

Odontoglossum Alliance

INTERNATIONAL ODONTOGLOSSUM ALLIANCE FORUM 14th WORLD ORCHID CONGRESS

GLASGOW, SCOTLAND
APRIL 30, 1993

The International Odontoglossum Alliance forum theme is "Enlarging the Growing of the Odontoglossum Alliance". The program will offer four lectures, followed by a luncheon. There is an evening dinner planned with informal remarks by Allan Moon, curator of the Eric Young Orchid Foundation.

Lectures

0930 - 1230

0930 Program Session Chairman: Mr. Michael Tibbs

Michael Tibbs recently became owner of The Exotic Plant Company Ltd. West Sussex. He has experienced working in nurseries in Ardingly, West Sussex, England, Japan and the Far East. He was recently commissioned by the Royal Botanic Gardens, Kew to co-ordinate and manage a large exhibition in Tokyo in 1992. Prior to his ownership of The Exotic Plant Company he was part owner in Stonehurst Nurseries and previous to that marketing manager at McBeans. He has given numerous lectures on aspects of the Odontoglossum Alliance.

1. Miltonopsis Intergenerics, The Exciting New Hybrids for the 21st Century by Dr. Howard Liebman

Miltonopsis or Columbian miltonias are lovely

and popular pot plants. Earlier in this century a number of exciting hybrids were created with miltonopsis and other members of the odontoglossum alliance. Vuylstekeara Cambria, registered in 1932, is a perfect example of this type of hybridizing. This lecture will explore the beautiful and new miltonopsis hybrids being created today including new odontonias, vuylstekearas, miltonidiums, miltoniodas, colmanaras and burragearas.

Dr. Howard Liebman has been raising orchids for over 30 years and has been growing and hybridizing odontoglossums and miltonopsis hybrids for over 20 years. He has registered 150 crosses in the odontoglossum and miltonopsis alliance and over 30 of his crosses have received awards from various orchid societies including the AOS and RHS. He has also presented papers at two previous World Orchid Congresses. Professionally, Dr. Howard Liebman is a physician-scientist and a professor of medicine and pathology at the University of Southern California School of Medicine. He is the author of over 50 scientific papers on blood diseases and aids.

2. Survey of Odontoglossum Alliance Interest and Growing in Australia. by Philip Altmann
With increasing interest among orchid growers in Australia to enlarge pursuit of the odontoglossum alliance governmental restrictions limit the availability of stock. Mr. Altmann gives a clear and complete description of the situation and several recommendations that are currently feasible for the supply solution, all practical based on government regulations and demand. Mr. Philip Altmann commenced orchid growing as an amateur and has moved into the commercial world with Warrnambool Orchids. He has been growing since 1986. The collection is dominated by his love of the odontoglossum alliance. His growing range, modest in size, is

significant for the odontoglossum alliance. He is experiencing the expansion of interest in the alliance in Australia.

3. The George Black Odontoglossum Alliance Hybridization by Chris Channon

George Black is a pioneer in the hybridization of the odontoglossum alliance. Mr. Black's breeding is extensive, well recognized, and has ranged across innumerable genera, but has always been predominantly Oncidiinae. His contributions to the Odontoglossum Alliance will be illustrated and described.

Mr. Chris Channon along with Anne Channon are the owners of Deva Orchids a small and expanding nursery business predominantly in the Oncidiinae. In 1992 they were appointed selling agents for the hybrid production of Mr. George Black of Oxfordshire. Deva Orchids was established in 1988 from an extensive private collection started in 1979. Currently the nursery is in 2000 square feet with units expanding further by 600 square feet. A varied range of species and hybrids is stocked. There is a heavy bias towards the production of Oncidiinae. Deva is committed to raising species in the nursery and much of the stock is home raised and this proportion will increase steadily as the new laboratory starts to come "on line".

4. The Odontoglossum Alliance Species by Gerd Rollke

The interest in achieving wider growing of the odontoglossum alliance lies in expanding the environmental tolerances of the alliance. One of the keys is the proper use of the species to achieve warmer tolerance alliance members. Gerd Rollke is a noted orchid grower in Germany who specializes in the odontoglossum alliance species. With increased interest in the species both for preservation and hybridization his talk will bring new light to this important aspect.

Luncheon 12:30 pm with the location to be announced, but close to the lecture room. There is an informal dinner the evening of 30 April 1993. The cost of the dinner is estimated to be \$18L and the room will accommodate 40 people. A few after dinner events will cap the evening. The representatives of the New

Zealand, United States, and England Odontoglossum Alliance will each give a short report. Allan Moon, Curator of the Eric Young Orchid Foundation will deliver a set of remarks. The balance of the evening is then open for informal discussion among the participants. Attendance at the lecture events and luncheon can be made at the registration desk of the WOC. Dinner reservations can be made by contacting John Hainsworth, 52 Weaste Lane, Thewall, Warrington, Cheshire, WA4 3JR, England; Ph. 92-526-1791, FAX 074-420-836, or at the reservation desk.

The Odontoglossum Pipeline (Part I)

by Robert Hamilton

"There are many objects of great value to man which cannot be attained by unconnected individuals, but must be attained, if attained at all, by association."

Daniel Webster - 1833

Abstract

Further improvement of Odontoglossums requires an engine driving hybridizing. Hobbyist growers must get better and more consistent plants to encourage purchases. Odontoglossum hybrids must be produced of sufficient quality for commercial purposes. Improvements will occur through a series of efforts. Crosses should be made with genetically compatible plants. Seedling populations must be grown and heavily culled, starting with the flask with culling continued through to blooming. This process can be thought of as a "pipeline". A description of this pipeline is presented with some thoughts on new avenues for breeding.

Introduction

I began growing orchids in 1976. The motivation was the acquisition of a house with an attached greenhouse. My first plant was a Stanhopea acquired from the annual University of California Botanical Garden sale. Within 3 months this plant bloomed and my orchid growing avocation was launched. Born in Berkeley, California I have remained here all my life. This area of California has a uniquely mild climate. During most of the year, the day temperatures average in the high 60's to low 70's F. and the evenings drop to the mid 50's. The winter months seldom see temperatures below the mid to high 30's and

seldom see temperatures below the mid to high 30's and average in the low 40's with day temperatures in the 50's. The few hot days we experience are mostly in the fall and these are cyclical and quickly attenuate. As California's central valley heats, the air mass rises and is replaced with cool air in from the Pacific Ocean. Berkeley, being directly east of the Golden Gate (the mouth of the San Francisco Bay), benefits from this inward movement of ocean air -- natural air conditioning!

My orchid collection began with a mixture of intermediate temperature species and hybrids, mostly *Cattleyas* and *Paphiopedilums*. Later, I purchased blooming plants of *Odontoglossums* from the Rod McLellan Co. and the Beall Co. I was awe struck by their beautiful colors and patterns. In spite of my best attempts at culture, these deteriorated; thus, I made the decision to reduce night temperatures and add cooling to my greenhouse. I eliminated plants requiring intermediate temperatures and began specializing in cool growers.

In 1981, the indefatigable Robert Dugger gave a local lecture on his *Odontoglossum* and *Odontioda* hybrids. I purchased several flasks from him and began growing *Odonts* in community pots. Thus, the course was set for building a significant *Odontoglossum* stud collection. My plan was simple (too simple it turned out). I would buy a hundred or more flasks and grow and cull these for the best. By 1985, I began to sense that something was wrong. I bloomed some beautiful and superior clones; however, there seemed to be no way of improving the yield of great plants. Essentially, building my superior stud collection came down to a crap shoot even with the best material available to me. I sensed I might run out of time before I reached my goal. I had also begun making crosses of my own. I sent seed pods to various flask services, seldom getting back quality flasks.

About this same time, a correspondence in the *Orchid Review*, orchid journal of The Royal Horticultural Society caught my attention. Ray Buckman a retiree of Charlesworth & Co. had written a note encouraging *Odont* breeders to return periodically to jungle species in an effort to restore lost fertility in some advanced hybrids. Alan Moon, curator of the Eric Young Foundation replied with an explanation of why fertility had become a problem in modern hybrids. The reason, explained Alan, was the heteroploidy of modern *Odontoglossum* hybrids. Most *Odont* hybrids, through years of breeding for the largest flowers, had more than the normal, diploid chromosome number, 2N. Many were 3N, 4N and greater. When these plants were indiscriminately combined, reduced fertility, as well as other problems became manifest.

Differences in breeding philosophies became even clearer in talks I heard in Vancouver, BC, at the first meeting of

The *Odontoglossum* Alliance. Dr. Wally Thomas organized this meeting and invited a panel of speakers. Amongst these were talks by Alan Moon and Dr. Don Wimber. Don Wimber spoke on chromosome counts he had done on plants at the Eric Young Foundation and Alan spoke on the foundations breeding program. One could not help being impressed with the breeding advances made by the foundation. There was clearly a connection between the chromosome counting done by Don Wimber and the choice of plants Alan Moon used in his breeding program. To quote Alan, "You can't just put pretty on pretty."

As a result of my own growing experience, the correspondence in *The Orchid Review* and the presentations at the first *Odontoglossum* Alliance meeting, I reached this conclusion: the concepts of quality in manufacturing had to be applied to *Odontoglossum* breeding to make further advancements. Advancements will occur fastest when *Odontoglossums* are bred in commercial quantities. *Odontoglossum* won't become commercial until the yield of good plants is greatly improved. In short, one has to learn how to load "the *odontoglossum* pipeline".

History

Odontoglossums became popular in England around 1880. Superior clones were coveted and fetched high prices. By the turn of the century, hybrids began to appear. In 1904, the first inter-generic hybrid between *Odontoglossum nobile* (pescatorie) and *Cochlioda noezliana*, *Odontioda Vuylstekeae* was displayed at the Temple Show in London. It created a sensation. Thus, modern *Odont* breeding was launched. The greatest success in hybridizing *Odonts* was achieved by the firm of Charlesworth & Sons. Joseph Charlesworth mastered the propagation of plants by symbiotic culture. His firm had isolated an improved strain of fungus necessary for orchid embryos to convert starches to sugars; thus, Charlesworth & Sons could out-produce other nurseries in the production of seedlings. In addition, Charlesworth clearly understood and applied genetics to his hybridizing, creating the foundations of future breeding. Other firms such as Armstrong & Brown, Stuart Low Orchids, McBean Orchids, and Mansell & Hatcher made contributions as well as individual breeders. Two world wars took their toll on hybridizing and today the only English firms of significance are McBean's and Mansell & Hatcher. There is a renewed interest in *Odontoglossums*; however, they have yet to become a successful commercial crop except in the hobby market.

