

Gaultonia

Newsletter of the
Manchester Branch
of the
British Cactus and Succulent Society



Leuchtenbergia Principis from the late Derek Kirkham's Collection

SPRING/SUMMER 2011

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Please continue to send us your news, photos and written pieces, long or short, for publication.

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Editor's Notes on this Issue

The first Issue since last Summer - due to a lack of articles from members. Our thanks to the contributors. This Newsletter needs you to survive. Please think about writing a short piece on your favourite plants, cacti/succulents seen on your travels or any other topics you might feel of interest to other members. We have already moved to a six monthly issue instead of quarterly - this decision can be reversed if we have enough material.

We have also decided to not put so many photos in each issue - the cost in ink has become prohibitive, let alone the time in printing. Photos of main events such as the Cactus Mart, Mesemb show etc will now appear on our website or the CactusCorner websites only.

BCSS MANCHESTER SCHEDULE FOR 2011

Date	Talk	Table Show/Your Notes
11th June	Favourite Cacti/Succulents	Gymnos/Echinopsis/ Haworthia
9th July	Czech Travels	Astrophytum/Lophophora Aloe/Agave/Gasteria
Plants to repot, things to take etc		Notes:
13th Aug	11 Days in the S.W.	Succulent Show
Plants to repot, things to take etc		Notes:
10th Sept	Odds & Ends	Opuntia/Lithops/Conophytum
Plants to repot, things to take etc		Notes:
8th Oct	2 p.m. Whicher's View of S.A 7.30 Mesemb. Workshop.	MESEMB. Show Ariocarpus/Strombocactus Euphorbia/Monadenium
Plants to repot, things to take etc		Notes:
12th Nov	Adromiscus to Zebra	
10th Dec	A.G.M. Canaries	
14th Jan	Around the World in 80 Succulents	

Derek Kirkham - REQUIESCANT IN PACE

BY Peter Birt

This is a testimony to Derek who died recently at the age of 77 years. Derek had been suffering from cancer of the throat for only a short spell. Trips to Christies Hospital had brought the problem under control and he was looking forward to returning to his busy life style. Sadly a scan revealed a tumour behind his eye. This must have progressed aggressively because he was dead within two months of its discovery. He was buried in Manchester's Southern Cemetery on Thursday April 7th 2011, may he always be remembered.

He was born in March 1933 in Warrington. He quickly rose to early fame through no real effort of his own because he won a national bonniest baby competition before he was even a year old.

He had many interests in his life, all of which took up considerable time. At age 6 he acquired his first tortoise, the first of many, which he named Sam and which is still thriving even now. He had three other major hobbies; cacti and succulents, cuckoo clock collecting and restoration and crown green bowling.

His cactus collection, and it was that to a greater degree, was bequeathed to Manchester Branch and I am pleased that you have had the opportunity if you were at the April meeting to take home a reminder of Derek. He had certain preferences among cacti, plants that would not necessarily be at the top of everybody's wish list, but plants he enjoyed immensely and grew well. He will be remembered, or should be, for his ever present contributions to the 'Interest Table', plants that were always in peak condition and brought many admiring comments. I wonder, 'Will the Interest Table ever be the same again?' It was not in evidence at the April meeting because Derek put his final display on view at that meeting. Thank you, Derek, for all your efforts in making it such a prominent feature for so many meetings.

Another feature for which he will surely be remembered will be the copious number of boxes he brought to a meeting in which people could carry home their acquisitions. You'll have to bring your own now! In this hobby he was not ambitious to the point of wanting to win prizes as he rarely remembered to put his good plants into a show but he did enjoy growing the plants so that others could admire them when he brought them. They were invariably in flower when they came.

However, crown green bowling was another matter when it came to winning. It was a passion and I can remember an occasion when we had to move the meeting to another Saturday and Derek announced he would not be able to attend as he was already committed to his bowling on that Saturday every month during spring, summer and into autumn. So good was he that he entered the Crown Green Bowling National Competition at Blackpool regularly. He even made the final on one occasion – no mean feat.

His cuckoo clocks had to be seen to be believed. Very few people were permitted into his house as he was a very private man but Tony and I had that privilege, under sad circumstances, when we collected his collection of plants. Every wall, no matter where you looked, positively bristled with clocks and the cacophony of noise on the hour had to be heard to be believed. He enjoyed the challenge of restoring broken clocks and learnt a lot from reading and the willingly given help from an expert he knew. Local people benefited from his knowledge as he repaired their clocks on a regular basis. He would scour second hand shops and stalls for parts and clocks to buy. None of your rubbishy, two-a-penny articles but real quality clocks from Switzerland, Germany and other places that made good editions. He did tell Tony on one occasion that one of them had cost him £200 at an auction.

