

POLLINIA



Sobralia brandtiae 'Double' Flower

NEWSLETTER OF THE IRISH ORCHID SOCIETY
Cumann Magairlíní na hÉireann

Volume 12, Issue 1

An Fómhar

October 2013



THE IRISH
ORCHID
SOCIETY



Chairman: (Vacant)
Treasurer: Mary Bradshaw
Secretary: Marie Hourigan
Editor: Laurence T. May
Committee:

Marina Andreeva
Una Breathnach
Lisa Coffey

POLLINIA

(pol-LIN-ee-uh)

The compact packets of pollen found in orchid flowers. Plural of *Pollinium*.

Waxy pollen clumps or grains usually found in the anthers of most orchids; often yellow, distinct, and found under the pollen cap of the column.

Pollinia contain the male reproductive cells.

Latin *pollin-*, stem of pollen "fine flour, dust."



Copyrights for the photographers' and artists' images belong to their respective owners.

IOS MEMBERSHIP DETAILS

ANNUAL SUBSCRIPTIONS

(renewable in June of each year)

- Adult Single €20.00
- Family €30.00
- OAP/Student* €15.00

(*Confirmation of student status required)

Please make cheques or PO payable to:

The Irish Orchid Society

Applications and other society communications should be made to the Secretary:

Secretary

Irish Orchid Society
c/o National Botanic Gardens
Glasnevin, Dublin 9, Ireland

EDITORIAL INFORMATION

The Editorial Staff reserve the right to edit and/or amend articles submitted to the Newsletter.

The views or comments published within this Newsletter are not necessarily views shared by either the Editorial Staff or the Irish Orchid Society. © 2013

Contributions of articles, pictures or comments should be sent by email to:

editor@pollinia.org or by post to:

Laurence T. May,
Bellarush, Castlebaldwin,
Co. Sligo, Ireland

Cumann Magairlíne
na hÉireann



CALENDAR OF EVENTS:

**Please note the change of meeting times.
From February 2014 all meetings will be held at the later time of 8pm.**



October 7th 7pm
Marina Andreeva, **'Growing Telipogons: Some ideas about their culture.'** Marina will talk about keeping them in a bedroom and what happened. She's also going to talk about building a new orchidarium for Draculas and Masdevallias and would be happy to get any



November 4th 7pm
Mary Bradshaw, **'Orchids in the USA'** Mary will give a talk about her travels in the USA and what she saw there.



December 2nd 7pm
Christmas Party. An informal evening of fun, food and drinks. Please come, meet some other orchid growers and swap stories.



January 2014
No Meeting.
Athbhliain faoi mhaise dhaoibh



February 4th 8pm
Potting demonstration



March 3rd 8pm
Guest speaker to be finalised

Samhain sásta!

October 2013						
Su	M	Tu	W	Th	Fri	Sa
		1	2	3	4	5
6	7	8	9	10	11	12
13	14	15	16	17	18	19
20	21	22	23	24	25	26
27	28	29	30	31		

November 2013						
Su	M	Tu	W	Th	Fri	Sa
					1	2
3	4	5	6	7	8	9
10	11	12	13	14	15	16
17	18	19	20	21	22	23
24	25	26	27	28	29	30

December 2013						
Su	M	Tu	W	Th	Fri	Sa
1	2	3	4	5	6	7
8	9	10	11	12	13	14
15	16	17	18	19	20	21
22	23	24	25	26	27	28
29	30	31				

AN ABNORMAL SOBRALIA FLOWER

Orchid flowers with abnormal numbers of petals or lips are called peloric.

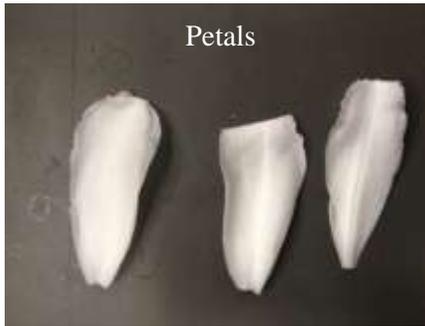
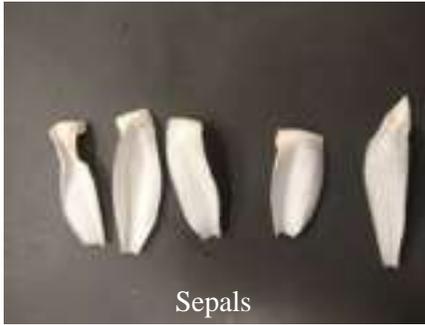
A species of *Sobralia*, grown under the name *S. brandtia* (but not fitting the description of that species) flowers regularly at the National Botanic Gardens, Glasnevin. It is the first of the *Sobralias* to flower each year and continues to flower when *Sobralia macrantha* and *S. decora* are in flower. *Sobralia* flowers are fleeting, staying in freshness for no more than two days and often for a single day.

On July 1 2013, a flower bud opened to reveal a ‘double’ flower. Other flowers on the same plant had opened as single flowers, as expected. On July 2, the fading flower was removed and dissected revealing five individual sepals, three petals, two labella and a single column with one stigma and two anthers.

Flowers such as these – called pelorics - are unusual and unreliable, unlike some others where the abnormality is constant. ■



Sobralia brandtia—‘Double’ flower



Peloric forms:

Pelorism describes the condition when the petals of an orchid flower share features in common with the labellum (for example, shape and/or colour).

Peloric forms can appear haphazardly in a few orchids in nature. The presence of peloria is genetically determined; however the expression of peloria may be influenced by environmental changes or by the plant being stressed.