The Species

Leonore Bockemuhl recently published "*Odontoglossum - Monographie und Ikonographie*". This book describes fiftyeight *Odontoglossum* species. These she divides into

six subgenera:

Odontoglossum

Erectolobata

Lindleyana **Nevadensia**

Unquisejala

Serratolaminata

Only the highlighted subgenera figure prominently in classic hybrids.

Subgenus **Odontoglossum** includes:

armatum

crispum

crystalatum

crystalatum

cruentum

epidendroides*

hallii

juninense

kegeljanii (polyxanthum)

lacerum

luteopurpureum

nobile (pescatorie)

portmanii

praenitens

sceptum

spectatissimum (triumphans)

subligerum

tripudians

*the type specie for all **Odontoglossums**

Subgenus **Nevadensia** includes:

harryanum

nevadense

wyattianum

I have highlighted species that have played a significant role in hybrids and parenthesized common names. Of the 56 described species, 7 are important thus far. If you include *Cochlidia noezliana* with important **Odontoglossums**, our **Odontoglossums** and *Odontiodas* hybrids have 8 species in their background.

Recently, relationships between the **Odontoglossum** subgenera have come into question. At a talk before The Orchid Society of California, botanist Dr. Mark Chase questioned the validity of using only morphology in taxonomy. Morphology is the branch of biology that uses form and structure in defining relationships. Dr. Chases' work with DNA sequencing suggests the only subgenus

that can be legitimately called **Odontoglossums** is the subgenus **Odontoglossum**. The other five subgenera are more closely related to *Oncidium*. Since **Odontoglossum harryanum** does not belong to **Odontoglossum** subgenus **Odontoglossum**, the large number of hybrids with **harryanum** in their background may more properly be thought of as *Odontocidiums*, inter-generics between **Odontoglossum** and *Oncidium*.

Breeding

Kevin Hipkin of Royal Orchids in Australia was visiting the San Francisco -- Bay Area. As I was driving, he read from a book on horse breeding he had just purchased (Kevin likes horse racing). "Cross the best with the best and hope for the best." My experience with orchids teaches me what is true for horses is not true in plants. In mammals, one has to consider only one ploidy. Mammals are diploid having a chromosome number designated 2N. One chromosome received from each parent when sexual gametes (sperm and egg) combine. The exceptions to the 2N number are mammalian sex cells. Sex cells go through a reduction in chromosomes through a special division process called meiosis. They contain the haploid number of genes. Another way to look at this is sex cells are 1N. Thus, when sex cells from each parent combine, the normal 2N state returns with traits contributed by each parent.

In nature **Odontoglossums** have 56 chromosomes. Plants can survive and reproduce with higher than normal (2N) chromosome counts. In hybridizing, plants are sometimes created with 3N, 4N and higher chromosome counts. Plants with higher chromosome counts have some advantages from a horticultural viewpoint. As the ploidy increases, so must the cell volume to accommodate the increased number of chromosomes. Increased cell volumes mean larger and thicker flowers and spikes. Colors intensify because of their increased density. For the most part, plants higher than 2N grow more slowly; however, this is not always so. When ploidy increases excessively, plant growth becomes exceptionally slow. Orchids seldom perform well beyond the tetraploid number (4N).

Tetraploids spontaneously occur in seedling populations. I do not know the percentages but they are not as common in intra-specific crosses, i.e., crosses within a species. They are more common when breeding between dissimilar species or genera. There are inter-generic crosses where the whole seedling population appears to be higher than 2N ploidy. The best example I can think of is *Macleanara Pagan Love Song* (Odcdm. Tiger Butter X Brs. verrucosa). As hybrids were created, spontaneous tetraploids appeared. With the attributes of larger size and rounder shape, these were selectively chosen as parents. Large populations of triploids were created when tetraploids were breed with the

diploids. Problems began when these triploids were used as breeders.

From a cursory look at the hybrid registrations, it appears that the progeny of crosses between *Odontoglossum* subgenus *Odontoglossum* with *Odm harryanum* (subgenus *Nevadensia*) were often the parents of choice. Is it possible that the seedling created by crossing these two subgenera often resulted in tetraploids and thus these became the parents of choice? When one considers *Odm harryanum* more likely an *Oncidium*, this seems possible.

The results of indiscriminately breeding mixed populations of pretty 2N with 3N and 3N with 4N plants resulted in significant numbers of plants with higher than 4N chromosome counts. This is documented by counting. Two recent examples of such hybrids are *Odm. Stonehurst Yellow* and *Oda Red Rum*. Hybrids with higher than 4N counts can be spectacular. Unfortunately these plants are also often unstable, failing to grow and bloom consistently.

One year they produce a good spike with gorgeous flowers. The next year the growth may be immature with an attenuated spike or the plants may produce a spike with a few developed flowers and the remaining spike aborted. I have heard these plants referred to as "hyperploids" because of their higher than 4N counts. There are those who suggest that some of these hyperploids are chimeras, composed of two or more genetically distinctive tissue. The term I have heard attached to them is "mixaploid". The problem of breeding mixed ploidy is seen in other types of orchid. A failure to understand the result of random mixing has led to the downfall of more than one orchid nursery.

When breeding, one does not and can not know the ploidy of all parents. Microscopic examination and chromosome counting are beyond the capability of most breeders. A bit of breeding advice I received from Alan Moon seems like good advice. Do a large percentage of line breeding with plants of known ploidy and background. Additionally, since spectacular results sometimes occur when one plays a hunch, a prudent breeder must do both kinds of breeding in reasonable proportion. For my breeding, I am working with a ratio of about 80% line breeding and 20% speculation. I distinguish these two kinds of breeding as "ready, aim, fire" and "ready, fire, aim".

Strong plants are selected as parents and pollinated on the lower flowers. I try not to make more than 1 or 2 crosses per plant. After pollination, the flower wilts and a seed pod forms. Pods mature in 10-11 months. They're removed when they begin to yellow on the end or begin to split.

Flasking

It became apparent early on that I would have to do my

own flasking. Commercial labs make their bread-and-butter with intermediate and warm growing hybrids and few of them have conditions suitable for the flasking cool growing *Odontoglossums*. I purchased a laminar flow workstation and devoted two bedrooms to a laboratory. Flasking *Odontoglossums* is fairly easy and I have had good success. I will not try and give a detailed account of orchid flasking; however, what follows are some of the techniques and media that I've found particularly successfully for flasking *Odonts*.

Dry pods are removed from the greenhouse. Seed is shaken onto a clean piece of paper. The seed is then transferred to a 16 mm ID test tube and disinfected. I have used both Calcium Chlorite and Chlorox to disinfect with equally good results. For ease of use, I now use Chlorox exclusively. I take 35 ml. of tap water and add 15 ml. of Chlorox. Since the Chlorox is heavier than water, it is added last. This is poured into the test tube containing seed and a sterile cotton swipe is pushed in as a cap. The seed/liquid level is about 75% of the test tube volume. Enough air is left so one can vigorously shake. Shaking is done for about 5 minutes. The cotton plug is now pushed gently to the bottom like a piston with a 1/8" stainless steel rod with a bent fork on one end. The cotton traps the seed against the bottom and the water/Chlorox poured off.

Water is added to this test tube by injection through a 25 mm 0.2 micron syringe filter attached to a 20 ml syringe. I use this method to sterilize water rather than autoclaving. The .02 micron pore size of the filter is small enough to eliminate all bacteria or fungus. Sterile water works just as well; however, this technique provides instant sterile water. The filters I use are made of polypropylene and can be re-sterilized as needed.

The cotton plug is slowly raised with the hook on the 1/8" stainless steel rod. The seed/sterile water mixture is shaken and the cotton plug is again pushed back down. This is repeated several times rinsing away any Chlorox. The seed is then sown in mother bottles. I make 2-3 mothers for each cross just in case one becomes contaminated. With a little practice, one should expect less than 5% of the mother bottles to contaminate. If 2 mothers are made instead of one and the contamination rate is 5%, the chances of both mother bottles contaminating is 1/400. I use 1/2 pint, wide mouth mason jars, filled with approximately 50 ml. of media for mother bottles. I've experimented with several media. The one I like the best for seed sowing is a pre-mixed media sold by Sigma Chemical Co. It is inexpensive and easy to use. Here is my formula for germination:

Sigma, Cat # M1053, Murishige-Skoog media (11 size)
20 grams of sugar (about 28 ml. by volume)
10 grams of agar (about 15 ml. by volume)

5 grams of charcoal
pH adjusted to 5.5 with HNO₃ (nitric acid)

I am a bit lazy so I don't weigh my ingredients more than once. I measure the volume of each material and then use volumetric measurements. I include these values in the above formula.

Sterilized seed is sown and a band and lid are screwed on. No vent is provided at this stage so that any jars that contaminate can be left sealed and disposed of. Flasks are now placed on shelves with lights. Germination begins with the seed turning green, usually from a few days to several weeks. After 1 month, the Mason bands are unscrewed and the solid lid is removed in the laminar flow workstation and replaced with a vented lid. For vented lids, I use a product sold by Sigma called "Suncaps" (Cat. # C6920). Suncaps are sterilized before use by placing one between each page of a 5" X 7" notepad. I do about 25 at a time. The note pad is folded in aluminum foil and autoclaved. This packet is stored under the hood and opened as needed. As they are used, the paper cover sheet is torn away exposing a new, sterile Suncap.

