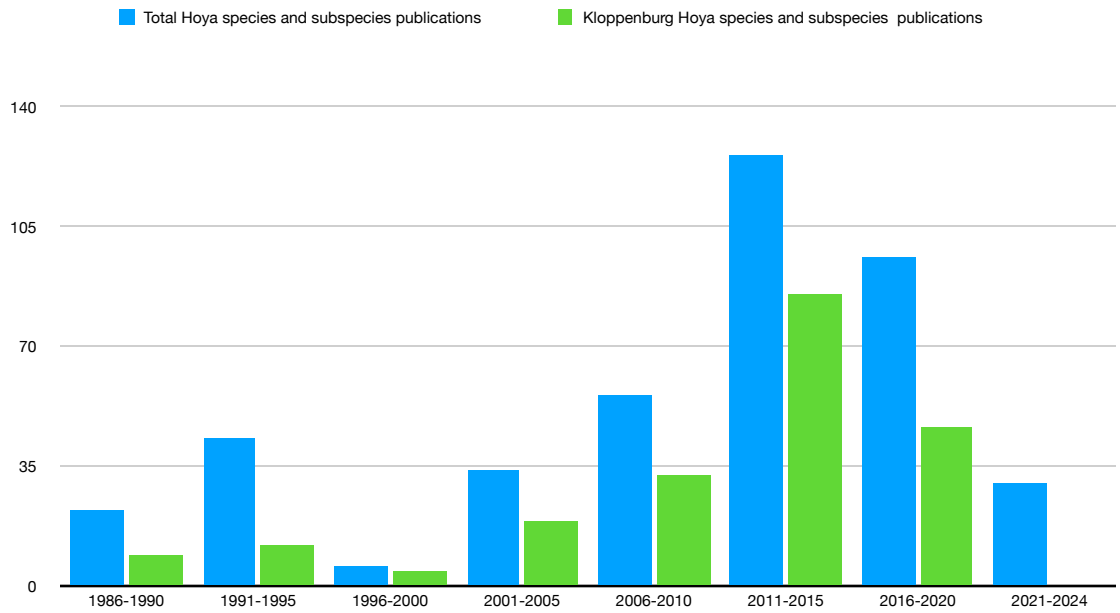
As an example of some of Kloppenburg's publications that are likely to be considered for synonymization, look at the many species he published that are morphologically extremely similar to *Hoya camphorifolia: Hoya albida; H. bebsquevarae; H. bicolensis; H. bifunda; H. bifunda ssp. integra; H. carandangiana; H. eburnea; H. gelba; H. lambioae; H. nakarensis; H. parvapollinia; H. polilloensis; H. williamsiana* and *H. salmonea*.

***Hoya kloppenburgii*, named after Kloppenburg by Ted Green in 2001. This species belongs to the large *Hoya* section *Acanthostemma,* along with *H. wayetii, H. pubera*, *H. burtoniae*, and many others. This is an unusual member of that section, with larger leaves with a tightly revolute margin and maroon abaxial surface, flattened revolute corollas, and a taller, less conical corona than most species included there. Photos courtesy of Doug Chamberlain (above right), Wenling Jia (above left) and Jelena Lescova (below).**

Robert Dale Kloppenburg's impact on *Hoya* species publication counts



The above chart shows the actual data for total *Hoya* species and subspecies publications for the history of the genus in 20 year increments, showing a huge spike in publications for 2011-2020 of nearly 225 publications for just a 10 year period, more than twice that of the previous peaks of the twenty year periods of 1911-1930 and 1991-2010.



The above chart shows the amount of *Hoya* publications by five year increments (in blue) and the amount of those publications made by Kloppenburg (in green) for those years in which Kloppenburg was actively publishing.