

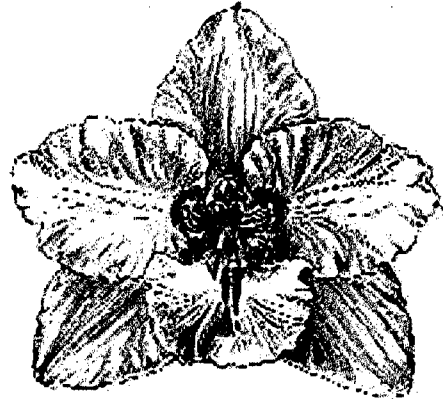
Odontoglossum Alliance Newsletter

Volume 5

February 2011

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Odontoglossum Alliance Meeting to be Held in San Francisco 3-6 March 2011

The next meeting of the Odontoglossum Alliance will be held in San Francisco at the time of the San Francisco Orchid Show 3-6 March 2011. The Preview Party is on Thursday night, 3 March 2011. We are having a joint meeting with the Pluerothalid Alliance on Friday 4 March commencing at 6:00 PM. We have decided to repeat the venue of our meeting that we did in February 2010. We had little time to explore options although we checked on the AOS Trustees meetings. Their meeting in 2011 is in Louisiana and we thought there would be almost no representation of the Odontoglossum Alliance. Instead we decided to start planning now for a location other than San Francisco for 2012.

The meeting will be held in Room C362 at the Fort Mason Center which is located in the same complex as the entrance to the Orchid Show. The venue for the meeting commencing at 6:00 PM begins with a cocktail hour followed by dinner. We will have one speaker, Manolo Arias, of Peruflora, Peru, S.A. for both organizations. His talk is titled "Peru, a Country to be Explored". He will focus on the Peruvian orchids, perhaps with some of his exploration where Steve Beckendorf and Stig Dalstrom accompanied him. Peraflora will have a booth at the San Francisco Orchid Show.

Following the talk will be the auction of fine material. Featured wines will be served before and during dinner. The menu will include choices of roast turkey and baked ham. Members of both Alliances living in the area will contribute by providing a variety of appetizers and specialty dishes. In recognition of the economic climate we tried to make the individual cost as attractive as possible for members to attend. Last year we did not charge for the dinner. The talk is planned to cover the interests of both Alliances (OA and PA). As usual there will be an auction of fine material from both alliances. I expect to see some premium Odont divisions available as well as some new hybrids in the auction.

We will see if several local greenhouses can be available for touring on Friday, Saturday and Sunday. Later in the newsletter is some material on local motels close to Fort Mason.

Several venues were considered and the overriding factors were the current economic climate and the success of last year's meeting. It is hoped this decision will be attractive to many of our members and that we will have a good turnout.

Tickets to the Preview Party and the show can be obtained over the internet. The address for the web site where these can be ordered is found is:

<http://www.orchidsanfrancisco.org/poe.html>

We do not expect there will be a charge for the dinner and meeting. In the February we will have firmed up the total program as well as the costs. Last year all the cost was covered by donations of food and wine from the members of the Pluerothalid Alliance and the Odontoglossum Alliance. Also both organizations provide payment for the location and some of the other items. Thus attendees had no expense at the meeting. That is unless they bid and acquired some valuable items at the auction.

We look forward to a good crowd. In this February newsletter are the details on the meeting. This includes suggestions as to hotel locations close to the show. The San Francisco Orchid Show is the best show in North America to see Odontoglossum alliance material in a show. The sales area is huge with many opportunities to acquire high quality and unusual material.

A good web site to look for hotels is: www.sftravel.com. The specific page is <http://www.sanfranciscovisitor.com/bgt.html>. A selection of hotels picked from the web site follows.

Travelodge by the Bay (415) 673-0691

1450 Lombard St. San Francisco, CA 94123

Lombard Motor Inn (415) 441-6000

1475 Lombard St.

Francisco Bay Motel (415) 474-3030

1501 Lombard St.

Redwood Inn (415) 776-3800

1530 Lombard St.

Town House Motel (415) 885-5163

1650 Lombard St.

Star Motel (415) 346-8250

1727 Lombard St.

Cow Hollow Motor Inn* (415)-921-5800

Lombard Street

S F Motor Inn (415) 921-1842

1750 Lombard St.

Coventry Motor Inn (415) 567-1200

1901 Lombard St.

Ramada Limited (415) 775-8116

1940 Lombard St.

Buena Vista Motor Inn* (415) 923-9600

PO Box 475517 San Francisco, CA 94147

Chelsea Motor Inn (415) 563-5600

2095 Lombard St San Francisco, CA 94123

Motel Capri (415) 346-4667

2015 Greenwich St.

Hotel Del Sol (415) 921-5520

3100 Webster St.

Best Inn (415) 776-3220

2850 Van Ness Ave San Francisco, CA 94109

These hotels are within a couple of blocks of Fort Mason. These appear to be clean and comfortable, but not elegant. The web site offers reviews of the hotels. The ones marked with an * I have stayed at for previous meetings and shows. They are clean, neat, not elegant, reasonably priced and with parking. I often walked to the show from these hotels.

The meeting to be held on Friday evening will be in the Room C362 which is in the show complex in the Fort Mason Complex and easy walking distance from the orchid show entrance. The room will be open at 5:00 PM for the start of set-up. The cocktails and dinner will commence at 6:00 PM.

Remember the room number is C362

The location is:

Fort Mason Center

Landmark Building A

San Francisco, CA 94123

Phone 415-345-7500

Auction

The auction of fine material both from the Pluerothalid Alliance and the Odontoglossum Alliance is always an exciting and fun time. Some very unusual material is donated each year by our members and guests. We have constructed a meeting this year that will have no individual costs. We ask all attendees to find something that can go in the auction. I will be contributing a replated flask of a Tribbles cross Oda. Trish X Odm. Tribbles. I expect there to be several more very unusual divisions as well as some new crosses.

Come to the meeting with at least one contribution to the auction table. Be prepared to bid and acquire something really special for your growing and pleasure. Encourage those coming to do the same. Be an active participant both in contribution of auction material and enhancing your collection by bidding and winning.