In three to six months the seeds become protocorms, little green spheres about 1 - 2 mm in diameter. When you look closely you can see the leaf primordia forming at the center of each of these spheres. At this stage of growth, a small amount of material, (about the volume of a pea) is removed and evenly spread with a stainless steel fork on replate media. Replates are done in pint jars filled with about 75 ml. of replate media. These are then closed with a Suncap and a Mason screw band is carefully screwed on. I make a first replate bottle for each one or two expected final bottles. It is very important not to spread too many protocorms at this stage or they will become to excessively crowded as they grow. I purchase replate media pre-mixed from Gallup and Stribling. It comes in a can as a concentrate and you only need to add water. I use tap water as Berkeley tap water is very pure (about 38 p.p.m. of total dissolved solids/gallon). Each can concentrate of produces 2.3 liters of media. The only modification I make to this media is the addition of 5 grams of Charcoal. It is my firm belief that charcoal darkened media is beneficial to growth. Roots disperse evenly in dark media. They tend to clump in the center of clear media. Evenly dispersed roots make separating plants much easier with less root damage. Thus far I have never found a better media than Gallup & Striblings.

Replates are grown under ordinary 4' fluorescent lamps at about 300 ft. candle. It is important that the flask room be kept in the mid 70's F. Excessive heat will cause problems. I chose lights with electronic ballast to minimize heat. In areas where summers are hot, it may prove beneficial to run lights at night instead of during the day. I

use a photo period is 12 hours. Within a few months small plantlets should grow to about 1/2 - 3/4 inches tall. Replate these a second time using the forked end of the 12" long x 1/8" stainless rod. About 35 plants should be placed in each final replate jar. This hooked rod is thin enough to quickly sterilize with a torch and much more comfortable than tweezers. Be careful and make sure the rod is cool before using.

It is important to note a selection process has already begun. Enough material was initially replated to allow selection of only the fastest and best growing seedlings. I discard more than 90% of the plant material at this stage. The goal is to select plants based on vigor, i.e., fast growth. I carry this process of selection from first replate all the way through to blooming plants.

Final replates take about 4-6 months to reach the size ready for community pots. The ideal size is about 2-3 inches tall. I try and time my final replates so the plants will be ready to take out around April or May. I have found this an ideal time to take plants out of bottles and plant them in community pots. It is my firm belief that at this stage you should make 3 to 4 times the plants you expect to bloom. You should cull plants at every stage possible for vigor.
2439 Woolsey Street
Berkley, CA 94705

Editors Note: This is part one of a talk given by Robert Hamilton at the Odontoglossum Alliance Lectures at the Eastern Orchid Congress, 23 October 1992, Boston, Massachusetts. Subsequent parts will be printed in future newsletters and will contain :

Community Pots

Individual Plants

Blooming Size Plants

Some Ideas on Where We Can Go From Here or "Things To Come"

"Odontoglossum - Monographie und Ikonographie",
Leonore Bockemuhl, Brucke - Verlag Kurt Schmiersow,
D-3200 Hildesheim, West Germany, 1989.

Sigma Chemical Co., PO Box 15408, St. Louis, MO
63178-9916, P.N. 1-800-325-3010.

Gallup & Stribling, 645 Stoddard Ln., Santa Barbara, CA
93108, P.N. 1-805-969-5991. Sold in pre-paid cases only.

Beginner's Odontoglossum Alliance

by Tom Perlite

In 1973 I bought my first orchid plant, Odm. Golden Halls, at the Rod McLellan Co. I had no idea what kind of orchid it was or how to grow it. I was given some general instructions on its culture, and took it home. I had two things in my favor; living in San Francisco and the fact that Odm. Golden Halls is a vigorous growing Odont. It is still alive and well, and one reason why I became interested in Odonts.

For anyone beginning to grow Odonts it is very important to start out with plants that will give you a good chance to succeed. There is an endless array of colors, patterns, flower size, and spike habits in Odont hybrids and species. The trick is finding the flowers you like, attached to a plant you can grow.

Ideally, Odonts like plenty of fresh air, a daytime temperature between 65 and 75 degrees F, and a nighttime minimum of 55 degrees F. They will tolerate temperatures into the 80's and lows in the high 40's, for brief intervals but not for extended periods of time. If you are able to provide the optimum growing conditions, as in the San Francisco area, then you should be able to grow the whole spectrum of Odont types.

In most cases, the ideal temperatures are difficult to maintain. The daytime temperatures are too high and the nights do not cool off enough. Or as in many cases, people attempt to grow Odonts with their Phalaenopsis or Cattleyas. Many Odontocidium, Wilsonaras, Maclellanaras, and some Vuylstkearas will grow and flower under these conditions. Odontoglossums and Odontiodas more than likely will not do well under these conditions.

There are just a few species which provide much of the vigor and warmth tolerance in Odontoglossum hybrids. Hybrids with Odm. biconiense, uro-skinneri, maculatum, and cordatum grow quite well under warmer conditions. Oncidium leucochilum, maculatum, sphacelatum, and tigrinum are the main

Oncidium used with Odonts to create Odontocidium and Wilsonaras. Miltonia spectabilis and warscewiczii provide much more vigor and warmth tolerance in their hybrids with Odonts than do the Columbian miltonias.

Some plants that do very well under these warmer conditions (daytime 70-85 and night 60-65) are McIna. Pagan Lovesong, Odm. Red Nugget, Odcdm. Golden Trident, Colm. Wild Cat, Odtina. Debutante, Bllara. Tahoma Glacier, Wils. Spaceman, Odcdm. Big Mac and Odcdm. Bittersweet. These plants will also tolerate brighter conditions than most Odonts.

For those who can achieve slightly cooler temperatures of 70-80 daytime and 55-60 nighttime the plants listed above will do very well. In addition, Vuyls. Cambria, Wils. Anaway, Odm. biconiense, Odm. Bic-ross, Odm. hallii, and Wils. Michoacan consistently perform well.

If you are able to provide even cooler temperatures (daytime 65-75 and nights 50-55) Odontoglossums and Odontioda are best. A few of the more vigorous varieties are Oda. St. Clement, Oda. Harrod's Forever, Odm. crispum, Oda. Elpheon, Oda. Taw, Oda. Joe's Drum, and Oda. George McMahon.

How does a beginner select an Odont which will successfully grow and flower well?

1. Determine the temperature range which you can realistically provide for the plants.
2. Ask the grower from who you are purchasing the plants what he or she recommends, given your conditions and the colors and type of plant you would like.
3. In selecting plants, select those with vigorous growth and good roots. Avoid plants with twisted or pleated leaves, or those with weak distorted growth, no matter how nice the flower is. If the plant has a history of poor growth, it more than likely will continue.
4. Select plants which appear to be reliable bloomers. Those which have flowered from the previous years bulbs. Some Odont hybrids can be quite mixed up genetically, and will flower one year but not the next.
5. Trial and error. See which plants do well under your particular growing conditions and

those which don't. Tailor your collection to those Odont types which thrive.

As the interest in Odonts grows, there is a greater variety of hybrids available. Mericlones of superior varieties enable us to grow specific clones previously unavailable. With a little effort, Odonts do not have to be an orchid limited to the cool confines of Coastal California. 2990-25th Avenue
San Francisco, CA 94132

USING XANTHIC YELLOW TO NON-XANTHIC ENDS (or, YOU CAN'T ALWAYS GET WHAT YOU WANT) by Pat Pettit

It has long been my opinion that xanthic odontoglossums, the ones having yellow color but no anthocyanins (magenta to blue pigments which, when mixed with carotenoid yellow, make reds, oranges, browns, and brownish-purples, often expressed in spots), are not only beautiful and desirable by themselves, but are useful in breeding with non-xanthic odonts not just to return to xanthic genes the next generation to pick up some quality or other, but sometimes as ends in themselves. It is hard to imagine, for example, a much better Odontocidium than Bruce Cobbledick's Odcdm. Tiger Parade (Tiger Butter x Odm. Parade), which holds its bright yellow color better than many "ordinary" odontocidiums. The first "chapter" of this treatise was my article a couple of years ago in this newsletter on breeding for Odm. crispum -type brighter orange odontoglossum flowers using xanthic, or "pure color" odontoglossums as females (as Robert Griesbach suggests, because most of your yellow pigments and co-pigments are inherited from the female's genes) and larger but still pure red odontiodas as males. The theory was that the "pure" looking reds probably had few undesirable bluish anthocynins, the sort that make brown instead of orange when combined

with carotenoid yellows, and the xanthic yellow odonts had none, at least not expressed. Since anything 50% Cochlioda noezliana or more prefers to be female in breeding, and good red color in odonts comes primarily from Oda noezliana, this would seem to be a difficult proposition. How do you get the yellow, which ideally has to be female, to breed with the red, which also has to be female? How do you get Yellow x Red?

I was asked to do a follow-up on this article, but since I haven't bloomed any of my prospective yellow x red crosses this doesn't leave me with a lot to say. I bloomed Wils. Summer Sunrise (Imperial Tiger x Odm. Parade), but the parents were reversed (red x yellow) and mom wasn't red, but caramel, and the first baby was awful (well, not too terrible to register, but an extremely ordinary looking yellow with red spots and not great form). Not an auspicious start. Also, Bob Hamilton bloomed my cross of Oda. Picasso 'Rubis' x Odm. Unalaska (red x yellow) and it apparently makes the word ugly inadequate. Still, using Oncidium as part of the female in xanthic-red crosses would allow the female to accept Oda. noezliana type pollen, and I am curious enough to continue this line, especially using Odcdm Tiger Parade. Bob Dugger was successful with this notion in his cross of Odcdm. Solana Pixie (Solana x Oda. Sanderae, a yellow x red), which produced many solid orange blooms of great charm. The spots from the Odcdm. did not come through (yes!). Crossing Oncidiums and other related genera to xanthic odonts is nothing new. Both Bob Dugger of Solana Beach, CA and the Eric Young Foundation on Jersey experimented with crossing McInra. Pagen Lovesong with odonts. Dugger used a bright burgundy parent to make his Alexanderara Songman, and the EYOF made both colored and xanthic yellow hybrids using McInra. Pagan Lovesong, but was only happy with the first generation. The first generation crossed to Oda. Eric Young had brighter yellow blooms with dark markings. The second generation with Oda. Eric Young back crossed onto this did not grow well; ploidy problems are suspected. The second generation of colored

