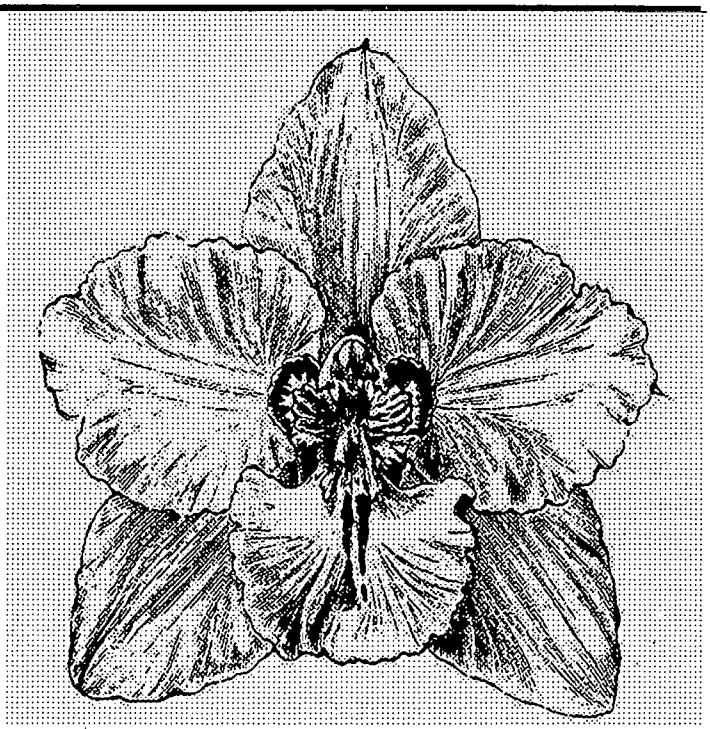
❖Odontoglossum Alliance❖

Newsletter February 1999



Trekking - Part V

Bob Hamilton

The road from Loja to Zamora is one of the most fascinating orchid areas of Ecuador. After leaving Loja, this road climbs to an altitude of 2500 meters and then decends to 940 meters by the time one arrives at the town of Zamora. Zamora is in the Oriente region of Southern Ecuador. The word oriente in Ecuador refers to the east. Although it is only 40 km from Loja to Zamora, the drive takes several hours. For anyone interested in orchids, this road is a full days trip. There are several rivers and streams along this road, most notable, the Rio Zamora which crosses under a bridge through a steep rock gorge at high velocity. Rivers which flows in this area is destined for the Amazon as they are beyond the Andean divide.

After climbing to the 2500 meter level after leaving Loja the road began a steep descent with lots of switchbacks. At one of the first stops Steve Beckendorf collected an interesting looking odontoglossum. Steve has a good eye for odontoglossums. When this plant bloomed in his greenhouse it turned out to be a very nice Odontoglossum harryanum. The Ecuadorian form of this species is smaller than the Colombian form. It is a unique form with a very bright lip, which begins near the crest purple and then dramatically changes to brilliant white. Harryanum is amongst the most spectacular odontoglossums. It can be found in the Andes from Colombia to Peru. There seems to be a continuous integrade of form and color for this species along the Andes. Comparing Odontoglossum harryanum relatives such as nevadense from northeast area of Colombia and Odontoglossum wyattianum from Peru one sees a continuum in form and color.

Rivers are great areas to investigate orchids. The banks, which are often accessible grow bushes and trees which overhang so one has a view into the vegetation. Another advantage of rivers is people often live along or close to rivers. Where there are people, there are paths, which can be hiked. Regrettable for the ecology of a country, where there are people, there are also cut and felled trees. Felled trees are a double edged sword for they give the orchid hunter a chance to investigate the highest

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branches. Collecting from felled trees is guiltless as the orchids on these trees are doomed to die. Collecting them is a salvage operation. The first river we came to was calm and quiet in November. We parked at a switch-back in the road where the river passed under a bridge and began a hike up river. We ran into a family on a picnic who were there to enjoy the beauty of the area. Several trees had fallen into the river because of errosion and checking one over I immediately found a stunning Lepanthes. This pleurothallidinae had an bright yellow and red flower of incredible intricacy. The flower was no more than a centimeter long. I anxiously showed the plant to Moises Behar, who specializes in Lepanthes. Moi assumed it a gift and into his collection bag it went. I did not have the heart to ask for it back. Walter Teague advised us not to spend too much time in one area as there was more to explore further down the road and any given area can be monotypic, ie only a few orchid species for the whole area..

The next river we crossed over was the Rio Zamora. There was no point in stopping at this swift flowing, deep river. The banks of its gorge were vertical. We drove for another half-hour until Walter signaled to pull over. He had a trail he wanted us to hike. We hiked up a small valley until we came to an open meadow. There were signs this had been a forest only a short time ago. In this clearing were a few remaining, very straight trees. Walter had his binoculars trained on them and immediately spotted plants of Masdevallia persicina, which is thought to be near extinction because of habitat destruction. The few plants we found growing in the area were in full sun. There leaves are dark purple and very small for the species when grown in cultivation. Walter collected one plan and placed it in water. Quickly, the leaves became extraordinarily thick and turgid. More turgid than I have ever seen a masdevallia leaf when grown in a greenhouse. Walter gathered us together and told us about the area. In the late 1970's Walter had written an AOS article on masdevallias discovered at a spot he identified only as "Kilometer X". The exact location of Kilometer X was never revealed in an attempt to protect its plants from wholesale collection. Kilometer X is the location where only two decades ago new Masdevallias were found — agaster, persicina, strobelli and urosalpinx. I had read Walter's article when it was published first published in the AOS intrigued by the mysterious location Kilometer X! Now I was standing at the very spot! There is no longer a need to protect Kilometer X; the plants of this area are now history.

Before returning to the car we stopped along a riverbank and relaxed in the stream. One sees very different things when one relaxes. There were butterflies all along the bank drinking water and licking small amounts of salts, which accumulate wherever pools of water evaporate. The variety of shape and colors were intriguing. Watching these magnificent insects brought back the observations of Ecuador's distinguished orchid collector Dr. Alex Hirtz. Hirtz has observed a significant drop in the insect population of Ecuador, which he attributes to both habitat loss and the use of pesticides in agriculture. With insects a major pollinators of orchids one cannot escape a maxim, "as the insects go, so go the orchids". In this same area were magnificent, split-tailed humming birds.

By late afternoon we arrived in Zamora where, at 940 meters the climate was warm and tropical. This is a quaint town with a large square. Because of a boom in gold mining the town had grown to more than 6000 by 1991. Walter pointed out a convent where he and fellow orchid collectors had spent the night before hotels were available. After we chose one of the two hotels in Zamora I headed for a shower to cool off and clean up. Cool off turned out to be a very apt choice of words. As is often the case in rural areas in Ecuador, there was no hot water available. I was getting used to cold showers but somehow, when it is very hot outside, cold showers are VERY cold showers.

We explored the town. On a stone wall dividing two homes we came across one of Ecuador's snails. This creature was about the size of a hand and busy at work eating moss from a wall. The size of this mollusk was incredible.

We went to bed early because the next day we planned a long hike to a gold mine located at the top of a trail. Sleep would not be in the cards for this evening. Throughout the night some local, who had lost his love pined by drinking and playing a love ballad on his phonograph over and over and over. The volume and distortion were both at maximum. This went on for several hours. The tolerance Ecuadorian's have for each others behavior is extraordinary! Making it even harder to sleep was the song this chap had chosen. The melody was haunting. The next days hike would begin with tired travelers.

In the morning we headed southeast, again along a river. The banks were full of blooming white sobralias and epidendrums. The goal was to follow a purported road to its end and then begin hiking toward a gold mine, which was at 2700 meters. For an odontoglossum grower altitude is everything. We were soon disappointed to find out the road had been damaged in a flood and was washed out at the same altitude as Zamora. Thus, we would begin a climb even further away from the gold mine than we planned. We would have to hike to gain altitude and there was no hope of climbing to an altitude high enough in one day for odontoglossum species. Even odontoglossum harryanum, which occurs at one of the lowest altitudes for odontoglossums requires a minimum altitude of about 1700 meters.

The first part of our hiking trail required transgressing a large area of muck I named Lake Vaca because a dairy herd has excreted a pond of urine. Trying to exercise caution to cross such an area brings out the worst of my coordination. True to form I stumbled in Lake Vaca. Not fun, but good for a laugh amongst colleagues. We hiked for several hours. Walter was always ahead and often went up the side walls of the trail to explore. This hike was majestic with lots of stops to photograph the area, which included a valley with a river. As the trail steeped we ran into some loggers coming down the trail, their chain saws over their shoulders. Even in remote forests one hears chain saws. They warned us that some cows were being herded down the trail. Farmers had taken them to the high meadows to graze and after several months away from exposure to humans these cows had become aggressive. We were advised to scamper up the side walls of the trail when we met the cows. After about fifteen minutes the cows were coming our way. I took no time to climb the dirt wall and gripped it to hold my place.

The trail was not only getting steep it was also narrow. I looked over the edge and on a mantle about 30 feet below was a pile of cow bones. If you slipped on this trail you were history. I took some delight seeing those bones. That was one cow that couldn't contribute to Lake Vaca.