Remember we keep our dues low at \$15.00 per year. What makes it possible to have newsletters with colored pages are the results of our auction. Without contributions from the auction we would be severely limited in the number of color pages we could afford. We want to keep the dues low and at the same time keep trying to improve and increase the newsletter with important information for our members. Our membership continues to decline a little each year. We should work to make our organization attractive with all our activities. The Odontoglossum Alliance needs to find ways to encourage orchid growers to find the beauty and pleasure in growing and having these beautiful plants with their lovely flowers.

Make a contribution to the Auction

Will We Have Odontoglossums or Will All Be Oncidiums? An Update

THE ODONTOGLOSSUM ALLIANCE In early December 2010, the Advisory Subcommittee on Orchid Registration (ASCOHR), under the chairmanship of Johan Hermans, will meet to discuss the recommendation for the nomenclature changes to the *Odontoglossum*–*Oncidium* group based on DNA research. The current recommendation is for *Odontoglossum* to be included in the *Oncidium* group. The committee has requested that they are especially looking for alternative interpretations and any scientific evidence supporting their recommendations. Hermans has asked that recommendations be received by the committee by the middle of November. Both Stig Dalström, Sarasota, Florida, and Steve Beckendorf, Berkeley, California, submitted alternate proposals supporting a classification that would leave *Odontoglossum* as a separate group. Beckendorf has taken the original DNA data and done his own analysis to support his recommendation. The results of the meeting will be known sometime in December¹. In the February 2011 *Odontoglossum Alliance Newsletter*, we will publish the results of the ASCOHR's deliberations along with the material submitted by Dalström and Beckendorf. We hope to have a report at the same time of the detailed deliberations of the RHS Subcommittee. — John Miller, Editor, *Odontoglossum Alliance Newsletter* (e-mail JeMiller49@aol.com).

¹ After this news item was submitted, the RHS Advisory Subcommittee on Orchid Hybrid Registration (ASCOHR) met on December 8, 2010, and discussed the implication for the Orchid Hybrid Register of name changes made in *Genera Orchidacearum* (GO) Volume 5; the main adjustments concern generic boundaries in the *Oncidiinae*. The following was issued by Johan Hermans, chair, ASCOHR, "A number of valuable contributions were received regarding the *Oncidiinae* predicament and carefully considered by ASCOHR members. ASCOHR supports and recognises the valuable work by the international team behind *Genera Orchidacearum* but considering some last-minute written contributions and discussion at the meeting made it clear that some further dialogue would be sensible. ASCOHR is very aware that a resolution is eagerly awaited, especially in horticultural circles where the status of the genus *Odontoglossum* is causing concern; it was therefore decided that a final recommendation would be made at our next meeting in May 2011. Meanwhile I have asked the RHS Advisory Committee on Nomenclature and Taxonomy to look at the issues involved and make suggestions, more discussion will take place and I would like to invite further serious opinion."

Johan Hermans
Chairman ASCOHR
8 December 2010
orchids1@btinternet.com

It is very important that the Odontoglossum Alliance respond to the Hermans request for a second meeting to be held in May 2011 if we wish to retain the genus *Odontoglossum*... Steve Beckendorf and Stig Dalstrom have both agreed to provide material in support of a nomenclature that provided for *Odontoglossum* as a genus. Our members need to support this effort where they can. Steve has a very specific need to have some fresh flowers of *Oncidiums*. I ask all members to do what they can to support his request.

Steve Beckendorf's Specific Request

Here's my request to the membership.

Stig Dalstrom and I are trying to understand how the Oncidiums, Odontoglossums, Cochliodas, Sigmatostalixes, and others are related to each other and how the morphology fits with the DNA sequence trees that have been constructed by Norris Williams, Mark Whitten and Mark Chase. There are a few crucial groups that we don't understand very well and it would be very helpful to have fresh or even pickled flowers to study. If any members of the Alliance grow these species and would like to help, please contact me at

beckendo@berkeley.edu.

The species of most interest right now are all Oncidiums:

Oncidium obryzatum

Oncidium obryzatoides

Oncidium trinasutum

Oncidium boothianum

Oncidium schmidtianum

Oncidium tipuloides

Oncidium zelenkoanum

Thanks to everyone

Letter from Mark Whitten dated 11 November 2010

Dear Johan, Steve, et al.,

Steve has asked for my opinion regarding the controversy regarding *Oncidiinae* classification. Here is what I feel I can contribute.

First, I agree that changes should be based on published, peer reviewed data. Mark Chase based his GO5 treatment on the unpublished molecular trees provided by Norris Williams and me. I'm not sure why Mark used just the ITS data and trees, rather than the better supported trees based on 5 gene regions (ITS plus several plastid regions); I gave him the 5-region data set to use. However, the major clades are reflected in both sets of trees. I had hoped Norris would have these published by now, but he has had several health problems in the past two years, including a stroke. I'm hoping I can help him get this written up and submitted for publication early in 2011. I do feel that the data are reliable (perhaps with some minor misidentifications that need correction), and that taxon sampling is sufficiently broad across *Oncidiinae* to reveal all the major clades.

This single tree that I gave to Steve should not be regarded as the "true" topology; I did not send a tree with bootstrap values, and some nodes within the tree may vary among replicates. That will have to wait for publication.

The molecular data clearly show a clade that corresponds to *Odontoglossum* and another that is *Oncidium* s.s., together with a number of minor clades. If *Odontoglossum* and *Oncidium* s.s. were recognized at generic level, then these minor clades would also have to be recognized at generic level, resulting in some moderate level of nomenclatural transfers. As I understand Mark Chase's opinions, he feels that it is too difficult to find some morphological synapomorphies that define all of these separate clades; therefore, it is better to just accept that there is a great diversity of pollination systems and floral morphologies within a broad *Oncidium*, which is diagnosable by vegetative features.