Derek will be missed at Manchester and if anybody found him a little dour it was because he got annoyed with himself, not others, when things did not go as he wished. He was a good man who put others before himself on a regular basis. I hope you will remember him with fondness.

I thank the Minister at the funeral service for much of this information and for the reverence and respect that he showed for a man he had never met but with help of family and friends put their memories into a pleasing memorial for our friend. I was pleased to be able to represent you all at a crowded ceremony where so many people from his circle of life came together to offer a final 'Adieu' as he moved on to cactus pastures new, probably with a tortoise or two for company.



Mammillaria surculosa from Derek's collection. This plant has produced a huge number of seed pods. They are on the side table tonight (June)

Winter woes! by Peter Bint

How have you fared after this winter's efforts to freeze us to death? I have been reading about the trials and tribulations of others over the past month and nobody seems to have been spared. My experience is not unlike that of most people. You don't really discover that all is not well until watering begins again in March/April. That is when the moisture actually brings about a rapid increase in the various bacteria, fungal growths, rot that have been lying patiently in wait for the warmer weather of spring. It is then that the conditions are right for a rapid invasion of the plant bodies. Over the spring months plants start to show a steady degeneration into an unhealthy appearance; brownish bodies that should be green, plants leaning as though drawn by the light but in fact so soft at the base they cannot stand properly upright, plants struggling to flower in one last desperate attempt to continue the species through seed production.

Through January and February I often find small plants that have literally dried up and are nothing more than a hard shell of what used to be a plant. The reasons for this are various and are replicated in nature as well. It could be that the roots were not performing properly thus the plants were not feeding or storing water to see them through the prolonged winter drought. They may have been the runts of the litter and been struggling from the outset – in nature these don't see out the first season but in the greenhouse the death is much more lingering. It could be that fungal attack or pest invasion saw them off as well. Whatever the reason, it tends to be small plants that suffer at this juncture. Yes, larger plants do also suffer root failure but they have plenty of body tissue to provide sustenance for months on end and are not discovered until a little later in the growing season.

I have spent the last week going through the plants carefully to check their health status and there are many residing in the 'hospital house' awaiting surgery. Many have just lost roots in which case they have been unpotted, their roots cleaned back to healthy stumps or, in some cases right back to the plant itself. They will be left to stand and heal the cuts for several days and then placed on a sandy compost with cat litter included to slowly begin the process of rerooting; some won't make it as the condition when found was too serious but you have to try. Other plants have been slowly degenerating for the last year but not displaying the malaise lurking within. The winter finished them off without any hope of recovery. It is amazing how cacti, in particular, have the ability to put on a cheery front while inwardly they are truly sick at heart. I have pulled a number of plants from their pots to discover that little, if anything, remains inside that green shell.

Why, you might ask, does this repetitious problem manifest itself so regularly. I believe the answer does not lie within one single cause. Let's look at the past two winters which have been notoriously harsh. Winter 2010 hit hard in January and February, providing many cold nights with temperatures plunging well below zero on successive nights. However temperatures did struggle above freezing during most days in this long spell. The difference between the north west of England and the habitat of many plants that do indeed suffer sub zero nights is simple. First, in habitat the plants are in the ground so the roots have some protection from the conditions; second the plants are often covered for weeks on end by snow which acts as a blanket to protect against

the cold; the cold they experience is one of low humidity, the snow is dry so no moisture affects the plants; when the melt comes they are ready to absorb the snow melt and the days are truly warm. In fact such plants are invariably very early season flowerers and they tend to rest during high summer. Plants that do not suffer snow coverage may well be cold at night but the daytime temperatures soar rapidly in the winter sun so continuous cold does not provide a problem. The air is continuously moving so there are never pockets of cold, dank air around the plants.

Contrast that with life in our greenhouses and the difference is stark. Cold nights are not often followed by warm sunny days so the coldness remains in the plants and they don't like it. Their roots are in pots which are surrounded by sub zero temperature air so they become far colder than is good for them. Winter humidity is high, often up to 100%, but regularly hovering around the 80% mark and this is not good. Because of the northerly aspect of our latitude, the angle of the sun is very low and little heat is imparted to us, as well as the hours of sunlight being short. None of this is good for the health of the plants. Hence the reason we have to heat to help them through the lean months.

