

British Cactus & Succulent Society

Southampton & District Branch Newsletter

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Editorial

A couple of weeks ago, we had some record temperatures across the country, luckily those hot days only persisted for a day or two, and temperatures have been more reasonable recently.

Announcements

Around a dozen people attended the **Summer Garden Party** at Alice's at the end of July. The weather was good and people had a good time.

The branch put on a display and plant sales at the **New Forest Show**. From all accounts, things went very well. Our display won a gold medal and award for best pot plant exhibit, and a cash prize! Bruce mentioned that we also achieved record sales over the course of the three days so there was considerable interest in our stand. Well done to Ivor for arranging the display and to all those members who provided display plants or helped man our stand during the event.

In September, the BCSS will be supporting the Cactus World Live event at Lullingstone Castle. Tom Hart Dyke will be present. BCSS members get a discount on entry fees (£10 reduced to £5) – I assume you'll need your membership card to claim that. In addition, as part of our Branch's 65th Anniversary, the branch will be subsidising visitors to the event - visit David Neville's stand at the event to have your name recorded and to be awarded £5.

Last Month's Meeting

Crassulas Everywhere

Adrian introduced Derek Tribble to the audience. Apart from being Chariman of Harrow branch and

vice president of the Haworthia society, Derek was also a qualified judge and had a special interest in growing Southern African succulents. He has written handbooks and had visited South Africa many times. He has even had a plant named after him – *Tylecodon tribblei* – although Derek stated that the plant had no horticultural merit!

Derek said he had looked up as much information for the talk as he could. It was an interesting group of succulents and he hoped we would agree with him by the end of the talk. He started by discussing some of the publications which covered the genus. In 1964 Vera Higgins published *Crassulas in Cultivation* and this book contained some watercolour paintings. 1977 saw the publication of a "bible" for Crassula growers. South African botanist Helmut Tolken did his PhD thesis on Crassula and published a 2 volume work *A Revision of the Genus Crassula in Southern Africa*. This same material was essentially republished as Volume 14 (Crassulaceae) of *Flora of Southern Africa* in 1985. Tolken recognised around 150 species and covered all the South African genera. In 2003, "Crassula - A Grower's Guide" was published by Gordon Rowley. Unlike the prior books, this does contain a lot of photographs, including some that Derek contributed. However, Derek did mention that there are a few errors in the book, so it's not perfect, but it's the best one if you want to see some pictures of the various plants.

Next, we saw a picture of Amanda Whittaker who lives in Hook and who holds a national collection of Crassula species. This is housed in her conservatory, so the collection is of a modest size. A few years ago, her plants were featured on TV as part of the plant heritage area at the Hampton Court Palace Flower Show.

Derek provided a quick overview of what his talk would cover. How the genus crassula fits in with other succulents. He would look at the different growth forms and where they grow, and provide some hints on growing and propagation. He would look at special adaptations of the plants and then look at the flowers and the plants.

The Crassulaceae consists of 6 subfamilies: Crassuloideae, Kalanchoideae, Cotyledonoideae, Sempervivoideae, Sedoideae, Echeverioideae. Southern African plants such as Kalanchoe, Adromischus and Cotyledon are included here, along with northern hemisphere plants such as Aeonium and Sempervivum. The North American plants (Echveria and Dudleya) are also catered for. DNA analysis has been used to arrive at the latest groupings. Crassula have 5 stamens, and the rest of the genera have 10. The genus Tillaea is now included in Crassula - they are annuals and they add around 20 species.

What does the name mean? It comes from latin, where crassus means succulent, fleshy leaves. Crassula nearly always have opposite leaves. They are succulent and the young leaves are usually fused together around the stem. The flowers are usually small and held erect and have 5 stamens. They have an equal number of sepals, petals, stamens and carpels.