After hiking most of the day I checked my altimeter. We had only climbed to 1700 meters an altitude too low for the plants we were interested in. I rested and it began to rain. Walter Teague, John Leathers and Steve Beckendorf, who had hiked ahead of Moises Behar and me, were coming back down the trail. We knew that the rain would make the steep trail treacherous. Walter asked if I had found anything interesting. He really liked to ask this question because, invariably, even when I hadn't even seen an orchid he had found something interesting. I insisted there was not an orchid to be found in the area. As I finished my sentence Walter reached over my ear and pointed at a plant, "a Lankesterella", Walter declared. I looked at this knobby, small bromeliad like plant and he took out his camera to photograph it. The leaves were spiral and symmetrical. I had seen it but not paid attention to it. A lankesterella is a very rare orchid and I had missed even recognizing it as an orchid. We organized and headed down the trail.

Before descending very far the rain picked up intensity. The trail was becoming a stream and on the steeper parts I slid down on my rump. There was no possibility of walking upright without a good chance of visiting the cow "boneyard". When we approached the lower altitudes where the trail flattened out we took more time to explore the plants at this warmer, lower elevations. Along a muddy bank, were clumps of Phragmapedium

caudatum growing. This was a unique form. No one in our group collected phrags but it was a pleasure to see them growing in their natural habitat. In the same area were a small but beautiful ellianthus and a miniature orange sobralia. Puddles were collecting in this area and I saw my first land crabs — a strange sight so far away from any ocean. There were also wonderful insects such as huge forms of "walking sticks".

After crossing back across Lake Vaca we stopped at a farmhouse which was also a "store". We bought a couple of bottles of warm soda pop and relaxed. We decided not to spend more time in Zamora. This would be our farthest excursion south. In the morning we would head north toward Cuenca, Ecuador's third largest city and the home of noted orchid growers Padre Andreeta, Dr. Benigno Malo, and Dr. Eduardo Sanchez.

Trekking Part VI

The drive from Zamora to Cuenca takes a full day. The road meanders north along the eastern slopes of the Andes and close to the botanically interesting area of El Condor. The drive is for the most part casual with good paved roads. As everywhere in Ecuador, no road follows a straight line or constant elevation. Every road follows the steep contour of this landscape. The most memorable part of this driving was running the semaphore of the first military checkpoint. The Southern Oriente (eastern section of Ecuador) has seen recent military actions between Peru and Ecuador. This is no place to fool around with the army. Thus far, we had behaved and stopped at Ecuador's numerous military checkpoints. These stops can lead to hassles and we were tired of being the entertainment for bored, young soldiers with their "twenty questions" and interminable ID checks. As we approached our first checkpoint we could see the local traffic slowing down but not stopping, just slowly cruising under the raised semaphore. We mimicked their technique. We slowed down, waved and proceeded to drive right on through, like we lived just up the road. Fortunately, we succeeded and with two cars no less. We managed to pull his off the first time but at a second checkpoint further along our route we were forced to stop.

Moises Behar and Walter Teague got out of the cars and spoke for us. Their conversation was taking an inordinate amount of time and I worried we would have a long delay. Clearly, some kind of negotiation was in progress. Moi and Walter came back to the cars with big smiles and briefed us. One of the young soldiers was trying to negotiate a trip to the US with us.

This days 200 kilometer drive would take north to Gualacea, a city about 25 km short of our destination, the city of Cuenca. Cuenca is Ecuador's third largest city with a population of less than 200,000. This is a picturesque city with 16th and 17th century churches, colonial buildings and cobbled streets.

It was very close to dusk before we pulled into the Hosteleria de Los Andes, a much better hotel than we were used to staying in. Walter had stayed here before and had used good psychology in giving us some respite from our rather uncomfortable stay in Zamora. The entrance to this hotel was through an arched wall and was unexpectedly grand. A long, straight tree-lined driveway took us past cages with exotic Ecuadorian animals in them and eventually to a very nice hotel with a tiled dinning room and a swimming pool. We appeared to be the only guests on these expansive grounds. We were dirty and muddy and this hotel offered us our first showers with hot water in several days. Two young staffers begged to polish our boots. For me, this was a foreign experience. I grew up in a home where polishing your shoes was considered a personal task, something you did for yourself. I relented, as did John Leathers. We were both glad we did. The next time I saw our boots they looked terrific.

Steve Beckendorf walked the grounds before dinner and returned reporting on the animals in the cages.

One cage contained several "Cuy", more commonly known in the US as guinea-pigs. Cuy are a food in Andean countries. I am told cuy are tasty but I've never had the pleasure to eat one. These particular cuy were much larger than guinea-pig pets I was familiar here in the US. Another cage contained a magnificent Andean condor. Steve, an inveterate "birder" was concerned for this condor. For one thing, it was caged. Such a magnificent, endangered bird should be free. Tragically, this bird was forced to stand on a concrete slab floor in its cage. Steve pointed out to us the foot and talon of these birds of prey are not adapted for standing or walking on a flat surface. These birds have feet adapted to the curved surfaces of boulders and tree limbs. We decided over a good dinner on a strategy. Steve would have words with owners the next morning. In spite of this bird's plight, I slept well after the days drive in the comfort of this first-rate hotel.

The next morning Steve and Moi went off to discuss the condor with the owner. They returned triumphantly. Both argued with the owner. Eco-tourists would be appalled to see a condor caged. Eco-tourists were this hotel's main clients. The owner immediately installed a tree limb in the cage and assured us the bird would be restored to the wild.

Our trip to Cuenca gave us time to meet with the dean of Ecuadorean orchids, Padre Andreeta. In addition, we were invited to the home of Dr. Benigno Malo, a prodigy of Padre Andreeta. Both men have made significant discoveries of new Ecuadorian species. We would also meet Dr. Eduardo Sanchez, a faculty member at the University of Cuenca. Dr. Sanchez was in the process of establishing Ecuador's first in-vitro orchid propagation laboratory, dedicated to the propagation of Andean orchids. All this in one day!

There were more than one reason to looked forward to visiting Dr. Benigno Malo in Ecuador. I had met Malo several times in the US and he had stayed at our home. Benigno had asked me a small favor. "Please bring me a large garden hose of good quality when you visit". I had lugged a suitcase with a garden hose around Ecuador for almost two weeks and I now I could finally deliver and be rid of it.

We left our hotel in the morning and drove to the greenhouses of Padre Andreeta in Paute, a small town near Cuenca. Walter Teague had previously collected orchids with Padre Andreeta and had gotten to know him. On arrival at his school, the Padre greeted us and enthusiastically showed us his facilities. Padre Andreeta is a Silesian priest who has dedicated his life to teaching in Ecuador. He established and runs a school, where boys from rural homes can stay and study. Padre Andreeta's is passionate about orchids, which he utilizes as teaching aid at his facilities. Padre Andreeta has much to be proud of; here was first class orchid culture. Plants were well grown and neatly arranged. There were lots of incredible species to look at, first and foremost, plants of the tribe Pleurothallidinae. Padre Andreeta was at this visit the midst of starting a commercial enterprise for the school — a cymbidium, cut flower nursery.

At the end of our visit, Padre Andreeta gifted us several rare plants. Some years earlier Padre Andreeta had discovered Ondontoglossum blandii in Ecuador, a plant previously known only from Colombia. He divided this coveted plant and gave Steve Beckendorf a division. Since I associated with growers in the cymbidium cut flower market, I offered to send Padre Andreeta cymbidium plants in flask. Shortly after returning to the US from this trip I met up with Andy Easton of Geyserland Orchids who generously gifted flasks to Padre Andreeta.

Our next afternoon visit was to Dr. Eduardo Sanchez who lives in the city of Cuenca. Dr. Sanchez was anxious to meet us and to discuss the in-vitro culture of orchids with Moises Behar. Moi had already established himself as a master of orchid propagation at his home in Guatemala. While it is relatively easy to culture orchids in a country like the US with our formidable resources, it is quite another matter to pull this off in a developing country such as Moi's home country of Guatemala or in Ecuador! Eduardo Sanchez was most hospitable.

He had already sown and was growing plants in milk bottles. He managed to do a fair job of this in his kitchen without the aid of a sterile cabinet. We visited in his garden and he retrieved some fine plants of Oncidium nubiginum from under the bushes in his garden. He had recently collected these mauve colored oncidiums at the high altitude of 3000 meters.

We were invited to dine with Eduardo and his wife at a restaurant specializing in churasco, a type of barbecue. During dinner John, Steve and I visited with each other while our Spanish-speaking colleagues visited amongst themselves. Dinner is never a hurried affair in Ecuador. We began at 7:00 pm, which was early by local standards. By 9:30 pm we were still eating and I was getting nervous as we had committed to visit Dr. Benigno Malo at 9:00 pm. The evening continued on. Neither Moi or Walter seemed particularly concerned that we were late for our next visit. Finally, at about 10:30 we headed off to Dr. Malos home

Malo's home is prominent on Calle Benigno Mallo, a street in Cuenca named for Dr. Malos grandfather, a famous educator and also named Benigno Malo. The exterior of this house is a plane, simple, stucco wall. After a loud knock, we were greeted by Benigno's son, Benigno Malo IV, a tall, strikingly handsome young man who lead us through the large wooden gates into the courtyard of this 19th century home. We were led to a parlor and seated in gold Victorian chairs covered in red velvet. There were two rows of these chairs face to face. I am told this seating arrangement is a throwback to earlier times. On the wall a picture dominated. It was a picture of Christ with a heart prominent in his hands beaming a ray to the earth and aimed right at Ecuador.

