

# ❖Odontoglossum Alliance❖

November 1996

## Santa Barbara Odontoglossum Alliance Meeting

### Program

### Odontoglossum Alliance Meeting and Lectures

7 March 1997

Santa Barbara, California

The meeting of the Odontoglossum Alliance will be held in conjunction with the Santa Barbara Orchid Show and AOS Trustees meeting to be held in Santa Barbara, 4-8 March 1997. The meeting will commence with a lunch and business meeting starting at noon. 1:30 PM will be four lectures will be presented. Following the lectures at 4:30 will be an auction of high quality and unique odontoglossum alliance material.

The lecture program is as follows:

**Session Chairperson: Valerie Henderson**

Valerie Henderson began growing orchids as a hobby in 1987 and has grown at commercial greenhouses since 1990. Three years ago she was employed by The Orchid Zone, Ltd. where she manages a 20,000 square foot range with several climatic zones. In her care are the paphliopedilum and phragmipedium seedlings, paphliopedilum stud plants and complex hybrids, oncidinae, pleurothallids and a number of other genera.

She has a greenhouse at her home in Salinas, California where a diverse personal collection is grown, and continues to be active in several societies and alliance groups.

**Mr. Stig Dalstrom. "The Enigmatic Odontoglossums - geographical variations and how to handle them."**

Mr. Dalstrom has recently published in the AOS Bulletin a series of articles on the odontoglossum species. Stig was born in Sweden and has always been a naturalist. His interest in orchids began when discovering the native species in Sweden. Later a desire to see the tropical species resulted in travel to their native habitat. Stig is an excellent artist and draws from nature. Seeing plants in the wild but not being able to find out what they were, created within him an ambition to learn more about them. Odontoglossums (sensu lato) were his favorites at an early stage since they were among the few plants that grew and flowered in his care.

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In 1981 he established contact with Cal Dodson and Carl Luer at the Marie Selby Botanical Gardens, Sarasota, Florida. They had a special interest in the orchids of the Andes, and particular Ecuador (where *Odontoglossums* grow). As it happened both were looking for plant illustrators with some field experience. Stig joined the Selby Gardens and has since been associated with the Gardens and Cal and Carl.

### **Mr. Tom Perlite "Intergeneric *Odontoglossum* Hybrids -- Will it grow in Florida?"**

This talk will deal with *Odont* intergeneric hybrids, their culture, and flowering habit. Tom will give an overview of recent hybrids which provide the beauty and variety of the *Odontoglossum* group, but also tolerate a wider range of temperature than straight *Odonts*. He will also speak of the increased interest in *Odontocidium*s, *Wilsonara*, and *Vuykstekearas* for the pot plant trade in the US and abroad.

Tom has been in the orchid business for the last 15 years. He graduated from U.C. Berkeley with a major in Botany. During his senior year he began working at the Rod McLellan Co part time in the laboratory and the sales departments. It was then that he became interested in Orchids. Upon graduating he took a position in the Orchid department as a grower. There he became interested in *Odonts*, and was fortunate to work with Tom Easton who did the *Odont* breeding. Mr. Easton created many intergeneric hybrids among which are *Odcdm*, *Tiger Butter* and *Melna*. Pagan Lovesong. After working at McLellans for 6 years Tom started his own business, Golden Gate Orchids.

Golden Gate Orchids grows a wide range of Orchids including *Oncidiums*, *Paphs*, *Vandas*, *Calanthes*, and *Dendrobiums*. The main focus, however, is in the cooler growing varieties of *Odonts*, *Masdevallias* and *Dendrobiums*. The growing facilities are approximately 40, 000 square feet with 15,000 of that devoted to the boarding of clients plants, and 25,000 for production purposes.

Tom Perlite is an accredited AOS judge and exhibits plants in Orchid Shows primarily in the San Francisco area. Tom won the Grand Prix at the 1995 International Orchid Show in Osaka, Japan for *Masdevallia* Copper Angel. As Tom said "This was the highlight of my show experience."

### **John Hainsworth: "From San Diego to Vancouver", *Odontoglossum* Growers on the West Coast.**

This is a look at how some of the well-known growers on the West Coast hybridize and grow *Odontoglossums* in their various micro-climates, beginning in San Diego with Bob Dugger and ending in Vancouver with Wally Thomas.

John started growing *Odontoglossums* in England in 1978 after purchasing plants from Mansell & Hatcher, Ltd. He became an accredited judge in 1988 and received awards from the RHS in the 1980's and 1990's. John learned much from George Black, noted English intergeneric hybridizer. He has also studied the work done in the Alliance on the West Coast. Presently John is associated with Strawberry Creek Orchids in McKinleyville, California.

### **Tim Brydon: "The *Odontoglossum* Paintings of Nellie Roberts from 1897 to the 1950's."**

Tim will discuss the career of Nellie Roberts and her paintings of the 1950's. Hewill illustrate his talk with slides of the paintings and compare some of today's modern hybrids with those illustrated by Nellie Roberts. Ms. Roberts joined the RHS as a part time illustrator in 1897 and painted for more than 50 years. She had a remarkable career in illustrating and was prodigious in her work. Tim has made many trips to England to study her work.

Tim Brydon is an amateur grower specializing in the *Odontoglossum* Alliance. He maintains a greenhouse on the rear of his San Francisco town house. He also has growing space in a greenhouse of the old Valmar Gardens in San Francisco. He started growing in 1975 when his wife brought him an orchid plant.

## New Officers Elected

The Board of Directors elected and announced in August Newsletter have elected Helmut Rohrl as the Chairman of the Board. The Board has elected the following as officers:

Dr. Howard Liebman - President

Roger Williams - Vice President

John E. Miller - Secretary/Treasurer

In addition Robert Hamilton will join the Board of Directors as the Past President. The officers are inaugurated as of 1 November 1996.

Title: Director

Sue Golan

599 West Old Mill Road

Lake Forest, IL, US

Phone: 847-234-6311

Fax: 847-234-6311

e-Mail: [sgolan@aol.com](mailto:sgolan@aol.com)

Title: President

Dr. Howard Liebman

711 greentree Road

Pacific Palisades, CA, US

Phone: 310-459-7147

Fax:

e-Mail:

Title: Director-Past President

Robert Hamilton

2439 Woolsey Street

Berkeley, CA, US

Phone: 510-644-3329

Fax: 510-642-2716

e-Mail: [bob@eecs.berkeley.edu](mailto:bob@eecs.berkeley.edu)

Title: Secretary/Treasurer

John Miller

PO Box 38

Westport Point, MA, US

Phone: 508-636-8409

Fax: 508-636-6143

e-Mail: [jemiller49@aol.com](mailto:jemiller49@aol.com)

Title: Director

John Hainsworth

4373 Central Avenue

McKinnleyville, CA, US

Phone: 707-839-5001

Fax: 707-839-0468

e-Mail:

Title: Director

Jerry Rehfield

7305 Shepard Mesa Road

Carpentaria, CA, US

Phone: 805-684-3344

Fax:

e-Mail:

Title: Director

Dr. Wally Thomas

PO Box 414771

West Vancouver, British Columbia, Canada

Phone: 604-921-7383

Fax:

e-Mail: [jwthomas@unix.ubc.ca](mailto:jwthomas@unix.ubc.ca)

Title: Chairman of the Board

Helmut Rohrl

9322 La Jolla Farm Road

La Jolla, CA, US

Phone: 619-452-0976

Fax:

e-Mail: [hrohr@ucsd.edu](mailto:hrohr@ucsd.edu)

Title: Director

Wim Velsink

7950 SW Green Lane

Beaverton, OR, US

Phone: 503-646-1387

Fax: 503-626-1965

e-Mail:

Title: Vice-President

Roger Williams

PO Box 627

Oysterbay, NY, US

Phone: 516-922-6636

Fax:

e-Mail:

Editors Note: This material is from the lecture by Philip Altman, Warnambool Nurseries, Australia

## Odm. nobile syn. pescatorei - Is it for real?

by Philip Altmann

The question is often asked, what represents the true Odm. nobile, and I believe the same query could well be placed before us for as long as we grow Odont. If we study the currently available forms of *nobile*, assuming they are indeed that, it is obvious that a wide variation exists between types. Whether these variations are to be naturally expected after nearly a century of line breeding is contentious. When breeder select plants they often look at "desirable traits" to enhance further that line. Perhaps size is imperative, odd coloured clones, bright splashes of colour, shape or florescence habit. All of these over time will affect a marked change from what we may have envisaged a true *nobile* appearance. So few Nurseries can now afford to grow and bloom large groups of seedlings that I doubt that we can stand back and condemn what is placed before us, not having seen what may occur in large seedling populations such as was had in the past. Many of the English clones are considered dubious by some, and of course, the English may consider others' clones also with a doubtful eye. With this wonderful ability of orchid growers' to doubt what others have as being legitimate, will we ever get realistic unbiased opinions.

We could go to a scientific viewpoint, perhaps DNA testing will unlock the true *nobile*, but of course we will have to select a plant that we can use as a standard. It may be prudent to recall at this time how many 'true crispums' from early collections ended up being identified later as primary hybrids. So if we can DNA accurately, of which there is some doubt, what about the cost? Will Nurseries have to supply 'Birth Certificates' with their plants? The logistics will make many tremble when most are happy just to make ends meet. So the Botanist, who make take great pleasure in assessing the validity of a plant, can be let loose on Odm. *nobile*. For most others though if they are growing plants labeled Odm. *nobile*, which bloom as one would expect, I would lose little sleep.

We have chromosome counted several forms of Odm. *nobile* and have 4n and 2n clones, with some doubt of the 4n's validity. This plant was from a crossing of Odm. *nobile* 'Plush x Bull' and has dark red markings and a large blotch of red on the lip which is itself not as fiddle shaped as we have been brought to expect. The 2n form which was purchased from Colomborquideas is all white, smaller in size than the 4n, and even more floriferous. In crossing these two forms and flowering sixty odd seedlings we saw great evenness with only 5 - 10% exhibiting the red markings of the tetraploid form. Size was as the 2n with texture greatly improved, and the blooms more filled in. One would have expected the 4n to have had more influence, particularly if it was actually *Ardentissimum* as many believe.