He quoted some flowery prose from a work by George Don (*A General System of Gardening and Botany* - 1831) and which was based on the Miller's Gardener's dictionary. "Crassulas are an extensive genus of ornamental plants some of which are rather grotesque. They are found in the driest situations where not a blade of grass or a particle of moss can grow. Naked rocks, old walls, sandy hot plains alternately exposed to the heaviest dews of night and the fiercest rays of the noon-day sun."

We saw a picture of a location in South Africa near Umdaus and Steinkopf. Derek said it was a Crassula and Conophytum hot spot. Different geology with sandstone and lots of different niches for plants to grow. he noted 18 taxa of Crassula in just one climb. Tolken "The range of variation of habitats occupied by Crassula are hardly surpassed by any other genus in Africa".

Growth form	Where found
shrubs	out in the sunshine
shrublets	under other bushes for shelter
scramblers	climb on other vegetation for support
succulent	under bigger bushes
trailing	On rocks, cliffs
rosettes, tufted	
tubers	geophytes
annuals	
aquatic	rock pools

He proceeded to show some examples of these growth forms. *Crassula arborescens* is a shrub and

can grow to a couple of feet and take full sunshine. An example of a shrublet was *C. cultrata*, which has yellow green leaves – it gets leggy in a pot. *C. muscosa* (*Crassula lycopodioides*) is a scrambler, as is *C. subaphylla*. *C. streyi* is succulent and it needs a bit more heat – it has a purple underside to the leaves. *Crassula lanuginosa* is a trailing plant. *Crassula montana* ssp. *quadrangularis* forms a rosette. *C. cotyledonis* forms small plants with discs of leaves and *C. columnaris* forms very tight columns of leaves. *C. capensis* has tubers and is called the Cape snowdrop because it has white flowers. *C. dichotomoa* is an annual with a bright yellow flower, which occasionally can be orange – it's difficult to keep in cultivation. *C. helmsii* is the New Zealand pigmyweed and the National Trust describes it as the "most difficult of all the invasive species to deal with" – it smothers out native plants and in the UK, it's in the list of top 10 unwanted alien plants. We also saw a rock pool with some water and some small green blobs and some air bubbles, which Derek said were the product of photosynthesis – these were actually tiny plants of *Crassula aphylla*, the smallest of all the succulents.

Where do Crassulas grow? Derek said he struggled to find a distribution map of the species, but he had found a map showing herbarium specimens – there was certainly a global distribution and wider than the cactus family, for example - there are even a dozen natives in Australia. He showed a map of Africa showing Crassula species counts for each country and we could see numbers along the eastern coast of the continent – the plants go up as far as Arabia and even Iran. However, the vast majority are South African, with almost a "U" shape distribution, along the west, south and east of the country. If you are looking for them in habitat, then the South West Cape is the place to visit – it has 60 species in a 1° longitude/latitude square.

He showed some of the more widespread species. *Crassula ovata* is the money plant and is widely cultivated in many places. *C. schimperi* is found in Pretoria and also Nepal. *C. vaginata* mimics grass and is found all the way from South Africa up to Arabia and Yemen. *C. expansa* ssp. *fragilis* is found on the mainland and also in Madagascar.

Derek discussed the evolution of the genus, based on work done by Professor Norbert Jurgens of Germany. He concluded the whole family is adapted to rocky habitats and are azonal. They originated in the temperate parts of South Africa, growing initially in the summer and winter rainfall areas and then spreading into the more arid areas as they became more succulent. The widespread annuals were probably dispersed by birds. After becoming

more succulent the populations of the plants tend to become larger and more stable. The mesembs have a similar size of distribution in South Africa, but have x10 the number of species – this is thought to be because they can cope with a higher range of soil types - Crassulas prefer acid soils.