We were already late an hour and one half. Benigno Malo had not yet returned home. We waited another half-hour before Benigno arrived. I then knew why Moi and Walter had shown no anxiety about being late. Such, is South America. When Benigno entered, he wearing jodhpurs and high leather boots, quite dramatic! He was friendly and most appreciative of the garden house. We visited until after midnight and were invited to stay; however, we had planned our first exploration of an area at a pass in the Andes near Cuenca the next morning and left for our hotel, after an hours visit.

It is vitally important to do your visiting with fellow growers before you head out exploring. By visiting you learn the locations of the forests and orchids.

The next morning we headed off toward Limon, a small town to the northeast. The road to Limon eventually leads to river Pastaza, an area where the spectacular Cyrtochilum pastazae is found. This cyrtochilum has lavender petals and beige sepals. Previously, I had seen this species in bloom in a Quito collection, a huge panicle of hundreds of 2" flowers. Pastazae is one of the most impressive orchids I have seen. Steve and I were interested in this area because two unusual odontoglossums are found along this road at very high altitude, Odontoglossum compactum and Odontoglossum matangense. Both of these species have tall, branched spikes of yellow odontoglossums. These are unusual odontoglossums because they are terrestrial and their spikes are self-erect Both of us wondered what these self-erect could do for breeding. After driving steeply up a precarious road to an altitude of 3500 meters the road heads quickly downward. Steve and I almost immediately spotted these terrestrial odontoglossums in flower and wanted to explore the area. We took one car leaving the other for John Leathers, Moises Behar and Walter Teague who headed off ahead of us. They were after smaller game, new lepanthes species.

Steve and I decided to hike what looked like a short easy distance to a particularly nice odontoglossum flowering specimen, which we had looked over with binoculars. The hike turned out to be very tedious. What began as a modest climb over even ground quickly bacame a steep climb over massive tufts of grass. Thus, we had to step from one island of grass to another without dropping down several feet to an out of sight strata.

At 3300 meters such climbs take the wind out of you. Steve made it to the plant before I did. The growth habit for these odontoglossum species is as unusual as the spike habit. These plants have long rhizomes with a foot or more between bulbs. They have shallow roots, which grow in the organic muck of mosses and lichens in this cold and damp climate. Steve cut off a small section of what turned out be a massive plant, a very nice clone of Odontoglossum compactum. Each of us would be given a CITES for a small number of plants so each plant collected had to have special value and compactum was one of the goals of the trip.

We headed back to the car and then down the road. A short time later we unexpectedly ran into John, Moi and Walter. They were returning. They were coming from a rickety bridge they had encountered on the road ahead. A road crew about to demolish this bridge and it would then be rebuilt. In spite of being waived on, Walter stopped and inquired what was going on. As it turned out, it would be about two weeks before the bridge would be rebuilt after demolition. The road ahead dead-ended in about 100 kilometers. Had they crossed or been there an hour earlier they would have been stranded for a couple of weeks!

The rest of this day's exploring at first seemed destined to failure. We decided to explore the hills immediately above us even though they seemed barren. In a short time, Moi found a beautiful red lepanthes. John and Steve went on to find a strange mammal, which we never identified, sleeping in the branches of a tree. Walter hiked off for an hour on his own. Eventually, we headed back to our hotel.

Ironically, as we headed back we saw the same Odontoglossum compactum suddenly everywhere. It is not uncommon to see flora completely differently when one reverses directions. We could practically reach out the window of the car and gather these plants. It seems locals do not collect Odontoglossum compactum. It is a plant virtually impossible to cultivate. It requires a cold greenhouse. Seven years later this plant is still alive and growing in a greenhouse in the Pacific Coast. To collect compactum, we had gone through a big effort. The drive backwards proved this unnecessary.

Back at our hotel we enjoyed a calm dinner and went to bed early. The trip to Cuenca and the visit to Paute and Gualaceo had gone well. We packed a lot into this short visit. The next morning, we would leave early for the long day's drive back to Quito. We planned to stop and explore along the way.

Editors Note: The newsletter, in previous issues have carried the earlier parts of this story by Bob Hamilton. There is more to ccome. For those of you who have not seen the earlier parts of the story, I suggest you obtain a copy of The Compendium which carries all parts of the story to date.

Australian Visit

Roger Williams
Vice President Odontoglossum Alliance

On a cold morning in early October (a typical Melbourne Spring day) my wife, Terry, and I traveled by train to Warrnambool, Victoria to visit Phil and Marilyn Altmann at Warrnambool Orchids. The trip takes approximately three hours through quite rural farming areas.

Warrnambool Orchids enjoys a beautiful setting. Perched on a bluff it overlooks the Bass Straits and the Southern Ocean - Next stop Antarctica. There's a whale watching station but unfortunately it was so cold and rainy that the whales didn't cooperate.

The Altmann's have five growing areas plus a laboratory where Marilyn does the flasking and re-plating. They grow many genera other than the cool odontoglossums that are of primary interest to us.

Besides the cool house and lab they have seedling, intermediate and hot houses plus a quarantine house.

The cool house is approximately 3,000 sq. ft. They are able to keep the temperature between 50 degrees F. and 78 degrees F. except for rare occasions during the summer when it may reach 86 degrees F. Day temperatures are provided by natural conditions. Summer temperatures usually range between 78 degree days and 52 degree nights -very different from what we experience here on Long Island.

The roof is opal fiberglass which is covered with a layer of 70% green shade cloth from mid spring to early autumn. The inside rook is permanently lined with spun polyester cloth that acts as an insulator and also gives light diffusion. Heating is by forced electric fan. Four ceiling and one under bench fan run continuously.

Cooling is achieved by 2 evaporative coolers that run lengthwise under benches on each side of the house. Warrnambool summers have low humidity so these coolers do the job. When they experience strong northerly winds that bring hot air from inland, the humidity is often down to 15% and at this level the evaporative coolers work perfectly.

Phil mentioned that Spring is a difficult time because they often suffer through four seasons in one day. We can testify to this because weather was extremely unpredictable while we were in Melbourne...in one day the weather could change from extreme cold with rain and wind to very pleasant and sunny.

In Winter they experience low light. Its quite cloudy in July and August. However the greatest problem is getting enough warmth into the greenhouses which were built to provide protection mainly from the summer heat.

We both felt cold while we looked at the plants but they seem to love it...the Odonts. looked as if they relished the cool, damp, windy conditions. Everything was in peak condition with many plants in bloom. Phil had just returned from a show so we were able to see a group of selected plants that he'd shown in his exhibit.

Among the best was a cross of Fremar x Trixero - a deep maroon with a wonderful pattern and a fine lip. (Photo) Castro x Durham Lace is a huge round red and white with a flat lip - a real show stopper. (Photo) The tigrinum crosses were eye catching - tigrinum x Pescadero (Photo) and tigrinum x Oda. Snow on Fire (Photo) were particularly fine.

The plants are potted in a moisture retentive mix of live spaghnum and Styrofoam. The plants that were knocked out of pot for us to examine had terrific roots. Phil mentioned that a moisture retentive mix in critical so that when the plants bloom excessive shriveling is avoided. Obviously you need a good root system for the plant to take up the moisture.

In a good year they can get the Odonts to move quickly enough so that the bloom in under two years from flask. However, on an average 2 to 3 years is usual before seeing a good spike.

Fertilizing is by proportioner using Peters Excell (High Cal.) at the rate of 300 ppm of salts for three weeks and then one week without fertilizing. Because of the cool weather they are fortunate to very rarely see any insects.

We asked Phil what he considered to be the key to growing Odonts. He said that in his opinion the most important factor necessary to growing this genera well is to start out with a good flask. The Altmanns have found many require 2 to 3 replates after spreading to achieve good even quality plants. Marilyn uses glass and some polycarbonate and PVC. Plastic lids with Teflon breathers are used.

In agreement with other growers to whom we've spoken, Phil maintains that it is necessary to constantly observe the plants - moisture balance is critical to avoid undue stress. He feels that the darker colors are often more difficult to grow than types closer to the true odontoglossum crispum and that we must remember that Odontoglossums are not good mixers with the average grower's collection of genera.

Anyone who visits Australia should take the time to visit Warrnambool Orchids. The Altmanns showed us wonderful hospitality that included a fine lunch and an opportunity to see an outstanding collection of Odontoglossums.

ODONTOGLOSSUM ALLIANCE AUCTION AT WOC99

A great deal of effort and cost has been expended by the Odontoglossum Alliance to produce for the WOC99 an interesting, informative and exciting program for the 'Odont Day'. One of the popular events is the auction of fine and unusual odontoglossum alliance material. The auction will be held in two parts; one part at the luncheon and the other at the dinner on the "Odont Day'. We would like all alliance members to start now to find that 'special item' that can be contributed to the auction. In the past we have had wonderful response to the request for material. We have received many flasks of new crosses, community pots, divisions of rare or awarded plants, books, paintings, and even an Eric Young Orchid Foundation T-shirt. All were sold with spirited bidding. Please think now about your contribution, get it together and get it to the WOC99 in Vancouver. If it is plants (other than flasks) one suggestion for getting it there is to have one of the commercial growers, who will be selling at the Conference, include it with his shipment. Find someone in your area and ask if they will accommodate your contribution. You can also bring it in yourself.