Now there will be those who say they never heat the greenhouse in winter and that is true in many collections up and down the country and losses are few and far between, but they do occur. So, why the problems last year and this? Many people who have unheated greenhouses have copied the 'snow effect'. They use fleece to cover the plants during cold spells and it is effective. Remember, cold air is heavy and falls so there will not be an upward surge of cold air to be trapped under the fleece. Greenhouse glass needs to be absolutely clean to allow maximum light, no bubble wrap should be used as it cuts light intensity, and fleece should be removed on a daily basis unless the temperature remains below zero continuously day and night. This is an arduous task and is literally impossible for large collections. The fleece should, ideally, be laid over a frame to prevent snagging on spines. Succulent collections are largely, but not completely, free from this problem. Ideally a fan should be blowing continuously to keep the air circulating round the greenhouse 24/7. I used to have such a system before electricity prices rose rapidly and my pension didn't. Losses were lesser in number in those days.

But November/December and just into January this winter were different. The plants didn't cope, again for several reasons. There were several periods in this spell where the daytime temperatures remained solidly below zero day and night so the plants were in continuous freezing conditions without the pleasure of some sort of daytime warming. The autumn had been warm and long lasting which encouraged watering later into the season than was desirable. When the cold struck it was without warning, vicious and much earlier than normal. The smallest pots had dried out but larger pots still held residual moisture which froze as temperatures dropped to -10C, or even lower up in the hills around the Blackburn and Burnley regions (Ed's note - it was -17C for us near Burnley). Simply put, the plants hated it and started to succumb to alien ailments. Non heated greenhouses in this situation are much less than ideal for our plants. Even in greenhouses that were heated, maintaining what was the hoped for temperatures was impossible. Mine was set to 3 degrees Celsius but I doubt it managed such a situation on the coldest nights and days. Luckily the rest of winter remained mild in comparison and gave the plants some res-

pite but the damage was already done for lots of plants. I have seen pictures from a Sheffield member's greenhouse, both before and after the carnage. Before there wasn't an inch of spare room but this spring it shows that only one plant in ten survived (the spaces are frightening to behold though he is very upbeat about it as, he says, he has plenty of space for new purchases; it's a point of view!) and these tend to be smaller plants because the roots were properly dry. Even those people who have never heated their greenhouses are reporting numerous losses of seemingly cold resistant species amongst Tephrocacti, Puna, Tacinga, Pterocactus and other genera that do come from colder regions. Simply the plants do not like being frozen for long spells. It ruins the internal structure and rot sets in rapidly.

As a parting shot, I recommend you go and praise all those specimens that have defied the elements to honour you with a new season of growth and let's hope that this is not the new weather pattern for the next 20 or so years.

20 Years.....and Beyond - by Chris Leather

I wonder if anyone can work out why 2011 is a milestone year for me. No? Well it is 20 years since I joined the BCSS, and the June 2012 meeting will mark 20 years of attending branch meetings. I'd be the first to admit that for some periods of that time my interest in cacti has risen and fallen depending on other things happening in my life. Hobbies and work so easily cause you to forget about those prickly plants out in the greenhouse. I would go as far to say that the branch meetings have kept my interest in cacti alive rather than the other way round.

Several changes over the past two or three years have seen my interest in cacti steadily increase. Some of you will know that in late 2007 I became an uncle. Being the family member who looks after the camera I of course ended up taking lots of pictures of my nephew, Daniel, increasing my interest in photography in general.

Also 2008 was the year we (that is, my Grandfather and I) "retired" from my other hobby – Carp Fishing. For many years we had shared the lake (in Bolton with yearly membership) with other anglers who generally fished in the morning and early afternoon for small fish like Roach, Perch and Tench. We started late afternoon and fished until it went dark and usually had the lake to ourselves – Carp tending to feed better at that time. In 2006 and 2007 several members left the club and were replaced by Carp Fishers. Consequently we invariably couldn't get to the pegs we wanted and as they tended to stop for hours and hours our success rate plummeted! Increased costs in both membership fees and in petrol prices were the final straw. We'd been members since 1993 and we caught quite a few fish each year, the biggest fish being 18 pounds (8 kilograms).

Not going fishing of course gave me more free time to do other things, though of course Daniel now takes some of that time – not that I mind, of course – it is fascinating watching him grow up. As soon as he could walk he wanted to go into our garden and that included the greenhouse too. So his interest increased my interest too....

Another big change in May 2010, was going onto shifts at work. Previously I'd worked 7am till 4pm. Now we are doing 6am to 2pm and 2pm to 10pm, alternate weeks. Nearly everyone at work hated it! It's not much fun being stuck in work at 10pm at night! For me though it was great. Every other week I was at home in the morning so if plants were flowering I could take their pictures. Watering could be done any day of the week, rather than Saturday or Sunday morning.