Now on to cultivation. For the Victorians - soil was something to keep the plants stationary – “A mixture of loam, sand and brick rubbish is good”. People use cat litter these days - but the Victorians were using brick (baked clay) ages ago! Also “All the species are well fitted for a dry stove (=heated greenhouse)”. The tuberous species do prefer a richer compost. All the plants should be watered in their growing season. Derek mentioned that with a broad group like this, it’s hard to give general advice - you really need to know where the plant came from. Compared to cacti, they are short lived. A 10 year old plant is doing well and a 20 year one is probably going to be a liability, and might be long and leggy - you don’t see many ancient Crassulas on the show benches. So perhaps this is good for novice growers, since you don’t need to have grown the plants for dozens of years. Crassulas do seem very susceptible to contact insecticides and this is probably due to them possessing hydathodes - more on this later. Some of the plants get leggy and will need pruning - or you can pinch out the growing point to force some branching. Good hygiene is important - remove dead material regularly. There are some winter growers, and these need maximum light in the winter. They can grow at lower temps of around 3°C to 10°C. Fans are a good idea to reduce humidity.

Next, Derek showed some rainfall data for South Africa. The first chart showed the annual rainfall across all of the country and it was relatively wet in the east and relatively dry in the west, and the south coast gets a good amount of rain. Next he showed maps which showed the data on a month by month basis. During the South African spring – you get rain in the east for a few months, but it’s dry on the west. In the autumn, the pattern switches around. Plants in the south get some rain all year round. So you do need to know where the plant come from. Adrian asked where Derek had obtained the maps - from the Internet was the answer – Derek suggested doing a search for “monthly rainfall South Africa” in Google and examining the resultant images.

Next, Derek attempted to show how the climate in the UK relates to that which the plants would experience in South Africa. A diagram showed the amount of light received through the year, at different latitudes. We actually get more light in the summer than they get at the equator - due to our

long summer day lengths. In the winter of course, we get much less light. Lines on the chart represented the light received at Cape Town and also London. There are two periods in the year where the conditions in London match the South African winter (which is when the plants get their rain) and these are late spring and early autumn in the UK. In the winter, we only get a third of light, so during these gloomy spells in the depths of our winter, it’s best to force the plants to rest since the light isn’t good enough.

Next Derek wanted to investigate some of the reasons why these plants have become so successful. Firstly, the plants have developed different degrees of succulence, to cope with their habitat. Some of the plants have become miniatures. They have a big repertoire of decoration on their leaves. Sometimes the plants have waxy leaves – or they can also be hairy, offering different levels of protection. The plants can be self-shading, so the top leaves can protect the leaves underneath. Half the species have a base number of 8 chromosomes. The more succulent ones have reduced this to 7. Plants which have more than one set of DNA are called polyploid and 44% of Crassulas have this. A lot of the annuals in the winter rainfall area and perennials in the summer rainfall areas are polyploid.

“CAM” stands for Crassulacean Acid Metabolism and this is named after this family of plants, although many other genera also utilise CAM. Plants use different forms of metabolism to absorb carbon dioxide from the atmosphere, with C3 being the basic ancestral form, and C4 and CAM are variants. Most succulent plants use CAM and this allows the pores in their leaves to be kept closed in the daytime and this stops water from escaping. The plants breathe at night when the temperatures will be lower and they will lose less water. Succulents also have a lower density of stomata compared to leafy plants. CAM is a complex subject and there are many interesting variations to it. In some plants, the new growth can use C3 and then when the plant is stressed it can change to CAM. CAM idling is a process used in extreme cases where the stomata are closed day and night. CAM can also be used in an aquatic habitat.

Hydathodes are like stomata and they are holes in the leaves. They are larger than stomata and can sometimes be seen by the naked eye – Derek showed a picture showing a line of holes at the edge of a crassula leaf. Cacti do not have hydathodes and neither do Sedums, although some plants in the sister family Saxifraga have them. What are the hydathodes used for? There are conflicting answers out there. One text book says they are used to

survive severe drought – but Rowley’s book says the opposite and that they are used to secrete liquid. Both statements might be true. If you do an experiment and cut off a branch of a crassula and a mesemb and spray them - they will both grow - but the crassula can put on weight whereas the mesemb just reabsorbs itself but does not add weight. The conclusion is that Crassulas do absorb liquid at these points, and this is probably why the plants are sensitive to insecticides sprayed onto the leaves.