EXCESSIVE LIP SERVICE: PELORIC ORCHIDS

One of the main characteristics that define the family of orchids is that they have three petals, one of which has been modified into a different structure: the labellum, or lip. Of course, as usual with the plant world, there are exceptions. Every now and then an orchid blooms that is not quite "right." Suppose you are at your favorite orchid emporium, and you now have a pretty good idea of what a good orchid looks like. You look for healthy growth, healthy roots, and if the plant is in bloom, nice blossoms with three sepals, two petals, one column, and one lip. As you are looking over the myriad of orchids in bloom, you notice that something is not quite right in the orchid world. One plant kind of sticks out a little. You look closer, and notice that there appears to be not one, but three lips on each flower. Several questions then arise in your mind: Why are there three lips? Is the plant confused? Is it trying to attract more pollinators? Is this plant good enough or unusual enough to get an AOS award? What have I been drinking the night before? And of course: Should I buy this plant?

Well, what you see in front of you as "mistakes" in floral morphology are called peloric flowers. The production of a structure that strays from its normal morphology is described as teratological, teratology being the study of plant "monsters and monstrosities." These mistakes in the morphology of a plant structure occur in various ways. These include fasciations, an enlargement and flattening of a plant structure, especially the inflorescence; peltation, the formation of leaf-like structures in place of perianth segments; and peloria, an abnormal regularity occurring in normally irregular flowers.

Peloria in orchids occurs when the petals take on the color and/or the shape of the lip, and may be found anywhere between two extremes. In *Broughtonia sanguinea* 'Aquinii' there is a slight coloration found at the tips of the petals similar to the color in the lip, while in *Cymbidium hoosai* 'Butterfly Lip' the petals may have the full appearance of the structure of the lip. The presence of peloria is genetic, but expression of peloria may be influenced by environmental changes or by being stressed. These are not always stable, and the plant may flower normally on the next inflorescence.

While some peloric orchids pop up haphazardly, others are being bred, mericloned and marketed. We can now obtain peloric forms of *Phalaenopsis intermedia* and *Phalaenopsis equestris*, and some spectacular peloric color forms of *Doritis pulcherrima*, such as 'Lakeview Yellow Splash', and 'Lakeview Red Splash'. *Cattleya intermedia* variety aquinii has white flowers, and also has the red-magenta lip coloration present in the petals, and has given rise to the splash-petal Cattleya hybrids. There is also a neat twist to these peloric flowers. Plants of *Dendrobium Classic Gem* and its progeny are now available. These are "reverse" pelorics, where



the lip has reverted back to looking like the petals. Some orchid growers find little fault, if not beauty, with peloric flowers. Mrs. P. K. Manuel referred to peloric flowers found in *Phalaenopsis intermedia* as a fascinating phenomenon, and that "a splashed-petal hybrid in Phalaenopsis will be a welcome novelty." Dr. Dominic Man-Kit Lam described *Cymbidium hoosai* 'Butterfly Lip' as "probably the most superior variety because of the perfect symmetry created by the three sepals and three lips. Viewing this flower... is like looking at a pattern through a kaleidoscope."

But there are those who feel that peloria is not a good quality to look for in an orchid flower. Some feel that peloric flowers are deformities, and that "peloric orchids that display a complete inflorescence of deformed flowers should automatically be disqualified from further consideration" in AOS judging, some also feel that the flowers of Dendrobium Classic Gem are no longer "true" orchids, and so will not grow or judge them. But some of these same people feel that splashed-petal cattleyas are now accepted as normal, and can be attractive. While not taking a stand on their merits, the American Orchid Society refers to peloric flowers as deformed, and this term may be misapplied. Deformity in the dictionary is: a physical blemish or distortion, disfigurement. Examples of deformity are: a split dorsal or ventral in Paphiopedilums, a flower that possesses two columns, or a flower where floral parts may be physically missing. Peloric flowers are mutations that have occurred, whether naturally or induced, in orchid flowers, and mutations are a part of evolution. AOS judging criteria for quality is based on recognizing superiority and improvement of a given type of flower over previously awarded flowers, or similar lines. The AOS Handbook on Judging and Exhibition states: "new lines of breeding, including new shapes,...should be considered but should not be awarded unless the new line has superior characteristics and quality." Peloric flowers can be considered a new shape or line of breeding, but whether they are a superior form, or possess good quality is a controversy.

Occurrences of peloria in orchids have led to cultivation and new lines of breeding. In addition to the previous examples, *Rhyncholaelia digbyana* var. *fimbripetala* has slightly fimbriated petal margins, which can be transferred to its progeny, has given rise to a host of modern splash-petal hybrids, many having received AOS quality awards. There are many awarded splash-petal Cattleyas, and Cattleya breeder Frank Fordyce cherishes these "clowns" of the orchid world whose "normal beauty is further enhanced." *Phragmipedium lindenii* has a long petal in place of a pouch, and is highly prized. This feature has not as yet been transferred to offspring.

In horticultural circles we have come to accept if not prefer various mutations. We have come to cultivate natural mistakes of plants found in nature, such as the Double Bloodroot, the Variegated Solomon's Seal, or the Trillium with green sepals. There are many cases where man has purposely bred these mutations. A fasciation in

Celosia has led to the Cockscomb types, while the mistake where disk florets have become ray florets has led to the doubling of many flowers in the asteraceae: marigolds, zinnias and chrysanthemums. One of the most favorite of flowers, the rose has had stamens modified into petal-like structures. There is also a large nursery industry in finding and propagating sports and mutations of "normal plants." Curiosities such as the Weeping Pussy Willow, or the contorted Henry Lauder's Walking Stick can now be easily obtained. This is not to say that all mutations are favorable, but that they are a normal occurrence both in nature and in cultivation. There are many people that purposely search out these oddities of nature.