Shift work gave me time to have a good sort out of plants after the bad weather we'd had over Christmas 2009/10. A lot of dead plants were thrown away and any marked plants put to one side. Then we had similar bad weather this last winter (2010/11). Examining the aftermath I found more dead plants with quite a few having mould on them (not something that I've ever had before). Worst of all, one of my favourite plants had orange "rust" marks on it. Daniel doesn't want to be seeing tatty plants (and neither do I want to be showing him tatty plants). Something had to be done....The "something" could be broken down into three parts. 1) install some kind of heating. 2) make the greenhouse more presentable, both appearance and plants contained in it. 3) increase number of plants bought through the year.

So early in the year I started looking into installing a heater into the greenhouse. Out of the choices (gas/paraffin/electricity) an electrical heater seemed to be the best option; clean, low maintenance, child safe and it can be removed during the summer months.

Knowing I would have to empty the greenhouse I had a really good sort out of my plants. Anything that was clearly dead, or marked very badly, went in the bin. Whilst quite a number of plants were disposed of I was pleasantly surprised to see how many were left. What was obvious though was that quite a few of the survivors were in desperate need of bigger pots.

The electrician was booked to put the wire and sockets in for the heater and so the day before he was due I had to empty my greenhouse completely. I decided to do a bit of spring cleaning at the same time.... Under the staging I found enough empty pots to open a stall in the town market and enough trays to fill the staging of a greenhouse twice the size - half of the trays were warped or broken and went in the Re-cycle Bin (I kept the pots).

I found three 5ltr paraffin containers that were once commercial washing-up liquid bottles that I got when I worked in a chip shop - I left there in 1998 and haven't used paraffin since around that time. There were three pump sprayers that didn't work and a bag of last years (I think??) compost. Also found was two watering cans, one used, one unused and some more plastic containers that I've no idea how old they are or when I used them last, and two washing up bowls. Behind the greenhouse there where enough garden canes to make a trellis and enough bricks and stone slabs to build a small wall. There were also three slate roof tiles. It's amazing how all this stuff accumulates!



The greenhouse before starting work



Floor levelled and first paving slab in place



Floor complete



Additional staging and power sockets added

I also decided to re-fill the water butt (which I didn't remember emptying - and no one else would admit to doing). I ran the hose pipe up to the water butt and turned on the tap. The water hadn't been running for long when I thought - why are all the flags wet? Yes, there was a split in the bottom of the water butt.... So it looked like I'd solved the mould problem – the water in the butt had leaked out and flooded under the greenhouse!

The greenhouse now has a double socket installed in a waterproof box. The wire runs down the inside the greenhouse along the base and then out underground until it reaches the garden wall. It's then fastened to the wall all the way to the kitchen, where a waterproof junction box lets the wire gain access to the kitchen units inside the house. Here there is an isolation switch under the sink. If your main fuse box is old you may need additional circuit breaker protection. This is a job you need to get a professional electrician to do. They should be suitably qualified for outdoor work and should give you a certificate of the work done. You need to keep the certificate in a safe place in case you decide to move house. They will also provide the correct cable for your needs (ordinary household flex will not do...it should be suitably armoured cable). Plugged into the socket in the greenhouse is a thermostat that has a socket to accept the plug from the heater. The thermostat and the heater need the relevant IP rating for waterproofing. The thermostat has a second wire about four feet long which has a temperature sensor on the end of it. This is plunged into the soil of a plant pot as far away as possible from the heater.

The next job was to re-pot any plants that needed it. It turned out that it was nearly all of them. Again having mornings free every other week meant that I could spend a couple of hours each day potting up plants into bigger pots. Most (but not all) of my plants are either seed grown by me or from the Edgintons, Norfolk or The Plant Lovers, Lincolnshire or Raffle Prizes.

What has been a big surprise is how many plants I can trace to being seed grown. For instance there are three *Gymnocalycium triacanthum* P124. Looking back in my notes I see that they were probably sown in 2001 and somehow they've survived in the greenhouse all this time. There is a *Notocactus tabularis* which again is seed grown and is almost as big as the parent plant that I won in the raffle. Most amazing is an *Oreocereus trolii* which I have had for ages. I think it is a seed sown plant, but not sure. I've put this in a 2¾ inch pot and already it seems to be filling it. These are just three examples – there are certainly more.

The final job that I wanted to do was to level up the floor. When we installed the greenhouse in 1993 we put chippings down. This was OK but the staging was never properly level. It sloped down from left to right and down from front to back. We thought of either flags or concrete for the floor. Concrete would probably be easier to have put down, but flags can be removed if needed, so we settled on flags. We ordered six flags, some sand and some cement and four breeze blocks from the local builder's yard.

Good Friday (hottest day of the year to date) saw me emptying the greenhouse (again!) in the morning to leave the afternoon free to put down some of the flags. I was hoping that the staging would come out in one piece. No such luck – but the nuts and bolts were so loose it took us about 15 minutes to dismantle it. It's a wonder the staging never collapsed on me.