The flowers have 5 fold symmetry although some of the tiny plants can reduce that number, and some of the tuberous ones can increase it. The primitive plants have a star shaped flower, and some plants have modified this to an urn shape or a tubular flower. Some have appendages on the tips of the petal, designed to guide insects. Most are pollinated by insects, including moths. We saw a range of crassula flowers. Some of the largest flowers are 1cm across on *Crassula arborescens* – at the other end of the scale, some are tiny, just 1mm across. We saw an example of a petal appendage, a structure to orient a visiting insect a certain way. One unusual species is *Crassula coccinea*, which has large red flowers with a long tube – it is butterfly pollinated. It is ineligible for our shows but the alpine people like it.

Derek now showed pictures of various species. Rather than doing a A to Z, he was going to group them into mimics, plants for novices, clumping plants, plants for hanging baskets, scramblers, impossible and he would cover the best at the end.

Starting with mimics - *Crassula acinaciformis* MBB2642 looks like an aloe – this plant was in Bruce Bayer’s collection. With *Crassula barbata*, the hairy tufts resemble dried seed heads. In the winter time they will open up and go green. They die after flowering but there are clones round that will offset so that you can hold on to the plant.

Crassula barklyi mimics the crumbling granite stones that it grows in. It is also a self-shading plant. *Crassula namaquensis* has white leaves with short hairs on the leaf - this makes its appearance matches the quartz that it grows on. It comes in different sizes – a little one with yellow flowers is called ssp. *comptonii* and there’s also ssp. *lutea*. Another popular one pretending to be a stem succulent is *C. pyramidalis*, it has leaves which are tightly packed together. The stems also die after flowering.

C. subaphylla v. does a good job of looking like a mesemb. One of the most variable species with interesting forms is *C. thyrsiflora*. It has an elongated flower spike and we saw some samples at Kew. Not many crassulas look better in cultivation

than in habitat, but *C. grisea* might be one. It is reddish in habitat, and white in cultivation. It is a very fragile plant. Another good novice plant is *Crassula lactea* – it flowers in January and is almost hardy. It has primitive star-like flowers. Similar is *C. multicava* which is nearly hardy as well. *C. muscosa* is widely available in cultivation and it never gets big, but it is very variable in habitat. The money plant *C. ovata* can grow large and we saw a big one in habitat in the Eastern Cape. It was 5 feet tall and Derek estimated it was 40-50 years old. There is a trend in the Crassula family toward woodiness, especially in some of the more recently evolved species. It’s fun to look up on the internet and find all sorts of rubbish written about the money plant. One website suggests the plant was good for feng shui and it could improve your finances if you grew it in your “wealth corner”. Another claimed it was good for balancing electromagnetic pollution and you were advised to keep it near your computer. And Derek’s local newspaper once featured a money plant surrounded by firemen – apparently it had undergone spontaneous combustion!

Crassula falcata is now called *C. perfoliata* v. *minor*. It has bright red flowers and has been used as a parent and crossed many times, to try and introduce red or pink flowers into hybrids. We saw seedlings in South Africa with red spots on the juvenile plants. There’s also varieties with white flowers. Another good plant for novices is *C. tomentosa* and we saw a particularly hairy clone. One that deserves more recognition and which is compact and clumping is *C. clavata* – it takes on red tints in the summertime.

C. congesta grows in the Little Karoo. It forms an impressive flower head but it flowers terminally, so the plant dies after flowering. *C. elegans* is a creeping plant and very variable in leaf texture. *C. nudicaulis* is very widespread and very variable - Tolken lumped a lot of the varieties together. This was a nice hairy form. A plant we know in cultivation is *C. cooperi* – it has white flowers and is known since 1875. Very similar but featuring pitted leaves with purple depressions is *C. exilis*.