Combining our 2n Odm. *nobile* with complex *Odontiodas* we have enjoyed flowering of up to 10 blooms in 12 - 14 months from flask. Let me add this was a particularly good year for growing, and it often takes us two years to achieve these results. Surely though, if it can be done once, it could be possible on a Commercial scale to fine-tune growing and make this type of growth a regular occurrence. These crosses were all made for triploids which are generally even growers, unlike the many aneuploids currently offered. Using the tetraploid form with 4n *Odontiodas*, we have produced some lovely blooms which are slower growers, though with larger blooms, but significantly less flower production on first blooming. These are not traits which we selected Odm. *nobile* for, we may well use Odm. *crispum*, for that is what the blooms will be confused with.

The current Judging Systems prevalent in most Countries will penalize *nobile* hybrids, unless there is some enlightening in the knowledge level of most Judges. Few have seen enough of *nobile*, or its hybrids to view them as other than "undersized *crispum* hybrids". It will be up to growers to provide the necessary enrichment of knowledge by exhibiting more plants. We need to create a category for the smaller flowers we expect in these crosses, much as was done for miniature *cymbidiums* and novelty *cattleyas*. Oda. Queen Mary, unmistakably a *nobile* hybrid, received a FCC some eighty years ago by exhibiting all the charm of its forbearers. Lets hope similar beauties can receive such accolades in more modern times.

The great draw-back for Odonts. at this time, is our inability to successfully meristem large quantities, a necessity to challenge the pot plant trade. When this stumbling block is overcome, as many assure me it will, I feel confident that the day shall come when Odonts may again be among the most popular of orchids. With fewer Nurseries providing solely for orchid enthusiasts, this aspect shall be of great significance over the coming years. I have no doubt that for a genera to be to the fore in the popularity stakes, it will need to be commercially viable. Without an adequate supply, via Commercial Establishments, of new material to excite and interest growers' there will only be decline. We need more information on cultural techniques and genetics to be successful, this in-

formation will become available if large Nurseries accept the Odont. challenge. Perhaps *Odm. nobile*, (although I still like the sound of *pescatorei*), can provide a significant role in carrying the genus forward for enthusiasts and commercial growers alike.

Philip Altmann  
Warrnambool - Australia

Response to Philip Altmann's lecture on *Odontoglossum pescatorei* from James A. Rassmann  
PO Box 3016 Florence, Or 97439-0168  
25 April 1996

Dear Editor,

I attended the Odontoglossum Alliance Meeting in Vancouver last week and greatly enjoyed the presentations. I was particularly excited by Phip Altmann's lecture, "*Odm. nobile* syn. *pescatorei* - is it for real?" The idea of a small flowering *Odm.* with branching spikes and many flowers is very appealing and after seeing his slides, regret that I don't have any as yet. By the time I was able to get to him he was sold out.

Mr. Altmann's recent editorial in the Odontoglossum Alliance Newsletter, "Odonts' - Who's Limiting Us", coupled with several of the comments he made during his presentation in Vancouver deserve a reply from the judging community. I would like to respond and hope other judges will as well.

First and foremost, Mr. Altmann claims that for mostly commercial reasons hybridizers have concentrated their efforts in lines of breeding using *Od. crispum* in order to maximize for size and shape. These efforts have all but eliminated the influence of the smaller and often more star shaped species and hybrids. While this is certainly true his reasoning as to how this came about may not be correct. To paraphrase Mr. Altmann, growers limit their breeding to what the judges want to see because, "...everyone likes winning" and only those lines of breeding which produce awards also produce financial rewards. While this may be so, it may be putting the cart before the horse. The truth is most people simply like larger, fuller flowers and people buy what they like. The vast majority of the orchid growing public does not exhibit their plants for judging and probably couldn't care less about an AOS award. But, as most commercial growers will agree it's a great sales tool. Do we, as Mr. Altmann says, "...limit ourselves to what we believe others want to see?" If, by "we", he means commercial hybridizers I must agree with him completely. Commercial hybridizers must limit their production to the "sure thing" that the public is asking for not necessarily what the judges award.

Do species other than *Odm. crispum* and their hybrids deserve awards? Of course they do. The intrinsic beauty of *Odm. crinitum*, *harryanum*, *triumphans* and other species is undeniable. Their use as parents may well have created many beautiful things that were ignored or discarded in the earlier days of *Odm.* hybridizing when compared to the size and flamboyance of *crispum* and its progeny. However, after seeing Mr. Altmann's work with *Odm. nobile*, I hope some divergent by the judges because of reduced flower size and failure to identify species like *nobile* correctly is out of proportion to the problem. Let not scream until we've been gored. I haven't seen any yet so give me a chance. In any event flower size is only ten points out of the total score.

Does the judging community make mistakes in judging Odontoglossums? From my perspective the answer is frequently yes. The principle reason I feel is that they don't know anywhere near enough about them to give them their fair shake they deserve. Coming from the hot, dry Pacific South Region (read Los Angeles) I have been exposed to so few over the years that I am just beginning to get a grasp on the variety of types, shapes and colors possible. In a perfect world I would have learned everything about them through training and study. But that just doesn't happen to anywhere near the extent it should. We learn by seeing and we just don't see enough to become conversant, much less expert, except of course some of us that live and grow in cool Rustic Canyon.

SO, now that I am here in the equally cool Pacific Northwest, where are the multitudes of Odonts that I just knew I would see at judging? They are appearing in very small numbers and I can't accept that it's because the gazillions of Odont growers are so fed up with the short shrift that the rotten judges have been giving their

plants. Lets face it folks, its because so few are being grown compared to other genera and what is being grown, as Mr. Altmann so correctly pointed out in his presentation, often has problems. Genetic difficulties in the form of aneuploidy, poor growth and suicidal tendencies are far mor common in Odonts than we would lkie and this too can't be ignored in determining why more are not awarded.

Several oof Mr. Altmann's points are well taken and certainly our established judging criteria are far from perfect, but, give the judges fine material to work with and the awrds will follow. Just bring them to us.

Sincerely,

James Rassman

## Odm. nobile var. 'alba' "Re-discovered"

In 1994 Dr. Gerardus Staal brought protocorms of a selfing of a putative Odm. nobile var. 'alba' growing in a collection in Europe. This material was replated and distributed to several growers.

Philip Altmann of Warnambool Orchids, Australia received a bottle of this cross as did the Eric Young Orchid Foundation. Philip reports he has bloomed the first seedling from this selfing on a 1 inch bulb. These seedlings are indeed Odm. nobile var. 'alba'.

Philip reports the flower is classically round with a small amount of yellow on the lip. He also states this seedling conforms closely to turn-of-the-century drawings for shape and size. There is no anthocyanin showing is this plant.

Bob Hamilton

Alan Moon of the Eric Young Orchid Foundation also reports that he has flowered a few of these seedlings and they are the 'alba' form. He states they flowered on very small bulbs with flowers white with a small amount of yellow in the lip.

## Lewis Knudson (1884-1958): His Science, His Times, and His Legacy

by Joseph Arditti

Part VI  
APPENDIX 1

This appendix was written by Professor Randolph T. Wedding, Department of Biochemistry, University of California, Riverside. In his letter to me Prof. Wedding wrote: "In response to your recent letter I have produced the enclosed brief memoir of Lewis Knudson ... There is little else I can do... Knudson had children... I met one son on one occasion, but no other members of his family...."

### RECOLLECTIONS OF LEWIS KNUDSON

At a distance of more than 30 years, it is difficult to recall sharply and in detail one's associates, Lewis Knudson was by no means a forgettable person, but I did not see him after 1950 when I completed graduate studies under him and departed Ithaca for the outside world. Some memories do return, but relatively few of them relate to his professional interests, and virtually none to his orchid work.

Knudson or "Lewis" as he was known (Behind his back) to the graduate students in his department, was a fastidious and somewhat withdrawn person. My strongest memory of him is of his dapper appearance, with iron gray hair, a bow tie, and (somewhat to the amusement of the GI graduate students in the department at that time who were harbingers of the sloppy dress habits to come later) always with a coat and vest. He wore heel taps on his brilliantly shined shoes, and his clicking progress down the hall of the Plant Sciences Building was a reliable indication that morning coffee time was approaching. His first stop was in his lab for coffee and a talk, usually brief, with his personal assistants. Then to the Chairman's office, where he settled down with the stock market section of the *New York Times* for an hour or so, his study frequently interrupted by calls to his brokers.

Another vivid impression is of his strength of his convictions concerning mycorrhizas. He was absolutely convinced that they had no role in the germination of orchids, and probably were of little importance to the growth of any other plants. While I was a student he taught an Advanced Plant Physiology course which dealt mainly with his past battles in the matter of how orchid seeds are germinated and which concentrated heavily on the misdeeds and erroneous statements of Dr. DC Rayner, or Miss Rayner, as he always referred to her. His dislike of the concept that mycorrhizas could have any importance in plant growth was so intense that I am sure he must have revolved vigorously in his grave when I later worked with Jack Harley on beech mycorrhizas.

The period immediately after World War II saw a great many changes in American universities. The graduate students in the department at Cornell were mostly recently out of the military. More mature than usual, willing to work harder than the usual graduate student, but unwilling to accept the rigid hierarchy of academia, which in pre-World War II Ivy League schools tended strongly to resemble that of European universities. The graduate students in Knudson's department sent a delegation to tell him that they would appreciate more contact with the faculty than was afforded by the Annual Christmas Dinner and Annual Summer Picnic, which were departmental traditions. Knudson needed no more than a hint and immediately instituted a monthly beer drinking and bull session at his Cayuga Heights home which even included sampling his extensive wine cellar. Although he was a withdrawn and basically shy person, he was a warm and friendly participant in these sessions and in private discussion with individuals.

Knudson was concerned with the accomplishments, present and future, of his students. We had to appreciate the fact that he put a great deal of thought and effort into ensuring that we would make the best possible academic career after graduate school. Not all of us, however, appreciated the degree to which he considered that he was the best judge of what would be best for us. He felt that students should not apply for positions after graduation but should take the position, arranged by the department, that was best suited in his and the faculty's view to the individual's talents and to the future reputation of the department. He was unhappy that I decided to accept a job in California (which he had not arranged), being convinced that civilization stopped at the Mississippi, if not the Susquehanna.