Peloric orchids are an interesting debate with AOS orchid judges. Some hate 'em, some love em. Unfortunately, the AOS Handbook on Judging does not mention or deal with peloric flowers, but what we consider the norm for each group. The *Cattleya* section tells us that "petals should be erect to slightly arched, broad and rounded, frilled, or undulated at the margins according to the variety." But if the parent variety is peloric than shouldn't the norm for it and its offspring also be peloric? Judging peloric flowers should be like judging any other orchid flower, the flowers should be symmetrical, consistent from one flower to another, have clear color and crisp markings, and an overall pleasing appearance to the eye. This last part though will always be the difficult part, as what is pleasing to one persons eye may be dreadful to another. Because peloric orchids are here to stay, we should judge the pelorics as what they are, and compare them with other pelorics, not the "normal" orchids. As long as they possess the other qualities we want, they should be awarded or not awarded accordingly.

But the average grower probably doesn't care if the plant is worthy of an AOS award, so as for answering that last question: If you like it, buy it! ♦

There are several articles on peloric orchids in the AOS bulletin:

Fordyce, Frank, "*Splash-Petal Cattleyas, Colorful Clowns of the Orchid World*, V49, #11, November 1980.

Griesbach, Robert J., "*Beauty and the Beast*," V64, #4, April 1995.

Manuel, Mrs. P. K., "*Phalaenopsis Intermedia - 'Star of Leyte'* " V43, #11, November 1974.

Weingartner, Dr. D. Lawrence, "*A Case of Peloria and a Case for Mutants*," V52, #7, July 1983.

ALEX CHALLIS

References: Challis, A. 2005. **Excessive lip service: peloric orchids**

<http://angrek.com/AAOS/Past/9802/Txt/Peloria.html>.



LONG LOST ORCHID FOUND IN PALACE GARDEN

An orchid species not seen in London for more than 100 years has been found in the gardens of Buckingham Palace during a survey by the London Natural History Society along with scientists from the Natural History Museum and the Botanical Society of the British Isles to catalogue the plants of London.

The attractive white Helleborine orchid (*Cephalanthera damasonium*) has white flowers and grows to half a metre in height.

Dr Mark Spencer, a botanist at the Museum and Vascular Plant Recorder at the London Natural History Society, says “The find was unexpected and very exciting for everyone involved.

“It is quite unusual to find the white Helleborine north of the Thames, let alone in the middle of the city in the Queen’s back garden. It shows just how important green spaces are in built-up areas for giving wildlife a refuge.”

Cephalanthera damasonium grows mainly in woodlands on the chalky soils of the North Downs to the south of London and the Chilterns to the north. Habitat loss has reduced its natural range by 40% in the UK.



Cephalanthera damasonium

To date, the botanical survey has found more than 450 different types of plants in Buckingham Palace’s gardens.

Museum records show the white Helleborine orchid (*Cephalanthera damasonium*) was last seen in London near Harefield in 1900. ■

[Helleborine is the common name for a number of species of orchid. It does not correspond to any currently used taxonomic category. Some of the plants called Helleborines are classified in the genus *Epipactis*, some in genus *Cephalanthera*. A genus *Helleborine* was formerly recognised but has now been absorbed into the Grass pink genus *Calapogon*.]

WAVE GOODBYE TO GLOBAL WARMING, GM AND PESTICIDES

Radio wave-treated water could change agriculture as we know it.



A GROUNDBREAKING new Irish technology which could be the greatest breakthrough in agriculture since the plough is set to change the face of modern farming forever.

The technology – radio wave energised water – massively increases the output of vegetables and fruits by up to 30 per cent.

Not only are the plants much bigger but they are largely disease-resistant, meaning huge savings in expensive fertilisers and harmful pesticides.

Extensively tested in Ireland and several other countries, the inexpensive water treatment technology is now being rolled out across the world. The technology makes GM obsolete and also addresses the whole global warming fear that there is too much carbon dioxide in the air, by simply converting excess CO₂ into edible plant mass.

Developed by Professor Austin Darragh and Dr J. J. Leahy of Limerick University's Department of Chemistry and Environmental Science, the hardy eco-friendly technology uses nothing but the natural elements of sunlight, water, carbon dioxide in the air and the minerals in the soil.

The compact biscuit-tin-sized technology, which is called Vi-Aqua – meaning 'life water' – converts 24 volts of electricity into a radio signal, which charges up the water via an antennae. Once the device is attached to a hose, thousands of gallons of water can be charged up in less than 10 minutes at a cost of pennies.

Speaking about the new technology, Professor Austin Darragh says:

"Vi-Aqua makes water wetter and introduces atmospheric nitrogen into the water in the form of nitrates – so it is free fertiliser. It also produces the miracle of rejuvenating the soil by invigorating soil-based micro-organisms.

"We can also make water savings of at least 30 per cent. When the water is treated it becomes a better solvent, which means it can carry more nutrients to the leaves and stem and percolate better down into the soil to nourish the roots, which in turn produces a better root system. Hence the reason you need less water and why you end up with larger and hardier crops," explains Professor Austin Darragh.

Extensively tested in Warrenstown Agricultural College, the technology is being hailed as a modern day miracle.

Harold Lawler is Ireland's foremost Agricultural Specialist. As Director of the National Botanical Gardens and former Master of Agricultural Science at Warrenstown Agricultural College, he has carried out more research on Vi-Aqua growth-enhancing technology than perhaps anyone else in the world:

"In the bedding plants we really saw a difference in the results; they were much hardier and tougher. You could drop a tray of these plants on the ground and they would not shatter, like ordinary plants.

"We also noticed that the treated plants needed far less fertiliser than the untreated ones. The roots took the nutrients in better whereas with other normal plants leaching of minerals occurs," explains Harold Lawler.