Now for some plants that like to hang. *C. corallina* looks better in South Africa, where it is more compact. *C. socialis* has a dome shape – it grows on cliffs on the east coast and is a rare plant in habitat. *C. orbicularis* v. *rosularis* is a stoloniferous plant, so new shoots come out a few inches away the parent. One of the best hanging ones is *Crassula pellucida*, it has a purple leaved form with yellow colouring. ssp. *marginalis* is similar. *Crassula rupestris* ssp. *marnieriana* has white tufts of flowers. Another good plant with pale yellow flowers is *C. perforata* ssp. *kougaensis*. We saw

some colourful forms photographed at Kirstenbosch. *C. perforata* itself is a scrambling species, but you get left with bare stems eventually when the older leaves die. The variegated form is nice, with green, yellow and red colours. Another one with nice leaves but great long stems is *C. badpoortensis*, a discovery by Ernst van Jaarsveld. From the Richtersveldt, *C. sladenii* is a slow growing which is pure white in cultivation. According to Tolken *C. tetragona* has 6 subspecies, in some the leaves line up in 4 vertical tiers. The flowers are small. *C. mollis* has hairy leaves and is more compact. *C. mesembryanthemoides* has lovely hairy leaves. It is tricky and needs an acidic compost - it grows on sandstone. One of the most common of all Crassulas is *C. rupestris* which is a yellow bush – it is very widespread and grows in large quantities. Equally diverse is *C. atropurpurea* – and v. *purcellii* is a nice form. Looking similar but with different flowers is *Crassula pubescens*. One form, which is almost hardy is rebranded and sold as “Tresco Seaspray”. *C. higginsiana* was the latin name given to it at one point. *C. rubricaulis* has red leaves and red stems but is not seen in cultivation. *C. rogersii* is a bit boring and slow growing. It gets to 6 feet high. *C. macowaniana* from the west coast has nice flowers in habitat.

Now for some impossible ones. *C. deltoidea* looks nice in South Africa but it’s just green and leggy in the UK. *C. hirtipes* is fragile and falls to pieces. *C. hemispherica* looks nice but when it flowers, it dies and it never offsets - so it’s very hard to propagate. One that looks like a heather is *C. ericoides* – it has tufts of white flowers. It is tricky to grow and needs an acidic compost.

Now for some of the best ones. In the handbook of Shows, there is now an additional subgroup just for Crassula which helps when showing – prior to this, you’d be competing with about 400 different species! One species that dominates these classes is *C. mesembryanthemopsis* which comes from Northern Bushmanland and Namibia. It is tiny in habitat, at just an inch across. It’s a long lived plant and there are some 20-30 year old examples around. *C. susannae* grows under the quartz. It must be tricky since you see very few in cultivation these days. *C. cv “Celia”* is a hybrid from it. *C. alstonii* is quite slow growing and arranges the leaves into a sphere. We saw a 9 year old plant in a 4" pot. *C. arborescens* has silvery leaves and he considers it superior to the money plant.

C. ausensis is a compact plant endemic to Namibia and there are several nice forms, e.g. ssp. *titanopsis*, ssp. *giessii*, *karasana*. Another beginners plant is *C. columnella* - if grown to a good size, it will be

competitive. *Crassula deceptor* is widespread, he saw a fantastic specimen at the National Show in a 12 inch bowl. *Crassula garibina* is quite compact but it can become floppy. *C. pseudohemisphaerica* has yellow flowers and branches after flowering – if you get it to 5-6 inch size should do well. Gillian Evison had got *C. plegmatoides* to cascade and did very well at the National Show. *C. sericea* tends to be a smaller plant - varieties *Hottentot* and *velutina* could be nice ones to try - some have strokable tactile leaves. *C. tecta* is very popular and a class act. It’s also been also used to produce *C. cv “Morgans Pink”* with pink flowers. *C. fragarioides* is named after strawberries due to the shape and texture of the leaves. It’s a nice miniature. We ended with a couple of plants that are new discoveries and which have not been named yet.