In addition to my own dissertation research, I worked for Knudson on a project devoted to rubber synthesis in plants other than *Hevea*. This was an enlightening experience for me as he revealed a broad grasp of plant metabolism and organic chemistry one would not suspect from his work with orchids. It is of interest that during my time with Knudson he maintained a large greenhouse filled with orchids, but so far as I know, was not actively working on any aspect of orchid physiology.

The annual departmental Christmas dinner, held in a conference complex on the roof of the Plant Sciences building, traditionally included a playlet, devised and performed by the graduate students, which mocked the foibles of the faculty. A prominent character was a professor with a Scandinavian name (e.g. Knoppson) who spent the winter in Caribbean resorts, made inflammatory statements about academic opponents, ran his department with an iron fist in a steel glove, and wore the most disreputable costume of the cast. Knudson tolerated the ribbing very well and usually managed a few one-liners in return.

The allegations of winters spent in resorts were only partially justified. It was true that Knudson usually left Ithaca after Christmas, returning when the forsythia was in bloom. However, this time was spent, not in Jamaica or the Virgin Islands, but in Honduras or Guatemala where his duties as consultant to the United Fruit Company took him. It may have been some phase of the banana crop rather than the rigors of Ithaca winters required his presence at this period, but the graduate students doubted it.

In addition to the United Fruit Company, he was also a consultant to the Vanderbilt Co, and other agricultural chemical concerns. He problems he encountered this way often were laid on the bench of one of his students and sometimes became their dissertation problems. Most of the problems he found as consultant, however were solved immediately out of his store of physiological and chemical knowledge.

Since this brief memoir treats personal characteristics more than scientific attainments, it may be well to indicate that I, and other students, respected and admired Knudson for his accomplishments and ability. His mind was clear and probing, and his contributions to plant physiology substantial and significant.

## APPENDIX 2

My first job when I came to the U.S. in 1954 was for Dr. Arthur Bing at the Cornell University Agricultural Experiment Station in Farmingdale, Long Island, New York. He was very kind to me at the time, and that is why I contacted him more than 30 years later with a request for information. Herewith are Dr. Bing's recollections of Lewis Knudson. In his cover letter Dr. Bing wrote: "Dr. Knudson always gave the impression and actually was a very precise researcher and a good money manager. His graduate students learned from him. With his very stiff and formal appearance he was very friendly once he got to know you."

### DR. LEWIS KNUDSON

I first met Lewis Knudson in the fall of 1940 when I attended his lecture in advanced plant physiology. When I returned from the army in January 1946, Dr. Knudson was still giving the same lectures in plant physiology and was also department head. He was very effective in directing research projects and knew how to handle finances. He was well known for his studies on use of nutrient solutions for growing seedlings and tissue, especially orchid solution. He enjoyed lecturing to the students about his arguments with other scientists who insisted an artificial solution could not work.

There was a very friendly side to Lewis Knudson once you got to know him. Several times he invited all the graduate students to his house for a party, especially to sample his wines. He once taught a course in wine-making at Cornell. He made rarebit

and we had a ball. I was bartender and was told not to give too much to a couple of our heavy imbibers but to feel free with others who we both knew would not smell the wine. He once was sitting on the floor playing the harmonica for us when one of his sons came in and said, "I didn't know he could play a harmonica."

He customarily came to the lab on Sundays with his briefcase, which impressed the grad students, but when I visited his office there he was, sitting accompanied by his dog reading the Sunday paper, especially the comics. Once he asked me to take his dog home. Well, that big hound wanted to get in the front seat and drive the car. What a drive!

He once said that his wife did not know how she could change the furnishings. It was hard to tell if Lewis was his usual very stern, serious self or was putting something over on someone. A twinkle of his eye would put me straight. He frequently took his parking tickets and hung them on Professor Randolph's car.

Lewis Knudson always gave very carefully thought-out and extremely useful advice to graduate students.

### APPENDIX 3

Except for several obituaries the only available biography of Noël Bernard is by Prof. Emeritus Bernard Boullard of the University of Rouen (see section on Bernard for citations). I asked him to write a chapter for a future volume on *Orchid Biology: Reviews and Perspectives*, and he agreed, but had to withdraw later due to ill health.

Professor Boullard was kind enough to give me the address of Professor Francis Bernard, the son of Noël Bernard, a noted marine biologist, prominent myrmecologist, and the author of more than 150 scientific articles and books. Professor Bernard, who was three years old when his father died in 1911 (this would make him about 81 as I write this in May 1989) and his wife Michelle were kind enough to provide recollections about Noël Bernard. Francis and Michelle Bernard's 31-year-old, youngest son, Jean-Félix, is interested in plants, holds an M.S. in Biology, is working towards a doctorate and "a fan of his grandfather's work...and in touch with French orchidophiles." According to Mrs. Bernard, "he would likely write [N. Bernard's] biography [or] get someone interested..." to do so in English. If written, such a biography will be included in a future volume of *Orchid Biology: Reviews and Perspectives*.

The most remarkable fact about Noël Bernard is the tremendous amount of excellent research and writing he produced in a very short time (about 12 years) despite so many other duties, responsibilities and misfortunes. There is no question in my mind that Noël Bernard was, and still is, one of the best scientists in general and botanists in particular France ever produced. It has been said that in Noël Bernard one can see the genius of Pasteur applied to orchids. I don't doubt it.

Professor Francis and Mrs. Michelle Bernard provided me with three photographs and several recollections in a number of letters. I combined these into the following short memoir which was seen by them.

Noël Bernard

#### A Memoir Compiled From Letters By His Son

My grandfather, Francois Bernard, had a drapery business on Boulevard Rechechouart in Paris. He was rich, but unfortunately died when my father, Noël Bernard, was only 12 years old. His wife, Noël's mother, and my grandmother became poor very quickly after that. Because of this Noël, even as a young student, had to become a mathematics tutor. He gave lessons late in the day, after dinner, and this may have weakened his health.

My father met his future wife (my mother), Marie-Louise Martin, when he was a young professor at the University of Caen (Normandy). She was a teacher of mathematics from a family of wine growers near Toulon. My mother enjoyed very good health, and I inherited excellent health from her. Being the daughter of poor pheasants, she had no knowledge of modern life but learned to ride a bicycle. While six months pregnant with me she fell from her bicycle, and I was delivered soon after that. As a premature baby I would have died if it had not been for my father's care.

Jean Perrin, a Nobel laureate in physics, and my father's best friend, told me once: "My dear Francis, I think that your father was successful in his most important undertaking because keeping you alive gave him great joy." When I was 14 Perrin also told me: "My poor Francis, your father was an excellent man and the best I have ever known." André Lwoff, of the Institute of Pasteur and another Nobel laureate, told me in 1982: "You are the son of Noël Bernard? So, dear friend, the name of your father belongs among the names of the greatest French scientists." Unfortunately, my father died of peritoneal tuberculosis when I was only three years old. His death in 1911 was a terrible loss to my mother and me. It is possible that his weak health may well have been due to his hard work as a young boy, student, husband, father of a premature baby, and scientist.

While I was 11 years old, a cousin of my father, also named Noël Bernard, returned from Viet Nam where he was director of the Pasteur Institute of Indochina. In him I found an excellent second father who spoke Chinese and Japanese and told me interesting stories about the Far East. He died at the age of 73 while I was Professor of Zoology in Algeria.

Like my father I was Preparator of Botany at the École Normale Supérieure for two years. This is the school of Pasteur and Bergson. I was fortunate enough to see the room where Pasteur carried out his first work on bacteria.

Professor Francis Bernard also wrote a second memoir which was edited by Mrs. Michelle Bernard and is presented below.

Noël Bernard  
by Francis Bernard  
(edited by Michelle Bernard)

I was only two and a half years old when my father died, and thus I have no real recollection of him during his lifetime. All the same, this drawback has the advantage of enabling me to look at the matter objectively. Because of this I wish to bring to light a few unpublished facts for the benefit of English-speaking readers.

Like him, I have followed the career of a university biologist, in spirit at least, but in zoology. Ants and sea-life have taken up my life. I will leave all comment on Noël Bernard's scientific work to specialists such as Doctor Arditti.

THE "MOZART" OF PLANT BIOLOGY--The analogy with the illustrious musician finds its justification in three ways: 1) Mozart and my father both died at the age of 36; 2) The work left to posterity by my father is sufficient to justify the word "brilliance"; and 3) Like Mozart he underwent the difficulties of a long period of misunderstanding and oblivion.

On the other hand, although my father lived in poverty until the time of his appointment at Poitiers in 1908 (he died in January 1911), he was held in sufficiently high esteem by those around him to be able to carry out his work in conditions that on the whole were good. He won prizes and received grants, but everything of this kind was used for the equipment of his laboratory. This regrettable period of misunderstanding and oblivion has led me to reflect on the conditions necessary to ensure that the memory of a learned man may be kept alive permanently after his death. My father belonged to a class of scientists now well known to psychologists, that of precocious genius. This is frequently to be found among mathematicians (and also composers), but my father was a mathematician: at 12 years of age he solved, as in a game, problems set for the final examination (18 years old). He became a naturalist when he was 22 after brilliantly obtaining a diploma in mathematics--and he married a mathematician!

These precocious geniuses give the greatest proof of their creative activity up to around 22-35 years of age on the average. Decline sets in after this age and their work, should they continue with it, is limited to the checking, consolidation, and generalization of their first results and hypotheses. This is desirable and excellent and brings in its wake positions of high importance. They may then take part in international congresses and seminars, and they may make their high qualities known, more or less successfully, to the general public. At this stage foreign reviews accept and even request their contributions, universities bestow doctorates *honoris causa*, etc. In this way mere reputation has a chance of blossoming into celebrity.

Let us consider France at the beginning of the twentieth century. There was still an enormous difference in activity and standards of living between Paris and the provinces. My father's appointment to Caen was looked upon as being a punitive measure resulting from his spirit of independence and his pitiless candor with people of unscrupulous ambition and those who did not meet the demands of their calling. Thus his career was hampered from the very beginning in spite of the grants which enabled him to take part in the proceedings of the Congress of the Royal Society of Horticulture in 1906 and another in Belgium in 1908.