Our President, Dr. Howard Liebman will be contributing plants of:

Vuyl. Robin Pittman 'Rustic Canyon' HCC/AOS 1996
Onc. gargantua 'Rustic Canyon' HCC/AOS 1997
Odcdm Solana Stirling 'Rustic Canyon' HCC/AOS 1998
Onc. Rustic Surprise 'Rustic Canyon' HCC/AOS July 1998

John Miller will be donating a flask of Odm. Star Trek x Odm. nobile and Oda. Sare x Odm. nobile. We are expecting there will be contributions of some very interesting and hard to obtain Odontoglossum Alliance species from Central and South America. I have received a number of encouraging responses to my earlier request for contributions. This should be a great opportunity to obtain material that is otherwise not available.

More Auction Contributions

Oda. Les Landes 'Brilliant', unawarded at this time. A super, brilliant colored Oda. parent of Vuyl. Robin Pitmann which has received a number of awards. Great breeding and show potential.
Contributor: Strawberry Creek Orchids

Oda. St. Clement 'Mark Daniel' AM/AOS, a great St. Clement and superb.
Contributor: Golden Gate Orchids

Cyrt. superbiens, extremely showy cyrtochilum. This is a seedling.
Cyrt. monachicum, seedling. (plants sell for $150.00, blooming size)
Contributor: Hawks Hill

Oda. Joe's Drum, an F3 Oda. Joe's Drum
Contributor: Sequoia Orchids

Odm. Mont Fallu remake, a remake of a black on white odontoglossum originally made by the Eric Young Orchid Foundation

Odm. hallii 'Kong', a 4n hallii

Oncidium trilobium x Odm. nobile, a colchicine treated seedling.

Odm. Bruce Cobbledick, another classic white odontoglossum with bold black blotching, blooming size
Contributor: Julie and Steve Beckendorf

Oda. Lautrix 'Tiffany', a sprouted back bulb of the best Lautrix. This plant came from a sib done by Bob Dugger. Great breeding potential
Contributor: Tim Brydon

Milt. regnelii var. alba

Flasks of Oda intergeneric crosses
Contributor: Jerry Rehfield

Oda. Eric Young 'Gorey' AM/RHS
Contributor: Eric Young Orchid Foundation

Oda. Aviewood 'White River' AM/RHS
This is a tetraploid plant. Alan Moon states "It is a wonderful breeder and they have some great seedlings from it."
Contributor: Eric Young Orchid Foundation

More Possibilities for the Auction

Steve Beckendorf is going through his re-potting and searching program in his greenhouse and lists the following as possibilities for him to contribute to the auction. I am sure we will see some of these on the table.
Flasks:
Rhyncostele Intragenerics:
Rhyn. madrense x Stamfordiense 'Norman's'
Rhyn. Stamfordiense 'Norman's' x (candidulum x bictoniense alba)
Odm. Venilia 'Big' x Odm. Bruce Cobbledick #1
Odm. nobile 'all white' x cruentum #1
Odm. cristatellum 'dark' x nobile 'all white'

Divisions:
Odm. crocidipterum ssp. dormanianum 'Vistamont' -big and very floriferous - regularly has 2, 3 or even 4 spikes per bulb.

Seedlings: Several of the following:
Odm. nevadense x Oda. (Flocalo x(Matanda x Albeam) 'Picotee')
Odm. nobile x ramosissimum 'dark'
Oda. Pt. Lonsdale 'Vistamont' x nobile
Odm. cirrhosum x Oda. Pt. Lonsdale 'Vistamont'
Oda. Kaleidescope 'Ultra Purple' x Odm. ramosissimum 'dark'
Odm. spectatissimum 'Hans Lucke' x RMH

This auction already promises to be one with the most spectacular and hard to find alliance material. It will be an event not to miss.

World Orchid Conference Getting Plants In and Out

The 16th World Orchid Conference meets April 22 through May 2 in Vancouver, British Columbia. One highlight will be the show and sales area. Arrangements have been made so foreign visitors can bring plants to the show, and that anyone who buys plants will be able to get the necessary permits to take their purchases home. Bringing orchids across international borders is controlled by the Convention on International Trade of Endangered Species (CITES).

Appendix II Plants: United States Agencies

For Appendix II plants entering Canada from the continental United States, cut flowers do not require documentation. Flasks require only a Phytosanitary certificate. Plants in containers or bare-root plants require both a Phytosanitary and a CITES certificate from the appropriate United States authorities.

Normally the United States Department of the Interior, Fish and Wildlife Service (USFWS) issues CITES certificates only to commercial growers, but for the 16th WOC they have agreed to issue a CITES certificate on a one-time basis to individuals and societies.

Each society or individual will need to apply for CITES export permits from USFWS offices in Arlington, Virginia, at least 60 days prior to the export date, to transport plants to the show and re-enter the United States. The agency understands the difficulty for societies in completing a CITES permit application when they will not know exactly what is being transported until immediately prior to the show. Therefore, the societies can meet the permit requirements by providing a signed statement attesting that they will meet certain conditions. Once the information is received from an applicant, USFWS will issue the society a CITES permit to export up to 50 Appendix II specimens for temporary exhibition at our show.

Canadian Agencies

In Canada, the Canadian Food Inspection Agency, formerly Agriculture Canada (CFIA), is responsible for plant importation into Canada. It has issued the Vancouver Orchid Society Import Permit #P-1998-01411 for your use when shipping plants/cut flowers to the show. This permit covers Appendix II plants only.

CFIA and Canada Customs will inspect all shipments, both by air and ground, at the show site. This will make clearance through customs and agriculture inspection at the airport and

border-crossing quick and easy. All exhibitors will be instructed to take their shipments directly to the Trade and Convention Centre where a holding area will be set aside for plant inspections. Greeters will be stationed at both the airport and border crossing to provide any assistance required. We encourage those traveling by vehicle entering Canada with plants to use the Pacific Border crossing at Blaine, Washington, directly south of Vancouver, because inspectors there will be most familiar with the procedure. We used this system for the AOS Trustees show in 1996 and it worked efficiently.

Appendix I Plants

Our Society has applied for an Appendix I Import Permit to allow *Paphiopedilum* and *Phragmipedium* plants to travel to our show and return to the United States. This permit is required before the United States will issue a CITES certificate for Appendix I plants to travel to and from Canada. We are still awaiting the permit.

Purchasing Plants at the Show

We have arranged for both Canada Customs and CFIA to be on-site to allow for easy access to export permit documentation for taking purchased plants home.

Please make sure that you are aware of your own government's requirements on returning with plants. You may require importing documentation issued by your own agencies before Canada can issue export permits allowing you to take your plants home with you.

For complete protocol, the show committee has put together an exhibitor booklet that has been sent to all exhibitors who have registered for space. It contains precise instructions along with permit applications and directions for arrival by air and road for the continental United States as well as instructions for Hawaiian and international exhibitors. If you would like to exhibit at our show, please contact Venue West Conference Services, #645 – 375 Water Street, Vancouver, British Columbia, Canada V6B 5C6 (fax 604-681-2503; e-mail congress@venuewest.com).

In order to help with shipping expenses, we will have a prop room where exhibitors will be able to find items that can be used to finish a display and, if requested early, will endeavor to accommodate any special requirements.

From your arrival, through set up, judging, lectures, sales, final banquet and winging your way home, we have endeavored to make this an enjoyable conference full of fond memories. We look forward to seeing many old and new friends in April 1999 at the 16th WOC.

Additional information: Venue West (above) or Marjorie Disher, Show Chair (telephone 604-538-3592; e-mail mdisher@dowco.com). — *Majorie Disher.*

Odontoglossum Compendium

We now have had 30 Odontoglossum Alliance newsletters. These contain some very good material on the alliance. There will be available at the World Orchid Conference in April 1999 a "Compendium of the Odontoglossum Alliance". The material has been taken from the newsletters and organized into chapters. The chapters are: History, Species, Hybrids, Culture, Beginners, Diseases, Judging, Travels, Shows, AOS Trophy, Knudson, References and Sources. The book will be done in black and white only in order to keep the cost down and to have it available on time for the WOC. This will be an opportunity to obtain an organized collection of material on the Odontoglossum Alliance. This book will be available at the WOC where we will have a limited number of copies available for sale. For those who want a copy and could not obtain one at the conference they will be for sale later. The details of their availability will be announced in the May 99 Odontoglossum Alliance newsletter. Currently a draft copy is being reviewed, changes and corrections are being made. We will print a limited number of copies in Canada with a later printing in the United States.

International Odontoglossum Day
World Orchid Conference 1999

The program and plans for the International Odontoglossum Day at the 1999 World Orchid Conference, Number 16, are complete. The day is Thursday, 29 April 1999 in Vancouver, British Columbia, the second day after the opening of the conference. We will begin with a morning session of five talks. There is an Odontoglossum Alliance noon lunch at which time some of the auction donated material will be available. We expect to have a substantial amount of hard to obtain and unique plants, flasks, and other items. The material auctions will be divided between the noon luncheon and the evening dinner.

Lectures begin at 9:00 AM, continue until 12:10 and commence again at 3:00 PM with the two final talks of the afternoon.