Impressed, Harold Lawler's research team carried out further extensive tests on a wide variety of vegetable plants:

"The iceberg lettuces were far superior with faster germination, and with carrots for example, the crops were on average 46 per cent heavier," explains Harold Lawler.

During recent successful tomato crop field trials in Italy, three of the country's largest Agricultural Co-op's were so impressed with the results that they have now decided to recommend the technology to the country's farming community.

In recognition of the groundbreaking technology, the Royal Botanical Gardens at Kew, London, recently took the hitherto unheard-of step of granting Professor Austin Darragh and his team the right to use their official centuries-old coat of arms on the new technology – the first time ever that Kew Gardens has afforded anyone such an honour.

The Kew Gardens botanists were not just impressed with the research; they used the technology to restore to life a very rare orchid which had been lying dormant and practically dead in a greenhouse bell jar since 1942. Amazingly, the orchid is now flourishing once again.

"Spectacular results have been achieved with Vi-Aqua. Most of our rare species of Orchid have responded outstandingly, and in a way not witnessed before in Kew Gardens," explained Kew Gardens spokesman, Phil Griffiths. ♦

Limerick University off-campus company ZPM Europe Ltd, who are based in the National Technology Park, Limerick, is now manufacturing the Vi-Aqua technology.

Sunday Independent, August 25, 2013

RESEARCHERS USE FUNGUS AS 'SECRET INGREDIENT' TO RESCUE THREATENED ORCHIDS

Researchers are making use of fungus as a secret ingredient to save threatened orchids in Australia, namely the rosella spider orchid (*Caladenia rosella*) and the wine-lipped spider orchid (*Arachnorchis oenochila*.)

Fungus is necessary in the laboratory to assure that each of the species survive. A team from the the Royal Botanic Gardens, nine landcare groups and the Nillumbik Shire Council searched the area to collect the wild orchid samples.

They searched around Cottles Bridge and Panton Hill, north-east of Melbourne to get samples. Because of the delicate nature of the work Neil Anderton, an Orchid Conservation Volunteer from Royal Botanic Gardens, used dental tools to remove samples less than a centimetre in size from just below the soil line.

These are collected in clumps known as pelotons. The sample is then cleaned and the fungi are removed. They are then allowed to grow in a petri dish. Orchid seeds that were collected 12 months earlier and stored in a freezer at -20F degrees were then scattered over the fungi and jelly.

"We should see growth within a two weeks", says Mr. Anderton. The seedlings are transferred to larger pots in a year's time and then graduate to cardboard 'take-away' food containers two months later.



Neil Anderton, an Orchid Conservation Volunteer

He said that it will take at least two years before these orchids could be planted into the wild. Data suggests that there are less than 100 rosella spider orchid plants left in the Nullumbik Shire.



The rosella spider orchid is listed as endangered in Victoria, while the wine-lipped spider orchid is listed as vulnerable.

Nullumbik Shire Council biodiversity officer Julia Franco said both species of orchid suffered from habitat clearing, grazing, weed invasion and development. "This project provides a back-up plan in case anything happens," she said.

"The populations we know about now are all caged to protect them but we want a back-up plan, just in case."

There are fewer than 100 rosella spider orchid plants spread over four populations in the Nullumbik Shire, while the largest number of wine-lipped orchid plants on one site is at St Andrews, where about 800 plants grow.

Senior mycologist at the Royal Botanic Gardens Tom May said recreating wild conditions for the orchids to propagate in protected conditions was a challenge.

"What is happening in nature is so complex," he said. "The interactions between the fungi and the orchids being pollinated by wasps is just the start. You've got to put all the pieces back together again."

Dr May said the fungi and the orchid had a symbiotic relationship. The fungi, which can't photosynthesise, rely on the plant to provide nutrients such as sugars and starch, while the fungi aid germination of the orchid seeds. ■





Arachnorchis oenochila
Wine Lipped Spider

Caladenia rosella — Rosella Spider-orchid,
Little Pink Spider-orchid

The Rosella Spider orchid is a deciduous, terrestrial species with a single, hairy leaf (to 80 mm x 8 mm), which has reddish spots and blotches near its base. The slender flower stems are up to 17 cm tall. The musk-scented flowers are pink in colour and borne singly.



IRISH ORCHID SOCIETY
www.irishorchidsociety.org

•
POLLINIA
www.pollinia.org

Back issues of *Pollinia* are available in PDF format on the website.



UNBELIEVABLE WEATHER IN JULY

We have just been through the warmest couple of weeks in recent years. (July 2013.)

This has brought out an incredible number of insects and has affected our wildlife in some very interesting ways.

The year was very late in getting started, with a long-term and very cold east wind that delayed spring by 4-6 weeks.

As an example, queen bumblebees were seen hunting for nesting spots some four weeks later than usual. But by the middle of June I was seeing new queens and males, which is weeks earlier than usual. Bumblebee nests go through a fixed cycle. First, the queen can be seen gathering pollen which will be eaten by the larvae from her initial batch of eggs.

These workers then emerge and can be seen foraging for pollen to take back for subsequent batches. The next stage is when the nest is mature, and new queens and males are created. These then emerge and start up new nests. Many nests this year have gone through those stages much more quickly than usual, and after a delayed start the nests are now actually ahead of the normal schedule. In the last two weeks I have seen fewer new queens and males, so it is clear that new nests have already been established.

It seems as if the bumblebees were able to predict that we were going to experience a hot summer: so much so that they accelerated the production of males and new queens in order to produce two generations, rather than a single one. I checked my findings with the national database, and this phenomenon has been recorded



I accidentally discovered a new (to me) orchid site last week. Donegal International Airport is situated on a strip of land that extends out into the Atlantic on our North West coast, and I had an opportunity to explore the sand dunes while waiting for a delayed flight.