EYOF McInara. hybrids are not good either. I germinated McInara. Pagan Lovesong by Odm. Parade 'Goldilocks' but had only about 25 plants, and they do not grow well for me. This may mean that Pagan Lovesongs are triploid, not tetraploid as previously assumed. Count a few for us please, would you Don Wimber? At any rate, the EYOF found that breeding xanthic yellows to "regular" yellows hold their yellow color longer, fade in the center less, and hold better, cleaner dark markings in the first generation. Their cross of Odm. Cristor x Oda. Eric Young produced a xanthic or two, and many huge, well-formed tetraploid yellow blooms. Using the best of the old English yellow odonts out of the Ascania (and Georgius Rex) line (Odm. Moselle, Odm. Stonehurst Yellow, Odm. Susan Smith, Odm. Mach Two, Odm. Perry Harbor, etc.) Bob Dugger has made some stunning yellows. He has combined them to try for solid yellow color (Stonehurst Yellow x Moselle, etc.). Unspotted concolor yellows are rare in odonts, as the main species which produce yellow color, such as Odm. triumphans and luteo-purpureum, are yellow with brown spotting or barring, and tend to fade to white in the center of the flower. Odm Moselle and its offspring probably offer the best chance of solid yellows. Like Odn. Diane 'Loriot', sometimes Moselles bloom having no spots, and other times their "freckles" show. Usually, the brighter the yellow, the more chance of spots. Dugger and others like Cobbledick have combined Bruce's brilliant yellow xanthic Odm. Parade 'Goldilocks' with xanthics and non-xanthics alike, having the intention of using standard yellows as a bridge to building a better xanthic, and creating more variation in yellow hybrids than one can achieve by using 90% Odm. crispum xanthotes in our xanthic breeding. Bruce Cobbledick tried to combine Parade with Odm. bictoniense alba (Odm. Wildcat) to make xanthics; one out of the cross apparently was xanthic, or looked xanthic. This line is probably worth pursuing; bictoniense gives such a nice, upright spike and excellent forward presentation. Odm Wildcat is a pretty thing on its own, which is fortunate, as Bruce hasn't been able to

backcross it to Parade. I have Tiger Parade 'Chieri Cheetah' AM/AOS crossed to Odm. Unalaska, Odm Buttercup Pass (now seedlings, which look normal so far), and one other xanthic, Lemon Drop, which is still in bottles. None of these had great germination. I am anxious to get something going here, as Odn. tigrinum also gives upright spikes, and loves to be female in breeding. This would feed my lust for orange as well as my predilection toward upright odont spikes. Also, Odn. tigrinum could add some size and quality to the lip.

A bugaboo with odont breeders and judges alike is the odont lip. In Britain the judges are more generous is allowing a huge, lovely bloom to have a tiny lip. Not here. Most 90% Odm. crispum hybrids have stinky little lips, and yellows are not exempt. The use of Odm. harrayanum and wyattianum give good lips in the first generation, but often lousy form due to their thin petals, and muddy color due to their caramel to brown petals and sepals. Naturally, Dugger thought the addition of miltonopsis to yellow odonts would create better lips, in spite of the fact that low flower count and ploidy (fertility) is often a problem with Odontonias. He introduced miltonopsis to them through Odn. Diane 'Loriot' (Milt. Alexandre Dumas x Odm Chimene). After making Odn. Barbara Pollard in 1976 (Diane x Odm. Moselle) but finding it difficult to grow, he made Odn. Diane Harbor (Odn. Diane x Odm. Perry Harbor) in 1981 and Odn. Yellowbird in 1982, both of which produced some solid yellows with huge lips. These were joined by later crosses; Dugger's Odn. Diane's Parade, his Odn. Yellow Parade in 1988, and Bruce Cobbledick's Odn. Dianarade ('86). The Yellow Parades I bloomed were all spotted, but Dugger bloomed more than one huge, concolor yellow from this cross. Although some of the Odn. Yellow Parades look like straight odonts, a few, such as Yellow Parade 'Grand Marshall', have the big, square lip of their grandparent, and reasonable flower count (12+). Using both a xanthic parent and a miltonia-bearing parent seems to have intensified both the yellow color and the brown markings, as the Eric Young Foundation suggests. Dugger

says the first generation with Diane has usually 4-6 blooms; second generation has 12 or more, due to the low flower count of Odn. Diane itself. Maurice LeCoufle reported that they had little luck with breeding with Diane at all, and the resulting hybrids had too few flowers. Vacherot et LeCoufle has discovered a sport of Odn. Diane 'Loriot' which has seven or more blooms to the spike and they are now re-meristemming it in the hopes that it will be easier with which to breed and more floriferous a parent as well.

In the recent Dugger cross of Odm. Smith's Parade (Susan Smith x Parade) the flowers had excellent yellow color, and not quite as much fading in the centers on most clones. The spots were clear and dark, not at all muddy or tentative. Floriferousness was excellent. Bob made the cross twice; once with a solid yellow Susan Smith, and once with a Susan Smith that was white with red spots. I bought a flask of the first cross, and sowed the seed pod of the second. Blooming both crosses, I see no difference in the offspring. In both cases Parade was the male parent. In both Odm. Smith's Parade and Odn. Yellow Parade, I see some end products; not "breeder's crosses". Odm Susan Smith (Mary x Elise; half Odm. triumphans from both sides) produced some solid yellows and peaches, but some were white with red spots. I don't believe Dugger expected any xanthic progeny from Smith's Parade. I think he was hoping for some solid yellows, which have so far not materialized, but perhaps a backcross of Parade or Unalaska onto it will show us solid xanthics. I have not been able to make the backcross either way as yet. Odm. Smith's Parade 'Butterfly Brigade' HCC/AOS is a floriferous, well-formed yellow which holds its yellow color well. Both crosses compare favorably to Dugger's excellent "normal" yellow cross of Stonehurst Yellow x Moselle, which I believe Bob Hamilton is presently registering. Hamilton should soon be blooming his cross of Odm. Unalaska 'Wijnanda' HCC/AOS x his lovely Odm. Moselle 'Gene Noel' AM/AOS. I had scant germination on Odm. Lemon Drop x Stonehurst Yellow, Odm. Lemon Drop x Parade, Odcdm. Tiger Parade

AM x Lemon Drop, Odm. Moselle x Parade, and got good germination on Odm. Moselle x Eric Young. These last, however, will be triploid, as Odm. Lemon Drops are, and will not breed on well and not be xanthic. However, if the cross is as good as Odm. Smith's Parade, I will be happy. Even if Smith's Parade is never crossed with a xanthic successfully, it and crosses like it can stand alone as worthy contributions to the lovely modern-day selection of yellow odontoglossums.

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Odontoglossum Alliance Species Description

Leonore Bockemuhl
Miltonia Lindl. 1837

The genus was created by LINDLEY when he received the type species (*Miltonia spectabilis*) which has been discovered by WEDDELICH in Brazil. The description was published in "Botanical Register" 1837.

Till up to now about 20 more binomina have been placed in the genus by several authors - partly incorrect -. The understanding of the generic limits should be revised (see the history of the genus *Miltoniopsis* and *Miltonioides*). When regarding the main structural features determining the generic circumscription, there are very few species which truly qualify for the genus

Those typical features of the genus *Miltonia* are the 2-leaved bulbs; the undivided lip; the auriculate column with its excavate front; last not least the geographical distribution, limited to Brazil

Numerous artificial hybrids have been produced with the species of the Brazilian *Miltonias*, especially the 3-generic hybrids (*Miltonia* x *Odontioda*) are well known on their bright colored flowers.

Miltonia spectabilis

Lundl. 1837

Plant medium-sized, the ovoid-oblong bulbs bifoliate, few foliaceous sheaths at base.

Inflorescence arising from base of bulb, up to 20 cm, one flowered. The flat spreading flowers nearly flat, 7 cm across; sepals and petals similar lanceolate-oblong-acute, white to cream-colored, sometimes tipped with rose. Lip large, 4 x 5 cm, obovate-orbicular, white to dark rose with purple streaks. The callosity tri-lamellate, usually yellow. Column wings triangular rose-purple. There are several varieties; the most interesting seems to be var. *Moreliana* with plumb colored sepals.

The species was discovered in 1835 by FRY who sent plants to Birmingham to the Botanical Society where they flowered at LODDIGES and BARKERS Gardens in 1836. They have been described by KNOWLES & WESTCOTT in their "Floral Cabinet", named *Macrochilus fryanus*. Unfortunately this name was published one month later than the LINDLEYan description on the plant from WEDDELICH - so it could not be accepted.

Habitat: growing epiphytically in shady places of mountain forest at altitudes about 900 m - 1400 m. The climate with humid nights even during the 5 months lasting dry period.

Distribution: Brazil; Estados Pernambuco, Bahia, Espir, Santo, Rio de Janeiro, Guanabaca, Sao Paulo.

Artificially produced hybrids with the genus *Odontoglossum*:

Odontonia Lucilia = *Milt. spectabilis* x *Odm. cirrhosum*

Odontonia Marie Elle = *Milt. spectabilis* x *Lembgl. bicontoniense*

Miltonia regnellii

Rchb.f. 1848

Plant medium-sized, bulbs bifoliate with several foliaceous sheaths at base of bulb, up to 50 cm with about seven flowers. Flower spreading, 5-6 cm across; sepals and petals similar, lanceolate-oblong-acute 30 x 15 mm, white-colored tinged with rose. Lip large 35 x 30 mm obovate-orbicular, dark rose-purple. Callosity with several lamellae, white-colored.

Column wings narrow, prolonged upwards.

Discoverer of the species was Dr. Regnell, who found it in the Brazilian Estado Minas Gerais in 1846. It was described by REICHENBACH f. in 1848 in "Linnaea" 22 p. 851.

Habitat: epiphytic in shady places of mountain forest at 800 - 1400 m.

