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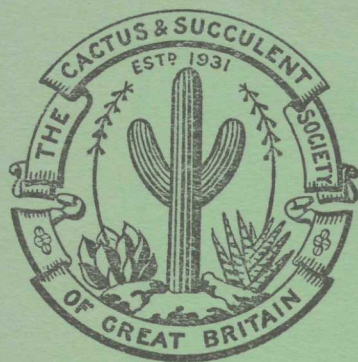
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# THE CACTUS AND SUCCULENT JOURNAL OF GREAT BRITAIN

Vol. 30

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## Editorial

AS I am writing this, the garden is covered with a thick layer of snow and my small greenhouse looks very forlorn, surrounded by a large expanse of whiteness. The two oil heaters are having difficulty in keeping the frost out and, in fact, two nights the temperature has fallen to below 30°F. The cacti should be all right as they are quite dry, but one or two of the succulents may not like it so well, I fear.

The article we published last year on the plants included in the seed distribution list seems to have been well received and we therefore have a similar article this time. We have deliberately illustrated this with numerous photographs hoping that they will be

of help, in particular to less experienced members in choosing their seeds. In one or two cases, admittedly the plant illustrated is of a different species of the same genus, but even so should serve to give an idea of the type of plant involved.

Readers may have noticed the "Oddities" column has been missing lately. Short notes with suitable illustrations on any unusual development in your plants will be very welcome, as well as longer articles on various aspects of our hobby.

Best wishes and a good succulent year in 1968.

E.M.D.

## Cultivation Notes

### *Cacti—A. Boarder*

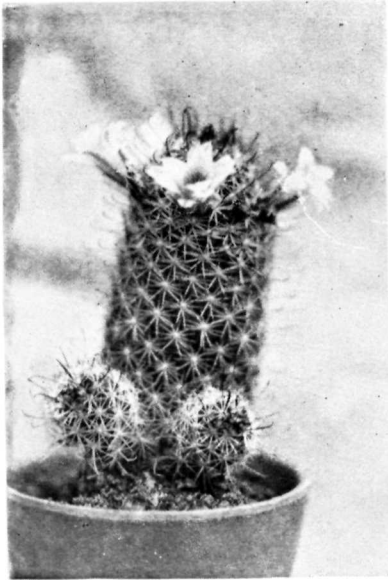
ANOTHER growing season is with us and members will be looking forward once again to a successful year with their plants. Each year appears to bring fresh encouragement and one is always hoping for certain plants to flower which have not done so before. What brings a particular plant into flower after not having done so for years is a problem, but such happenings only make the hobby of cactus growing far more interesting. After all, if all cacti flowered as regularly as most garden flowers there would not be the thrill of seeing a plant in flower for the first time for many years. I was pleased to find that some of my *Mammillarias* which had not flowered before, did so during 1967. One of them, *M. occidentalis* was several years old from seed and when it flowered for the first time I was delighted to find that the flower was a fine soft pink with no stripes. I have three varieties of this species and the other two have yet to flower. The bloom on this plant was rather large for a *Mammillaria* and of the shape of *M. sheldonii*.

The plant was one of the hooked spined species and it is usual for these to have a rather large flower so very different to many other *Mammillarias* such as *M. bocasana* and *M. wildii*. Of course there are still some of my larger *Mammillarias* which have yet to flower for me and it seems strange that they do not do so as they are very large plants and up to 20 years old, whereas small seedlings of not more than a year old can flower in some species.

I have given instructions on raising cacti from seed many times in the past and so I will not repeat the directions given. There are just a few important points to watch and then all should be well. Do not cover

very small seeds but if there are any large ones these should be just pressed into the soil. Make sure that the seed compost does not dry out completely whilst the seeds are germinating and shade from the direct rays of the sun. Once seedlings appear give light but still not direct rays of the sun. If glass has covered the pans it can be lifted slightly to allow some air to reach the seedlings. If the seed compost has been treated with Cheshunt compound or Chinosol, to prevent damping off disease the seedlings should grow along steadily. The only other source of losses is from attacks from the sciara fly. It is very difficult to save a small seedling once it has been attacked as the larvae of the fly eat from below the seedling and can soon cause its collapse. If seeds are being propagated in a frame then it is a good plan to keep some D.D.T. powder in the frame to kill the flies before they can lay their eggs.