After lunch my Dad and I set to with the flags. The chippings were levelled as best we could so that we could put down the sand and cement. I knew we would never get them exactly level, but if the floor could at least be generally flat I would be happy. Once we started it took about two hours to get all six flags down. Putting the sand down is no problem – you just rip the bag and tip it out. A couple of handfuls of cement scattered on top and then mixed in (gloves essential) soon made the base. Care and extra time here is well worth spent to make sure that the base mix is as level as possible. It is vital the flags do not rock when you stand on the corners. If they do take the flag up and redo the base. It is certainly a two person job.

After tea we put in the two front raised flags and reassembled the staging. Saturday morning, bright and early, saw my Mum and me replacing the bubble wrap in the greenhouse. The bubble wrap on the back half of the greenhouse will stay in situ all year round as the sun never shines directly onto the plants through those panes of glass. The front half of the greenhouse will eventually have bubble wrap up only in winter.

Finally the plants could go back. I'd got some new flat trays (58cm by 58cm) that fit onto the staging, three on the top and two on the flags. As they are bigger than my old ones I could sort out the plants so that similar sized pots are in the same tray. I also installed two shelves under the main staging. Providing the plants are quite small and not pushed too far back they should be OK on these lower shelves as the sun tends to shine in through the door rather than down on top of the greenhouse.

It's been a big job sorting everything out, but the end results are well worth it. My Mum & Dad have helped enormously and have my grateful thanks.

PLANTS DAMAGED IN THE EXTREMELY COLD WEATHER OF THE PAST TWO WINTERS.

By Philip Greswell

(Ed's Note – please note that this article relates to plants grown in the South of England – NOT in the North West)

I report here some damage to plants mentioned in a previous article which seemed to be OK in January 2009 and also plants damaged in other greenhouses heated to maintain a minimum of 40F.

That winter, I did not put up any bubble polythene because of the difficulty of getting it behind the plants and also all the bits falling all over the plants if it is “recycled “as it disintegrates, thinking cold winters were a thing of the past. But with freezing temperatures and without it, drafts blew in through the gaps until I plugged them with newspaper.

The unheated greenhouse. **Weingartias** are evidently not all hardy and **Weingartia chuquichuquinensis (Rebutia neocumingii)** developed a brown ring on the top of all heads. I brought them in to the house, but the brown ring progressed downwards in to the body of the plants. I may have been doing more harm than good denying it sun light. I decided to split the plants up and some may be saved, so could appear on the sales benches before too long! A single headed red flowered **Weingartia** species **aquila**, was also marked and has been disposed of.

Placed by the side of a greenhouse outside in a six inch plastic pot of normal cactus mix, **Opuntia leucotricha** that I was told was hardy, isn't! A bigger **Opuntia phaeacantha** survives in a large clay pot in sandy mixture against the side of the greenhouse. This mix may have determined its survival if the compost was drier. **Opuntia salmiana** in a small pot of normal cactus mix also died in the same position.

In an exposed wet position outside in 3.5 inch pots, red flowered **Opuntia** from seed purchased from the 2001 BCSS seed list, said to be good for grafting, is hardy. In fact they look better than those in a cold frame, evidently enjoying the fresh air but the open compost probably helps as well, although there was plenty of rain and freezing conditions.

Outside standing in a bed up against the wall of the house, warmed no doubt by the downstairs neighbour's central heating, a small 50mm **Aloe polyphylla** from Lesotho in pot looks much better since I discovered it prefers the cold. I did not cover it with glass to keep the rain off as I have seen done elsewhere. A hardier **Crassula sarcocaulis alba** planted in the same bed is fine. The bed is very dry. Plant losses of nearly hardy plants normally occur because of wet at the root rather than air temperature, so it may not have survived elsewhere in the garden.

Greenhouses heated to maintain a minimum of 40F. I kept the greenhouses ten degrees F colder than last year to see if the heating bill would come down and to conserve energy. Bubble polythene was not used. The tender plants, **Melocactus**, **Adeniums**, **Dorstenias**, **Monadeniums** and similar came in to the house.

Of the many cacti and succulents, three cacti in the first greenhouse are marked with what looks like an orange stain, reminiscent of red spider damage, but evidently not. This greenhouse had a drip that persisted despite my efforts to stop it and was much damper than the other greenhouse. Prior to my becoming aware of the drip, in the Autumn I had decided to try to make it drier with a covering of old plastic compost bags spread across the floor to stop the moisture rising up from the ground below. This works well in keeping the normal winter damp out of unheated greenhouses where there are no drips, but here it seemed the bags may have prevented the moisture escaping. **Astrophytum capas** a hybrid from **Astrophytum capricorne** and **asterias** which apparently nearly always produce plants with novel forms and patterns was affected. This form had a cream epidermis turning green towards the top which I particularly liked. Other **Astrophytums** were not affected. It being a hybrid with a lack of chlorophyll placed in partial shade could be the reason.