The Odontoglossum Alliance dinner is scheduled for the same evening (7:00 PM) at the Chinese Imperial Restaurant (a walking distance). The menu will be a banquet style with many courses is listed below. In 1997 at our Odontoglossum meeting a dinner was held at the same location. We had room for 50 and had to turn away people who wanted to attend. This year we have made arrangements to accommodate 100 people. At the dinner we will be using a commemorative wine glass, which can be taken away. The balance of the auction material will be an exciting climax to the day.

Dinner Menu

Hot and Sour soup
Deep fried seafood salad roll
Roasted Peking duck
Sautéed lobster and crab with ginger and green onion
Pan fried sliced beef with black pepper
Sautéed diced chicken in kungpo Szechwan sauce
Fried rice with egg white and canpoy
Mango pudding
2 bottles of wine per table
Complimentary commemorative wine glass

All the session speakers are the guests of the Odontoglossum Alliance

Morning Program

Session Chairpersons: Terry and Doug Kennedy

Terry and Doug Kennedy live in Toronto, Canada where they grow a variety of orchids. Terry is an AOS judge. The Kennedy's were awarded the first Robert Dugger AOS trophy for their Odcdm. Cherry Fudge 'Mocha". They have exhibited in numerous shows from coast to coast including the 11th World Orchid Conference in Miami in 1984. The 55 AOS show trophies and countless other awards document there success at these shows.

After doing research in Biochemistry at University of Toronto for 24 years, Terry Kennedy now spends her time with family and plants. With her husband, Doug, she runs Orchids in Our Tropics. She is the current president of the Southern Ontario Orchid Society and has served on the organizing committee for the society's annual show since its inception.

In the spirit of true partnership, Terry is the compliment to Doug. With him, she has been growing and showing orchids for some 25 years. Terry is the one who spends her time on her knees creating the displays that have won the Kennedy's numerous AOS Show Trophies. At the 11th World Orchid Congress she orchestrated a silver medal winning display for the Southern Ontario Orchid Society. Orchids have allowed her to indulge her appreciation for the unusual and esoteric. The inability to resist the strange and/or miniature has introduced much of the variety seen in their collection. A multitude of trophies, AOS quality awards, and three silver medals from the 11th WOC in Miami attest to the quality of their collection.

Doug is a past Vice President of the Mid America Orchid Congress. He has also served several terms as president and show chairman of the Southern Ontario Orchid Society and continues to act as a long term director. Having taken early retirement in 1997, he now devotes full time to his family and vocation-orchids.

Speakers

1. **TITLE: Conservation in Colombia: Bad News**

Juan Felipe Posada, Medellin, Colombia S.A.

Abstract

Destruction of native habitats for flora and fauna in Colombia is being done at such a rate that in very few years not much of the original forests will exist. On one side the natural expansion of the population, that requires more land for housing, agricultural or cattle projects, keeps tearing down original untouched woods and forests. On the other side and even at a much higher rate Colombia's drug problem is causing great devastation.

Drug people destroy enormous areas of forest for their cocaine and heroin production. Once these areas become unlawful plantations the police and the army, with international help, come and fumigate by air with chemicals to root out these plants. To compensate for their production territory loss, then the drug people go further in to other natural areas where they start all over again. And this cycle never ends!

As a consequence the native habitats of our Andean Odontoglossum Alliance species will be lost forever.

Biography

Juan Felipe Posada was born in Medellin, Colombia. He grew up always involved with both parent families in farming, cattle, plants, etc. In 1963, along with his Mother started a small collection of native orchids. Five years later he was joined by his Father, Jamie Posada, in the hobby collection. In 1972 the 7th World Orchid Conference was held in Medellin. At that time the orchid hobby was converted to a commercial nursery and named COLOMBOROQUIDEAS. Since then the nursery has expanded considerably and specializes in cool growing Andean species. Today Colomborquideas is owned jointly by Juan and his mother, Ligia Posada.

Juan Felipe is President of Industrias Estra, a 500 person plastic injection molding company, He has been Trustee and President of the Colombian Orchid Society in Medellin.

2. TITLE: Patterns of the Equatorial Odontoglossums

Alexander Hirtz
Diversity
PO Box 17-1200358
Quito, Ecuador, S.A

Abstract

Odontoglossums, considered as epiphytes, have also adapted to other common areas of no competition like extensive lava-flows and mud slides. The quasi hydroponic conditions on these extensive rocky surfaces are favorable for a healthy growth and allow for an odontoglossum species to multiply by the millions.

After the end of the last glaciation 12,000 years ago, the climate in the equatorial belt has changed dramatically. At least half of the orchid species are the result of punctuated orthgenetic macromutations triggered by adaptive radiation into the new habitats. Odontoglossums appear to be an exception, where the last macromutation probably happened in a previous period of interglaciation, after which natural selection had eliminated the weaker species, allowing for the strong species to invade large districts. During the last ice-age and the formation of new volcanoes, the forests were reduced to refugias, isolating the populations of a given species into various islands. During several mihernia, these populations have acquired distinct color characteristics and minor morphological distinctions to permit a taxonomist to subdivide them into varieties.

The equatorial Odontoglossums are species which have matured in the wild competing to be the fittest, where the weaker species already have gone extinct and could be considered today among the least threatened ones, as they have adapted, along with the required microrhyza and respective pollinators, to thrive on many types of ecosystems conquering extensive geographic surf.

Biography

Alexander Hirtz Naundorff
Graduated at the Colorado School of Mines in 1973
Currently General Manager of Exotic Cultivos, a company specializing in the development of new tropical agro-industrial products; the main project currently under development to be this year on the shelf is ARAZA (Eugenia stipitata), a fruit optimal as a flavor and color enhancer to be mixed with other fruit to produce high quality marmalades, juices, ice-creams, etc..
President and co-founder of TROPICA 2000, a non-profit organization to particularly protect the cloud-forests of the Upper Amazon through protection of specific sites and develop new alternatives as income for the people who live in the surroundings and need to increase their standard of living as means to keep them away from logging the forest. Also TROPICA 2000 is actively involved in public awareness of the worldwide loss of habitat and bio-diversity in the equatorial cloud forest and rain forest.
President of the Latin-American Orchid Council since 1991
Member of the UICN Orchid Specialist Group
Corresponding member of the AOS Conservation Committee
Member of the Site Selection Committee of the World Orchid Conference
Member of the Academy of Natural Sciences of Ecuador
Curator (Ad-hoc) of the Museum of Natural Sciences of Quito
Director and co-founder of the Orchid Society of Quito
Director and co-founder of the Botanic Foundation of the Andes
Co-founder of the non-profit foundations: Antisana, Puruha, Consumers Protection Association and Eco-turism Association
Co-founder of the University of San Francisco de Quito, currently considered to be the most revolutionary University in their teaching approaches and curriculums in Latin-America
Alex Hirtz has discovered or assisted in the discovery of over 600 new species of orchids and several new bromeliads and gesneriads and has co-authored with Dr. Carl Leur and Dr. Calaway Dodson over 300 descriptions of the newly discovered species.

3. **TITLE: Conservation: A Working Point of View**

Sandro Cusi, Rio Verde Orchids

Abstract

Conservation comprises a vast number of areas, many of which for practical reasons are for the present time almost beyond our reach in a country like ours. These reasons being mainly population size, rate of growth, and very short term government planning. Many conservation efforts are wasted because of badly designated objectives and planning that do not consider the local conditions. In order to take advantage of the limited resources available and local knowledge, a project was started in 1997 with the following ideas and objectives

1. Objective: To work in a small forested area in order to establish a management plan for the conservation of the place.
2. Main Purpose: To conserve the water quality and retention capacity of the basin, for human and agricultural uses.
3. Other Purposes: To conserve the habitat for epiphytes and other wildlife.
   To obtain income from ecological tourism; Bird watchers, orchid lovers.
   To help educate local people and tourists in the needs and advantages of conservation.

Biography

Sandro Cusi is owner of Rio Verde Orchids in Mexico. Rio Verde was begun 25 years ago with the purpose of propagating and distributing world wide Mexican orchid species. Breeding is done with superior forms of species as well as line breeding species. Rio Verde Orchids also produces decorative hybrids for the domestic Mexican market. Mr. Cusi has years of experience growing in the natural environment of Lemboglossums (now Rhyncostele). Rio Verde Orchids is in Apartado Postal No. 69, Valle de Bravo, Mexico 51300.

4. **TITLE: The Subtribe Oncidinae (Orchidaceae) in the Mountains of Bolivia**

Roberto Vasquez Chavez, Cochabamba, Bolivia

Abstract

In biological terms, Bolivia is considered a country of megadiversity. The presence of the Cordillera de Los Andes to the west, the extensive tropical forest of the Amazon basin to the North and East and the xerophytic Chaco forest to the South has configured a region very varied in topography and climate, and this combination of factors has created one of the most diverse regions on our planet, but at the same time, Bolivia is one of the least studied countries biologically.

It is believed that around 15,000 - 20,000 species of plants grow in this country, 10% of which belong to the Orchidaceae family. The subtribe Oncidinae is represented in Bolivia by 42 genera and more than 160 species, 25% of which are endemic. The genera with the most numerous species are Oncidium (48 spp.), Odontoglossum (16 ssp.), Pachyphyllum (10 ssp.) Rodriguezia (7 ssp.), and Stigmatostalix (6 ssp.). Undescribed species are constantly being found in the wet mountain forests and need to be studied soon. Increasing basic needs of a growing human population are contributing to the destruction of habitats with negative effects on living organisms including orchids.