Coastal grassland behind dunes is often a good hunting ground for orchids and I quickly found Northern Marsh Orchids (left.)

These orchid species were present in their hundreds, with orchids as far as the eye could see, but what intrigued me particularly was the fact that the Northern Marsh Orchids were very 'pure': they all appeared to have no influence from other spotted orchids. This is in direct contrast to the specimens in my home location, where the Northern Marsh Orchids can have toothed lips or paler flowers.

This led me to deduce that the more frequent Heath Spotted Orchid and Common Spotted Orchids were not in the close vicinity. Then I found a specimen, which is clearly Northern Marsh Orchid in origin, but has three very well-developed lobes in the lower lip.

My first conclusion was that this was a hybrid between Northern Marsh and one of the other two orchids from the immediate vicinity, with Pyramidal being the most likely in terms of shape. Intergeneric hybrids are known (which tells me that the definition of genera in these orchids is wrong!), but the hybrid between Northern Marsh and Pyramidal orchids has not been documented (and I don't even know if it's possible). ■



DONEGAL WILDLIFE

A regularly updated pictorial narrative of the wildlife around Raphoe, Co. Donegal, Ireland.

Follow his regular postings about local Donegal wildlife:

<http://www.donegal-wildlife.blogspot.com>



CRANE FLY AND CRANE FLY ORCHID

A crane fly is an insect in the family Tipulidae. Adults are very slender, long-legged flies that may vary in length from 2–60 mm (0.1–2.4 in.) though tropical species may exceed 100 mm (4in.)



In the United Kingdom, Nova Scotia they are daddy longlegs or dandy also refer to two unrelated arachnid order Opiliones (especially

Ireland, Newfoundland and commonly referred to as longlegs, but this name can arthropods: members of the in the United States and Canada) and the cellar spider Pholcidae (especially in Australia).

The larva of the European crane fly is commonly known as a leatherjacket. These larvae can damage lawns by feeding on the roots of grass plants.

Numerous other common names have been applied to the crane fly, many of them more or less regional, including mosquito hawk, mosquito eater (or skeeter eater), gallinipper, and gollywhopper.

At least 4,250 species of crane flies have been described, most of them (75%) by the specialist Charles Paul Alexander.

The Crane-fly Orchid (*Tipularia discolor*) is a perennial terrestrial woodland orchid, a member of the Orchidaceae. It is the only species of the genus *Tipularia* found in North America. This orchid grows a single leaf in September that disappears in the spring. The leaf is green with dark purple spots. The orchid blooms in mid-July to late August. The roots are a connected series of corms. Its roots are edible. They are starchy and almost potato-like.

The plant is pollinated by noctuid moths, by means of flowers which incline slightly to the right or left, so the pollinaria can attach to one of the moth's eyes.

Tipularia is a genus of temperate terrestrial orchids comprising only three species, one each from North America, Japan, and the Himalayas. Its name is derived from *Tipula*, a genus of crane fly. *Tipularia* orchids form leaves in autumn which last through the winter and wither in spring. ♦



AUTUMN LADY'S-TRESSES

Common Name:	Autumn Lady's-tresses
Scientific Name:	<i>Spiranthes spiralis</i>
Irish Name:	<i>Cúilín Muire</i>

This is a very handsome plant, superbly designed to have its spike of flowers arranged in a spiral pattern up the stem. Each little flower is pure white and fragrant; the lower lip or labellum is greenish and is hardly any longer than the other petals. The flower does not have a spur. The spike carrying the flowers is rarely higher than 15 cm. The basal rosette of oval leaves has usually withered before the grey-green flower stem appears; there are a few scale-like leaves up this stem.

The amazingly clever spiral is made of a straight, single row of flowers which is twisted around the stem, the lower ones being the first to flower. As its name suggests, this plant flowers from early August to the end of September. It is a native plant belonging to the Orchidaceae family.

I first noticed this little plant growing close to the sea at Rath, County Kerry in 1977 and photographed it in 2008 at Ballyteigue, County Wexford.

Just at the time when the best of the summer's plants are dying off and thoughts turn to cooler days and nights, this little plant appears. It is a very small plant and it takes quite a time to find it even when you have an idea of where to look.

It likes to face the sunshine so can be found where the grass is not too long, on dry sand-based turf, along with declining Common Bird's-foot-trefoil, Common Centaury and Common Stork's-bill.

Once you see your first specimen, the rest will be easier to find. Good luck.

Zoë Devlin is a regular columnist for Pollinia on the wild orchids of Ireland.

Zoë's website is "Wildflowers of Ireland"

<http://goo.gl/2y2um>

Her book '**Wildflowers of Ireland - A personal Record**' is published by the Collins Press, Cork





Autumn Lady's-tresses



Autumn Lady's-tresses

ORCHID RESPONSES TO SUPER-HIGH ATMOSPHERIC CO₂ ENRICHMENT

Background

The authors write that "the genus *Cymbidium* comprises about 50 species distributed in tropical and subtropical Asia and Oceania," and that "almost all cultivated cymbidiums are hybrids, thin-leaved and with a C₃ mode of photosynthesis." In addition, they say that "*Cymbidium* was the first orchid genus to be propagated using shoot-tip culture."

What was done

Cymbidium (Music Hour 'Maria') shoots with two to three leaves that had been obtained from a mass of protocorm-like bodies derived from shoot-tip culture were further cultured *in vitro* on modified Vacin and Went medium in air augmented with either 0, 3000 or 10,000 ppm CO₂ under photosynthetic photon flux densities of either 45 or 75 $\mu\text{mol m}^{-2} \text{s}^{-1}$ that were provided by cold cathode fluorescent lamps for a period of 90 days, after which they were transferred to *ex vitro* culture for an additional 30 days.