A two year seedling plant of **Ferocactus macrodiscus** was severely marked. On checking the internet for details of cultural requirements of the plants I see it comes from Guanajuato, Mexico where temperatures average 67 F throughout the year. A web page advised "Grow it in full sun throughout the year. In winter keep completely dry at 50F, but it can tolerate sporadic light frost. But it is problematic if the temperature goes below 40F with high humidity during the winter rest. Even adult specimens are affected by wounded spots in their epidermis."

I am informed the orange marking may be a fungus initiated by cold and high humidity and is incurable. If not too bad, it is possible to grow the plant out, but it would have to be kept in warmer conditions in future. None of the other 20 **Ferocactus** species were harmed.

A very nice 6 inch diameter **Echinocactus grusonii tortuosa** placed under a bench in partial shade with other cacti was very badly marked with the orange marking both on and in between the ribs. Yet an **Echinocactus grusonii** in an unheated greenhouse placed in sun has for several years remained unmarked. Fellow growers are surprised it grows at all in an unheated greenhouse without being damaged. The **tortuosa** in the same position may have been OK.

Echidnopsis nubica in a less humid greenhouse has yellow stems caused by the cold and coming from Sudan, Somalia, Yemen and Ethiopia, one could say this was to be expected. Yet others from similar regions such as **E. cereformis**, **E.c.brunnea**, **E. ciliata**, **E. repens**, also in the same slightly shaded position are fine. But this was not the orange staining caused by the damp. Likewise, an **Echinocereus nicholii v ilanurensis** low down in a shaded part was marked and split. A **Vatricaria guentheri** on the top shelf within inches from the glass was marked as well, both caused presumably by the low temperature, but not the damp.

Although it is never good to lose plants, the numbers were small when comparing them with the total number of plants in the greenhouses heated at 40F.

The damp greenhouse. 180 cacti and 210 succulents. 3 marked with orange stain.
The other greenhouse. 166 cacti and 320 succulents. Three marked.

All plants are kept bone dry, except the winter growers such as the **Aeoniums**, **Cotyledons**, **Dudleyas**, **Kleinia articulata**, **Pelargoniums** and **Tylecodons**, the last five were in the damp greenhouse on a top shelf. I also gave **Aloes**, **Gasterias** and **Haworthias** a spot of water occasionally

to try to prevent them losing their roots which happens if they are dry for long periods and none were lost to the cold. **Aloes** from Madagascar which I suspected may be susceptible to cold came in to the house. I have since Googled all the **Aloes** and come up with a 1,2 and 3 scoring system to indicate which need warmth, which tolerated less warmth and those tolerant of cooler conditions and wrote the numbers on the labels so I can remember them from year to year and position them accordingly.

In conclusion, damp is the cause of the orange marking and plants in a sunny position in a damp greenhouse may do better than those in partial shade. But losses and damaged plants were few and cacti and succulents will put up with a lot. Of course some plants must be kept away from cold and I do not risk those I know to be susceptible to low temperatures. Some of these are in a frame with soil warming cable. Many collectors of course do not heat their greenhouses at all and if they are dry and have bubble polythene to keep out drafts, artificial heating may not be necessary at all? Greenhouses seem to be warmer if they are by a tree or a fence in good light and out of the cold winter winds. Steve Brack's Mesa Garden seed catalogue shows temperature tolerances for thousands of cacti and succulents and so by being selective, you could eliminate winter fuel bills by avoiding all tender plants and still enjoy an interesting selection of plants.

THE EFFECTS OF THE EXTREME COLD OF LAST WINTER

Last winter was the worst on record for some many years. I again did not put up bubble polythene thinking last winter was just a blip and we would be back to the usual mild winters. Here are some more observations.

In the unheated greenhouses there may be a cumulative effect of two bad winters on the run in that cacti I thought would be the most hardy, **Echinofossulocactus**, now **Stenocactus**, proved not to be, with two young plants in 2.5 inch diameter pots seeming to just give up. They did not collapse in to a ball of jelly but turned a grey colour and died towards the end of the winter when presumably they had just had enough.