I am conflicted on this; obviously, some of the minor clades are easily diagnosable by unique sets of floral and vegetative traits, such as *Cochlioda* and *Sigmatostalix*. However, I am unconvinced that any sets of characters can distinguish *Odontoglossum* from *Oncidium* s.s., and from several of the minor clades. For example, I find that adnation of the lip in *Odontoglossum* is quite variable, based on the drawings and floral dissections that I have examined. And the presence of a tabula infrastigmatica cannot be used to diagnose *Oncidium* s.s., since the same "Oncidium" floral form with tabula occurs widely within *Oncidiinae*. And some of the minor clades have flowers that are very typical of those within *Oncidium* s.s.; what traits separate these from *Oncidium*?

I do not have a deep knowledge of morphology of *Oncidiinae*, and researchers such as Stig may well be able to come up with a list of characters that will serve to distinguish all these genera. If Steve and Stig and others can create a list of synapomorphies for all these clades that satisfies other orchid taxonomists, then I would have no objection to a more finely divided classification of *Oncidiinae*, so long as the genera are monophyletic and reflect the molecular data. At present, I feel that the ball is in their court; if they wish to disagree with the Chase classification, then it is up to them to find the characters that diagnose the genera and to publish a revised classification.

Best,

Mark Whitten

Florida Museum of Natural History

Letter from Steve Beckendorf to Johan Hermans dated 10 November 2010

Dear Johan,

Thank you for asking me to submit more information to help ASCHOR decide whether to adopt the expanded concept of *Oncidium* that Mark Chase proposed in GO5. In addition to my comments, Stig Dalstrom recently sent an email to Julian Shaw and a few others with his ideas. I hope this has now been circulated to the committee. In addition, Mark Whitten said he would send an email with his current assessment of the situation.

In my comments before your May 2010 meeting I expressed my concerns about the errors in the GO5 *Oncidium* presentation and the fact that the rationale for *Oncidium sensu lato* was based on unpublished data. I argued for a more conservative treatment that would preserve several familiar genera - *Oncidium*, *Sigmatostalix*, *Odontoglossum*, *Cochlioda* - while creating a limited number of new genera as suggested by the molecular results. I still think that the expanded *Oncidium* is a very heterogeneous group and that a more traditional treatment would be more informative, both to people studying them and to those growing them. In the case of genera and species used frequently in hybridizing, such a treatment would also help preserve horticultural history.

The minutes of the last meeting indicated that there was some concern about the appropriateness of the tree I used to illustrate possible generic subdivisions in the *Oncidium*-*Odontoglossum* clade. For completeness and to update the GO5 tree, I've now attached a tree sent to me recently by Mark Whitten that is based on sequencing five genes, not just the ITS sequences used in GO5, to show relationships within this clade (GO5 clade G). The attached pdf includes the entire *Oncidiinae*; clade G begins with *Odontoglossum hallii* near the bottom of page four and continues to *Oncidium heterodactylum* near the bottom of page six. You'll notice that this tree continues to use the previous generic names.

This more complete tree has some interesting differences from the GO5 tree. These differences show that apparent phylogenetic relationships can sometimes change as additional data is acquired. These differences emphasize the importance of basing taxonomic changes on peer reviewed, published data. I'll give two examples.

In GO5 Chase writes (page 313): "Several species of what nearly every taxonomist would consider members of *Oncidium*, such as *O. chrysomorphum* Lindl., *O. trinasutum* Kränzl., and *O. obryzatum* Rchb.f., are more closely related to the bulk of *Odontoglossum* than they are to the rest of *Oncidium* s.s., even closer than species such as *Odontoglossum povedanum* P. Ortiz and *Odontoglossum trilobum* Schltr."

The newer tree no longer shows this confusing situation. *Odontoglossum trilobum* is actually *Oncidium aurarium* and is not located near the *Odontoglossum* clade; instead it's sister to *Oncidium leucochilum*. The earlier placement was apparently due to an incomplete or incorrect DNA sequence that was misinterpreted by the software. On the five gene tree, *O. povedanum* is solidly within the *Odontoglossum* clade, most closely related to the *astranthum* group, *Cochlioda* and *Solenediopsis*. *O. povedanum* is no closer to the *chrysomorphum* group than are any of the other members of the *Odontoglossum* clade. This result makes it much easier to understand how the *chrysomorphum* group and the rest of the *Odontoglossum* clade diverged.

Sigmatostalix is also in a very different position in the 5-gene tree compared to the GO5 single-sequence tree. In the GO5 tree *Sigmatostalix* seemed to be buried within the *Oncidium* s.s. part of the tree,

closest to *Oncidium reflexum* and *oliganthum*, whereas on the 5-gene tree *Sigmatostalix* sister to the *Oncidium boothianum*, *zelenkoanum*, *obryzatum* group, very far away from *reflexum* and *oliganthum*.

I'm not sure what caused these major changes, but for me they reinforce the idea that it is premature to alter the taxonomic treatment of clade G. I'm aware that to strengthen the argument for my proposal it is important to identify morphological characters that can distinguish the proposed genera in clade G. I've recently begun to accumulate these characters and am very encouraged. I hope there will be a little more time to do a serious treatment that will align the morphology and DNA analysis.

Best wishes,

Steve

Steven Beckendorf

Department of Molecular and Cell Biology

University of California

Berkeley, CA 94720

***Odontoglossum*- to be or not to be**

By Stig Dalstrom

When all members of the orchid genera *Cochlidia*, *Odontoglossum*, *Sigmatostalix* and *Solenidiopsis* were lumped into *Oncidium* (Orchids, December 2008), it high-lighted an unresolved discussion that has been going on for decades. Personally, I believe this transfer is a mistake for many reasons. My primary objection is that it does not improve the taxonomic situation. On the contrary, it creates many new complications and I will explain my arguments here.

There are two "sections" of this problem, one dealing with the consequences of the transfer, and the second deals with what I believe is a better way to handle the nomenclature situation and why.

I understand that Steve Beckendorf has explained his view of this unfortunate situation, where he is very critical of how the work was done. I agree with Steve. There are many weak spots in this work. Species have been misidentified, the authors don't seem to be familiar with the plants involved and some species seem to jump back and forth from time to time. We have a similar case with *Cattleya*, where one DNA sequencing after another resulted in different transfers until we today are back to square one again. This demonstrates the subjectivity (and weakness) in this particular scientific process and technique.