My father's death resulted in his work resembling a cathedral unbuilt except for the spire. His pupils and all those whom he had inspired have indeed constructed the naves and arches, but the general plan has been lost, for each was his own architect. This often happens in the case of cathedrals, and the result is the same: the name of the original founder falls into oblivion. Fortunately for several years now scientists have been anxious to rediscover history of their subjects and to describe the stages of technical progress. They are right, for this study is of great help in encouraging thought on the conditions and means of research work and also on final results. On the other hand, civilization at the end of the twentieth century tends to reduce the force of national prejudices and the chauvinism which besmirched the controversies of the 1920's--as it is pointed out by Dr. Arditti--at least it may be hoped that such is the case. This has been brought out not only by Costantin but also by certain later works on orchids, symbiosis or mycorrhiza, where my father's name if mentioned is merely accompanied by poor comment. Noël Bernard would certainly have repudiated the controversy, more heated than scientific, engaged upon by Costantin, who on 17/1/09 wrote to his young cousin, Joseph Magrou, the botanist at the Pasteur Institute: "You should get ready as soon as possible to read German and English publications, it is virtually necessary.. it is quite simply a case of taking a succinct memoir by an obscure German, a dictionary and your courage in both hands... In this way I tap the most abstruse works in the most unknown languages and am astonished at my success in doing so."

Inversely, should not scientists whose native language is not French have devoted a few hours and shown a little courage in an effort to read publications in French, if ever it was worthwhile to do so? The discovery of the antibiotic properties would undoubtedly have been speeded up if the posthumous note of Noël Bernard on the fungicidal function of the Ophryidae (1911) had found more readers.

From now onwards any serious study of the history of science must make use of computer systems of translation and documentation. The international scientific community will, thanks to these measures, be in a position to prepare an exact chronology, state precisely in what order discoveries were made and calmly evaluate their comparative values.

I will now deal with a true masterpiece of biology which went unnoticed and was never sent to any specialized publications.

"HIS GREATEST SCIENTIFIC EXPERIMENT IS YOU!" -- Jean Perrin, a Nobel Prize winner for physics and a close friend of my father's, undoubtedly exaggerated when he said this in conversation with me when, in my turn, I passed the competitive examination of the Ecole Normale Supérieure (higher grade) in 1928. But the parents of premature born children can judge the matter for

themselves.

Twenty years earlier my mother fell from her bicycle; I was born on 30 April, whereas the expected date was 10 July. I weighed hardly 1500 g., according to a letter from my father to his cousin. My mother, who was immediately a victim of a deep depression, was of no more help than the simple country doctor (my parents lived at a botanical center, a few kilometers from Caen).

My father then gave additional proof of his outstanding intelligence by putting me in a state of "cultivation" in one of the Pasteur heated chambers, in an antiseptic atmosphere, and with controlled temperature and humidity. He then found a diet suitable for a prematurely born child aged only 6 months and 20 days. He finally decided on a mixture, a quarter of which consisted of milk and three-quarters of water (perfected milk powder did not exist) with additions of malt and orange or lemon juice. It was not the perfect diet, but all the same I developed slowly and at the age of 16 months weighed 6500 g.

My father took complete charge of me during these first months, which was not common among fathers at that time. I spent several weeks not in the *Rhizoctonia* zone but in the neighboring heated chamber.

It is odd that this pediatric feat had no repercussions. But, like Pasteur, my father was not a doctor. His friends and biographers mentioned the fact without revealing the technique employed. Medical science, which had proved incapable of curing him, was badly looked upon, and hospital centers were never informed. Had they been informed, many human lives could have been saved since 1908.

There would have been much to add to the written accounts of my father, for he left abundant correspondence containing many fascinating sketches of the scientists (later to become celebrated) who were his friends or tormentors, for the gay Paris of Edwardian times was also carrying on intense and brilliant scientific achievements, an activity carried out in the austere atmosphere almost in secret of closed premises.

The best work on my father is undoubtedly that written by Bernard Boullard, Professor of Plant Biology at the University of Rouen and entitled: *An Exceptional Biologist: Noël Bernard (1874-1911)*. It was published in 1985 by the University of Rouen Press.

#### APPENDIX 4

Lewis Knudson: A Few Anecdotes

by Harlan P. Banks

Liberty Hyde Bailey Professor of Botany, Emeritus

Department of Botany, Cornell University

Ithaca, New York

When lecturing in advanced plant physiology, Dr. Knudson invariably entered the classroom with a pile of yellowed notes that he placed on the lectern with some style. But I am unaware of anyone who recalls seeing him ever so much as glance at them during the lecture. He simply carried them away when he had finished the lecture.

Dr. Knudson invariably wore a typical businessman's suit (often blue) and a white shirt. As the appointed lecture hour approached, he would adjust the sleeves of his shirt to be sure two inches of white showed below the sleeves of his jacket.

At some time during the semester he reached the subject of seed germination. Always included, of course, were remarks on the difficulty of germinating orchid seed and the troubles he had encountered in overcoming this problem. Once he had convinced us that germination was assured, he would extract a tiny glass vial from his jacket, pour something into his hand, and then blow over his hand towards the class, remarking coyly, "There's a thousand dollars' worth of orchid seed."

It might aid in evaluating this little story if I mention that Dr. Knudson was a highly successful consultant for the United Fruit Company in the days when few faculty were so engaged. Botanists especially were rare in the consulting game. But Knudson was exceptionally helpful to the company in handling problems of growth and disease. As a result, he came into regular contact with businessmen. It was no surprise, therefore, to learn that he regularly spent time in a local brokerage office watching the ticker tape and trading in equities. Further, in the thirties, a thousand dollars was real money. For example, I lived a full 12 months on a \$600 assistantship as a graduate student. Thus, his remark about the value of the orchid seeds had real, and broad, significance.

Dr. Knudson was a quiet man who participated little in the many departmental activities of the mid-to late thirties. He was always a courteous, friendly, and helpful when approached, but he seldom made the first advance.

In teaching he accepted the early suggestion that chloroplasts were originally organisms that had invaded other cells in which they became established successfully, an interpretation that today is usually treated as a modern hypothesis. It is possible that his work on media for germinating orchid seeds, his interest in chloroplasts as organisms, and his acceptance of another very old hypothesis that plant cells are totipotent led him to attract F.C. Steward to the Botany Department at Cornell. Steward, in due course, succeeded in producing a medium on which isolated cells from carrots grew into mature carrot plants. The cells were totipotent.

Towards the end of his career, Dr. Knudson could still cut freehand sections of plant tissue with a razor blade and a flair. The sections were as good as many produced on a microtome. If one expressed amazement at their quality, he simply smiled a gentle smile and appeared thoroughly happy.

#### APPENDIX 5

Recollections by Clyde Harris

The photograph was taken in front of the Cornell University Plant Science Building [in] the academic year of '37-'38. It was good to see Prof. Lewis Knudson was present. Students looked up to him as one of the greatest in plant research. It was obvious he was highly respected. Unfortunately, I did not have classes with Dr. Knudson. It is my impression he was not teaching at the time. I knew him as friendly with a nod passing in a hallway and seemingly determined in pursuing whatever matter he had in mind. Probably I was a bit timid in his presence though there is no reason for it on his part. My wife, Margaret, and I were invited to his home for dinner one evening by Mr. and Mrs. Harold Spencer. They were living in the Knudson home while Dr. and Mrs. Knudson were away part of the summer. I remember it was an attractive place as are so many of the homes about the Cornell Campus and on the Heights. "far above Cayuga's waters". I would like to have known Dr. Knudson well but am proud to have worked and learned in the same environment as he did.

**Editors Note:** This is the final part of the original article published in the *Lindleyana*. This reprint is complete except for references, photographs, acknowledgments and the index which are not included. For the reader who wishes the complete article you are referred to the original publication. The Odontoglossum Alliance is appreciative of the permission granted to reprint this material received from the author, Dr. Joseph Arditti and the American Orchid Society.

## 1999 WOC Planning

The World Orchid Conference for 1999 will be held in Vancouver, British Columbia, Canada in May. It is planned to have a one full day International Odontoglossum Alliance meeting and activity. A planning committee is being organized and to date there are three members. The members of the committee are: Ron Maunder representing the New Zealand Odontoglossum Alliance, Les Jefferies representing the British Odontoglossum Alliance and John Miller representing the Odontoglossum Alliance of the Americas. While it may seem like the WOC is a long time in the future it is important to layout the plans in the near future as a number of possible activities will require a long lead time for preparation.

The Western Orchid Congress and AOS Trustees meeting held in 1995 was in Vancouver. This was 'Odontoglossum Country'. The Americas group held a meeting at that time that was very successful. The meeting consisted of a business meeting, auction and four lectures. The day was capped by a delightful dinner in the evening. The 1992 WOC held in Glasgow, Scotland also had an International Odontoglossum meeting. This also was concluded with a most delightful dinner giving attendees great opportunity to converse and exchange ideas.

The planning committee will be reporting from time to time in the various newsletters as to the progress and plans for the 1999 meeting. Vancouver is a wonderful city and the surrounding area offers much in addition to the orchid world. Certainly it will be an opportunity to see and hear a lot about the odontoglossum alliance.

## Video Tapes Available

Video tapes of the 1996 Odontoglossum Alliance Lectures given in Vancouver April 1996, are now available. The two tape set can be purchased for \$50.00. Send your request and check to:

Odontoglossum Alliance  
P.O. Box 38  
Westport Point, MA 02791

Make Check Payable to:  
Odontoglossum Alliance

### *Iconographie des orchidees du Bresil*, Joao Barbosa Rodrigues

published August 1996, both volumes bound, in one slip case US \$460; subscription price until 31st December 1996; US \$390

Volume 1: 540 pp, 389 colour plates depicting 576 orchids

Volume 2: 182 pp

ISBN 3-7245-0910-3

The Brazilian botanist Joao Barbosa Rodrigues (1842-1909), Director of the Rio de Janeiro Botanical Gardens, made over 500 hand-coloured scientific drawings of the orchid flora in Brazil and also wrote several descriptive texts which were published in various journals. This outstanding book is the fruit of several years of work by the editors, Samuel Sprunger, Phillip Cribb and Antonio Toscano de Brito, who succeeded in re-uniting the six volumes of hand-coloured orchid paintings with the complete descriptive texts for publication in two volumes as the *Iconographie des orchidees du Bresil*. This can be ordered from Friedrich Reinhardt Publishers, PO Box, CH-4012 Basel, Switzerland, Fax: +41 61 264-64-65.