In another greenhouse devoted to **Mammillarias**, heaters went off without my knowing and were out for some time with temperatures at minus 18C outside on one night. To my amazement not a single plant died. Many were large succulent spherical **Mammillarias** plants within a couple of inches from the glass. But I noticed the temperature inside the greenhouse did not drop below minus 6C. The snow on the roof was deep so may have provided some insulation. I had moved those I suspected to be cold sensitive such as **columbiana** and those from the Caribbean in to the house. In another greenhouse where the same happened, at first it looked as though **Gasterias** had survived, particularly the hybrids, so I assumed they must have some inbuilt genetic tolerance to the cold. But within a few weeks they gave up and most died. **Haworthias** were badly marked but more will recover than the **Gasterias**. Generally cacti seemed to be more tollerant to extreme cold than succulents. Most other cacti in this other greenhouse also survived.

The **Echinocactus grusonii tortuosa** mentioned that had suffered the previous winter from a damp atmosphere was placed in a greenhouse kept at 40F and suffered no more marking.

A **Crassula sarcocaulis** in a pot placed behind the one in the ground mentioned above, died. I assume that the **Crassula sarcocaulis alba** mentioned above survived because the roots were in the ground and afforded some protection, unlike that in the pot which would have frozen solid.

I kept one greenhouse at 50F which is probably a reasonable temperature to keep the plants at if you want to be on the safe side with no losses, if the atmosphere is dry. The heating bill for last winter will be very high. We have two options. Grow hardy cacti or be prepared to pay big heating bills if the trend with climate change is towards colder winters, which it could be. Time will tell.

PYGMAEOCEREUS BYLESIANUS

By
Philip Greswell

A few years ago Andy Powell studied the **Pygmaeocereus** genus of which there are a number of species. **P bylesianus** grows at the southern end of the genera's range, which is a narrow coastal strip north of Lima, Peru. Further north, the plant gradually dwarfs and the species change, no doubt through the process of evolution. The Greek pygmaios = dwarf and this is a dwarf cereus. It grows on coastal desert mist plains.

These small cerei have a tap root and only attain a height of about 10cm. The cylindrical stems are often set deep in the soil in their native habitat and it is said, in habitat are solitary and do not offset.

I came across this plant from a nurseryman selling someone's collection a couple of years ago. It currently occupies a 15cm squat plastic pot I potted it on in to in the spring. I would not have known it has a tap root, but for subsequent reading, of which there is little information on it that I could find.

It is a handsome prostrate plant and the main stem of my plant is 17cm long. It has 11 offsets and has 17 ribs with fine spines no longer than 4 to 6mm radiating in all directions. It is dark green almost brown, and the sweetly scented white flowers are produced freely and successively along the back of the main stem.

I mist it occasionally on hot days, which may help with the flowering. The references I found did not really do it justice, describing it as having 2cm diameter stems, flowers 5 to 7cm long flowering at night. The flowers on my specimen are 2.5cm long and I often find myself looking at it during the day, but this may have been in the mornings or evenings possibly.

I feed it and water it normally despite the tap root and the plant does not seem to suffer because of this or being in the squat pot. It does not require higher than normal winter temperatures and likes a sandy mineral substrate with low humus

I think it is worth having in any collection and may be somewhat underrated at present. Since first writing this article, the plant was split up. I have also obtained a more slender smaller form, more brown than green and not as attractive. It has so far not flowered for me.

THE UNHEATED GREENHOUSE

by
Philip Greswell

I have been interested to hear from some members at BCSS branch meetings that they do not heat their greenhouses in the winter. Their cacti and succulents survive and this with only a modicum of bubble film to protect them.

I decided to look at what helps to make a greenhouse warmer in the winter and obtained the following information from the Centre for Alternative Technology in Wales and other sources, which produced a few ideas I had not thought of as well as some I had.

Place new greenhouses somewhere that is sheltered, but where it can take full advantage of winter sun. A lean-to greenhouse on the south side of a house will contribute heat to the house during the day, and be kept warmer by the house at night.

Position freestanding greenhouses so the axis runs east to west maximising the area of greenhouse facing south.

Greenhouses with half brick or timbered sides lose less heat, though let less light through to plants in the greenhouse border. Insulate the brick or timber.

Consider double-glazing. However each extra layer of glass reduces the light by about 10%, and can be expensive. More glass requires stronger supports and a sturdier structure, so is more usual for conservatories than greenhouses. Wooden frames lose less heat than aluminium, and are also more environmentally friendly (wood is renewable and has a lower embodied energy). However they are more expensive and there are currently none that are Forest Stewardship Council accredited. Some conservatories are. The FSC has details. Wood, including wooden staging also acts as a heat sink and releases heat in the evenings.

Don't heat more than is needed. Divide the greenhouse up into sections. Eliminate draughts with putty or draught-proofing strips.