Distribution: Brazil; Estados, Sao Paulo, Parana, San Catarina, Rio Grande do Sul, Minas Gerais. Artificially produced hybrid with genus *Odontoglossum*

Odontonia = *Miltonia regnellii* x *Rossiogl. grande*



Miltonia spectabilis

GROWING THE NEW ONCIDIINAE INTERGENERIC HYBRIDS

by Milton O. Carpenter

Because of the tremendous diversity of habitat among the genera and species of this family it is important to know something of the climatic requirements of the species involved in these hybrids. For example, *Oncidium onustum* occurs at sea level at the Equator on South America, often in full light and on fence posts, while *odontoglossum crispum* is found at 9,000+ feet in the Andes mountains where it is continually cool and moist. What follow then are recommendations for culture of the "Temperature Tolerant" oncidiinae which we created at Everglades Orchids. These special plants are created to perform well in temperatures from 55 deg F to 95 deg F without the necessity for a wide temperature variance between day and night temperature. In most cases we have incorporated a warm and a cool parent to produce the required tolerance of temperatures at either extreme.

While the various cultural factors will be discussed individually, it is important to remember that they are all closely inter-related. For example, when temperatures and wind movement are high, additional humidity and moisture is required.

LIGHT

Seedlings prefer filtered or diffused light of approximately 1,500 to 2,500 foot candles while mature plants will enjoy from 1,500 to 4,000 foot candles. In Florida, 60% shade will result in about 4,000 foot candles of illumination a bright day. A good indication of proper light is the color of the leaves; they should be bright green as opposed to dark green (too much shade) or reddish green (too much light). I have often moved a plant which was large and strong, but which had not bloomed, and putting it into

brighter light conditions watched as it responded almost immediately by sending up bloom spikes. Care must be taken when doing this, however, that the increased light is not too great or injury to the leaves will result. Once spikes are initiated, it is important to leave the plant stationary in it's relationship to the light source, else crooked spikes and erratic flower presentation may result.

TEMPERATURE

If you temperatures are seldom above 95 deg F or below 55 deg F then our "Temperature Tolerant" hybrids should perform well, however if you are really HOT or very COLD and can't do anything about it then a little research is suggested. For example if you live in the "Sunny South" *Odontocidiums* which have *Oncidium maculatum*, *sphacelatum*, *wydlery*, or *hyphaematicum* will probably perform well, whereas those with *Oncidium macranthum*, *incurvum*, or *tigrinum* will probably not do so well. See AOS Bulletin, February, 1980.

HUMIDITY

The species utilized in these hybrids generally enjoy relatively high humidity in their native habitat during most of the year. In cultivation a range from 50% to 90% is considered favorable, with seedlings usually preferring 70% or higher. Generally humidity should be increased as temperature, light intensity and air movement increases. This can be accomplished by misting the plants and "damping down" the greenhouse floor periodically. Do not mist the plants late in the afternoon however, as the foliage is more susceptible to fungus and bacterial infection if not dry by nightfall. During winter months, if artificial heat is employed, maintenance of proper humidity levels should be considered. If plants are kept in the home, they will benefit from being placed on a saucer filled with small pebbles and water (in bottom of saucer), this will increase humidity around the plants as the water evaporates.

AIR MOVEMENT

Good air movement around the leaves and the bottom of the pot seems a good rule to observe as long as the humidity requirements are met, thus preventing the possible desiccation of the plants.

Adequate air movement reduces leaf temperature allowing higher light intensity and more vigorous growth. An additional advantage is the reduction of fungal and bacterial infections which a high humidity alone might otherwise cause.

WATER QUANTITY

Oncidiinae intergeneric hybrids should generally be kept continuously moist. Never allow them to dry out completely but be sure to allow for excellent drainage as they do not appreciate soggy or waterlogged conditions. Generally, they require more water when making new growth and less once the bulb is formed. When watering be sure to water copiously, to ensure a thorough wetting of the potting medium and reduce the build-up of toxic minerals.

WATER QUALITY

A factor often overlooked and of prime importance. City water and well water will many times be found to contain an unusually high total soluble salts content (the relative amount of all minerals dissolved in the water). Ideally the total salts content of your water should be 50 P.P.M. (parts per million) or less and not more than 100 P.P.M. If you are not sure what your water contains ask your county agricultural agent for guidance. If your water supply is poor, consider catching rainwater (provided there's no acid rain in your area).

POTTING

Repotting every two years seems to be a good rule (sooner where water quality is poor) except for those plants mounted on tree fern slabs, or dark bark - which should be repotted only when the media starts to break down or the plants has outgrown the slab. If plants are potted in sphagnum moss they may need to be repotted each 12 to 18 months. Plastic pots offer these advantages: economy, keeps potting media moist longer, does not build up "salts" on the inside of the pots, easy to clean and sterilize for reuse. Clay pots offer these advantages: better air movement around the roots, heavier "base" for plants with tall spikes, and evaporation creates a cooler root atmosphere. Usually, these plants should be repotted when the new growth is two or three inches tall or when the new roots first appear. Remove all old mix and trim off all dead

roots. If it is necessary to divide, keep at least three to five mature bulbs together. Water the newly repotted plants lightly until the new roots have penetrated the media, then resume normal watering. Pot size will depend upon the size of the plant and it's root system. We generally use rather small, shallow pots allowing room for an anticipated one or two year's growth.

POTTING MEDIA

Basically, any mix which has good water retentive qualities while still open and allowing good air movement through the media can be used. Our preferred media is New Zealand sphagnum with about 20% small charcoal chips (fingernail size). I have observed these intergeneric hybrids growing well in straight tree fern, straight fir bark, and all sorts of combination mixes! The key is that they do not want to become completely dry between watering, preferring instead to remain at least slightly moist at all times.

FERTILIZER

Moderate feeders, these plants will respond to a balance fertilizer such as 20-20-20 at one half strength, every second or third watering. If potted in fir bark, a high nitrogen fertilizer (such as 30-10-10) will be required. Feeding can be generally increased during warmer weather and when these plants are in active growth, while the reverse is true in cooler months.

PEST CONTROL AND DISEASES

In Florida, scale and mealybug will occasionally attack these plants. We have found that Cygon-2E, Isotox, Malathion, and Orthene give good control. We do not use Cygon more frequently than once every 90 days however, and generally try to rotate the insecticide. When spraying, wash off all buds and flowers with plain water to prevent damage, - the same applies to your person (and of course, avoid inhalation of the fumes).

Fungal and bacterial infections can be a problem because of the desired high humidity conditions. Good air movement is a big help in prevention. Some preventive fungicides are - Captan, Truban, Tersan, Physan, and Kocide, while remedial fungicides such as Benlate, Banrot, Subdue and Aliette are available in the

USA. (Editors Note; Since this article was written major orchid damage has resulted from the use of some Benlate formulations.)

Here is a listing of some of the more important intergeneric hybrids, the genera involved and their usual temperature range: (Temperature Key - W = Warm; I = Intermediate; C = Cool)

Alicera (Alcra.) (Brassia x Miltonia x Oncidium) so far, these have utilized the Brazilian or warm Miltonia's. W-I-C

Aspoglossum (Ascgm) (Aspasia x Odontoglossum) Heavy substance, flowers long lasting and shaped similar to the Odontoglossums. W-I-C

Bakerara (Bak.) (Brassia x Miltonia x Oncidium X Odontoglossum) W-I-C

Beallara (Bllra.) (Brassia x Miltonia x Cochlioda X Odontoglossum) W-I-C

Brassidium (Brsdm.) (Brassia x Oncidium) W-I unless a cool growing Oncidium used (then W-I-C).

Burrageara (Burr.) (Cochlioda x Miltonia X Odontoglossum X Oncidium) W-I-C

Carpenterara (Cptra.) (Baptistonia x Oncidium x Odontoglossum) Just one cross so far, but promising. Cross received an Award of Distinction from the AOS. W-I-C.

Colmanara (Colm.) (Miltonia x Oncidium x Odontoglossum) If made with Brazilian Miltonia and a "warm" Oncidium: W-I-C. If made with Columbian (cool) Miltonia and/or a "cool" Oncidium: I-C.

Degarmoara (Dgmra.) (Brassia x Miltonia x Odontoglossum) This is usually made with Miltassia involving a Brazilian Miltonia. W-I-C. Forgetara (Fgtra.) (Aspasia x Brassia x Miltonia) With Brazilian Miltonia: W-I-C

Goodaleara (Gdlra.) (Brassia x Miltonia x Oncidium x Cochlioda x Odontoglossum) A quadrigenetic named for the late W.W. Goodale Moir of Hawaii. So far the warm Brazilian Miltonia used: W-I-C.

Lagerara (Lgra.) (Aspasia x Cochlioda x Odontoglossum) A spectacular intergeneric producing fully shaped flowers of heavy substance and long lasting qualities. W-I-C
Maclellanara (Mclna.) (Oncidium x Odontoglossum x Brassia) The grex Pagen

Lovesong has received numerous awards. W-I-C
Milpasia (Mpsa.) (Aspasia x Miltonia) With Brazilian Miltonia: W-I; With Columbian Miltonia (also known as Miltoniopsis): W-I-C
Miltassia (Mtssa.) (Brassia x Miltonia) If Brazilian Miltonia used: W-I-C

Miltonidium (Mtdm.) (Miltonia x Oncidium) If with Brazilian Miltonia: W-I-C

Odontobrassia (Odbra.) (Brassia x Odontoglossum) Brassia shape dominates. W-I-C
Odontocidium (Odcdm.) (Odontoglossum x Oncidium) This is usually W-I-C but depends on the Oncidium used.

Odontonia (Odtna.) (Miltonia x Odontoglossum) With Brazilian Miltonia: W-I-C. With Columbian Miltonia: I-C

Schafferara (Schfa.) (Aspasia x Brassia x Cochlioda x Miltonia x Odontoglossum) W-I-C
Vuylstekeara (Vuyl.) (Cochlioda x Miltonia x Odontoglossum) An older intergeneric using the Columbian Miltonia: I-C. New combinations however utilizing the Brazilian Miltonia are: W-I-C (See page 1248 of December 1982 AOS Bulletin)

Wilsonara (Wils.) (Cochlioda x Odontoglossum x Oncidium) A most satisfactory intergeneric: If made with a "cool" oncidium such as incurvum or tigrinum: I-C. If made with a "warm" oncidium such as maculatum or sphacelatum: W-I-C

Wingfieldara (Wgfa.) (Aspasia x Brassia x Odontoglossum) W-I-C

For the truly UNIQUE in the Orchid World, the Oncidiinae Intergeneric lead the parade. Their excellent spikes of bold and beautiful flowers with striking combinations of colors and patterns are exciting orchid growers everywhere.