## THE ORCHID WORLD

vol. 1, 1910, pg. 75-82

By de BARRI CRAWSHAY

Odontiodas

May 31st, 1904! Less than proverbial "In seven years a change occurs in the lives of men" has taken to prove this saying as regards "Red Odontoglossums." This calm, almost indifferent, nonchalance exhibited now at a remarkable advance in "Reds" is a curious contrast to the immense furore created by *Odontioda Vuylstekeae* which on that day I had the satisfaction of naming.

It was amusing to hear the incredulous look and hear the pitying remark when I stated it was "only a question of time that we should see a scarlet crispum." This has almost been achieved in *Odontioda St. Fuscien Imperator*, shown by Mr. Henri Graire (F.C.C., R.H.S., June 7th, 1910), and it contains the additional blotching which I did not then refer to, and it is to all intents a scarlet blotched crispum. The unblotched form will come before we are very much older.

The addition of *Odontioda Charlesworthii*, thus linking up that magnificent species *Odontoglossum Harryanum*, coupled to the promogineter of this race and the above named variety, open up a vista into the far future that anyone would have hardly dared expect in the short time since the first "Red" bloomed.

This field, wide as it is, and embracing the reddening of the whole genus *Odontoglossum*, has been even further extended by Mr. Charlesworth, who linked up *Miltonia*, showing *Miltonidia Harwoodii* on July 6th, 1909 at Holland House, and *Miltonioda Ajax* on October 26th, 1909. He also has recently pushed his experiments to a further success by showing *Onciodia Charlesworthii* (*Oncidium incurvum* x *Cochlioda Noezliana*) at the Royle Horticultural Society on August 30th, 1910. Thus have we the field for production of "Reds" widened to embrace three great genera: *Odontoglossum*, *Miltonia*, and *Oncidium*. Surely this is almost enough for anyone to contemplate, at least for the present.

The secondaries follow close on the heels of this great expansion of the "Red Area." Mr.

Charlesworth and M. Ch. Vuylsteke apparently bloomed plants about the same time, for the former showed *Odontioda Cassiope* (*Odontoglossum amabile* x *Odontioda heatonensis*) on April 5th, 1910; the latter bloomed a cross between *Miltonia vexillaria* and *Odontioda Vuylstekeae*, which was figured in *Revue Horticole*, May 1920. This plant I propose to call *Odontiodonia*. This is allowable under the present system of nomenclature; but should it be coupled up to *Oncidium* or *Brassia*, a not unlikely thing, then the name of the raiser will have a chance of becoming a generic cognomen; but we can wait awhile ere we select this, being content to have a little breathing time.

By way of parenthetical remark I may call attention here to the concluding line of my article on *Odontoglossum Vuylstekeae* (*Orchid Review*, 1905, p. 363). On reference to it I think, after a perusal of the subjoined list, the most exacting will say that England has awakened.

Referring to my article, "Odontiodas," in the *Orchid Review*, 1907, pp. 270-2, we can record a distinct advance, in that we are able to raise more crosses with *Chochlioda* as the pollen parent. Some say it is because we effect so many more; but there is not some other far more cogent reason to account for it? Hereon it would be very interesting to hear the opinions of those who have been so much more successful of late.

There are good results being achieved with the primary "reds" as pollen parents upon the large species *Odontoglossum*, far better than the case of *Cochlioda*, as might be expected; but even yet the best results are upon the *Cochlioda Noezliana* hybrids as seed-bearers; their pods are frequently stuffed full of seed like a pure *Odontoglossum*.

Considering the large number of "Red" hybrids raised, it is rather surprising that more of them have not yielded to the influence of the markings of the *Odontoglossa* with which they have been crossed. Practically speaking, the red of

the *Cochlioda Noezliana* is yet very little broken up into the patterns such as are found in the blotched crispums where the blotching and the ground work are so varied. Even in *Odontioda Vuylstekeae* the markings are sometimes entirely absent, and a "red self" is the result, as in *Odontioda Vuylstekeae Crawshayana* (which came from the Walton Grange collection when a tiny seedling); but in some other plants from the same capsule the red is broken up into a pattern as in the original. Here, of course, it is not likely, as the red and white of the parents would not be very likely to always break up; it is more reasonable to expect a lighter red result from red and white parents.

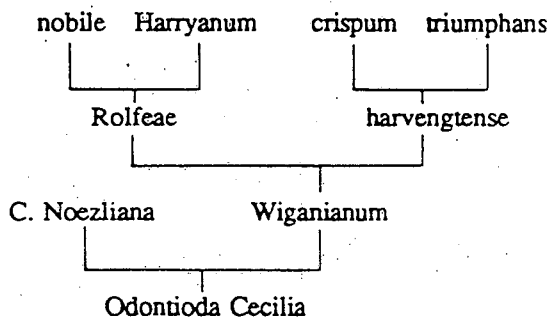
When *Odontioda Charlesworthii* first appeared, grand introduction as it was (and is still certainly the finest *Odontioda* of all), it was a little disappointing to find that the wealth of colour of *Odontoglossum Harryanum* had only been able to mix with and be assumed by the red of *Cochliod Noezliana*; but it made amends by producing the finest ruby-crimson colour I think ever seen in a flower. Even in the labellum the violet was crushed out by the red, and, peculiarly enough, produced a lighter ruby than in the sepals and petals, evidently from the pure white of *Harryanum*'s lip.

It was then hoped that crossing *Cochlioda Noezliana* with secondary *Harryanum* hybrids would break up the red, but as yet this has not taken place, *Odontioda Lambeauiana* (*Cochlioda Noezliana* x *Odontoglossum Lambeauianum*) being a self of brighter ruby than before, but the colour is as yet unbroken into a pattern as in *Odontioda Charlesworthii*, and this in spite of the parentage containing *Harryanum*, *nobile*, and a blotched *crispum*, the latter, no doubt, having an ancestry of varied components which we cannot at all define with perfect accuracy.

*Odontiodas* which appear to have most broken up the red are perhaps the various crosses of *Bradshawiae*, *St. Fuscien*, *Cooksoniae*, *Seuenacca*, and *gatonensis*. The first three contain *crispum*, the second and fourth have *Hunnellianum* in them, the last having *Kegeljani*. As the best-patterned arrangement of spotting of red-brown or red, I think no one will dispute the superiority of *Odontioda St. Fuscien Imperator*, and in it the breaking up has been similarly effected by the same ancestry as in *Seuenacca*.

*Odontioda Bradshawiae* Cookson's variety is practically a blotched *crispum* in a study of red and lilac with a *Cochlioda Noezliana* lip, unquestionably the finest yet seen of its cross. In *gatonensis* we have a different system of breaking up the red, and I have great hopes of the secondary crosses here from becoming fine things.

Since writing this paragraph Mr. R. G. Thwaites showed *Odontioda Cecilia* (*Cochlioda Noezliana* X *Odontoglossum Wiganianum*), which has gone a step further, in that the red of *Cochlioda Noezliana* has been supplanted by a creamy-yellowish-white ground covered with small red spots. This has been effected by the collective powers of the white grounds in the ancestry of this hybrid, as seen in the accompanying plan:



By a careful study of the data we have in this hybrid we may be able to attain certain objects sooner than by a haphazard crossing of anything that is good. Taking next as one section all the *Odontiodas* having the "yellow and brown" *Odontoglossums* as parents, viz., *Craveniana*, *Lutetia*, *cuprea* and *Seuenacca*, it is astonishing to see how little difference in markings this wide range of parents has made. The red has stood the attack and come out triumphant. *Hunnellianum* appears to be the strongest yellow and brown species, as the hybrid *Seuenacca* from it has a more broken-up red ground than any of the others.

*Odontioda Devossiana* stands alone as yet in the primary hybrids, it being the only one with *O. Edwardii* for parent. There is no doubt this will create a fine race of hybrids, the colour being distinct from all the others; but it will take time to get size of flower, and it also may be difficult to retain the fine deep colour in the secondaries.

The group with *Cochlioda sanguinea*, viz.,

heatonensis and wickhamensis, are not comparable to the *C. Noezliana* group, and it is not to be expected they should be, but may produce elegant secondary crosses.

The *Cochlioda vulcanica* group gives greater promise, viz., *Bohnhofiae*, *Thwaitesii*, *chelseensis*, *Seymourii* and *Wilsonii*, the lilac-purple contained by them, especially *Thwaitesii*, being very beautiful but they all lack form, naturally so from its absence in *Cochlioda vulcanica*.

Great care will be necessary in selecting the colours wherewith to cross this group, as I doubt the constancy of the lilac-purple, and if it is coupled with any heavy brown the result will be probably a muddy ground colour, and great disappointment to the raiser, as well as loss of valuable time.

The result of *Cochlioda vulcanica* and *Odontoglossum nobile* (*Odontioda Wilsonii*) is poor as compared to the original analogous cross with *Cochlioda Noezliana*, even though allowance be made for a small plant blooming for the first time in each case.

When *Odontioda Vuylstekeae* was shown there were some who thought *Odontoglossum ardentissimum*, and not *O. nobile*, was its parent. I always contested this doubt, and gave my reasons in my paper on "Hybrid *Odontoglossa*" (Conference on Genetics, R.H.S. Report, 1977). *Odontioda Wilsonii* gives a remarkable proof of what I then said. It has the same large area of colour, surrounded by a creamy-white band that widens at the tips of the segments, which in turn is again bounded outwardly by the edges of the segments being of the same colour as the blotch; in fact, two different hybrids could hardly be more alike in the arrangement of their coloration. Evidently *Odontoglossum nobile* is a very powerful agent with a *Cochlioda*, and we can bear this in mind when trying to obtain certain results in the future.

The *Rossii* group only contains one member as yet, *Graireana*; but there is no doubt that this group in time will be a very important one when we get the secondary crosses herein. *Odontioda Euterpe* (*Cochlioda Noezliana* x *Odontoglossum Uro-Skinnerii*) is disappointing. In colour the red has somewhat gone down before the purple of *Uro-Skinnerii*; but

*Cochlioda* has made a triumphant victory in reducing the size. This probably may make a fine secondary cross with the right parent.