Any member who is raising cacti from seed for the first time will find plenty of pleasure in watching the unusual shapes and growths of the plants. For those who are interested in growing plants from seed I would recommend my book which I understand is being published in the spring. It is entitled, "Starting with Cacti", and will be published by Collingridge. In this book I describe the growing from seed to flowering and all the necessary details are present to enable anyone to be successful. The book is not highly technical nor is it a list of plants, as these can be found in dealers' catalogues. This is not a book on theory nor about the contentious naming of cacti and other succulents but contains practical knowledge on growing these plants gained by me during 62 years experience.



*Mammillaria sheldonii*

Photo: Treccastle Nurseries

All stages of growing are fully described and I feel that the book will be of great assistance to many growers who like to see their plants in the pink of condition.

I note that there are several types of propagator boxes on the market and many appear to be quite good. Any handyman can easily make such a box with little trouble and expense. A box with a glass lid is all that is needed and this can be warmed to the desired temperature; which I recommend is about 70°F. To heat the box an ordinary electric light bulb can be used but it is a good plan to incorporate a thermostat. This will save the bulb from getting over-heated as well as saving costs of electricity. A good thermostat can be bought for 10/- at a pet shop. One at 12/6 incorporates a pilot light which comes on when the points are apart. These types of thermostat are very good where a lot of power is not needed, they would *not* do for regulating the temperature of an electrically heated greenhouse. Although they are sold for insertion in a tank of water they function just as well out of water. It is also possible to get a heater for 10/- but this type must be kept below water or the glass tube could break. Such a heater could be used in the propagator in a preserving jar of water. This type of heater would last much longer than a bulb.

I have just been spending many hours going over all my cacti in pots. I have almost finished the thousand and odd plants by the end of November. I always do this once the main watering has finished. This is the only time during the year when I am able to handle practically all my plants. The last time was a year

ago when I repotted. I found several pots very dry indeed whilst others were still slightly damp. It is quite impossible to water every pot in a large collection correctly unless one can spend every day and all day among them. I scratch the surface of the soil away and examine for pests. Fortunately I have found no trace of mealy bug on any of the plants. During the summer I found one large *Mammillaria* which was almost out of sight at the back of the greenhouse to be infested slightly. However a good spraying with Pestex soon cleared the pests from the plant. I was very surprised indeed to find how many of the plants had grown. In the plastic pots, especially half-pots, the plants had made exceptionally good growth and I am now considering getting rid of some of the other genera to make more space for the *Mammillarias*. They are so packed together that their beauty is quite lost and only to be noticed when the plant is removed from among the others.

The genus *Echinocereus* is a very rewarding one as the flowers are really handsome. Some growers find that they do not flower as easily as many other kinds. There are such different types among this genus, from the low-growing spreading types to the compact ones like *E. pectinata rigidissima*. One of this genus has always proved very difficult to grow and it is *E. de laetii*. It is one of the most handsome types with long white hair-like spines rather similar to *Cephalocereus senilis*. I think that it is at least 50 years since I raised my first of these from seed. Since then I have tried more than once but I have never been able to get a really healthy, growing specimen. Why this one should be so difficult when none of the others have given me any trouble, I do not know.

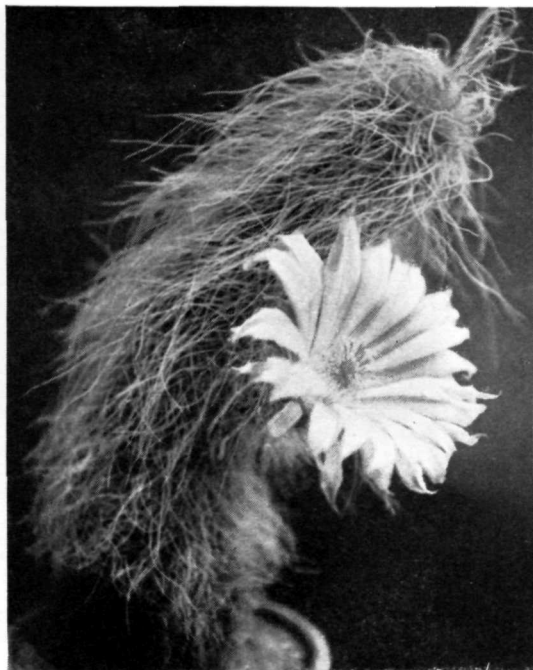
I mentioned before how I had extended the hot air pipe over my paraffin heater and this winter I have made longer Polyglaz pipes and they are now 14 feet long. This can spread the warmth over most of my 20 foot greenhouse. This material can be bought in various widths and it is quite easy to make rolls of it and it can then be joined with Twin-stik. This tape-like fixing is very easy to use and when the covering strip is removed two pieces of Polyglaz can be firmly fixed as soon as contacted. Not only does the heat spread out over a wider area but all the moisture from the burning paraffin condenses inside the tubes and can be caught in a jar at each end.