Another example is what was originally described as *Oncidium aurarium* by Reichenbach, and then again later as *Odontoglossum trilobum* by Schlechter (who did not have access to Reichenbach's herbarium at the time). I had problems making up my mind how to treat this species when I first began working with *odontoglossums* in general. I eventually concluded that it belonged together with the *Odontoglossum astranthum* group, based on morphological features. In an early published DNA cladogram of this group of *Oncidiinae* (Williams et al., Lindleyana 16, 2001), this species falls well within the *Odontoglossum astranthum* clade (branch, or group). I then officially transferred this species to *Odontoglossum aurarium*, based on a combination of morphology, ecology, and what I thought was unquestionable molecular evidence.

Some years and some cladograms later (unpublished data), I find this species deeply embedded in *Oncidium*, together with *Onc. leucochilum*. What happened? I am not well trained in molecular techniques, although I have performed a sequence under the supervision of Norris Williams and Mark Whitten at the Museum of Natural History in Gainesville (both co-authors of the name transfer). During this lesson it occurred to me that the computer can present different interpretations of the analyzed data and that there are subjective decisions to make along the process. In other words, there is a certain flexibility involved with this technique.

This does not explain, however, why *Oncidium/Odontoglossum aurarium/trilobum* could jump from being deeply embedded in one clade, and into another clade relatively far away. Then, when I look at the cladogram provided in *Genera Orchidacearum* 5 (GO5) it shows that "*Oncidium (Odontoglossum) trilobum*" is back in the *astranthum* clade again.

I am not going to repeat Steve's criticism here, despite its seriousness, but will focus on some equally important taxonomic and nomenclatural issues.

When I read down the list of new *Oncidium* taxa I realize that it represents a transfer of names rather than biological species. Some of the taxa that now reside under *Oncidium*, according to Chase and others, have nothing to do with that genus other than being members of the same subtribe; Oncidiinae. Species such as "*Onc.*" *contaypacchaense*, *machupicchuense*, *pseudomelanthes* and *rubrocallosum* are in reality members of *Cyrtorchilum*. It appears that these species have been transferred not based on what they are, but rather what they have been described as (*Odontoglossum*). If the authors of the transfer had made DNA analysis of these taxa this would have become obvious. Based on my experience with these orchids, my conclusion is that they did not, and yet they decided that these species belong to *Oncidium*. On what basis? What have we gained?

Chase and others argue that one reason to lump the genera dealt with here is because only experts will know how to deal with them otherwise. Personally, I do not agree with this argument and claim that many of the mistakes made in this process could have been avoided if somebody with special expertise in this particular field had been participating. Nature is truly a complex reality and sometimes it takes "experts", who can dedicate their efforts to particular details of a problem, to help others interpret and understand certain phenomena, such as Oncidiinae classification. There is nothing wrong with that.

Many of the name transfers represent synonyms, such as "*Oncidium*" *hrubyatoides* (= "*Onc.*" *cruentum*), *rhombicalla* (= "*Onc.*" *tigroides*), *beyrodtianum* and *noezlianum* (= "*Onc.*" *densiflorum*). Why is it necessary to transfer already established synonyms? It just adds more names and more work for those who try to deal with them in floristic treatments. Scientific papers have been published in the past where these "names" have been treated, explained and consequently placed in synonymy with the earliest published name. If Chase and others were serious about their efforts of trying to make it easier for people to work with these orchids and their multiple names, why not follow what already has been established?

Another unfortunate but amusing and relatively minor detail is the choices of new names. If we take "*Oncidium*" *hrubyatoides* as an example (there are many!), the species name seems to indicate a likeness between the plant and the person it was named after. I have never met the Baron von Hruby but I doubt that he looked much like the orchid that was named in his honor, which in any case turned out to be a synonym of a different species (*Odontoglossum cruentum*).

More serious is the effect the name transfer has on the efforts of classifying and identifying these already troublesome plants. Traditionally, we are trying to create groups, or clades, of species that are both genetically monophyletic and share a combination of distinguishable features in order to treat them as separate genera. This is not an easy nor an exact science, but an effort to make it possible to manage the mass of information Nature provides and to identify the taxa living on this planet. This is really a "temporary" effort since evolu-

tion never stops. It is a bit like freezing a car race at any given moment in order to see what the positions are. A few moments (millenia) later the positions may have changed entirely. But we want to know what the situation is like today, and that is where taxonomy fits in.

One of many problems with orchids is that they keep evolving back and forth. In addition, plants in *Oncidiinae* rely to a great extent on deception in order to fool a pollinator to pick up the pollinia from one flower and to deposit it on a different flower, on a different plant but of the same species. This apparently rather successful strategy has supported the development of many variable species, which makes identification and classification difficult for us. We simply have to accept this and be prepared to allow a certain amount of flexibility and also exceptions from hypothetical taxonomic rules that we imply on plants (and animals). In other words, exceptions are acceptable but not desirable. This is also mentioned by Chase and others in GO5, where the authors argue against establishing monotypic genera, but then still do it when they believe it is appropriate.

Another argument that is mentioned in GO5 is that a shift in a pollination syndrome is not a suitable base for generic differentiation. I don't agree with this. If there is a shift in a pollination syndrome that leads to the development of different looking plants and flowers, and this is a monophyletic process, then why should we not use this to separate troublesome groups of plants? A shift in the pollination syndrome usually means a shift in the morphology as well and such features are both user-friendly and practical in order to identify the plants. We don't need to know where the plant comes from, or have access to a laboratory to identify a plant of uncertain origin, if we can rely on morphological features for a quick decision. Naturally, the ultimate taxonomic placement of a particular species should be based on a combination of as many different evidence and features as possible, including molecular evidence, but not completely depend on and steered by DNA sequencing.

In the case of *Odontoglossum* versus *Oncidium*, I doubt that too many people have problems separating these genera, except in a few dubious cases where a handful of species seem to "hang" somewhere in between. Yes, there are a few *Oncidium* species that tend to "look" like *Odontoglossum* species. This is to be expected. And yes, we now apparently have some *Odontoglossum* species that look like *Oncidium* species as well. Can we trust the molecular work, and decisions behind this? Or will these species end up somewhere else in future cladograms? Exceptions are acceptable but not desirable, and we will have to deal with these intermediate taxa whether we like it or not.