Combine these attributes with their ease of culture and wide temperature tolerance and you have a combination beyond duplication.

Everglades Orchids

1101 Tabit Road

Belle Glade, Florida 33430

JUDGING ONCIDIINAE: THE ODONTOGLOSSUM- BRASSIA GROUP

Lee Rogers PhD

Student judging paper covering *Odontoglossums* and *Miltonias* providing a foundation for discussion of the *Oncidiinae* intergenerics will be published in subsequent newsletters. This paper deals with members of the *Odontoglossum-Brassia* group concentrating on three artificial genera: *Odontobrassia*, *Maclellanara*, and *Beallara*.

BRASSIA (Brs.) SPECIES

The genus *Brassia* contains approximately thirty species distributed from South Florida and Mexico on the north through the West Indies and Central America to Peru, Bolivia and Brazil on the south. The *Brassias* are commonly referred to as "spider orchids" because of the overly-elongated sepals found in most species. Blossoms in this fascinating genus are generally large, frequently exceeding twelve inches in vertical spread. Most species are pleasantly fragrant, especially during the brighter hours of the day. *Brassia* peduncles are typically non-branching and long, holding the flowers well above the foliage. Flower color of most species are earthy, ranging from light yellow through pale green to brown. In spite of the lack of rich color, many of the *Brassias* are handsome and have been found useful in hybridizing. Many of the species are found in tropical lowlands and therefore provide warmth-tolerance in their offspring, a trait of great value in intergeneric hybrids involving the cool-growing *Odontoglossums*. Unfortunately, intergeneric breeding with this genus got off to a slow start with the first intergeneric hybrid, *Sandera Alpha*, being registered in 1937. It was eleven years before the next hybrid, *Brassidium Coronet* was registered in 1948.

A brief review of positive and negative traits inherent in the *Brassia* genus presents a foundation for judging of this delightful group. Positive traits include free-flowering characteristics in their hybrids, although many species are shy bloomers. Another positive trait is size. Vertical spreads range from a minimum of about five inches to sixteen or more inches. *Brassias* tend to impart good spacing and presentation to hybrids, countering the bunching characteristics of some *Oncidiinae* genera. *Brassia* intergenerics usually exhibit great vigor leading to large plants, large flowers and high flower count. Although not a judging point, the instilling of warmth-tolerance in its progeny does imply that *Brassia* intergenerics will become more common on the judging tables here in the midwest and in other warm-growing areas.

Probably the most important negative trait in *Brassia* species is form. *Brassias* exert strong influence on form, producing open, star-shaped progeny through many generations. In a world that worships full, round flowers, this is a big negative. Another big negative is that many *Brassia* descendants show varying degrees of twisted lips. Still another trait is the dilution of color in hybrids. This is a negative except for the production of albas such as some of the *Beallara Tahoma Glacier* cultivars.

Of the thirty or so *Brassia* species, the following are most frequently seen in hybrids:

Brassia gireoudiana. Flowers are greenish yellow with black or brown blotches centrally; lip is large, light yellow spotted brown. Flowers are numerous and fragrant with a natural vertical spread of twelve inches or more. W. W. Goodale Moir observed some flowers of this species in the lowlands of western Panama with a vertical spread of seventeen inches. A fine example of this species is *Brassia gireoudiana* 'Mission Challenge' AM/AOS (83 points). At time of award, this cultivar had ten well-spaced chartreuse flowers spotted brown centrally with a white lip spotted brown on one inflorescence. The flowers had a natural horizontal spread of 4"

(10.2 cm), dorsal sepal 1/4" (0.6 cm) wide, 6-3/4" (17.1 cm) length; petals 1/4" (0.6 cm) wide, 4" (10.2 cm) long; lateral sepals 1/4" (0.6 cm) wide, 9" (22.9 cm) long; lip 1-7/16" (3.7 cm) wide, 2-5/8" (6.7 cm) long. These measurements typify the *Brassia* characteristics of long and narrow sepals and petals with the lateral sepals significantly exceeding the dorsal sepal in length, vertical spread greatly exceeding horizontal spread, and a relatively large lip. This cultivar later won a CCM/AOS.

Brassia verrucosa. This Mexican and Guatemalan species bears 5 to 15 flowers on an erect spike. Flowers are typically green with numerous dark brown spots or warts carried on an erect spike up to three feet in length. Flowers are powerfully fragrant during daylight hours. This species has a stronger color dilution affect on hybrids than other species of this genus. Moir found some cultivars of this species almost as large as *Brassia gireoudiana* in the lowlands of Central America. Some cultivars exhibit bunching of flowers on the inflorescence. One of the best cultivars representing this species is *Brassia verrucosa* v. *brachiata* 'Burnham' AM/AOS (82 points). Although identified as var. *brachiata* by the Royal Botanic Garden at Kew, England, it is unlike the small-flowered *Brassia brachiata* as known in this country. At time of award, the plant had seven flowers and one bud well presented on one strong inflorescence. It had mahogany brown spotting around the column (base color not given) and a pale yellow lip with raised green spots. Measurements were: natural spread 18.0 cm horizontally, 35.0 cm vertical; dorsal sepal 0.5 cm wide, 13.2 cm long; petals 0.7 cm wide, 8.8 cm long; lateral sepals 0.5 cm wide, 17.6 cm long; lip 4.0 cm wide, 5.0 cm long. *Brassia Rex*, a cross between this species and *Brassia gireoudiana*, has been a popular parent of many outstanding intergeneric hybrids.

Brassia longissima. The correct name for this species is *Brassia arcuigera*; however, both names are considered specific and separate for registration purposes by Sander's. This species

is among the largest of the *Brassia* species with normal vertical spread of sixteen inches or more. It bears from ten to twenty flowers on an almost horizontal inflorescence some thirty inches in length. *Brassia longissima* 'Santa Barbara' AM/AOS (80 points) carried 12 mahogany-brown spotted sienna orange flowers on one inflorescence. The combined dorsal and lateral sepal length was 42.5 cm (16.7 inches).

Brassia maculata. This species, found primarily in Jamaica, bears erect or arching inflorescences two feet or more in length with up to 15 brown-flecked greenish flowers. Flowers are relatively small in size with a natural vertical spread of about 20 cm (8 inches). Contrary to other *Brassias*, this species is relatively round but retains the star-shape form. The vigorous nature of this species is seen in *Brassia maculata* 'Eve' CCM/AOS (83 points). It carried 217 greenish-yellow flowers when awarded.

ODONTOBRASSIA (Brs. x Odm.) - A Two-Genera Cross

The first cross recorded between *Brassia* and *Odontoglossum* was *Odontobrassia* Gordon Dillon (Brs. *maculata* x Odm. *bictoniense*) registered by Rod McLellan Co. in 1967. By the end of 1990, 13 crosses had been registered under the *Odontobrassia* genus and 19 AOS awards had been made, of which eight went to *Odontobrassia* Gordon Dillon, five to *Odontobrassia* Inca (Brs. *antherotes* x Odm. *wyattianum*), and three to *Odontobrassia* Peggy Mobley (Brs. *verrucosa* x Odm. *bictoniense*).

The highest point award achieved by the *Odontobrassia* Gordon Dillon grex was an AM/AOS of 82 points awarded to the cultivar 'Mary K.' The judges were apparently impressed with the high flower count of eight flowers and eight buds on one erect inflorescence. In addition, the relatively round shape imparted by *Brassia maculata*, the pleasing color combination which included a wine-red lip (contributed by *Odontoglossum bictoniense*), and the "lateral sepals ... elegantly curved upward"

contributed to the point score.

Odontobrassia Inca 'Orchid Loft' AM/AOS was granted the highest number of points in its grex with a score of 85 points. The parent, *Brassia* antherotes, is a close relative or variant of *Brassia longissima* and exhibits a natural vertical spread of 14 to 17 inches. The 'Orchid Loft' cultivar had ten yellow and chocolate brown flowers on one inflorescence. Again, the flowers of this cultivar had relatively round form, in spite of the *Brassia* parent. One aspect that undoubtedly impressed the judges was the relatively wide sepals (1.4 and 1.3 cm) and petals (1.4 cm). These width dimensions are approximately twice those of the awarded *Odontobrassia* Gordon Dillon cultivars, creating a fuller form.

The *Odontobrassia* Peggy Mobley grex, represented by the cultivar 'Riverdale' AM/AOS (81 points), again shows the very narrow sepals and petals characteristic of the *Brassias*, although the vertical and horizontal dimensions are of a more rounded form. The outstanding characteristic of this cultivar is the excellent presentation - very good spacing. The color is representative of the earthy colors of *Brassia* but reddish-brown spotting on the flat white lip added interest in that part of the scoring.

In summary, those crosses and cultivars that attracted judging interest in this two-genera genus had eliminated the extreme vertical-to-horizontal length ratio and presented flowers of round form. In addition, they exhibited little of the twisted lip that plagues the *Brassia* species.

MACLELLANARA (Brs. x Odm. x Onc.) - A Three-Genera Cross

The first three-genera cross involving *Brassia*, *Odontoglossum*, and *Oncidium* was registered by Rod MacLellan Co. in 1978 as *MacLellanara* Pagan Lovesong (Odcdm. Tiger Butter x Brs. verrucosa). Since then, only 16 *MacLellanara* hybrids have been registered. History has shown that breeding attempts with *Brassia*-based

intergenerics frequently result in failure or very few viable seeds. This is probably due to differences in chromosome counts of the various *Oncidiinae* genera. *Brassia* species have 60 chromosomes, while *Oncidiums* and *Odontoglossums* have 56. Other genera have still different counts.