I mentioned last quarter about seed pods on my *Echinofossulocactus* and a member has since asked me how I get these pods to form. The difficulty is usually that only one of the genus is in flower and as most appear to be self sterile it is impossible for the seed to be pollinated and fertilised for pods to form. I have several species out in flower at a time during the early part of the growing season and I then transfer some of the pollen from one plant's flowers to another plant's stamens. I then get pods to form on most of the plants.

It is of little use transferring the pollen from flowers on the same plant.

Many members will be thinking about repotting their plants from now on and it is a good plan to start with those which are making fresh growth. These will become settled more quickly as they will soon form fresh fibrous roots enabling the plants to get growing quicker. All growers will never agree as to the length of time which should elapse before repotting is necessary. So much also depends on the growth of the plant. I repot all those which have reached the side of the pot irrespective as to how long it is since a repotting took place. Usually young plants raised from seed will grow faster than old established ones and so may need a more frequent repotting. After a full season's growth I am convinced that my plants have grown better since they were put in plastic pots. Even all my *Lithops* have grown and flowered very well and 58 species flowered this year, in plastic pots.

The potting composts will also be a matter for individual tastes. Some writers have recommended a different compost for several different genera. I do not bother with this and use one potting compost for every plant. It is possible that a few kinds might do better in special soils but as I can get a large number of flowers each year and my plants thrive I do not see the use of using different potting composts. It is far easier to use one general type as I do. A good loam is beneficial and also good peat and sand. Some growers use leaf mould but this can be very varied, according to its depth in its natural position and also the kinds of leaves. Oak and beech are considered the best but unless they have rotted down well they are not as good as peat. Leaf mould can contain pests and diseases and so peat is usually preferred by modern gardeners. Peat can hold a large quantity of water and so is invaluable in the compost. The fine type known as moss peat is very good and that which is rather coarse and stringy is not as good. The sand should be really



*Echinocereus delataetii*

Photo: C. Backeberg

sharp and coarse, the type sold as washed grit is the best.

I find the best general potting compost is two parts loam, one part peat, one part sand. To each bushel add three oz. hoof and horn grist, three oz. superphosphate, one-and-a-half oz. ground chalk or limestone, and the same amount of sulphate of potash. Some growers use bone meal but hoof and horn grist or meal is considered better. Although the lasting power is great this substance also gives off nitrogen very soon after it has been mixed with the other components.

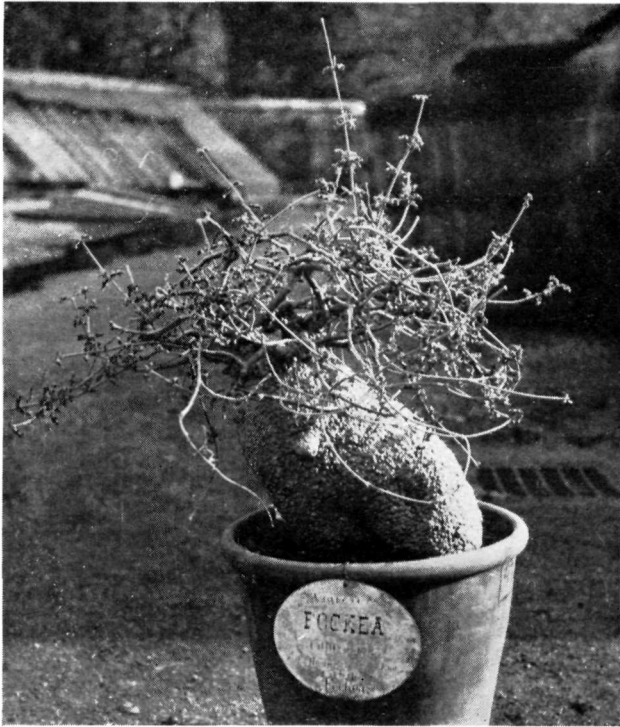
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## Cultivation Notes