Biography

Roberto Vasquez was born in Cochabamba, Bolivia and attended college at High Point, North Carolina with a degree in business administration. His major activities are farming and botany and specializing in orchids. He has been studying the orchids since 1872. With Dr. Calaway Dodson he has published 3 volumes of "Orchids of Bolivia" in the Icones Plantarum Tropicarum series, published by the Marie Selby Botanical Gardens and Missouri Botanical Gardens..

To date 200 orchids, new to science, have been published in co-authorship with Dr. Caryle Luer and Dr. Calaway Dodson. The genus Vasqueziella was named after, Roberto.

He has been a speaker at World Orchid Conferences in Miami, 1984 and Rio de Janeiro, 1996. He is founder and President of the "Sociedad "Bolivana de Botánica".

5. **TITLE: Endangered Hybrids**

Robert Hamilton, Berkeley

Abstract

A century of hybridizing has given us spectacular odontoglossums and odontoglossum intergenerics. Within these hybrid plants reside a fabulous gene pool of species collected during the Victorian orchid craze -- undeniably the best of the best. Regrettably, these species and their habitat are now gone forever. Today's growers have the responsibility to conserve this genetic treasure. In conflict, market forces, such as consumer taste and the goals of award systems drive hybridizing in directions that often destroys breeding "lines".

In "Endangered Hybrids", I define my concept of a breeding line and give strategies for preserving existing lines and for creating new lines. Chromosome counting provides a tool for increased yields. Experiments with the alkaloid colchicine may open yet unexpected pathways to new lines and intergeneric hybrids by creating parents with identical set of chromosomes.

Biography

Robert Hamilton has been growing orchids since 1976. In 1981, after hearing a talk by Robert Dugger, he converted to an Odontoglossum grower. He bought flasks and commenced building a stud collection, enhancing the collection from odontoglossum sources world-wide. In 1985 he initiated his own breeding program; doing his own sowing, flasking and raising of hybrids. He has done considerable hybridizing work following the research dictates of Don Wimber, using colchicine to obtain tetraploid species and re-creating many of the very earliest odontoglossum hybrids with very interesting results.

Afternoon Session

Session Chairman: Milton Carpenter
Executive Vice-President American Orchid Society.

Milton Carpenter, a native of the Florida Everglades, attended schools in Palm Beach County, the University of Florida and the Massachusetts Trades School in Boston, Massachusetts. He has been growing orchids for 38 years and is the owner of Everglades Orchids in Belle Glade, Florida. He is a past president and life member of the Orchid Society of the Palm Beaches. He is also Executive Vice President and a life member of the American Orchid society. He is an accredited Judge of the AOS.

6. **TITLE: Odontoglossum -Taxonomically Endangered**

Stig Dalström, Sweden and Sarasota, Florida

Abstract

A discussion about how to treat various groups of species-complexes in the genus Odontoglossum, which can be taxonomically justified to remain in the genus in a strict natural classification, which groups borderline other genera and which distantly related groups are placed in the genus based on convergent floral similarities only.

Biography

Stig Dalström, born and reared in Sweden, now lives as a resident in Sarasota, Florida, USA. His first experience with the Odontoglossum Alliance, was a couple of jungle collected plants, imported from Central America, which were the first orchids to grow relatively well and flower in his collection This triggered a desire to find other related species and to learn more about them. A trip to Ecuador in 1979 turned out successfully plantwise, but as a failure nomenclaturally. This frustrating situation initiated a continuos quest to produce a taxonomical treatment for this large group of plants. He currently works for The Marie Selby Botanical gardens, Sarasota, Florida, as an artist, illustrator and researcher.

He also works in conjunction with other taxonomists, organizations and institutions.

7. **TITLE: DNA phylogenitics and the *Oncidium* alliance: what to do with *Odontoglossums?***

Mark Chase, Kew Gardens, England and USA

Abstract.

The authors of the paper are Mark W. Chase (Royal Botanic Gardens, Kew), Norris H. Williams and W. Mark Whitten (both of whom are in the Department of Natural Resources, Florida Museum of Natural History, University of Florida, Gainsville, Florida)

The *Oncidium* alliance (subtribe Oncidiinae) has been of great horticultural importance due to the popularity of genera such as *Brassia, Cyrtochilum, Miltonia, Odontoglossum* and *Oncidium*, but the taxonomic distinctiveness of these genera has never been satisfactorily assessed. Lindley was the first to treat all these genera, and he set forth the bases by which they could be defined. The shape of the lip, nature of the lip callus, and the angle by which the lip diverged from the column were the only characters used. Vegetative aspects were entirely ignored. Even today, it is still only the last of these three traits that are used to distinguish *Oncidium* from *Odontoglossum*, but quite a few species appear unable to be placed in either genus, whereas in other cases clearly unrelated species are dumped into the same genus, leaving their close relatives in a different genus. It is quite clear that the current situation does not permit a description of *Oncidium* that clearly permits its separation from *Odontoglossum.* We have used sequences of both the plastid (Chloroplast) and nuclear DNA regions to see whether this approach can shed any light on these problems as it has in many other groups of orchids. Both sets of sequences produce the same patterns of relationships; part of *Odontoglossum* is embedded in one of several groups of *Oncidium* (in this case, the group I, containing the type species of *Oncidium*), the other portion, group II, is embedded within *Cyrtochilum.* Group I is composed of the Digitatum group (excluded from *Odontoglossum* by Bockemühl), Odontoglossum subgenera *Erectolobata, Lindleyana, Nevadensia*, and *Odontoglossum* in addition to *Chochlioda, Symphyglossum, Mexicoa, Miltoniodes* and the great majority of *Oncidium* species outside of Brazil. Group II contains the former *Oncidium* subgenus *Cyrtochilum* (often now recognized as a distinct genus, *Cyrtochilum*) plus *Odontoglossum* subgenera *Serratolaminata* and *Unguisepala* as well as *Neodryas* and the genera recently segregated from *Odontoglossum* sect. *Myanthium* by Königer. By following the rules of classification, all of group I becomes *Oncidium* and all of group II becomes *Cyrtochilum,* completely eliminating *Odontoglossum.* If *Odontoglossum* is to be retained as a distinct genus, then people favoring this idea must produce data that refutes the DNA patterns, opinion alone is not sufficient cause for its retention.

Biography

Mark Chase was originally from southern Michigan where he attended Albion College obtaining a degree majoring in history. He attended the University of Michigan where he was earned Masters and Ph.D. degrees. His thesis was a monograph of the genus Leochilus (Oncidiinae). He did post doctoral work in molecular techniques at the University of Michigan, and then became an Assistant Professor in the Biology Department at the University of North Carolina (Chapel Hill) from 1988 to 1992. He was appointed Head of Molecular Systematics Section in the Jodrell Laboratory at the Royal Botanic Gardens, Kew. His current research, in addition to orchids, focuses on the classification and relationships of the families of flowering plants. He has been particularly interested to discover to which other families the orchids are most closely related.

Pleasant Surprise

The Odontoglossum Alliance received the pleasant surprise of a letter from Peter Poot, President 43rd Eastern Orchid Congress and Chairman Southern Ontario Orchid Show containing a donation of $1000.00 for the participation of the Odontoglossum Alliance in their Congress and show last May. Our thanks for the contribution go to Peter and all those who made the show and our meeting a success. The money is particularly timely as we are having some heavy expenses and negative cash flows accompanying our activities for the International Odontoglossum Alliance Day at the World Orchid Conference in Vancouver this year.

Members Ads

I have been asked to run ads of items for sale by our members, I will run such ads in a single issues of the newsletter. This is for ads by the members for none commercial items. We have a policy of running ads for commercial plants sales. This we will continue to do. If you have an item you wish to sell, you must write me describing the item, any details of it and information on how to contact the seller. The Alliance will not act as a middle man in any of these transactions. We will print the ads as a member service only. To this end we have such an item.

FOR SALE

Mee Fog System
Humidifies and cools as much as 15 F, 1000 psi pump serves up to 60 nozzles; includes computer, prefilter, accurate humidistat and manual; $1500 + shipping.
Contact: Jim Rassmann 541-997-2850 or e-mail: j.rassmann@winfinity.com

Feeding Odontoglossum and Other Cool Growing Orchids

by Robert Hamilton

Plants, like all living things, possess the ability to self-assemble. The instructions for such self-assembly are part of a plants genetic code. In addition to self-assembly, with time, living things can modify these instructions to best suite the environment (adaptation & evolution). I grow plants, specifically odontoglossums, because of their great beauty and their challenge. I try and grow my plants well. My opinions on culture follow, with an emphasis on feeding odontoglossums and cool growing orchids. Most growers, using simple feeding procedures should have good results. I have written this article with more detail for than necessary. To summarize recommendations I have bulleted germane text.

Fundamentals
Plant growth requires the input of both energy and matter.
Energy comes in two forms:

- Light
- Heat

Matter comes in several forms:

- Water, which constitutes about 90% of plant mass
- Minerals and chemical compounds, supplied in solution with water
- Carbon, which is derived from the atmospheric gas, carbon dioxide.