Judges have awarded 51 AOS awards to the *MacLellanara* genus, McIna. Pagan Lovesong accounting for all but one, which went to McIna. Sabre Dance 'Valley Forge' AM/AOS (81 points) (Brsdm. Klara Ahrnke x Odm. Gold Basin). The highest award granted was to McIna. Pagan Lovesong 'Sheila' FCC/AOS (91 points). This cultivar had ten chartreuse-yellow flowers with dark brown blotching plus three buds on one inflorescence. The judges found all of the flowers very uniform and well arranged on a strong inflorescence. In addition, they were impressed with the flat and well-presented lip on each flower. Natural horizontal spread was a stately 14.0 cm and form was relatively round (vertical spread was not given). Sepals and petals were wide; dorsal sepal was 2.2 cm wide while the petals and lateral sepals were 1.9 cm wide. Other awarded cultivars of this grex were of similar coloration, averaged about 11.5 cm in natural horizontal spread, were slightly inferior in flower count, and exhibited slightly narrower sepals and petals. One cultivar, 'Ellingson' AM/AOS (83 points), held 19 flowers of 12.0 cm natural horizontal spread and two buds on one branched inflorescence. This cultivar probably would have scored higher if the distal edges of the lip had not been severely furled.

McIna. Sabre Dance 'Valley Forge' AM/AOS (81 points), winner of the only award outside of the Pagan Lovesong grex, was an extremely unusual plant with 25 flowers and six buds on one inflorescence with four branches - a very showy plant. The display was "evenly-arranged brilliant yellow flowers, splotted and spotted with bittersweet-chocolate"; flowers had a natural horizontal spread of 7.5 cm. Unfortunately, this fine cultivar was not photographed.

BEALLARA (Brs. x Cda. x Milt. x Odm.) - A Four-Genera Cross

In Beallara, a four-genera genus, both *Cochlioda* and *Miltonia* are introduced into the *Odontoglossum-Brassia* complex. The first hybrid of this genus was made at The Beall Orchid Co. but named Beallara Vashon (Mtssa. Charles M. Fitch x Oda. Carmine) by the Moirs in 1970, establishing the genus name in honor of the late Ferguson Beall. Bllra. Vashon won two of the twenty AOS awards generated by Beallaras, but 14 of the awards were granted to Beallara Tahoma Glacier (Mtssa. Cartagena x Oda. Alaska Sunset), a cross made by W. W. Goodale Moir.

According to Moir, the Tahoma Glacier grex produced flowers substantially larger than might be expected based upon the geometric rule. It produces very large (10 to 15 cm natural spread), star-shaped, pale flowers of very heavy substance on long (80 to 100 cm) inflorescences. Moir believed that there was something in his best cultivar of Mtssa. Cartagena that produced large-sized flowers in this and other crosses.

Bllra. Tahoma Glacier 'Olga' won an AM/AOS (89 points) in 1972. It won this high award in spite of strongly reflexed sepal and petal tips. In 1979, 'Olga' won the coveted FCC/AOS (92 points) displaying much less reflexing. There were 12 flowers and two buds on two inflorescences "of superb substance with commanding presence of arrangement and exceptionally dark color". Sepals and petals were white with mulberry spotting on back and front, larger than when awarded the AM/AOS. Natural spread of flowers was 15.3 cm. Notable was the width of the floral elements; dorsal sepals (2.8 cm), petals (2.5 cm) and lateral sepals (2.6 cm). Truly a magnificent display and truly superior to the other awarded cultivars which ranged in natural spread from 10.3 to 14.5 cm (with one exception - the cultivar 'Zahn Zunge' AM/AOS (83 points) which had a natural spread of 16.1 cm). Several of the awarded cultivars were afflicted with reflexed floral elements.

Most of the cultivars exhibited a base color of white, creamy-white, or pale yellow.

A striking difference exists between the *Brassia* hybrids discussed above and Bllra. Peggy Ruth Carpenter 'J.E.M.' HCC/AOS (77 points) (Bllra. Tahoma Glacier x Milt. Purple Queen). This cultivar had a base color of dark purple in the sepals, petals, and lip with creamy *Odontoglossum*-like markings. Similarly, the two awarded Bllra. Vashon cultivars exhibited purple and magenta base colors. The strong purple coloration was due to the *Miltonia* influence shining through as the *Brassia* influence diminished.

CONCLUSION

The evidence presented above indicates the strong influence that *Brassia* parents have on their progeny, especially on size, form and color dilution. The implication of this is that proper judging of *Brassia* progeny requires an analysis of the degree of influence presented by *Brassia* parentage (and other genera as well). As the number of genera present in an artificial genus increases, the pathways for producing a hybrid in the genus increases dramatically. Hence, more time and attention to ancestry is required when judging the more complex artificial genera if expectations are to agree with reality.

To illustrate the possible pathways to produce an artificial genus, consider those for the two-genera *Odontobrassia* genus (reverse crosses eliminated - from list):

Brassia x *Odontoglossum*
Odontobrassia x *Brassia*
Odontobrassia x *Odontoglossum*
Odontobrassia x *Odontobrassia*

Notice that the influence of each natural genus varies with the pathway (as well as generations of separation).

Now, consider the pathways for the three-genera *MacLellanara*:

Brassia x Odontocidium
 Brassia x Maclellanara
 Odontoglossum x Brassidium
 Odontoglossum x Maclellanara
 Oncidium x Odontobrassia
 Oncidium x Maclellanara
 Maclellanara x Maclellanara

Again notice that the influence of each natural genus varies with the pathway.

Determining the pathways for a four-genera artificial genus, such as Beallara, is left as an exercise for the reader.

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A Partial History of Odontoglossums in Great Britain (Part III)

by Brian Ritterhausen

Today's Hybrids

The outbreak of the Second World War caused a great setback to the hybridization of orchids. It became impossible to obtain staff and the nurseries were greatly restricted in the amount of coal they could use for fueling the boilers. Not until the 1950's did matters change, when a great deal of re-organization had started to take place amongst the bigger firms. Sanders was the first to suffer as their huge nursery at St. Albans went into liquidation. David Sander, the grandson of the founder, started a new, smaller business in East Grinstead, where he began breeding and raising his own hybrids.

Odontocidium Selsfield 'Gold' AM/RHS showed the result of crossing a modern Odontoglossum hybrid back on to a species, in this case Odontoglossum Golden Guinea x Oncidium tigrinum. When fully grown this plant is capable of giving a four foot long spike with sixty to seventy deep yellow flowers. The potential for this kind of hybridization was immediately seized upon and has continued to the present day, using modern hybrids and old species, with exciting results.

In London at this time was an Armenian gentleman by the name of Nubar Gulbenkian. He was probably the last of the wealthy eccentrics and took a great interest in orchids. Although he did not grow many plants himself, he had an arrangement with Charlesworth & Co. that wherever he was in the world they would supply him with a single odontoglossum flower every day to wear in his buttonhole. The flower had to match his dress and occasion. He even claimed they had raised a special yellow hybrid to match his distinctive hunting jacket!

Although blue has always been a colour which has eluded the Odontoglossum hybridizer, Mr. Gulbenkian would take an ordinary O. crispum flower and place it in ink overnight where the

bloom would absorb the blue colour.

Coming up to date, one of the most important amateur orchid growers in the world was the late Eric Young who died in 1984 leaving an enormous collection of plants which he had built up at his home in Jersey over thirty years. Eric Young was not only a keen orchid grower but an orchid politician and was always to be seen at International Orchid exhibitions throughout the world.

Unlike great amateurs of the past whose collections were broken up and sold when their owners died, the Eric Young collection is being turned into a trust and will be open to the public in the future. Eric Young had built up a large collection of *Odontoglossum* hybrids many of which he had raised in Jersey with his team of orchid growers. From this collection have come some of the most modern hybrids with perfectly balanced blooms in beautiful colours. Modern hybrids were often crossed back onto species such as *O. cordatum* to give *O. Corbiere*, producing an interesting and unusual flower. *Odontoglossum Autumn Tints*, which is simply *Odontoglossum bicknelliense* crossed with *Oncidium forbesii* was raised by another important hybridizer, George Black. When exhibited by Eric Young in 1983 it received an AM/RHS.

Wilsonara Uruapan shows the result of *Oncidium tigrinum* with *Odontioda Trixon*. The modern hybrid gives the background shape and colour to the petals, while the broad lip is introduced by the species.

The genus *Sanderara* is very unusual and very few crosses have been successful over the years. Named after Sanders in 1937 and containing *Brassia*, *Odontoglossum* and *Cochlioda*, the finest one we have seen must be *Sanderara St. Helier*. We have successfully hybridized from this plant and have a limited number of seedlings coming along.

Mansell and Hatcher in Leeds are at this time producing many fine red *Odontoglossum* hybrids. One of their best known in recent years has been *Odontioda Red Rum*, two clones of which have received AM/RHS for their beautiful colour combinations. The foremost hybridizer of

yellow *odontoglossums* must be Mr. Bert White of Stonehurst Orchid Estate at Ardingly. He has concentrated on a line of breeding using *Odontoglossum Many Waters* and *O. Golden Guinea* as parents. His finest achievement is the highly successful *O. Stonehurst Yellow*, which gives non-fading deep yellow blooms with a few brown markings. Three awards to date have been given to this exceptional hybrid.

In recent years there has been a great revival of hybridizing for character rather than complete roundness of bloom. One of the foremost breeders on less conventional lines is Keith Andrew Orchids, Ltd. who specializes in making unusual crosses with a flair for success. *Odontonia Renee 'Maytime'* gives us the perfect combination of *Odontoglossum* and *Miltonias* with all the good characteristics and none of the bad! It is a well balanced flower with the most delicate patterning of the petals.

Mentioned earlier in this series was the first generation *Cochlioda* hybrid, *Odontioda Heatonensis* which Keith Andrew continues to use for breeding. When crossed with the modern hybrid *Odontioda Fire Dance*, it produced a most striking and vividly coloured flower on branched spikes which he named after his son, *O. Nicholas Andrew*. Going in the opposite direction Keith Andrew also crossed *Oda. Heatonensis* with *Oncidium cheiroporum*, a very small but brilliant yellow *Oncidium*, to produce one of the smallest *Wilsonara* ever, *Wilsonara Little Gem*, a true novelty of a bloom!

As a result of re-selection of jungle collected species over the last few years we have been successful in producing a range of very fine *Odontoglossum harrayanum* which Keith Andrew has crossed with yellow hybrids. One extraordinary flower to come from a cross with *O. Moselle* was *O. Natterjack*, to which there have been two AM/RHS. *O. Natterjack* has been crossed with *O. uro-skinnei* producing an interesting flower in which the *O. uro-skinnei* is dominant.