*Other Succulents—Mrs. M. Stillwell*

I WAS sorry to read in the letters last quarter, that Mr. Brewerton had had some *Lithops* scorched, while following my instructions to erect a shelf on the south side of the greenhouse. I do not of course know the size of his greenhouse or conditions under which he grows his plants, but I can honestly say that in this position, mine have never looked better, including last year's seedlings. There has been no sign of scorch. Mine are always grown very hard and watered rather sparingly, and most are in clay pots. Could it be that perhaps Mr. Brewerton's are in plastic pots and therefore a little more lush and more susceptible? I always

remember several years ago visiting the late Mr. J. T. Bates and seeing his wonderfully grown *Lithops*, which could only be viewed by mounting a rather rickety step ladder. My shelf is about eye-level, mid way between the staging and the eaves. The only secret is plenty of fresh air, when the sun is really strong. One little ventilator in the roof or below the staging is not enough. It is necessary to open the door at the end of the house or to have large removable panes of glass as I have, to ensure that the air is kept moving. During the winter thoughts must turn in the opposite direction, and concentrate on keeping the plants warm. *Lithops*



*Fockea crispa*

Photo: A. Miklitschek

will stand a fair amount of cold as long as they are dry, and as they are resting at this time, this presents no problem. They are really in the process of making next year's new bodies, and will require little attention until May, when they can be repotted if necessary.

Watering succulents in winter, is always a problem. I err on the dry side, and only water a plant in winter if it really looks in need of it. There are the winter growing succulents that will soon flag if neglected and of course have to be watered with discretion. At the time of writing, which is well into December, I still have a few flowers to greet me. *Fenestraria aurantiaca* seems to keep on blooming, and my large *Cerochlamys pachyphylla* has been a picture for the last six weeks or so, with its large purple flowers. *Trichodiadema densum* is in bloom, and also of course, several of the *Gibbaeums*. I usually grow the *Haworthias* and dwarf *Aloes* under the staging in semi shade but during the winter, they tend to get a little too green and open for my liking, so I transfer some of the choicer ones up on to the staging, where they get more light during the duller weather. They grow more compact and tighter if kept to clay pots, which is how I like to see them.

Many of the *Crassulas* bloom towards the end of the year. They too appreciate plenty of good light during the winter, and careful watering. The true beauty of

most of the *Crassulas* is in their colouring and compactness; grow them slowly, and with care. Many will grow from leaves, and will provide spare plants for exchanging with fellow collectors in the spring. They will thrive best if rooted in the same pot around the base of the parent plant. *Crassula arborescens* makes a fine house plant, and can grow to an enormous size, and could make a good companion for the well-known rubber plant *Ficus indica*, it can be placed out of doors in the summer to get nicely coloured, before bringing it indoors for the winter. It is doubtful if the pale pink starry flowers will appear if grown indoors. An interesting plant to have is *Testudinaria elephantipes* commonly known as the elephants foot, owing to its large corky caudex which is similar in appearance. Its resting period is in the summer, when all the leafy foliage has died down, leaving just the dry caudex. About September it starts to produce the new season's growth, which will persist through the winter, and will require some water. The stems are branching and the leaves cordate-triangular. It looks best if given a wire frame for support. Propagation is usually from seed, which will develop small tubers during the first year. In nature, these plants are said to reach a great age. Another caudex succulent living to a great age is *Fockea crispa*, a member of the Asclepiadaceae and coming from the succulent steppes of South Africa. It has a strong milky sap when bruised. The long twining branches can be cut back if the plant gets too out of hand. I believe these can be rooted with patience.