Chase and others have chosen to lump *Cochlioda*, *Odontoglossum* etc. into *Oncidium* due (in great part?) to the existence of these "intermediate" species. I prefer and argue for keeping these groups separate. Based on the cladograms presented as evidence for the transfer, we can just as well keep them separate by transferring a handful of names into *Odontoglossum*. This can be done in several ways (of course) but it seems to me that the most practical way is to maintain a broader *Odontoglossum* concept and transfer *Cochlioda* and *Solenidiopsis* into *Odontoglossum* (Both *Cochlioda rosea* and *Solenidiopsis tigroides* were originally described as *odontoglossums*). In addition, we need to transfer one "intermediate" clade consisting of *Oncidium chrysomorphum* and *Onc. trinasutum* into *Odontoglossum*. The remaining clade of "intermediates"; *Onc. boothianum* etc., are in my opinion best left in *Oncidium* (as exceptions for the time being). The alternative would be to create a separate generic name for them ("Oncidiopsis" perhaps), which I do not favor. The status of these species is rather uncertain in my mind and I would rather see them remain in *Oncidium* for the time being and await future molecular work for further clarification. According to Chase and others, as well as the original authors, they are *oncidiums* anyway. These plants look like *Oncidium* species and they obviously "act" as such. My suggestion is to "bend" the rules a tad and leave them in *Oncidium*, at least for the time being.

It does not make sense to me to place so many different looking species together, when we don't have to. Based on the molecular work performed by Chase and others, with or without flaws, we can easily maintain a relative and desirable nomenclatural stability with a minimum of efforts (name transfers). I am convinced that any person who spends a little time with these plants can learn how to recognize an *Odontoglossum* from a

Sigmatostalix, and from an *Oncidium* of general appearance, with few dubious exceptions (as mentioned). If we lump them together, there is simply no way to characterize and distinguish the genus. We end up with a large and awkward mess consisting of species that have little or nothing visual in common. In addition, how do we separate this generic "waste basket" from the Brazilian *Gomesa* "waste basket"? Has it not been the struggle for a century to split up unmanageable genera such as *Bulbophyllum*, *Dendrobium*, *Epidendrum* and *Pleurothallis* into smaller and natural groups? Recent efforts based on molecular evidence have been made to split up Huntleyiinae and *Maxillaria*. Why are we going backwards in this case?

Sarasota, October 25, 2010

Stig Dalström

Two Lovely Hybrids

Andy Easton

Oda Taylor Barfield

I have always had a fondness for "Twiggy-like" *Odontoglossum* Alliancehybrids and this particular plant is fast becoming a favorite. I personally have had no success in breeding from Oda Keighleyensis so I compliment Glen Barfield for making this beautiful hybrid. It is a plant of unusual vigor. I was given a small division by the ever-generous Bob Hamilton this past Spring and it established quickly and is presently in bloom with three inflorescences. Now there are no hybrids attributed to it to date so maybe the plant has fertility issues but it certainly bears using. The color is amazingly vibrant for a hybrid with 50% of its ancestry stemming from *Odmcirrhosum*. Also, it certainly doesn't hurt that the warmer-growing *Odmpraestans* is one of its grandparents either.

I have long known that there are two types of Odonts. Those that grow and those that don't! I have a great fondness for the former and believe that hybrids made from them are much more likely to find commercial acceptance. If you make hybrid with plants that have been in cultivation for many years, you can be fairly sure that the offspring will tend to exhibit the same survival tenacity as that of the parents.

This is the sort of plant that our good friend Keith Andrew would term a "real orchid". After all, with more than 50 years of experience in the field, he is surely well qualified to comment. In that the plant had more than 30 flowers on the stem when awarded an AM/AOS, one might be tempted to ask why the award was not even higher. Based on an evaluation of improvement over parentage, this appears to me to be a very successful hybrid.

Vuylstekeara Fall In Love

This was a Geyserland hybrid, registered by Mukoyama in Japan. I hesitate to attach a varietal name to the picture as it has been pirated under several different clonal names which makes for considerable confusion.

It is a hybrid of Vuyls. Mem. Mary Kavanaugh, a tetraploid first generation hybrid of *Miltonia spectabilis* *moreliana* var *Royalty* 4n with a probable tetraploid Oda Elpheon, that was then crossed to Oda Helen Stead (Oda Joe Marshall X *Odm crispum*). The hybrid itself seems to have quite acceptable warmth-tolerance.

Let's for a moment consider the Vuyls Mem. Mary Kavanaugh parent. We had been told for years that

spectabilis moreliana would be a terrible parent and likely to totally reduce the inflorescence count in its hybrids to unacceptably low numbers. In this as in many other things, Moir was totally wrong. I never knew the man and from his writings, I considered him to be a bit of a windbag. My good friend Gary Baker held a very divergent view and corresponded with him regularly on aspects of *Odontoglossum* Alliance intergeneric genetics. Whatever! Clearly the range of hybrids with the tetraploid form of 'Royalty' had remarkably tall and even branched inflorescences. Obviously the Oda Elpheon that Tom Perllte used to make Mem. Mary Kavanaugh was a good thing, with notable floriferousness but the Fall In Love hybrid exceeded even my wildest expectations.

Many hundreds of thousands of FIL's have been sold around the world and now it seems to be becoming a quite fertile parent too. Most of us seem to be crossing it back to traditional *Odontiodas* but there may well be interesting avenues to explore with the addition of some Beallara or Wilsonara blood. Surely some colors away from various lilac shades will be possible in the next generation?

THE DISCOVERY OF A "MISSING LINK" TO A TAXONOMIC CONUNDRUM

Perhaps the greatest debate today in the world of plant taxonomy, is how to adjust to the rules of molecular based classification. It seems obvious to me that these rules originate in the molecular science based camp, but I admit that they do make sense to a considerable degree. It really is helpful to understand how organisms are genetically related to each other. What I disagree with, however, is the tendency to base taxonomy on molecular evidence only and ignore more practical and user-friendly morphological features, which we can see either directly with the naked eye, or via a microscope. After all, if we cannot use the classification system in real life and in the field, it becomes pretty useless. Therefore, a system based on a combination of molecular evidence and plant morphology is much to prefer. This is not an easy task to accomplish though and we will probably never find a perfect system that can please everybody. But if we aim as high as possible, perhaps we eventually can agree on something that most people can accept.