What was learned

Relative to plants grown *in vitro* in ambient air, the percentage increases in shoot and root dry weight due to enriching the air in which the plants grew by 3000 ppm CO₂ were, respectively, 216% and 1956% under the low light regime and 249% and 1591% under the high light regime, while corresponding increases for the plants grown in air enriched with an extra 10,000 ppm CO₂ were 244% and 2578% under the low light regime and 310% and 1879% under the high light regime. Similarly, in the *ex vitro* experiment, percentage increases in shoot and root dry weight due to enriching the air in which the plants grew by 3000 ppm CO₂ were, respectively, 223% and 436% under the low light regime and 279% and 469% under the high light regime, while corresponding increases for the plants grown in air enriched with an extra 10,000 ppm CO₂ were 271% and 537% under the low light regime and 332% and 631% under the high light regime.

What it means

The four Japanese researchers conclude that "super-elevated CO₂ enrichment of *in vitro*-cultured *Cymbidium* could positively affect the efficiency and quality of commercial production of clonal orchid plantlets."

Reference

Norikane, A., Takamura, T., Morokuma, M. and Tanaka, M. 2010. *In vitro* growth and single-leaf photosynthetic response of *Cymbidium* plantlets to super-elevated CO₂ under cold cathode fluorescent lamps. **Plant Cell Reports** 29: 273-282.

EFFECTS OF ELEVATED CO₂ ON A TROPICAL ORCHID

What was done

The authors grew the epiphytic CAM [*] orchid Mokara Yellow in controlled environment chambers receiving atmospheric CO₂ concentrations of 380 and 760 ppm for two months to study the effects of elevated CO₂ on plant growth and enzyme functioning. [Mokara is an intergeneric species: Mokara (Arachnis × Ascocentrum × Vanda)]

What was learned

The elevated CO₂ concentration increased the relative growth rate of the orchids by 25%. As a result, the CO₂-enriched plants produced 31% and 98% more shoot and aerial-root dry mass, respectively, than their ambiently-grown counterparts. At the biochemical level, elevated CO₂ reduced rubisco ["] activity during the light period, but significantly stimulated PEPcarboxylase ["] activity during the dark period.

Also, the activities of SPS (sucrose-phosphate synthase, a key regulatory enzyme involved in partitioning carbon between sucrose and starch in leaves) and SS (sucrose synthase) were significantly increased by atmospheric CO₂ enrichment. Finally, elevated CO₂ increased the concentrations of several plant hormones in leaf and aerial root tips by as much as 21-fold.

What it means

As the CO₂ content of the air increases, this particular orchid, and perhaps other plants that utilize CAM metabolism, will likely exhibit significant increases in growth and dry matter production as a result of optimization of resources at the enzymatic level within plant organs. Indeed, the nocturnal CO₂-induced increase in PEPcarboxylase should significantly increase carbon uptake, while the similarly-induced increases in SPS and SS should enhance the mobilization and utilization of photosynthetically-derived sugars, preventing or reducing their accumulation in leaves and, therefore, eliminating or reducing feedback inhibition of carbon assimilation. Thus, one can anticipate greater and more robust growth by Mokara Yellow orchids, and perhaps other CAM plants as well, as the air's CO₂ content continues to rise.

[* Note: CAM plants

Plants that close their stomata during the day to reduce water loss and open them at night for carbon uptake. PEP carboxylase nocturnally fixes carbon into a four-carbon compound that is accumulated within vacuoles. During the day, this compound internally releases carbon dioxide, which is then refixed using rubisco.

This phenomenon also effectively inhibits carbon loss by photorespiration. Only about 3 to 4% of earth's plant species can be characterized as CAM plants.



Li, C.R., Gan, L.J., Xia, K., Zhou, X. and Hew, C.S. 2002. *Responses of carboxylating enzymes, sucrose metabolizing enzymes and plant hormones in a tropical epiphytic CAM orchid to CO2 enrichment. Plant, Cell and Environment* 25: 369-377.

<http://www.co2science.org/articles/V5/N24/B2.php>



Mokara



Mokara



Pterostylis curta, grown by David Mellard of Atlanta, Ga.

Pterostylis curta is a species of terrestrial orchid endemic to New Caledonia and eastern and southeastern Australia; it grows from dormant tubers which look like a small potato.

“Yes, you can add my name and email (DMellard@cdc.gov) to the photo. I’d be happy to correspond with anyone about growing Aussie terrestrials. If they are interested, I’d be happy to trade for other terrestrials.” <http://www.slippertalk.com/forum/showthread.php?t=20072>

MEMBER FOCUS

The Questionnaire included with the mailing of the January 2013 issue of *Pollinia* invited Irish Orchid Society Members to share their orchid growing experiences and orchid interests with other Members.

Phillipa, from Co. Dublin continues the series, a regular feature in future issues.

Members who have not completed the Questionnaire may continue to send them to: Marie Hourigan, Secretary, Irish Orchid Society, National Botanic Gardens Glasnevin, Dublin 9, Ireland

Phillipa, Your Interest in orchids began why and when?

~ Approximately 12 years ago my interest began. (Had returned from living in Nigeria, North Africa some years prior) suddenly I found myself initially wanting some interesting flowering pots for our home. Then I realised there were green Cymbidiums. Initially I used to go to the market in town, to buy them, obviously at a reduced cost. At that time I bought lots of different forms of green cut stems. I was fascinated with their colourings, throats, stripes etc. everyone seemed different. Finally I became interested in various pots of Cymbidiums, then I discovered there were others. I went to the National Botanic Gardens where I met Brendan Sayers, who told me that in time an Irish Orchid Society might be formed. I became a member. As time progressed, my interest moved to the likes of Pleurothallis and tiny green flowered species.