Light energy is utilized in the well-known process **photosynthesis**, the building of chemical compounds through the interaction of light with small molecules. Heat drives **transpiration,** which results in the upward movement of water and minerals within a plant. As water evaporates from the leaves it is replaced from the roots. Without light and transpiration plants cannot grow.

Andy Easton, New Zealand's infamous orchid breeder and grower offers simple advice for growing orchids.

- **"Growing orchids is easy. Just give them the right amount of light, the correct amount of feed, the right amount of water, and the proper temperatures. Your orchids will grow like weeds".**

Invariably, the question is asked, "how much of each of these variables is correct"?

Insufficient light deprives a plant of the energy needed for growth resulting in slow growing or weak plants. It is best to provide odontoglossums with the correct amount of light all year long. This is not easy to do. Classic odontoglossum species grow close to the equator where day and night periods are equal all year-round. Most of us live far away from the equator and our day and night periods vary with the season. For those of us who grow in a greenhouse, we must vary the shading during the year to achieve optimum light levels. There is not much we can do to compensate for the short day length during the winter months.

- **Most growers agree that light levels, around 1800 - 2200 foot-candles produces good growth for odontoglossums**.

The choice of light levels will depend on how well the temperature of the greenhouse can be controlled during the hot summer months.

- **It is better to sacrifice some light than allow odontoglossums to grow too warm.**

Temperature is an easy parameter to define.

- **Day temperatures around 21 - 26C (70F through 80F) grow excellent plants. While night temperatures around 10-14C (50F - 55F) produce the best growth.**

Robert Dugger points out, good results can be obtained during the summer months if a sufficient temperature drop occurs from day to night, even if the optimum temperature cannot be achieved.

- **Much of the chemical activity of a plant occurs at night. It is important that the temperature and humidity are correct in the evening**.

Odontoglossums evolved in the cool, buoyant neo-tropics. Their physiology, roots, vascular system and leaf structure cannot replace water lost through transpiration if the surrounding atmosphere is not correct.

The primary purpose of this article is the discussion of feeding orchids. Next to water, fertilizer is the source for most of the building blocks for a plant (an exception is carbon, which is derived from CO2 through respiration). Fertilizer is typically purchased as a powder, in a bag or in liquid form. These are added to water in Mr. Easton's recommended amount — "the correct amount". This nutrient solution, composed of both fertilizer and water, has mineral concentrations, which are the sum of the fertilizer plus the minerals already dissolved in your water. Some of us have water low in minerals while others of us have water with moderate or high amounts of minerals dissolved in it. Unless you know the quality of the water you start with you cannot know what you are feeding your orchids. This is one reason it is hard to compare grower "A" with grower "B".

N-P-K

Fertilizer is labeled with the quantity of macro elements, nitrogen, phosphorus and potassium sold in the package. In the US, fertilizer labeling must conform to guidelines imposed by each state and all states have relatively similar regulations. Labeling provides the N-P-K values for nitrogen, phosphorus and potassium. Why "K" for potassium? The K comes from the German word for potassium, kalium. K is the internationally accepted symbol for the element potassium. To confuse matters, the N in N-P-K is the percentage of nitrogen and this nitrogen can occur in several forms such a nitrate, ammoniacal nitrogen and urea. P is the percentage of phosphorus as expressed by the molecule P2O5 even when the phosphorus source is not P2O5 and similarly K is the potassium (kalium) percentage as expressed by the molecule K2O. (For this discussion these packaging quarks are not particularly important; however, they point to a lack of cogency in regulations — there is better nomenclature available).

In addition to N-P-K, fertilizer contains micronutrients, nutrients needed by plants in very small quantities. Regulation requires that micronutrients exist in certain measurable amounts before they can be listed. Regrettably, these measurable quantities can approach or exceed phytoxic levels for plants. Micronutrients already exist in our

water supplies and as impurities in the constituents of fertilizer, even when they are not listed.

A confusing aspect of nomenclature is ratio. A 30-10-10 fertilizer has the same ratio as 15-5-5 fertilizer; however, the former is twice as strong per unit of weight.

Feed Ratio

Plants are about 90% water, 10% solids. The ratio of nitrogen, phosphorus and potassium in plant tissue once the water is removed is about 3 - 4.5% N, .3 - .6% P and 3 - 4.5% K (1 - 2% Ca and .2 - .5% Mg). So what do plants need to be supplied for good growth? Plants are adaptable and are not damaged by moderate amounts of N, P, or K, regardless of the ratio. Experimentally, a ratio was determined some decades ago which supported excellent growth in orchids. This ratio is 3-1-2 ratio. My own experience shows this ratio works well. I have reviewed the fertilizing schedules of two, superb commercial odontoglossum nurseries. One uses a ratio of 4-1-2, the other 4-1-4. In other words, nitrogen is added in the largest percentage, with phosphorus significantly lower than nitrogen and potassium somewhere in between. My recommendation:

- **Go for a feed close to the 3-1-2 ratio, long accepted as ideal.**

Ironically, articles on orchid culture often recommend a "balanced" fertilizer such as 20-20-20. If I recommend a "balanced" diet of a pound of meat, a pound of butter and a pound of sugar I would rightly be called insane! 20-20-20 is NOT a "balanced" fertilizer according to the needs of plants; however, the numbers are even and this sells the product. Why do fertilizer companies make 20-20-20? High phosphorus levels in fertilizers are intended to compensate for phosphorus lost in reactions with constituents in some soils thus making the phosphorus unavailable to the plant. These reactions do not occur in consequence with soiless orchid mixes; therefor, high P ratios are is not needed.

- **Providing an element in excess of a plants need means you cannot feed other elements at an optimum rate.**

The ratio of a fertilizer does not express its strength. One can add a small amount or a large amount of fertilizer of any given ratio, thus varying strength. What strength should we feed? Orchids are relatively light feeders compared to other plants. Some orchids, like disas are exceptionally sensitive to feed and are injured at modest feed strengths. I have not found odontoglossums particularly sensitive to moderate feed strengths. How strong you make your feed is partly dependent on the quantity of salts (the word "salts" used here means dissolved compounds, not sodium chloride or table salt) you have in your water before you add fertilizer. If your water is relatively pure you can add more fertilizer than if your water begin high in salts.

- **The important factor is not to exceed a certain total value of dissolved salts.**

The concentration of salts in a nutrient solution, held by the mix, (more correctly "substrate") effects a parameter known as the "salt index" or osmolarity. As the osmolarity of the substrate solution increases less water transport occurs from the roots. Typically, orchids are watered and allowed to partially dry, between each watering, thus a further increase in osmolarity occurs as water evaporates from the substrate. With excessive substrate osmolarity a plants water loss from transpiration will exceed the water replaced by the roots. This results in several problems. A common problem is leaf tip die-back, a condition where the leaf tips dies because of lack of water. Warm days, a poor root system and excessive drying out of the substrate in the presence of high feed rates will exacerbate leaf tip die-back. What is a good, safe level for nutrient solutions?

- **In simple terms, about ½ the application rate found on most fertilizer bags is relatively foolproof.**

Is there a better way to express fertilizer strength? On the side of most bulk fertilizer bags are the calculations for achieving a certain number of parts-per-million (ppm) of nitrogen. This is usually in pounds of feed per 100 gallons of water. If you can do the arithmetic and extrapolate the rate for your feed program:

- **I recommend feeding at about 80 ppm nitrogen.**

Conductivity Meters

There is even a more sophisticated method of determining feed strength. Pure, distilled water has exceptionally low conductivity and virtually all the compounds relating to feed programs, dissolved in water, significantly increase the conductivity of the solution (urea is an exception). Until recently, the conductivity of a solution was expressed in the conductivity unit "mhos". The mho is ohm spelled backwards and mathematically the reciprocal of the resistance unit, the ohm, i.e., 1/ohm's = mho's. One could use either the ohm or the mho to measure conductivity in the solutions we work with for plant culture; however, the conductivity numbers are easier to interpret than resistivity values. To confuse matters, the international committee on scientific units has officially changed the mho to the Siemen honoring the famous German scientist of that name. In keeping with convention, all international units now honor a scientist and are capitalized. Scaling units, such a milli or micro are written lower case. Example: μSiemens

The tradition in horticulture is to refer to the conductivity of a solution as its "EC" (electrical or earth conductivity). The EC of fertilizer feed stocks will vary depending on each specific crop need. The EC for most horticulture crops falls within a range of 0-2000 μSiemens (in "old" units, an EC of 0-2 or 0-2 millimhos). Fairly accurate, temperature corrected conductivity meters are available for around $50. These meters make determining the conductivity of feed solutions relatively simple. These meters are available in either parts per million (ppm) or μSiemens. I recommend the uSiemens meter over the ppm meter. I use one with a range 0-1990 μSiemens when I measure my feed strength.

Why not select a ppm meter? For most purposes, a relatively simple conversion factor can be used to correlate uSiemens and ppm, typically something like uSiemens x .64 = ppm. The hitch is 1 ppm of one chemical compound does not have exactly the same conductivity as 1 ppm of another. Example: 1 ppm ammonium nitrate does not have the same conductivity of 1 ppm of ammonium sulfate. Thus, when measuring a mixture of different compounds one does not measure true ppm's, only an approximate average equivalent. Although the errors are not large, I prefer using conductivity meters which read in uSiemens rather than ppm. Using a conductivity meter a grower can repeatedly mix a particular fertilizer with water to the same target EC. It is most productive to run feed levels high enough for good growth. It is important to avoid excessively high feed concentrations which will result in problems such as leaf-tip die-back and root damage. What is a good EC value?