One of the problems is how to treat the visually recognizable genera *Cochlioda*, *Odontoglossum* and *Solenidiopsis* so that we avoid sinking them into a large "waste-basket" *Oncidium*. An often heard argument against retaining these genera is that we have to create many more new (some monotypic) genera, which would be entirely based on molecular evidence. Unfortunately, I am unable to show the cladistic tree here, which shows the various groups and how they are linked to each other. But over-simplified it shows that if we want to keep basally placed species ("low on the evolutionary tree trunk") such as *Odm. povedanum* and *Odm. tenuifolium* as *odontoglossums*, then we need to do some adjustments among the branches higher up in the tree. And that is where we find *Cochlioda* and *Solenidiopsis*.

The general difference between *Cochlioda* and *Odontoglossum* is mostly based on the bright colors of *Cochlioda*, that suggest bird pollination as opposed to assumed bee pollination for *Odontoglossum*. I am unaware of any documented evidence that this alleged bird pollination syndrome is correct though, but we can leave that aside for the time being. Another difference is the divided stigma of *Cochlioda*. It is a single stigma that has been variously divided into two lobes by the in-bent rostellum. The flowers of *Solenidiopsis* show the same feature, but lack the bright colors, which may indicate a return to a bee pollination syndrome. Traditionally, the three here accepted species of *Solenidiopsis*; *S. galianoi* Dalström & Nuñez, *S. peruviana* (Schltr.) D.E.Benn. & Christenson, and *S. tigroides* (C.Schweinf.) Senghas, all have non-resupinate flowers with the lip uppermost, as opposed to *Cochlioda* and *Odontoglossum*, which have normal flowers with the lip lowermost. Otherwise these genera are very similar both vegetative and in the general flower appearance.

The first known species of *Cochlioda* (*rosea*) was actually described as *Odm. roseum* by Lindley, and later transferred to *Cochlioda* by G. Bentham and J. D. Hooker. Similarly, *Solenidiopsis tigroides* was originally

described as an *Odontoglossum* by C. Schweinfurth. In other words, the link to *Odontoglossum* has always been strong for these plants. Until now, however, we have been able to separate them based on combinations of visual features; the color, non-resupinate flowers, divided stigma etc. But this is no longer possible due to the discovery of a most insignificant new species from the Machu Picchu sanctuary in Peru. This particular species still lacks a valid scientific name and the intriguing question is where to put it. It has flowers less than 1 cm across that present the lip lowermost, like *Cochlioda* and *Odontoglossum*. It has a divided stigma similar to *Cochlioda* and *Solenidiopsis*. The coloration (yellow with brown spots) is very much like an *Odontoglossum* or *Solenidiopsis*. The column has large spotted *Solenidiopsis*-like wings, but also a well developed hood, like *Cochlioda* and species in the *Odm. astranthum* complex. It has a pubescent callus, like many species in all three genera, a long and branched inflorescence like many *Odontoglossum*, and long and narrow leaves like *Odontoglossum* and *Solenidiopsis*. So where do we put it?

We can actually kill several flies with one strike here and describe it as an *Odontoglossum*. Since it connects well with all three genera, it justifies transferring both *Cochlioda* and *Solenidiopsis* into *Odontoglossum*. If we do this, we open up a way to keep all the traditionally accepted species of *Odontoglossum* in the genus. We avoid the cumbersome, and in my opinion unfortunate name *Collare-stuartense* for members of the *Odm. astranthum* group. We also avoid having to create new names for both *Odm. povedanum* and *Odm. tenuifolium*, which would become monotypic genera. We still have to come up with a new name for a very small group of *Oncidium* species that for whatever reason hide inside the molecular sphere of *Odontoglossum* in the currently available DNA cladograms. Steve Beckendorf and I are working on finding morphological features for these 4-5 species that will enable us to recognize them as distinct from other *Odontoglossum* species, which is easy, but also to separate them from other *Oncidium* species, which is not so easy.

In April of this year, film photographer Darryl Saffer and I have been invited to stay two weeks at the Inkaterra hotel in the Machu Picchu sanctuary area, in order to get enough photage for the next Wild Orchid Man nature documentary film. I will make sure that our new and missing *Odontoglossum* link will be featured, hopefully in full flower.

See our website www.wildorchidman.com for more details, and how you can support this educational project. The first, and award winning chapter of what we hope will become a series of orchid focused nature films (The Wild Orchid Man in the Ghost Orchid Swamp) can also be purchased via our website. Tax deductible donations can be sent to the Sarasota Orchid Society, which has adopted this enterprise. Any amount is highly appreciated.

THE ODONTOGLOSSUM ASTRANTHUM COMPLEX

Part two.

In the original description of *Odontoglossum astranthum* Linden & Rchb.f., published in the Gardener's Chronicle, p. 404, 1867, the German orchid taxonomist Heinrich Gustav Reichenbach writes: "This is a panicled species, like *Odontoglossum odoratum*, Lindl., but it has the quite novel feature of having a fringed anther-bed. No one can more regret the advent of this *enfant terrible* than Mr. Bateman, the monographer of *Odontoglossum*. Why was it not discovered ten years later? It breaks down the proposed section *Trymenium*, and makes it a wholly artificial group, which will in future be disliked by amateurs, who will never understand why a species so very like *Odontoglossum odoratum* that a superficial modern plant-namer, after three minutes' "study," would undoubtedly give it that name, should really be separated from it by perhaps 60 species."