What was your first plant?

~ A green Cymbidium

How many plants are in your collection?

~ Maybe 80 or so and some Bromeliads

Where did you purchase them?

~ Everywhere, Dijon, UK, Florida, Glasnevin

Where do you grow them?

~ Glass Room and Kitchen

What is your favourite orchid species/hybrid/genus?

~ Several Pleurothallis, dainty leaved species, some creamy Dendrobiums.

How often do you repot plants?

~ Once a year or every 2 years



Which type of potting mix do you use?

~ Everything depending on the orchid, i like to experiment. Am interested in all growing mediums, especially moses, pumice stone, hydroponics, the various barks

Which group are you most successful with?

~ I have a few Paphiopedilums for approx. 10 years and Scaphosepalum sp.

Which group do you continually fail with?

~ I fail with the pansy orchid and some Cattleyas and Vandas.

Which are the oldest specimens and how old are they?

~ My Paphiopedilums—approximately 10 years old.

Do you use insecticides or fungicides? if so which ones

~ Sadly I do; sometimes Provado outside.

Which fertilisers do you use and do you use tap water or rainwater?

~ I try to use rainwater; I use orchid food

Which orchid would be your dream plant/group to grow?

~ Presently Brassia Eternal Wind; it's green and spidery like. Any dainty green leaved species appeals to me

Any funny orchid stories

~ Maybe in time

At one time I used to experiment with those cut Cymbidiums. I placed some by mirrors some by very dull light and some in full light – simply watched their fluorescence and stems. Now in 2013 I like to experiment with different planting mediums for my various orchids



Brassia Eternal Wind (Hybrid)

STUDY FINDS NEW TRICKERY AMONGST ORCHIDS



Many Oncidiinae orchids, like this *Rossioglossum ampliatum*, evolve to look like other flowers.

Bees are tricked by orchids that disguise themselves as the brightly coloured flowers of neighbouring plants, according to new research.

The Oncidiinae group of orchids is one of the most diverse groups

of flowering plant in the world, with around 1700 different species being found across South and Central America.

What is surprising about these flowers is that most of them are able to attract pollinators without rewarding them with the valuable oil or nectar which they receive from other flowers.

In the plant world, successful fertilisation comes down to enticing pollinators, such as bees, to transfer pollen from one flower to another. This is usually in return for a reward.

Researchers from Imperial College London and Kew Gardens have been looking at a specific orchid of the Oncidiinae group, which does not offer any reward: the *Trichocentrum ascendens* from South America.

In a ten-year study published in the journal **Proceedings of the Royal Society B**, they found that the *Trichocentrum* tricks pollinators by closely mimicking the colour and flower shape of another plant family, the Malpighiaceae, whose flowers produce a plentiful supply of oil.

Vincent Savolainen, Professor of Organismic Biology in Imperial's Department of Life Sciences, explains: "These reward-giving flowers have evolved a very special colour called bee-UV-green, that is highly distinguishable to bees' sensitive eyes. The *Trichocentrum ascendens* and other Oncidiinae orchids copy the special colour so precisely that bees are unable to distinguish between the flowers, visiting an orchid and pollinating them without the reward they may expect."



To a bee's eye, the orchid *Trichocentrum ascendens* (L) looks very similar to a Malpighiaceae flower, *Stigmaphyllon lindenianum* (R)

Some now believe this evolutionary trick is the key to the orchids' success. By not producing nectar, they can divert more energy to growing strong and producing more successful future generations.

It is now thought that this trickery could help these orchids to attract a wide range of pollinators, therefore accounting for the diversity of the Oncidiinae group. Professor Savolainen continues: "In this case the scale and accuracy of the mimicry has surprised us, as it happens so many times and involves so many orchid species."

<http://goo.gl/o94UEG>

<http://goo.gl/tptqym>

NORTHERN IRELAND ORCHID SOCIETY

For those of you in the north of Ireland you may be interested in joining our fellow enthusiasts in the Northern Ireland Orchid Society. Meetings are held at 8pm on the second Wednesday of each month except June, July, August and December in the Cregagh Library, Belfast.

Secretary: Mrs. Elizabeth Steele, contact 028 91450 6344.

IN MEMORIAM: ANNE DOYLE

I first met Anne Doyle many years ago when she entered the Department of the Public Service as an Administrative Officer. That was early in her long career in Government administration, which took her by promotion and by government changes through an alphabet soup of departments until her final days in the Department of Justice and Equality.

She was very able, with a fearsome appetite for hard work and a growing reputation for sorting out legislative black holes, where promises had long been made for action but little had been done, often because the challenges were too daunting for others.

Discrimination, disability legislation, wage payment rules were issues she worked on. Jobs that promised much more pain than any likely recognition. Our paths crossed over the years and I was always happy to have her on the same side of the table with me in official meetings. Even when she was sometimes on the other side of the table, she was always a respectful and fair opponent. Years passed and we met very infrequently. Then the Irish Orchid Society was formed and she was one of the most enthusiastic early members. I was not previously aware of this interest of hers, but I knew that she would be and was a fine orchid grower for she never did things by half. It was only one of her many interests. I had once discovered by coming into her office unexpectedly, that she took dance classes, as she was practicing dance steps in what she believed to be privacy. A woman of very many interests and probably all of them done well.

A diagnosis of cancer in early middle age must have constituted a shattering blow and a bitter reward for years of public service. She faced it with courage and characteristic logic. Her funeral was well attended by a large circle of family, friends and work colleagues. Her coffin was carried from the church today by six women, an appropriate final tribute.