The *Odontophorus* start to grow about Christmas time and will continue until about June. I have had *O. primulinus* in flower in January. These plants like a

*Jacobsenia hallii*

Photo: H. Hall





*Testudinaria elephantipes*

Photo: B. Makin

very open sandy soil, as they will not tolerate stagnant moisture. The flowers are mostly lemon yellow. *Jacobsenia kolbei* is another rather unusual succulent. It is a native of Cape Province. The leaves are finely papillose. It is said to have white flowers, but is rather shy at flowering in this country.

Watch out for mealy bug during the winter, particularly on such things as *Crassulas*, which are difficult to treat owing to their aversion to Malathion. If taken in time, they can be carefully removed by hand. If a bad infestation, it is better to remove the plant from the pot, shake away all soil and gently wash the plant in warm soapy water, until thoroughly clean. Give it a good rinse afterwards, and place in a warm kitchen to dry off before potting again. Make sure that its neighbours are free of the pest as it does travel so quickly from one plant to another. Should the plant have a farinose leaf, it will of course be ruined if placed in soapy water, and in this case it might be better to

try one of the powder forms of insecticide, although this does not guarantee to kill the eggs.

Open the windows in the greenhouse whenever there is a mild spell, as this helps to get rid of excess condensation which often builds up with a spell of wet weather and can cause harm to the plants by drips. I use oil heaters in my greenhouse combined with electricity, and have never found them to do any harm to the plants, but of course they do need to be kept very clean, and refilled with oil regularly, to prevent them burning themselves out. Check the coldest position in the greenhouse by means of thermometers and place your oil heaters accordingly. Ventilate the house as often as possible to let out any stale oil fumes, and all should be well. While electric fan heaters are possibly the best form of heating for a small house, one can never be certain that there will not be a power cut during the very cold spells, and this could cause a lot of damage before it was realised.

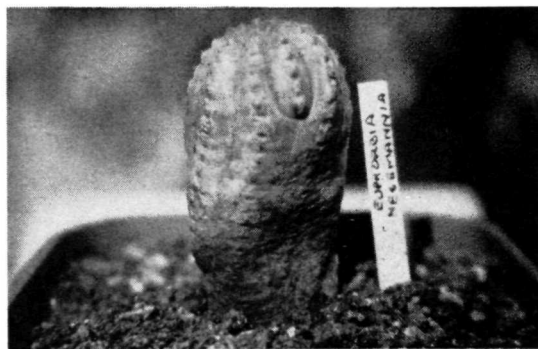
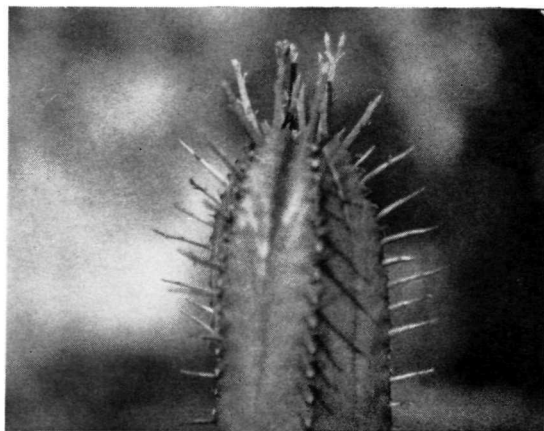
## Two Rarely Seen Euphorbias

by D. V. Brewerton

*Euphorbia pillansii*. N. E. Brown. Discovered by N. S. Pillans in 1911 and named in his honour. The type locality of this South African Euphorbia is the Ladysmith District of Cape Province, although it has also been found in the Montagu District.

This plant does not appear to branch very freely in cultivation and is rather slow growing. The photograph shows a male plant in flower. Cultivation presents no great problems. This plant grows well in our spring and again in the early autumn with a period of inactivity during the mid-summer months. It will winter at around 40°F., but should be kept dry during the coldest months.

*Euphorbia pillansii*



*Euphorbia nesemannii*

*Euphorbia nesemannii*. R. A. Dyer. This species was collected by A. Nesemann in 1930 at Robertson in the Cape Province. It is believed to have been discovered and collected some 30 years earlier by N. S. Pillans, but the specimens were confused with *E. fimbriata*.