This is a rather good example of the taxonomic problems that surround this rather modest looking species. In honesty, I am just as puzzled by this orchid today as Reichenbach was 150 years ago. And this is in spite of, or perhaps due to, having seen many populations in the wild, from the northern end of its known distribution near Loja in Ecuador, to the southern end in central Bolivia. Inevitably, there are "differences" between some of

- these populations, which in some cases have led to descriptions of “distinct” species, such as *Odm. digitatum* C.Schweinf., *Odm. loxense* F.Lehm. & Kraenzl., *Odm. micklowii* Dalström, and *Odm. multistellare* Rchb.f. But after having analyzed many intermediate forms I cannot help suspecting that I am just as gullible as the unknown pollinator of this complex, that keeps visiting flowers of the same species over and over again without receiving any noticeable rewards. We seem to see “differences” in what appears to be superficial and cosmetic “shuffling” of color patterns and shapes. If I was to select one typical feature for *Odontoglossum* species in general, it could very well be that they are notoriously variable throughout the geographical distribution, creating more or less distinguishable populations that drive taxonomists crazy. Because we know so very little about these orchids in the wild, it is frustratingly difficult to make convincing decisions how to treat them taxonomically. I try to have an objective and consistent view of how to handle the various species complexes, but keep running into my own “traps” every now and then, splitting in one case and lumping in another.

Whenever confronted with an orchid identification problem, we have to go back to the type specimen and description to become accustomed with how it really looks. Forget internet and popular books, unless there are photos and illustrations of the type specimen! But even then, to analyze a dried flower, or an artist’s interpretation of a dried flower, can be really tricky and misleading. There are many examples of how drawings have been misinterpreted and led to descriptions of “new” species. Photos published on internet can be helpful in getting an idea of what somebody assumes is a particular species. But what is the scientific foundation for that assumption? Unfortunately, few people have access to type material, often locked up in various herbaria around the world, sometimes anonymously so. But there really are no shortcuts to this kind of work if you want to be “certain” about the true identity of a particular species. Personally, I have been fortunate to visit many herbaria over the years and to study the *Odontoglossum* types up close and personal. This has made the work a lot easier but has also created many new questions. Let’s take a look at *Odontoglossum astranthum* as an example.

When Reichenbach described *Odm. astranthum*, he did not specify a particular specimen as a holotype. He writes that he has received material from some of Jean Linden’s collectors but without naming anyone in particular. Perhaps we can identify a specific specimen and collector if we visit the herbarium?

When we look at the various herbarium sheets that Reichenbach donated to the Museum of Natural History in Vienna at the time of his death in 1889, we find a mixture of letters, drawings and specimens that seem randomly mounted on the sheets. This is also what apparently happened. When the museum accepted this mehegamoth of a collection from Reichenbach, they also accepted Reichenbach’s condition to lock it up for 25 years. When it finally was opened it created quite a chaos due to the sheer size of the collection. What made matters worse was that the museum had no orchid taxonomists on the staff and apparently relied on volunteers to sort out the messy collection, which was not mounted but kept loose in paper. The challenge of figuring out which specimen went with which description, and with which letter must have been quite daunting. Needless to say, this resulted in a very confusing state of “order” in the herbaria, which to some extent remains today.

Over the years many orchid “experts” have visited the Reichenbach herbarium (today inserted in the general orchid herbarium), in order to sort out what is what, with mixed results. It should not come as a surprise to anyone that many taxonomists have different opinions about what to call orchid species and how to file them. This makes it difficult sometimes to find a particular species in the enormous herbarium. It all depends on which “expert” the curators decided to follow in any given case. A project seems to be underway to sort this mess out, to install some consistent filing system and to scan all important specimens, which will make them available online. But this project will take an unknown number of years to finish once it actually begins.

In the case of *Odm. astranthum*, there is a sheet with three different illustrations mounted together (a pencil

sketch of Wallis 358 and a colored drawing of Krause 55 without dates, and a colored Londesborough drawing (from 1880). The undermost sketch next to the Latin description of the species, however, refers to a Wallis 358 collection. The actual inflorescence with this number is mounted on a different sheet, together with the Krause 55 inflorescence. The pencil drawing of Wallis 358, on the other hand, is a clear copy of a different and anonymous inflorescence labeled "No. 1", on a different sheet. Fortunately, all of the specimens mentioned so far seem to originate from the Loja area in southern Ecuador, and represent what Reichenbach (and I) conclude is the same species.

Reichenbach described *Odm. multistellare* in Linnaea 41: 25, 1876, based on a plant collected by Davis near Chinchao, which is located between the cities of Huanuco and Tingo Maria in north-central Peru. Reichenbach compares this species with *Odm. astranthum* but mentions that it also resembles *Odm./Onc. cariniferum* in a dried state. When comparing the dried flowers of *Odm. multistellare* with those of *Odm. astranthum*, the former appear considerably larger and showier, and therefore superficially distinct.

Charles Schweinfurth described *Odontoglossum digitatum* in the AOS Bulletin 14: 208, 1945, based on a Vargas 3040 collection from Pillahuata in the department of Cusco in southern Peru. Schweinfurth writes: "If the orchid lover had the chance, he would rejoice to acquire and cultivate the following undescribed *Odontoglossum* from the high altitudes of Peru. Vegetatively a small plant, it has an open cluster of several rather large showy flowers which in size and color are the equal of many popular greenhouse *Odontoglossums*. In particular, this species is distinctive by reason of the shape of its lip with the peculiar finger-lobed callus." He continues: "This species differs from *Odontoglossum cruentum* Reichb.f. in the marking of the flower and in the dissimilar 3-lobed lip with different calli. The specific name is in allusion to the finger-like lobes of the callus on the lip."

What is remarkable is that Schweinfurth does not compare his species with either *Odm. astranthum* nor *Odm. multistellare*, which both share the basic morphology of *Odm. digitatum*.

The accompanying original illustration of *Odm. digitatum* resembles both *Odm. astranthum* and *Odm. multistellare* and for a long time I was not able to decide how to treat this entity. As distinct or as a synonym of one of the other two, or treat them all as one variable species.

An additional piece of this puzzle was added when I described *Odontoglossum micklowii* in Lindleyana 8: 15, 1993, based on a Fred Micklow No. 34 collection from Chapare in Bolivia. This is a rich area where a form of a more typical looking *Odm. astranthum/multistellare* occurs together with the distinct *Odontoglossum dracocephus* Dalström. Micklow's plant was brought back to Florida where it flowered in cultivation around 1978, most likely stressed by the warm climate and therefore probably in a diminutive runt-like state. Until very recently though, I was convinced that *Odm. micklowii* represented a distinct species.