Paint the north wall white to reflect light where light levels are low in winter, as in the UK. Where there are high light levels, paint it black to absorb heat. Make north walls and roofs solid which will keep in more heat, without losing too much light. The north wall of the greenhouse provides a quick escape route for heat. Covering a wall with material that insulates as well as reflects back light can also retain heat. One effective method is to seal the north wall with panels of white, rigid insulation cut to fit each opening and in wooden greenhouses, fill the north wall with fibreglass insulation covered with exterior grade plywood.

Plant a hedge/trees, or put up a fence to protect the greenhouse from the prevailing wind. It should be at least four times its maximum height from the greenhouse if in the path of the sun.

Heat arrives from the sun in the form of short waves, which strike and heat objects in the greenhouse. Inside the greenhouse, the heated objects radiate warmth in long waves which do not readily penetrate the greenhouse covering and it is these long waves that are able to be trapped and stored

Materials with a high thermal mass form the basis for passive as opposed to active solar systems and will in the greenhouse absorb heat during the day and release it at night i.e. brick/stone walls on the north side, stone or concrete paving or dry earth floors.

The most widely used heat sinks are water in drums painted a dark non-reflective colour for better heat absorption. Where in a crowded greenhouse one would place these of course is another question, but is presumably not without some answers? To calculate the minimum heat storage required, allow 2 gallons of water for every square foot of greenhouse that admits light directly. Generally just calculate the south facing roof and wall

Prevent heat from escaping at night with movable insulation. Bubble polythene, used for packaging, is an option. It will let some light through, so could be left up on north and east facing glazing and on very cold days. Put horticultural fleece or cloches over plants or seedlings at night.

It is easy to forget to insulate the floor and brick walls and some insulation below flags and on the outside of walls will be necessary to keep in the heat stored in a brick or flagstone floor which act as a heat sink.

DIY solar water greenhouse heating systems might be tried - they may be of use during spells of clear, sunny but cold weather. DIY solar panels inside a greenhouse will heat up water in a cylinder.

Shelves placed over the cylinder will be warmer. Space heating is not advocated, but people have constructed a home made system which apparently worked well!

References

Centre for Alternative Technology, Machynlleth, Powys, SY20 9AZ, Wales, UK
Mesa Garden Seed List 2002

Crassula triebneri

By Philip Greswell

This is a plant I like because of the sweet scent of its flowers. I bought it from Kent Cacti some four years ago. It is currently in a three and a half inch pot and the plant itself is about five inches by three across and three inches high, pyramidal in form.

It is not much higher than this when it is in flower. Leaves are light green with scattered spots, are thick, concave below and flat on top, held in a rosette of four, but slightly further apart and becoming smaller up the stem, which terminates in the inflorescence of very small white flowers. The flowers are so small I do not notice them.

In Vera Higgins book "Crassulas in Cultivation", it is named as the title above. Gordon Rowley in his book, "Crassula, A Growers Guide", names it **Crassula capitella ssp thyrsoiflora**. **Crassula triebneri** named for Wilhelm Triebner is not a validly published name because there was no Latin description or diagnosis in the publication. The accepted name is **Crassula capitella ssp. thyrsoiflora** (first published as **Crassula thyrsoiflora** in 1778). (Thanks to Len Newton for this information.)

The type locality is in the Eastern Cape, and the plants are also recorded from Western Cape, Free State and Northern Province, all in RSA, as well as Southern Namibia. It is reported to grow on dry rocky slopes in the succulent Karoo and similar semi-desert areas.

It is easy to grow in normal well drained cactus compost and standard levels of neglect, but it does not propagate itself in my greenhouse as some species will with either adventitious roots, layering or the rooting of fallen leaves. I have not yet tried to propagate it, but it should grow from cuttings. But because the leaves are compacted so close together along the stem and the stem is fragile and weak by comparison, I think it would need to just be pressed lightly in to sliver sand on the top of the pot, because to make a traditional cutting from it by removing the leaves from the lower stem would not be possible.

I was told my plant comes from Madagascar, but it does not occur naturally on Madagascar, so if someone got it there it must have been in cultivation or growing as a garden escape. There is no reason why it could not have found it's way to Madagascar and of course similar plants grow there as grow in S Africa such as the Aloes. Maybe I will go to see for myself one day! Gordon Rowley's book shows a picture of it with a purple tinge on the leaf surface, although I believe the form I have is more naturally green. Mine certainly looks a little different but is not grown in full sun, which perhaps explains the light green colour of the leaves.

The plant begins to show its first flowers about the end of July and continues for weeks on end filling the greenhouse with this sweet scent. I think that for such small flowers to produce such a strong and heady fragrance is surprising. I wish there were more cacti and succulents with scented flowers, although I know that not everybody likes these sweet jasmine like scents! But for those who do, this is a plant to look out for.

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