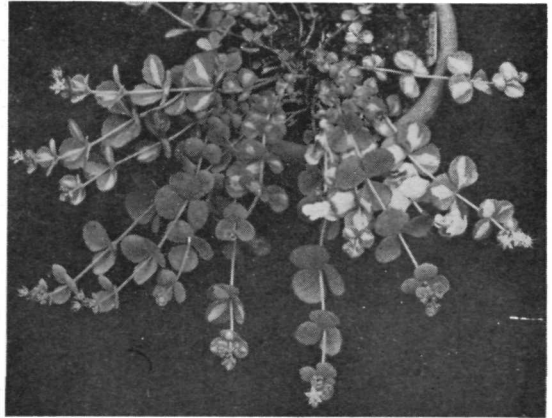
*E. nesemannii*, a unisexual plant, is one of the tuberous rooted species, with a sub-cylindrical body, most of which is below the ground. It usually produces five or more branches to form a mature plant. It is very variable in habitat, growing from 6 in. high on stony ground, to over 2 ft. in richer soil. It is closely allied to *E. mammillaris*. The photograph shows a recently imported plant, not yet fully established in its new home.

**References:** The Succulent Euphorbieae. (White, Dyer & Sloane) Pages 697-703 and 579-582.

## Beginner's Corner

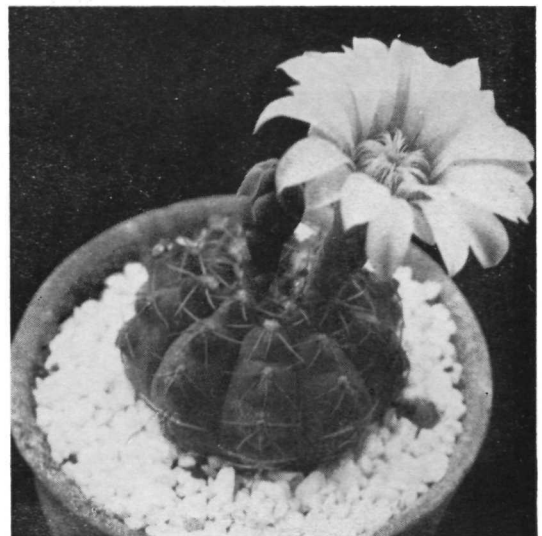
by W. I. Acton

*SEDUM SIEBOLDII* from Japan produces long hanging deciduous stems, and grows well in hanging pots or baskets. The leaves, which are in threes around the stem, are almost round and are coloured blue-grey with a red edge, finally turning coppery-red in autumn before dropping. The pink flowers are produced in large heads at the ends of the stems in autumn. A poor open soil and full sun help to bring out the colours, but enough water should be given to prevent the lower leaves dropping. This species is almost hardy and may be stood outside in summer. There is also a pretty variegated form with a patch of yellow in the middle of the leaves.



*LOBIVIA FAMATIMENSIS*. This is a small plant with relatively large and very beautiful bell-shaped flowers which are variable in colour from pale yellow to deep red (Borg gives the typical colour as pure yellow). The body is initially globular and later cylindrical, with many low ribs and many short, spreading spines which almost completely hide the stem. Lobivias are especially encouraging plants for beginners as they are very easy to grow and produce their showy flowers when quite small.

*GYMNOCALYCIUM QUEHLIANUM* is a small free-flowering plant ideally suited to the beginner, and, like many more members of its genus, deserves wider recognition. The white flowers have deep-pink or red centres and are long lived, opening day after day for seven to ten days. Gymnocalyciums are easily recognised by the chin or notch in the ribs between areoles, and this species has five curved, radial spines. The usual well-drained soil and full sun suffice; some growers recommend partial shade although many species then lose their body colouration. The preliminary findings of the Gymnocalycium study group have recently been published in booklet form by the Succulent Plant Institute.



# Epiphytic Succulents

by Miss M. J. Martin

MOST collectors have at least one epiphytic cactus amongst their plants but few of us own an epiphytic succulent. The family *Bromeliaceae* contains large numbers of succulent plants many of which are genuine epiphytes. Many of these Bromeliads are large and require a higher winter temperature than is necessary for cacti. This means that not many of us are able to accommodate them in our greenhouses. However, it is interesting to know something about these epiphytes which are often found sharing a tree with a *Rhipsalis* or an *Epiphyllum*, particularly as the more highly coloured Bromeliads are frequently sold as house plants.