I now come to the secondary crosses as a group: *Cassiope*, *Sensation*, *M.Ch. Vuylsteke's* cross between *Odontioda Vuylstekeae* and *Odontoglossum crispum*, which he named *Diana* at Brussels, April 30th, 1910 (but which name must be suppressed, as Mr. Charlesworth had already named a cross between *Cochlioda Noezliana* and *Odontoglossum amabile* as *Odontioda Diana* at the R.H.S., April 5th, 1910), *King George V.*, and *Royal Gem*.

*Cassiope* has a most extraordinary way of sporting about, and as yet is disappointing, and, I fear, always will be (those goddesses always were capricious). The next two I have not seen, but am told they much resemble the pair *M. Vuylsteke* showed at the Temple Show, 1910. In these, *King George V.* and *Royal Gem*, we have a really fine pattern in the secondary hybrid, the arrangement of the sporting being most beautiful; but I am sorry to say the red is fast disappearing, and a couple more crosses pursuing the same line of descent will, I fear, entirely eliminate it, thus defeating the object we have in view, that of creating "reds," and not "pinks." There needs an infusion of new blood to heighten the colour of the red of the two first-named, and that can best be attained by using *Odontioda Charlesworthii*, thus harnessing once again the power of *Odontoglossum Harryanum* to transmit the acquired ruby-red colour.

It is very remarkable indeed to see the great similarity of the arrangement of the markings of *Odontioda Vuylstekeae* and *O. King George V.*, as shown by the accompanying figures, both made from photographs. As the latter is a cross from the former it is but natural to expect some resemblance; but *Odontoglossum laudatum* (*ardentissimum* x *Wilckeanum*) should, in theory, have given more of the form shown in *Lutetia*, with its influence of *Od. luteopurpureum*; but not so; the *nobile* in the seed-bearer has assumed the *nobile* in the pollen parent and rejected the *luteo-purpureum*, once more showing the collective power of the white-grounded ancestor-*nobile*. Form has been here improved at the expense of colour.

During September last Mr. Charlesworth

bloomed another secondary cross, *Odontioda Daphne* (*Odontoglossum Edwardii* x *Odontioda heatonensis*), and, peculiarly enough, this seems to even reduce the size of the blooms below that of *Edwardii*, whose influence is paramount in colour, though in form it is a little modified towards the pollen parent. The plant was small, and it is hardly fair to criticise it yet, but at present it is not any advance in its genus.

Taking the group that have *Cochlioda Noezliana* and *Odontoglossum Harryanum* in their parentage, viz., *Charlesworthii*, *Ernest Henry*, *Diana*, *Lambeauiana*, *Leeana*, *beechense* and *Cecilia*, it is very interesting to observe the variation in the influence of *Odontoglossum Harryanum* in relation to its directness or the reverse as a parent. The greater the *Harryanum* influence the finer the hybrid. *Charlesworthii* stands first. In *Leeana* and *beechense* the *Harryanum* influence has overcome that of *crispum* and *nobile* to such extent that they might be taken in a group as *Charlesworthii* from different capsules. In this particular *Leeana* we shall not see any variation, as its owner tells me the plant was "the whole stock" raised.

In *Odontioda ignea* we have a totally distinct break away, and this, being the result of a pure yellow and very distinct species, may lead to "fields unknown." I have not seen it, but am told it is "a little thing, very bright, stem two feet, short peduncles, crimson." Here again we have another proof that red and yellow make crimson, otherwise red.

For the sake of completeness I append lists of all allied hybrids where red is in their ancestry, for in a short time hence it may not be so easy to tabulate them with equal simplicity, and this may be useful to hybridists who are attacking this enormous red field of operations.

In conclusion, if any red hybrid has been omitted it is not for want of earnest endeavour to make this article complete to December 31st, 1910, but rather to the increasing energy of raisers in getting ahead of recorders, which increases in all directions, and hereupon I wish to make the request to everyone that they will be kind enough to keep me personally advised of all "Red" doings, when they feel disposed to reveal their secrets, that I may be always in that pleasant position which I now occupy, that of

being able to keep abreast of the most wonderful metamorphosis yet made in the great *Odontoglossum* family, viz., the Reddening of the whole order, which is only a matter of time.

## THE ORCHID WORLD

## CHRONOLOGICAL TABLES.

## ODONTIODA.

NAME.	PARENTAGE.		RAISER.	EXHIBITED OR PUBLISHED.
Vuylstekei	O. nobile	C. Noezliana	Vuylsteke	Temple Show, May 31st, 1904.
heatonensis	O. cirrhosum	C. sanguinea	Charlesworth	R.H.S., March 6th, 1906.
Bohnhoferi	"	C. vulcanica	"	R.H.S., September 25th, 1906.
Bradshawii	C. Noezliana	O. crispum	"	R.H.S., January 8th, 1907.
Devossiana	"	O. Edwardii	Graire	R.H.S., October 29th, 1907.
Craveniana	"	O. cordatum	Charlesworth	R.H.S., December 31st, 1907.
Lutetia	"	O. luteo-purpureum	"	R.H.S., March 3rd, 1908.
keighleyense	"	O. cirrhosum	"	Gard. Chron., April 4th, 1908.
Charlesworthii	"	O. Harryanum	"	Temple Show, May 26th, 1908.
St. Fuscien	"	O. Adriani	Graire	" " May 26th, 1908.
wickhamensis	O. crispum	C. sanguinea	Bird	R.H.S., June 23rd, 1908.
Thwaitesii	C. vulcanica	O. Harryanum	Thwaites	R.H.S., July 21st, 1908.
chelseaensis	C. vulcanica	O. crispum	Bull	M.O.S., January 7th, 1909.
gatonensis	C. Noezliana	O. Kegeljani	Colman	Gard. Chron., January 9th, 1909.
Goodsoni <sup>1</sup>	Parentage unknown		Vuylsteke	R.H.S., March 9th, 1909.
Ernest Henry <sup>2</sup>	C. Noezliana	O. Queen-Alexandra	Charlesworth	R.H.S., April 6th, 1909.
Lambeauiana <sup>3</sup>	"	O. Lambauium	Peters	Brussels, May 17th, 1909.
Cooksoni <sup>4</sup>	"	O. ardentissimum	Cookson	Temple Show, May 25th, 1909.
Unnamed	"	O. gloriosum	Vuylsteke	R.H.S., August 3rd, 1909.
Graireana	"	O. Rossii	Graire	R.H.S., August 31st, 1909.
cuprea	"	O. cristatum	Sander	R.H.S., February 22nd, 1910.
Seymouri	C. vulcanica	O. Uro-Skinneri	Thwaites	R.H.S., February 22nd, 1910.
Cassiope	O. amabile	Odontioda-heatonensis	Charlesworth	R.H.S., April 5th, 1910.
Diana	C. Noezliana	O. amabile	"	Catalogue, April 6th, 1910.
Euterpe	"	O. Uro-Skinneri	"	Catalogue, April 6th, 1910.
beechense <sup>1</sup>	"	O. Rolfeae	Tankerville	M.O.S., April 7th, 1910.
Leeana <sup>5</sup>	"	O. crispum-Harryanum	Bull	M.O.S., April 21st, 1910.
Sensation	Odontioda-Vuylstekei	O. crispum	Vuylsteke	Brussels, April 30th, 1910.
igneae	C. Noezliana	O. Lindenii	Graire	Paris, May 21st, 1910.
King George V.	Odontioda-Vuylstekei	O. laudatum	Vuylsteke	Temple Show, May 24th, 1910.
Royal Gem	"	O. ardentissimum	"	" " May 24th, 1910.
nevadense	O. nevadense	C. Noezliana	Thompson	R.H.S., June 21st, 1910.
Seuenacca	C. Noezliana	O. Hunnewellianum	Crawshaw	R.H.S., July 19th, 1910.
Unnamed	C. vulcanica	Odontioda-heatonensis	Charlesworth	Bloomed August, 1910.
Cecilia	C. Noezliana	O. Wiganianum	Thwaites	R.H.S., September 13th, 1910.
Wilsonii	C. vulcanica	O. nobile	"	R.H.S., September 13th, 1910.
Daphne	O. Edwardii	Odontioda-heatonensis	Charlesworth	Bloomed September, 1910.
grata	C. Noezliana	O. tripudians	Sander	Bloomed October, 1910.

<sup>1</sup>. Exhibited by Mr. H. Goodson.<sup>2</sup>. Exhibited by Mr. H. Goodson.<sup>3</sup>. Exhibited by M. Firmin Lambaui and subsequently shown by Mr. H. J. Craven at the Manchester Orchid Society, March 19th, 1910, under the name Odontioda Corneyana; this will now become Odontioda Lambauiana Corneyana under the laws of priority.<sup>4</sup>. Exhibited by Mr. H. J. Craven.<sup>5</sup>. Exhibited by Mr. W. R. Lee, in compliment to whom it was named.

NAME.	PARENTAGE.		RAISER.	EXHIBITED OR PUBLISHED.
MILTONIODA.				
Harwoodii	C. Noezliana	M. vexillaria	Charlesworth	R.H.S., July 6th, 1909.
Ajax	"	M. Schröderiana	"	R.H.S., October 26th, 1909.
ODONTIODONIA.				
Unnamed <sup>1</sup>	M. vexillaria	Odontioda-Vuylstekei	Vuylsteke	Rev. Hort. Belge, May, 1910.
ONCIDIODA.				
Charlesworthii	Oncidium incurvum	C. Noezliana	Charlesworth	R.H.S., October 31st, 1910.

<sup>1</sup>. This is figured in colour; but erroneously named "Odont. hybrida."