Mentioned earlier was *Vuylstekeara Cambria 'Plush'* FCC/RHS which although produced as far back as the 1930's has increased in importance in recent years. Surprisingly, it has

turned out to be a most disappointing parent and the only notable hybrid to come from it was raised by Keith Andrew and named Vuylstekeara Keith Andrew. Our own lines of breeding have been to follow some of the less traditional hybrids and Odontoglossum Red Queen 'Burnham' AM/RHS was one of our earlier awards which has a perfectly round, symmetrical flower in deep red.

Odontocidium Tigersun 'Orbec' AM/RHS is the result of crossing Oncidium tigrinum with O. Sunmar and we received an AM/RHS for this plant in 1983. The result of this cross was to produce a flower of even proportions with both parents equally represented. The strong colouration and patterning has come from the Oncidium tigrinum and the shape from the Odontoglossum. Unlike Wilsonara Tiger Talk 'Beacon' AM/RHS, for which we received an award of merit on the same day, the influence of the Cochlioda and the Oncidium is much greater and the ultimate has been achieved with the deep yellow lip on the dark red petals.

The use of Oncidium incurvum in hybridizing has always produced interesting results but never up to the award standard. Small flowers with many on a spike is typical as can be seen in Wilsonara Widecombe Fair which can have a four foot spike lasting six weeks.

One of the most dazzling of the new novelty hybrids recently awarded is the new genus Banfieldara named after Peter Banfield, our head grower at Burnham. This is a combination of Brassia, Ada, and Odontoglossum. Although originally bred by Goodale Moir in Hawaii, it does extremely well with us and produces large, golden yellow, star shaped flowers.

There are still plenty of Odontoglossum species which at first glance appear to have nothing to offer the hybridizer, and have therefore never been bred from. However, a few years ago we turned our attention to Odontoglossum trilobum with its four foot branching spikes and many small flowers. We crossed it with Oda. Carisette and named the cross Odontioda Honiton Lace. The variety 'Burnham' received an award of merit from the RHS and variety 'J.E.M.' received an award of merit from the American

Orchid Society, both clones showing great variation with characteristics of the parents. After Charlesworth & Co. were sold and the land used for building, the stock was taken over by McBeans who continue to produce many fine hybrids by modern methods of culture, while retaining the traditional Charlesworth breeding lines of odontoglossums and odontiodas. The firm's stock of O. crispum 'Xanthotes' hybrids, which have been mentioned earlier, had dwindled over the years through lack of interest. Now fresh crosses were made with renewed vigour which built up a completely new stock of white flowered hybrids with yellow markings. O. Royal Occasion and O. Royal Wedding are both examples of breeding.

Burnham Nurseries Ltd.
Kingsteignton
Newton Abbot, Devon

EDITORIAL

The computerization of the orchid registration list by the RHS and the subsequent release of the data on a compact disk is a significant step forward for orchid growers the world over. This has prompted me to give you my perspective on the market for the CD medium for the registration and some recommendations for the American Orchid Society to better serve its membership and capture a large share of the potential market.

THE MARKET AND THE MEDIUM

The advent of the personal computer with its reasonable cost and availability of software has significantly changed in the past twenty years. The American market for personal computers is larger by far than the European, Japanese, Australian, or Far East market. Further the American market has only two basic types- the IBM (and compatible) and the Apple. Both of these have large amounts of software readily

available. The medium for this software is overwhelmingly the floppy disk (5 1/4" and 3 1/2"). Most personal computers have hard disk capacity of 20 to 120 M bytes capacity. The compact disk with its large capacity is a coming medium in the market. It is a read only medium. To utilize a CD with a personal computer you need a CD reader, which today costs from \$300-\$500. The multimedia capability is strongly advertized today, but as yet sees little use. It is a coming technology and as such cannot be ignored. Kodak is currently marketing a system whereby you can have your film put onto a CD with 100 35 mm pictures per CD. I believe Kodak is pioneering the market. The vast majority of American members of the AOS are growers, I believe. Further more they seem to grow relatively few genera. For example being familiar with the odontoglossum alliance growers, I observe that with few exceptions, they specialize in the alliance. Their collections may contain a few other genera, but the cultural requirements do not permit most growers to have large numbers of genera.

THE CURRENT CD SYSTEM

The current CD system as the medium for distributing the orchid registration system has a number of advantages and disadvantages.

ADVANTAGES

1. The system is available now on the market.
2. It contains the complete list of orchid registrations.
3. The addition of the AOS Award data base with pictures adds significantly to the value of the data.

DISADVANTAGES

1. Relatively few American computer owners own CD readers.

2. The cost to a buyer of the data is high. \$1200.00 for the CD and about \$400.00 for the reader.
3. Most American growers need only segments of the data.
4. The data distribution depends upon a small Australian software company for continued updates and maintenance of the software.

RECOMMENDATIONS

1. Maintain the current CD system for those few users who need and use the entire registration list.
2. Keep the AOS in the CD market because it is a coming technology where its large storage capacity will permit the addition of color illustrations.
3. Design and market the registration list into orchid alliances that breed together plus the miscellaneous genera. Utilize the medium of the floppy disk to distribute the registration and award data. An estimate is that there are at least 9 alliances.
4. Format the floppy disk directly from the RHS registration data and set it up to interface with commercially available data base packages. Thus the AOS becomes independent of the Australian software company and able to market these disks so that buying all the disks would cost more than the CD.
5. Formulate the floppy disks to be compatible with either the IBM or Apple styles of personal computers.
6. Find for the AOS unique positions in this important data distribution medium. Among possibilities that I see are document distribution and interface with label printing software. Advantages to implementing the above recommendations would be to enlarge the market potential for the AOS and better serve the members of the AOS. Based upon my own experience in the software business, I believe it is important for the AOS to become independent of the Australian software company. It would be best for the AOS to deal directly with the RHS data source. Searches and data obtained from the CD can easily be obtained from commercial data base packages interfaced with the orchid data base.

The American Orchid Society is now offering for sale Books of the complete listing of RHS Hybrid Registration Data and AOS Award Data by Genera. This is a significant step forward. I had the opportunity to review the *Odontoglossum* book prior to publication and sale. I found it to be a complete and useful document. It is especially good to have the award data in the same volume. The award data is the date and award, but does not contain the flower description. Never-the-less it is a useful and cost effective publication. If the AOS would issue the same data in machine readable form on both 3 1/2" and 5 1/4" disks in a format that was readable by popular PC data base programs they could do further service to the orchid world and especially the *Odontoglossum* Alliance community.

Available to Members

Veitch's Manual of Orchidaceous Plants 1887 - The Oncidiinae

The New Zealand *Odontoglossum* Alliance has re-printed Veitch's Manual of Orchidaceous Plants - The Oncidiinae. We are now offering this publication for sale through The *Odontoglossum* Alliance. The book is the Oncidiinae section removed and enlarged from A5 to A4 and with the original color maps in color. It is priced at \$50.00 per copy post paid in the United States and \$52.00 outside the United States. Orders should be sent to the Editor along with payment. Shipment will take some time as we are using bulk shipment from New Zealand to hold down costs. Send order and check to:

John E. Miller

P.o. Box 38

Westport Point, MA 02791

Make check payable to: *Odontoglossum* Alliance.

Editors Comments

Editors Comments:

We are entering the season in this hemisphere when our plants are really back to life again. That is unless you live in one of those exceptional climates for *Odonts* as exist on the West Coast and parts of Canada. But for us in the east we struggled with a hot summer and hot nights. For those of us with small insect infestations the hot summer made the population explode. By the time it was recognized the damage had been done. I believe now those who say a preventive treatment is the most effective medicine.

Your Alliance is healthy and growing. Membership has grown to 104 fully paid for the year June 92 -May 93. The newsletter has expanded in pages and added color. Color does so much to improve visualization. Putting in one page of color for each quarterly issue is about all our dues will support. However the Alliance has raised money over the years through its auctions of donated plants. I shall be asking the Officers to allow an extra page of color from time to time. Initially I thought material for the letter would be scarce and hard to come by. I was wrong. Members have been most cooperative and supplied articles both voluntarily and upon request. In this issue Tom Perlite's article on "Beginners Orchids" was provided because I received a number of questions on what plants should I start with to grow the Alliance? Member wants and desires for information are welcome. Drop your editor a note with your request. Your Alliance is becoming known and appreciated by the Orchid Shows. We have now two requests to hold *Odontoglossum* Alliance meeting. The Boston meeting was a big success and a drawing card for the Eastern Orchid Congress. We now have our first International *Odontoglossum* Alliance meeting and forum. This held in conjunction with and part of the 14th World Orchid Congress in Glasgow. I call your attention to the very interesting program and expect to report on the forum in the May Newsletter for those of you who will be unable to attend. I shall also try to persuade each speaker to give a written version of his talk that can be published in the newsletter.

My first preference would be to see you at the 14th WOC or at the San Francisco Orchid Show 26-27 February 1993 or BOTH

NOTICE

Business Meeting

A business meeting of the Odontoglossum Alliance will be held 27 February 1993 at Unicorn Orchids, 144 Station Street, Daly City, CA. Telephone 415-755-7313. The exact time of the meeting may be obtained by telephone from Robert Hamilton, phone no. 510-644-3329. This is a business meeting of the officers and directors of The Odontoglossum Alliance. Any member of the Alliance is welcome to attend. The minutes of the meeting will be published in the next newsletter. The officers are:

Bruce Cobbledick-President

Tim Brydon-Vice President

Robert Hamilton-Secretary

Steve Gettle-Treasurer

John Leathers-Board Member

Fred Schull-Board Member

Tom Perlite-Board Member

Any member should feel free to contact any officer or your editor with any business item for the Alliance.



Miltonia regnellii



Odm Wildcat 'Cheri's Meow'



Odm. Parade 'Goldilocks' AM/AOS



Odtina. Diane 'Loriot'



Odtina. Yellow Parade #2



Odtina. Yellow Parade
'Grand Marshall'



Odtina. Yellow Parade #1



Odm. Smith's Parade
'Butterfly Brigade' HCC/AOS



Odm. Smith's Parade #2



Odm. Smith's Parade #3