Her fine collection of orchids was passed on to the National Botanic Gardens, as one of her final acts. The Society's sympathy to her husband Greg and extended family.

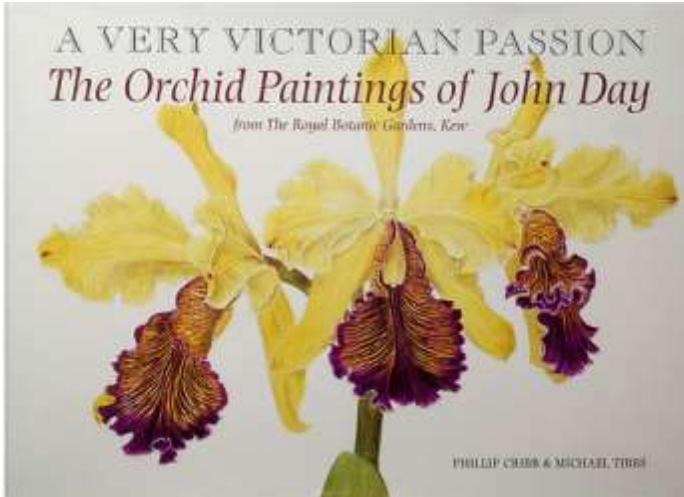
Robert Bradshaw
26 July 2013

Ar dheis Dé go raibh a hanam dilís.



THE ORCHID PAINTINGS OF JOHN DAY

John Day (1824–1888) was an English orchid-grower and collector, and is noted for producing some 4000 illustrations of orchid species in 53 scrapbooks over a period of 15 years. These scrapbooks were donated to The Royal Botanic Gardens, Kew in 1902 by his sister, Emma Wolstenholme. These illustrations now form one of the most important botanical archives in the world, 280 of which have been selected for reproduction in this magnificent volume by leading authorities, Philip Cribb and Michael Tibbs.



Day was born in the City of London in 1824, the son of a wealthy wine merchant. He bought his first collection of orchids in 1852 at an auction of the stock of Loddiges nursery upon its closure. At an average price of £1 each, he acquired 50 tropical orchids, not the more common Cymbidiums, but Dendrobiums from India, Odontoglossums from tropical America, Lycastes, and Cattleyas, which he grew under ideal conditions in an orchid house built with an exemplary heating system, in the grounds of his home at High Cross, Tottenham. Between 1863 and 1888 at the height of orchid mania in Victorian England, John Day painted and sketched orchids from his own collection in Tottenham, London nurseries, and the Royal Botanic Gardens, Kew, and visited the tropics to see orchid habitat at first hand. A large number of his illustrations depict plants he had coaxed into flower and are the first-known images of species. He maintained close links with Heinrich Gustav Reichenbach, the orchid taxonomist at the University of Hamburg.

ISBN: 978-1897739211 **UPC:** 410000467749

Hardcover: 464 pages

Publisher: Blacker Design Publishing

RARE ORCHIDS POP UP IN GARDEN

Thousands of indigenous orchids have bloomed in a Beaumaris, Melbourne, Australia family's front garden, but visitors need to look closely or they could miss the delicate green flowers.

Claudia Fischer had no idea the orchids were remarkable, until an elderly neighbour stopped and said she hadn't seen them in years.

"She asked if she could have some and dug out about 15," Ms Fischer said.

The mother of two emailed a photo to the Australian Orchid Nursery, where they were identified as *Pterostylis curta*.

Spokesman Wayne Turville said Beaumaris would once have been covered in the flowers before settlement, but it was unusual to find the blooms today.

"They're incredibly tasty to rabbits, slugs and snails," Mr Turville said.

"It means the colony has been there for hundreds if not thousands of years, because the slightest disturbance and they're gone," he said.

"A colony is normally only a square foot.

"If you find a baby colony of 15 plants that's good, if you find 100 that's spectacular." He said the orchids had a trapdoor mechanism, which they used to catch and hold insects for about an hour for pollination.

"There are even little clear parts to the flower so the insect can see out," Mr Turville said. ♦



Pterostylis curta.

COMPETITION CALLING ALL IOS MEMBERS

Your committee is organising a writing competition for POLLINIA. Members are requested to submit a minimum 250 word article about their experiences with orchids. (Photos may be inserted).

Entries will be judged by members of the IOS committee. The winning articles will be published in POLLINIA. The successful writers will receive a €50 voucher to spend at the Dublin Orchid Fair in April 2014.

Entries must be received by January 31st 2014, clearly marked as "IOS competition" and sent to:

Marie Hourigan, Irish Orchid Society, c/o National Botanic Gardens, Glasnevin, Dublin, 9.

By email to: unagbreathnach@eircom.net



Advertisement

BURNHAM NURSERIES



For a wide range of unusual species and popular hybrids please ask for our colour brochure.

For an even wider and more up to date list of plants, books, sundries, gifts etc. Visit our web site <http://www.orchids.uk.com>

We will be pleased to ship to Ireland, contact us for a quote or get together with your orchid friends to share the cost of delivery.

Forches Cross, Newton Abbot, Devon, England, TQ12 6PZ.

Tel: +44 1626 352233 mail@orchids.uk.com

IN THIS ISSUE

Page 3: Calendar
Page 4: Abnormal Sobralia
Page 6: Excessive lip service
Page 9: Palace find
Page 10: Radio wave water
Page 12: Fungus to the rescue
Page 15: Stuart Dunlop

Page 18: Zoë Devlin
Page 20: Orchids and CO2
Page 23: Member Focus
Page 26: More orchid trickery
Page 28: RIP: Anne Doyle
Page 29: John Day
Page 31: Chinese Map