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**BRITISH ODONTOGLOSSUM ALLIANCE**

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**CHAIRMAN**

Allan Long  
Mansell & Hatcher Ltd.,  
Craggwood Nurseries,  
Woodlands Drive,  
Rawdon, Leeds  
W. Yorks. LS19 6LQ  
Tel. 0113 2502016

**SECRETARY**

John Gay  
Ouchthorpe Farm  
Ouchthorpe Lane,  
Outwood,  
Wakefield  
W. Yorks. WF1 3HS  
Tel. 01924 828988

**TREASURER**

Gordon Nash  
7 Bransdale Close,  
Altofts, Normanton,  
Wakefield,  
W. Yorks. WF6 2SL  
Tel. 01924 896007

## NEWSLETTER

### SEPTEMBER 1996

At long last we have our overdue Alliance Newsletter, in it we have a follow up article by your temporary editor, yours truly, on "LESSER KNOWN ODONTOGLOSSUM SPECIES". An article by our new editor **Les Jeffries** on "HOW I DEFLASK SEEDLINGS MY WAY" and **Richard Flemming** gives us an article on "THE HABITATS OF ODONTOGLOSSUMS"

Also enclosed are copies of the August edition of the American Odontoglossum Alliance Newsletter and the June edition of the New Zealand Odontoglossum Alliance Newsletter.

Since our last newsletter almost a year ago, to date we have struggled with the lack of an editor, however I am pleased to say that **Les Jeffries** has agreed to take up the challenge from next month and can I *please* urge all members to try and spare the time to put pen to paper on any related subject.

1996 has seen the Alliance participate with displays at the BOC Congress in Sheffield in April and later that month at the first annual show of the Cumbria Orchid Society in Carlisle. **Gordon Nash** with his spectacular plant of *Odontocidium Jersey* took the best *Oncidiinae* hybrid at Sheffield and the same plant took *oncidinae* hybrid and best Hybrid in the show at Carlisle. Gordon also took the award for best odontoglossum/odontioda hybrid at Carlisle with the yellow pure colour *Oda Belle Hougue Point*, a hybrid raised by the Eric Young Orchid Foundation in Jersey.

A full house at Elcot Park on the 24th August had the pleasure in listening to Alan Moon of the E.Y.O.F. who gave us a superb talk with excellent slides on the last 10 years at the Foundation, a dress rehearsal for the same talk at the World Orchid Conference in Rio.

The Alliance will be 4 years old in February next year and, like all societies, we have had our ups and downs, not least of which has been the publication of our Newsletter. HOPEFULLY THINGS ARE NOW LOOKING UP, but we can not exist without funds. Whilst all members have had free membership for over a year, we are now requiring renewal subscriptions for the period 1st January 1997 to 31st December 1997, the membership fee will be £10.00 (which has not increased since our inauguration!!). Can I please ask all members to renew their membership as soon as possible by completing the attached renewal notice and sending your postal order or cheque to our treasurer **Gordon Nash**, his address is shown above.

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Our 1997 programme sees us with our first show and lecture of the year, taking place at the North of England Centenary Show and celebrations in Southport on the 26th/27th April 1997, followed by a commitment to a display at the Cumbria Orchid Society's annual show at Carlisle on the 10th May 1997.

Our 1997 A.G.M. together with a display and lecture will take place at the Newbury Orchid Show over the weekend of the 28th and 29th of June, and hopefully a further meeting can be fitted into the calendar later in the year.

We are now also members of the British Orchid Council, having successfully applied after meeting their criteria of being in existence for over 3 years.

Finally, don't forget our annual general meeting commencing at 11.00am on Saturday 19th October 1996 at Mansell & Hatcher, Rawden, Leeds - please make an effort to attend if at all possible.

We go from strength to strength - and please don't forget you subs!.

John Gay

Editors Note:

I have received this newsletter from the British Odontoglossum Alliance. I found the material interesting and thought it best to share it with our members. I will continue to watch for this publication. It may be possible, sometime in the future, for us to offer it to our members either as we do the New Zealand publication or as an addendum to our own publication.

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## SOME LESSOR KNOWN ODONTOGLOSSUM SPECIES

by John Gay

I have already covered in my earlier article *odm. naevium*, *odm. lindenii*, *odm. wallisii* and *odm. mirandum* from the 60 or so species described in Leonore Bockemuhl's monograph and iconograph. All too sadly we experience the demise of many odont. species from our show benches today. When we look back on some of the collections at the turn of the century and read about some of the quantities of imports which arrived into Britain at that time, it is sad to witness so few of these plants still around. Perhaps it was a combination of the lack of cultural information available at the time, two world wars, or just the fact that they all eventually died on us. The fact remains today that due to CITES regulations it is almost impossible to import many of these almost unseen plants, and very few are being raised in commercial or hobist greenhouses anywhere in the world. Therefore, I sadly believe many of us who love odontoglossum species will never see the real thing.

*Odontoglossum tenue* (synonym *odm sapphiratum*) a charming miniature plant which grows at 2,000 to 3,000 metres on the Ecuador/Peru boarder is seldom seen today, with its 6 or 7 small 1½" dia. star shaped flowers and a striking white lip with wine red blotches, it is an attractive plant for taking up little bench space in anyone's collection. There are no recorded hybrids made with this species, probably due to lack of availability and likely outcome of any hybrid.

*Odontoglossum sceptrum* is again a rarely seen plant and almost never appears on showbenches, indeed I have only one plant and that has not flowered in the past two years. It is native to the high altitude (2,500 metres) regions of Colombia and was first described by Reichenbach in 1854. It rarely appeared in commercial growers catalogues of the time, and from records few plants were imported into Britain after it first flowered in Europe in 1868. A pure yellow form was described as *odm sceptrum* var. *masereelianum* by Buckem in 1987. To date it has never been used in hybridizing.

A plant that has, in recent times, shown a re-emergence on our showbenches is the beautiful *odm crocidipterum*, a smallish free flowering plant with a pleasant hawthorn fragrance. It is native to both Columbia and Venezuela, growing in cloud forest at 2,000 - 2,500 metres, and was first described by Reichenbach in 1871, and first introduced into Britain by Messrs Low and Co. in 1870. The plant often has many inflorescences up to 15cm long with each carrying up to 10 flowers. It does not take many years to quickly establish a multi growth plant that when in flower becomes an eye stopper. A plant with similar characteristics and only apparently differing in colour to *odm. crocidipterum* is *odm. dormanianum*, described by some as a separate species and others as a sub species of *odm. crocidipterum*. The colour of the flower is whiter than *odm. crocidipterum* with its spots a much darker brown. Interestingly both plants grow in differing locations.

It is surprising to note that there are no recorded hybrids of *odm. crocidipterum* and it has to be worth some speculation if only to attempt to pass on its scent and free flowering characteristics.

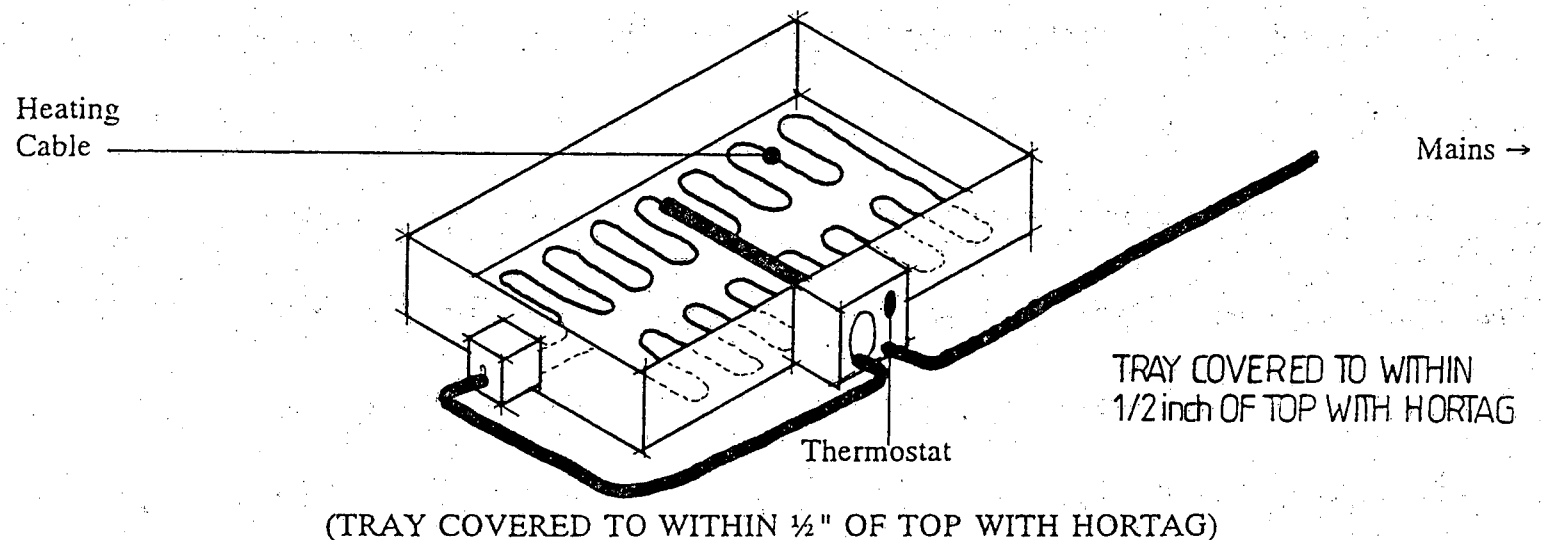
## HOW I DEFLASK SEEDLINGS MY WAY

by Les Jeffries

It is always tempting, when attending a show, to purchase a small flask of seedlings of that species or that cross which you have always wanted.

I am no exception to that statement, I have purchased many in the 15 years that I have been growing orchids. In the past I have also lost quite a lot of those although I was following instructions given at the time of purchase and articles from various sources. So I will tell you how it works for me ....

I first of all constructed a hotbed (no my wife had not banished me to the greenhouse). I obtained a plastic tray from a food manufacturer approximately 30 inches x 18 inches x 4 inches deep and unperforated, a undersoil heating cable the smallest available, a Jemstat Thermostat and a bag of Hortag. The hotbed tray was constructed as the diagram below.



There are many improvements and additions that could be made but I have not found the need for them. One which I have thought about was a mini fan above but as my hotbed is in the greenhouse there is plenty of air circulation anyway.

Having purchased the flask of seedlings which you can't live without, and it is best to choose the one which is furthest forward with not too many undeveloped protocorms, I then place the flask on the hotbed and leave it there for two weeks, maybe a month, all the time observing what is happening, because the seedlings need to be as large as possible when taking them from the flask and by leaving them there they are acclimatising to the temperature and light levels in that position.