Then I had the great privilege to go to Peru in the fall of 2010 and spend two months together with Manolo Arias and his staff at Peruflora. The purpose of the trip was to teach the staff some basic scientific orchid knowledge, identify orchid plants and to do some field work. It turned out to be more fieldwork than anything else, but to my defense I must say that you learn most effectively when you see the plants in the natural environment.

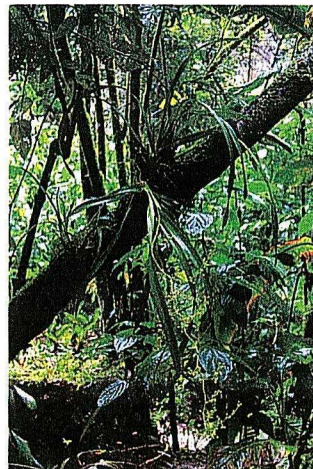
During two weeks I also had the pleasure of traveling together with Steve Beckendorf and Guido Deburghgraeve on a trip specially designed to target *Cyrtochilum* and *Odontoglossum* species. Among a wide variety of species that we encountered were several populations of the *Odm. astranthum* complex. This was an encouraging eye-opener and a mind-fumbler at the same time. It turns out that the northernmost populations of this complex are rather consistent with the type of *Odm. astranthum*, as they should be. But as we go southward we find a grading scale of morphological changes, one almost identical with the next, but yet slightly different. Different enough to warrant a separate name? I doubt it.

The larger flowered *Odm. multistellare* occurs in central Peru, but it really looks more and more like a large *astranthum* when all the intermediate forms are taken into consideration. Then in the extreme south of Peru, not far from the Bolivian border (nor from Pillahuata slightly to the north where the type of *Odm. digitatum*

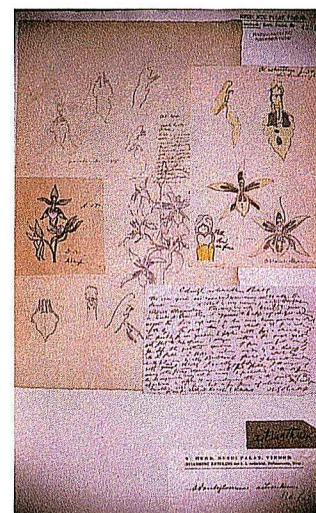
Was collected), we found a very beautiful form of this complex. I first identified it as *Odm. micklowii*, but after a moments hesitation realized that it must be *Odm. digitatum*. Inevitably, I then reached the tart conclusion that *Odm. micklowii* and *Odm. digitatum* probably were the same, sinking the former into synonymy with the latter. And once I had my own species on the chopping block, I was soon ready to sink them all into one frustrating superspecies; *Odm. astranthum*. At this time one more piece of the puzzle trickled down from Guido. He told me that he had found plants of what we both agreed was *Odm. micklowii*, from the Chapare region in Bolivia. It occurred at a much lower elevation (around 1600 m) than the populations of the more typical looking *Odm. astranthum/multistellare* from around 2800 m along the same road. The lower elevation corresponds rather well with the altitude for the plants we had found in southern Peru, at 1800-2000 m.

Unfortunately, it is all messed up again by the 3200 m altitude for the type of *Odm. digitatum*. Apparently, altitude is not a reliable feature to separate these entities either. So where does this leave us, aside from having a slight headache?

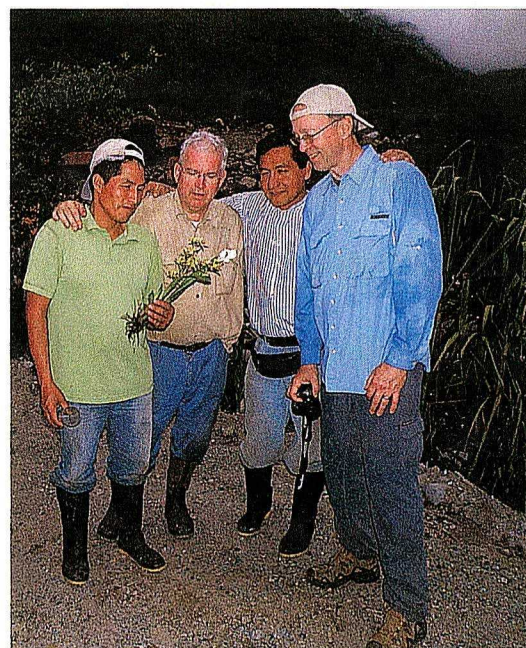
My current opinion is to sink all currently known forms of this confusing complex into *Odm. astranthum sensu lato* (in a broad sense). If I cannot separate them by useful and consistent features, then why bother? This is not to say that there are no distinguishing characteristics, but rather that I need to spend more time in the field and search for more populations in order to understand them. A tough job but somebody has to do it!



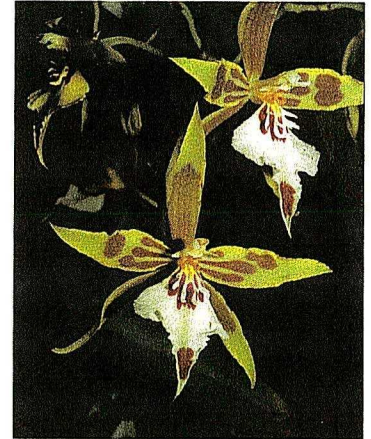
These photos were taken by the
"InkaTerra orchid research group"



A group of *Odm. astranthums* on the top of
the page. The phot above is *Odm. dracoc*



Left to right: Saul Ruiz, Guido
Deburghgraeve, Manolo Arias, Steve Beckendorf



A collection of pictures of
Odm. astranthum



Oda. Taylor Barfield 'Velvet Star'



Vuyl. Fall-In-Love



These 3 pictures were sent in by Russ Vernon of New Vision Orchids. Clockwise from the upper left

Oda. Janice Miller 'Powder Puff AM
X(Drummer Joe X Picotee)

Oda. Mont Fallu

Oda. Mont Fallu