- **I recommend an EC of 800 μSiemens in the summer months and about 2/3 this rate in the winter.**

Growers with relatively pure, low conductivity water can feed plants higher concentrations of the nutrients plants need than growers who start with water already high in the salts.

- **Supplying the N-P-K levels to a plant at the optimum ratio at sufficient concentration provides the correct amount of feed for good growth. Add the correct amounts of energy in the form of light and heat and one is growing "spot on". The grower who does this for the most months out of the year ends up the winner.**

Urea

Urea is a cheap form of nitrogen often used in fertilizer. Solutions of urea in water have low conductivity. Urea in its better, low biuret grades makes a good nitrogen source for plants grown at temperatures that are above 16C (60F). It is not a good source of nitrogen for cool growing crops, particularly during the winter months because bacteria populations, needed for nitrifying urea, are in low population. Urea requires bacterial action before its nitrogen is available to plants. Periodically, growers recommend using urea as a foliar application of urea to "green up" plants — works like magic. Skeptically, I ran tests on an excellent and vigorous odontoglossum cross, made by Philip Altmann of Australia. Fifty plants of Odm (nobile (4n) x Augres) were selected and divided into

two groups of about equal size plants. For two months I fertilized both with my standard, 3-1-2, urea-free feed. I then followed up with a foliar spray at 100 ppm urea on a group of 25 plants. I did not see any evidence that the treated plants "greened up". To quote a plant physiologist friend, Dr. Shiv Reddy, "there is no magic in the bag".

Substrate (Mix)

Preferred substrates vary considerably from grower to grower. Ingredients for substrate such as fir bark and peat are not consistent products. As an organic substrate ages bacteria responsible for substrate decomposition progressively consume larger and larger amounts of nitrogen thus reducing the nitrogen available to the plant. It is important to change the substrate before it excessively decomposes. In addition, orchids require good amounts of air at the roots. The air-fill capacity (open space) of a substrate decreases and water retention increases as substrates decompose. Repotting maintains good air fill capacity and maintains a consistent level of nitrogen available to the plant.

- **If you use fir bark as I do, repot yearly**
- **Think when combining ingredients to make a substrate (mix). The goal is a substrate is sufficient water retention and air volume. Some mixtures enhance air capacity while others mixtures can reduce it. Avoid making combinations where the sum of the ingredients decreases the air capacity of the substrate.**

Spray & Pray

Various elixirs are sold purporting super results. These invariably have some superlative in their name. These will appeal to growers with a pension for mysticism or who grow in pyramid shaped greenhouses. While you "spray and pray", the sellers of these brews simply prey.

Bloom Promoters

Some feed programs purport to induce flowering when a switch is made from a high N (nitrogen) feed to a low N (nitrogen), high P (phosphorus) program once growth has been "made-up". I suspect these formulas, again, often with superlative trademark names, are not much use. Similar results can be obtained by simply reducing or eliminating feed once growth has been made up. Some orchid species grow vegetatively, failing to bloom when continuously fed high amounts of nitrogen. I have not found this true of odontoglossums.

- **Use the same feed ratio all year long**.

Summary

- **Select a fertilizer with an N-P-K ratio of about 3-1-2.**
- **Avoid fertilizers containing urea as their nitrogen source. Urea is not efficiently metabolized by the bacteria found in cool substrates.**
- **Feed at about 80-100 ppm nitrogen level or about ½ the strength of most manufacturers recommend.**
- **Feed every watering.**
- **If you have a moderate collection you may find a liquid feed convenient and cost effective.**
- **If your water is high in salts, fertilize at a lower rate.**

- **You may want to purchase a simple EC meter in the 0-1990 µsiemens range to aid in mixing and measuring feed strength.**
- **Avoid elixirs unless they have mental health benefits for you. Strive for a good root system.**

During my piano studies, I learned a quote of Wanda Landowska's, famous harpsichordist. Her critical comment to a colleague, "You play Bach your way and I'll play Bach his way". I think my way is a pretty good way!

Bob Hamilton 8/98

Editors Note: This article has been revised by Bob Hamilton. In its previous state it was printed in an earlier newsletter.

Notices

BY-Laws

We have a revised set of By-Laws for The Odontoglossum Alliance. Helmut Rohrl, our Chairman of the Board has been diligently working on them. I will be publishing them in the May newsletter. That is the newsletter mailing when I send out the dues request for the year or years ahead. On that dues request will be an ability to vote for or against adoption.

Election of Officers

Using the same dues request letter I will also be sending out the slate of directors to be elected for the coming three years. Again you may vote on this slate or write in a candidate. If you would like to nominate someone to that slate, please contact Helmut Rohrl, before 1 May 1999. You may contact Helmut Rohrl at : 9322 La Jolla Farms Road, La Jolla, CA 92037

Miltonia Limelight

The picture of this modest size *miltonia Limelight* is the product of the growing of Valerie Henderson. She believes this is the name of the plant, but knows that it was mis-labeled when she got it. How's that for a few flowers.

Organizations Selling at WOC99

This is the list of organizations that have signed up to sell at the WOC 99. This list may obtained from the World Wide Web page of the World Orchid Conference 99 using their address:

http://www.hedgerows.com/WOC99/index.htm

Taiwan Sugar Corp / FTSA Phalaenopsis Orchid Farm, Taiwan/Canada
Out on a Limb, USA
Rod McLellan Co., USA
Chanthorn Orchids , Canada
Tuckers Orchid Nursery, New Zealand
Sun Moon Orchid Inc. Group,Taiwan
Naturalia Publications (books), France
H & R Nurseries, USA
Orchids of Los Osos, USA

Southlands Nursery, Canada
V & J Greenhouses, Canada
Woozworks Ink (artwork), USA
Arnold J. Klehm Grower, USA
Oriental Orchids,Canada
Orchids & Distributors, Canada
Suwada Orchid Nursery, Japan
Brashear & Dunn, USA
Floralia Orquidarios Reunidos, Brazil
Rocky Mountain Orchids, USA
Aranda Orquideas, Brazil
Ronaldo Pangella, (artwork) Brazil
White River Orchids, USA
Ratcliffe Orchids Ltd., England
Plested Orchids, England
Sunset Orchids, USA
A World of Orchids, USA
Motes Orchids, USA
Orquideas del Valle, Columbia
Katy Buck International (artwork), New Zealand
Orchideen Wubben/Equatorial Plant Co., England
Brother Orchid Nursery, Taiwan
Exotic Orchids of Maui / Norman Mizuno Orchids, USA
CJM Orquideas, Peru
Strawberry Creek Orchids, USA
Quinta Ardennes Orchids, Paraguay
Maisie Orchid Nurseries, USA
Orchid Inn, USA
Bangkok Botanical Garden, USA
Hillsview Gardens Orchids, USA
Paphanatics, Unlted, USA
Fordyce Orchids, USA
Tokyo Orchid Nursery, Japan
Hoosier Orchid Co, USA
Gemstone Orchids, USA
Orchids Floriculturing Inc, Taiwan
Orquifollajes Ltda, Columbia
Plantio La Orquides, Venezuala,
A & P Orchids,USA
Timber Press (books) USA
Wizzy Wiggit, USA
Bela Vista, Brazil
Kelsey Creek Labs, USA
Linda Petchnick (artwork), USA
J & L Orchids, USA
Soroa Orchids, USA

Hanajima Orchids, Japan
Carmela Orchids, USA
Brookside Orchid Garden, Canada
The Golden Orchid, USA
Taida Horticultural Co, Taiwan
Orquideas Rio Verde, Mexico
BC Greenhouse Builders, Canada

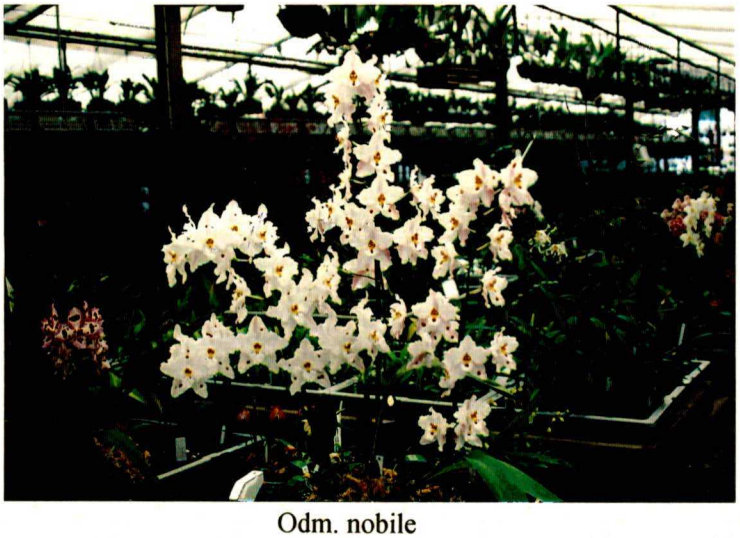
Miltonia Limelight
Valerie Henderson

Onc. tigrinum x Odm. Pescadero

Oda. Fremar x Trixero

Oda. Costro x Durham Lace

Onc. tigrinum x Oda. Snow on Fire



Odm. nobile