The next stage is to prepare the pot into which you are going to put them, this needs to be as clean as is possible. The other thing is the compost, I have used both bark and Grodan. The bark needs to be the one recommended for seedlings mixed 1 part bark to 1 part Perlite and this needs to be thoroughly wetted a couple of days prior to potting. The Grodan is used as from the bag although adding Perlite to this will not do any harm, this also needs wetting.

The pot size which is used will be determined by the size of flask purchased, I usually buy the small hobby flask with maybe 5 to 10 seedlings in, however the larger ones in honey jars are also quite readily available.

You will notice that I have mentioned two types of jar with an open neck, this is quite deliberate because when deflasking I find the least disturbance the better. First I fill the pot, in the case of the hobby flask I use a 2 inch one and the other I use a 3½ inch to approx two thirds full. The contents of the jars are then very carefully removed because you want the mass to stay together as much as possible. Then remove any loose agar that is around the roots and place on the top of the compost in the pot, and just sprinkle some compost over the agar. You may say that the agar will rot, you may also say that he has not said to spray with fungicide but I think if you spray, the liquid used often causes rots. By potting this way the seedlings are not disturbed so much. I then place them on the hotbed, I don't plunge them into the Hortag and I cover them with a plastic dome for at least 6 to 8 weeks.

By keeping a close eye on the seedlings you will be able to see when the proper roots as I call them, have developed. This is the time to start taking the dome off, only during the day to start with so as to get that extra humidity at night as in the wild. The hortag in the hotbed must be kept moist at all times, if not the heating cable will be damaged and most important of all the humidity will be too low for the seedling in the pot which must also be kept moist.

I keep the hotbed at approximately 27°C (80°F) by means of the thermostat. Quite often in the summer months the heating cable doesn't come on as the greenhouse temperature is sufficient.

When the seedlings have developed a good root system it is the time to start to re-pot, this is usually about 6 to 8 months but choose the best growing time. Start by taking the clump out of the compost and teasing out just the largest seedlings and potting them up in the same type of compost. Put the remaining seedlings back into a single pot if at all possible in the clump again with as little disturbance as possible. Replace them on the hotbed, with the dome again for a week or so for the extra humidity until once again established.

That is a continual process until all seedlings are individually potted. If you are lucky you may get some which will flower quite soon.

I am not saying that this method is the only method but it is the way that works for me.

I do feel that we have an obligation to future orchid growers to try and propagate as many species as we find it possible. *So go on - give it a try!*

## THE HABITS OF ODONTOGLOSSUMS

by Richard Flemming

I am sure that anybody who grows odontoglossums as a hobby would dearly love to grow them in near perfection conditions. That is in conditions similar to those found in their natural habitat. After all there now remains only fifty-eight species in the strictly defined *Odontoglossum* since Humboldt, Bonpland and Knuth's classification was amended by Leonore Bockemuhl in 1989. Since this reclassification one would think that it would be easier for the grower to become more familiar with their geographical location and climate conditions, and attempt to grow them accordingly. However, since researching this article, I realise that I tend to do this rather badly, especially after the long hot summer of 1995, and that many orchid-growing reference books tend to suggest a 'generalist' view of climatic conditions for growing odontoglossums.

Whether it is due to the inhospitable locations of many odontoglossum species, or through lack of interest by growers of odontoglossum species, but there appears to be a general lack of data on the subject. This is apart from Bockemuhl's excellent book on the subject, *Odontoglossum "A monograph and iconograph"* and some interesting 'travelogues' by Henry Oakley (The Orchid Review [1993 vol.101, pp 162-168; 1994 vol. 102, pp 179-183]).

Bockemuhl's reclassification now sees the remaining odontoglossum species confined to the South American continent, extending from Venezuela in the north of the continent, at approximately 10° north, southwards through Columbia, Ecuador and finally meeting their most southern location in Peru at a location of approximately 15° south, a spread of some two thousand miles.

If one was to plot the distributions of odontoglossum species it becomes clear that they are confined to the foothills of the Andes, with the majority of species found in Columbia and Ecuador. Peru can only boast as hosts to twelve species, and most of these are found in locations near to the Ecuador border.

Because of South America's wide-ranging latitude and altitude it can boast a wide range of climatic conditions. Although two-thirds of the continent lies within the tropics, temperatures can vary from 30°C in areas of *selva* (natural rainforest) to freezing point at an altitude of 3,000 metres. Although in many South American countries one month's temperatures are similar to any others, diurnal temperature variation is great. This is because the rarefied air of the Andes at these high altitudes allows temperatures to rise quickly, but the warmth that is accumulated during the day is lost rapidly at night, with temperatures plummeting quickly to near freezing point!

If we take Quito, Ecuador at 2,800 metres as an example, an altitude at which we will find many odontoglossum species growing, the annual temperature only varies slightly (from a minimum of 12.9°C to a maximum of 13.2°) (Morris, 1987), yet there is a wide variation in precipitation throughout the year. The more tropical rainforest locations tend to have an annual temperature distribution of 22°C - 27°C. Although there is a little seasonal temperature change in these odontoglossum growing areas of South America there is a high variation in rainfall. If we view Quito again, during July this city may have only 18mm of precipitation, yet in April this figure may exceed 180mm. It is because of this wide variation in rainfall, in some odontoglossum growing areas that I believe some odontoglossum species require a "rest".

Bockemuhl describes three distinct altitude zones where odontoglossum species can be found: the lower cloud forest, ranging from an elevation of 1,800 - 2,200 metres; the middle cloud forest, consisting of *montane* forest, at 2,300 - 2,800 metres and the upper cloud forest, which is bounded by *paramo*, at an elevation of 2,800 - 3,500 metres (11,480ft). Typical temperatures range from 25°C (77°F) during the day, to 15°C (60°F) night temperature in the lower cloud forest, 22°C (72°F) - 12°C (54°F) in the middle cloud forest and 25°C (77°F) during the day, but dropping to only 8-10° (46-50°F) at night in the upper cloud forest, with frosts occurring at times at this high altitude.

Moisture comes from two sources. Firstly, moisture that rises from the cold sea, meets warm tropical air and falls as heavy rain on western-facing slopes of the Andes. Secondly, the eastern-facing slopes receive large volumes of moisture, not only in the form of rain, but also as blankets of mist that rise from the floor of the tropical rain forest and shroud the mountains in a constant mist - hence the name 'cloud forest'. In all altitude zones there is sufficient dew formation to keep the orchid roots constantly moist, even during the drier periods. This obviously suits the epiphytic-growing odontoglossums of the lower and middle cloud forests. But because there is little forest in within the upper cloud forest, most of the odontoglossum species found here tend to grow as terrestrial orchids, growing amongst shrubs and grasses. At these altitudes the intense ultra-violet light also has a part to play in flower induction (this may be why some of my species that grow at such altitudes, e.g. *Odm hallii*, have not yet flowered despite being quite large plants).

In conclusion it has been demonstrated that odontoglossum species grow in a variety of climatic conditions that may not be at temperatures recommended by some orchid reference books. That is why I believe it is important to understand the different 'zones' in which odontoglossums grow. Should we be growing those species from the lower cloud forest in the same conditions as those from the upper cloud forest? For a start those from the lower cloud require less light, because of the dense forest in which they grow, when compared to those species growing in the open totally exposed to high altitude ultra-violet light. Also those from the lower cloud forest tend to tolerate more moisture than those from higher zones. Good orchid growing.

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Alliance display - B.O.C. Congress, Sheffield



Alliance display - Cumbria show



Odcdm. Jersey



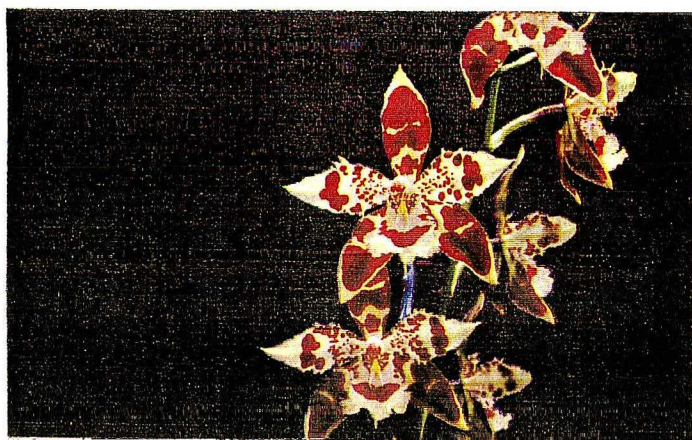
Oda. Belle Houghe Point



Odm Sceptrum



Odm. Sceptrum var. Masereelianum



Odm. Sceptrum var. Facetum



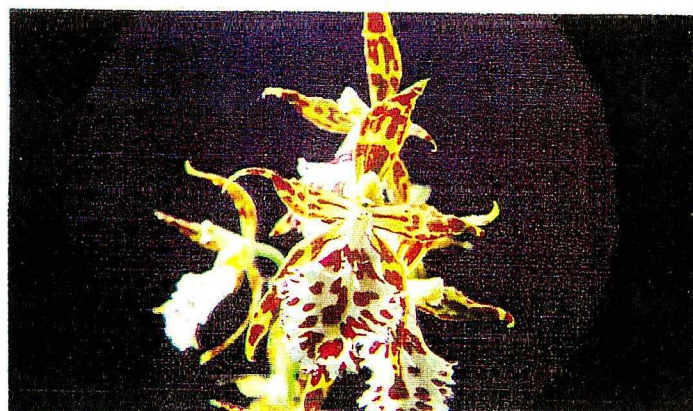
Odm. Crocidipterum



Odm. Crocidipterum var. Dormanianum



Odm. Tenue



Odm. Tenue

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Odm. Aviewood x pescatorei

Odm. pescatorei

Oda. (Flocalo x Astomar) x Odm. pescatorei 'Jungle'

Odm. Ardentissimum

Odm. crispum x Ann Wood

Odm. pescatorei 'K.A. Jungle'

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Odm. (Pescadero x Mentor) x pescatorei

Odm. pescatorei 'Jungle'

Odm. pescatorei 'Hopkins'

Odm. pescatorei crosses

Left    x Conperry

Center x (Flocalo x Astomar)

Right    x Aviewood

Philip Altmann

Warnambool Nurseries

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Oda. Queen Mary 1995

Oda. Nationwide

Sunset Orchids Display at Santa Barbara 1996