Vinay Shah

Table Show Results

At the August meeting, there were 16 entries in the table show, and 2 entries for “Plant in flower”.

	Cacti – Gymnocalycium	Succulents – Agave
Open	(1) I Biddlecombe Gymnocalycium saglionis	(1) I Biddlecombe Agave potatorum
	(2) B Beckerleg Gymno. sanguiniflorum	(2) B Beckerleg Agave titanota
	(3) B Turner Gymnocalycium baldianum	(3) M Stevenson Agave lophantha tricolor
Intermediate	(1) B Beckerleg Gymnocalycium occultum	(1) I Biddlecombe Agave victoria reginae
	(2) I Biddlecombe Gymno baldianum albiflora	(2) B Beckerleg Agave guiengola “Creme Brulee”
	(3) I Biddlecombe Gymnocalycium sp.	(3) M Stevenson Agave sisalana

Cacti/Succulent in Flower
(1) B Beckerleg Pterodiscus speciosus
(2) B Turner Parodia magnifica
(3)

Ivor Biddlecombe

Next Month's Meeting

Our next meeting will be held on September 3rd and will feature Paul Spracklin. Paul has a large garden in Essex where he has grown many exotic plants including many cacti and succulents outdoors. He's considered an expert on the topic and has been featured on TV. He will be telling us which species are suitable for trying outdoors and also giving us some tips on how to try and get the plants to survive the winter period. Paul has also made a number of trips overseas to see plants in habitat, and you can see pictures of some of his garden plants and also plants he saw in habitat at his website (www.oasisdesigns.co.uk)

The September Table Show will consist of **Mammillaria Group** (cacti) and **Mesemb Group (excluding Lithops)** (succulents), along with "plant in flower". Please note that members can submit more than one entry in any of the classes, and that points will be earned for each placed entry.

The table show classes use the classifications from the *Guide to Shows 10th Edition* (contact me if you don't have a copy of this).

The *Mammillaria* group includes *Bartschella*, *Cochemiea*, *Dolichothele*, *Krainzia*, *Mamillopsis*, *Mammillaria*, *Mammilloidia*, *Pseudomammillaria* and *Solisia*.

Mesembryanthemum is a large grouping and covers dozens of genera from *Argyroderma* Subgroup, *Cheiridopsis* Subgroup, *Conophytum* Subgroup, *Faucaria* Subgroup, *Nananthus* Subgroup and *Othonna* Group. Note that the *Lithops* subgroup is excluded in September since it will feature in October - hence *Dinteranthus*, *Lapidaria* and *Lithops* are excluded.

Forthcoming Events

Sat 10 th Aug	Isle of Wight	Open Evening @ Peter Collard (Members only)
Sun 11 th Aug	Portsmouth	Summer Social @ Maggie Maddock, 37 The Thicket, Widley, PO7 5JL
Sat 17 th Aug	Portsmouth	no meeting
Tue 3 rd Sep	Southampton	Gardening with Succulents - Paul Spracklin
Sat 14 th Sep	Southampton	Display / Plant Sales @ Romsey Show, Broadlands, Romsey
Sat 14 th Sep	Isle of Wight	Adventures into Borneo - Hazel Taylor
Sat 21 st Sep	Portsmouth	Succulent Senecios - John Foster
Sat 21 st Sep-	Kent	Cactus World Live @ Lullingstone Castle/World Garden DA4 0JA
Sun 22 nd Sep		
Sat 28 th Sep	Portsmouth	Autumn Show at Christ Church Hall, Widley, PO6 3NB
Tue 1 st Oct	Southampton	Ex-situ Conservation of Cactaceae in the UK - Vicky Davies
Sat 12 th Oct	Isle of Wight	Gardening Through the Year - Helen Mount
Sat 19 th Oct	Portsmouth	Lophophoras (includes cultivation) - John Watmough
Tue 5 th Nov	Southampton	Agaves for the Collector - Kathy & Keith Flanagan

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