The *Bromeliaceae* is a family of monocotyledons and with one exception is exclusively American; *Pitcairnia feleciiana* is found in French West Africa. This makes an interesting parallel to the *Cactaceae* where one species, *Rhipsalis cassytha*, has been found growing apparently wild in Ceylon and Mauritius. Bromeliads grow in the form of a rosette; frequently there is an empty cup-like space in the centre of the plant, the so-called 'vase'. In cultivation this should be kept full of water. In the wild, large Bromeliads are said to support a fauna of small frogs and aquatic insects in their 'vases'. The *Bromeliaceae* is divided into three sub-families:

*Pitcairnioideae*; *Tillandsioideae*; *Bromelioideae*.

The *Pitcairnioideae* contains the most primitive species of Bromeliads and consists of four genera: *Puya*, *Dyckia*, *Hechtia* and *Pitcairnia*. This sub-family is terrestrial or saxicolous (growing on rocks). The *Pitcairnia* are grass-like plants with spineless leaves. The other three genera are made up of rosette-shaped plants with stiff spiny leaves. Many of these plants reach a large size and are frequently grown outdoors as foliage plants in the warmer parts of the U.S.A.

*Guzmania magnifica*

Photo: Miss M. J. Martin



*Tillandsia duvalliana* Photo: Miss M. J. Martin

Almost half of the known species of Bromeliads are found in the *Tillandsioideae* which contains the genera *Tillandsia*, *Vriesia* and *Guzmania*. The *Tillandsia*, with the exception of a few large saxicolous species, are epiphytic. The epiphytes consist of two types, those with wide leaves forming a 'vase' and those with leaves covered in grey scales which frequently do not have a central 'vase'. These latter plants use their roots to anchor themselves to trees, while water is absorbed in the form of fog and dew through the scales.

With the *Vriesia*, we are coming to more familiar plants; there are giant terrestrial and saxicolous forms as well as the smaller epiphytic species seen in greenhouses here. These latter species have ornamental, spineless leaves arranged around a central 'vase'. The flower spike is flattened, the actual flowers are tubular and yellow or white in colour. The yellow flowered species are day-flowering while the white flowers open at night. The *Guzmania* are epiphytic and have a 'vase'.

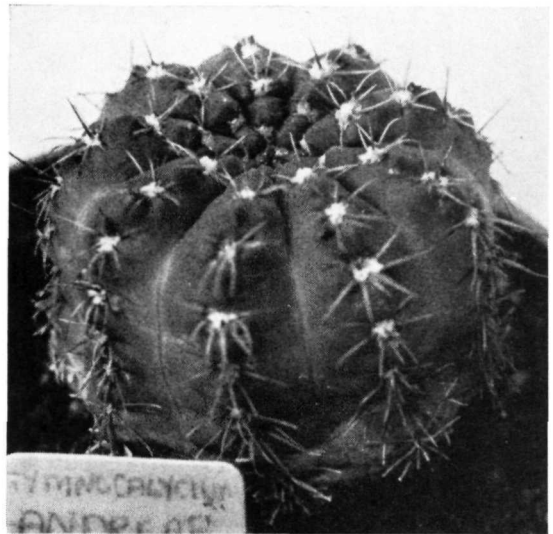
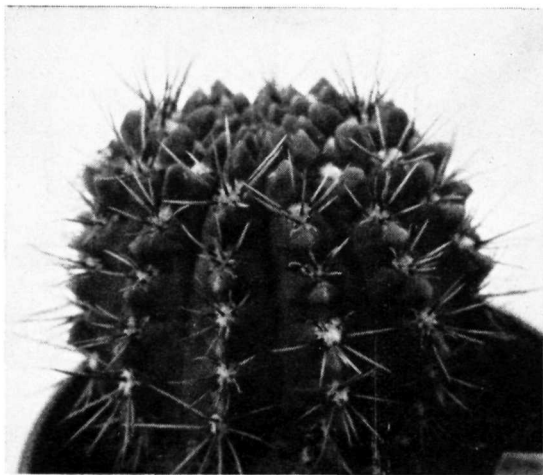
The *Bromelioideae* may not contain the greatest number of species but it certainly has the most genera. It includes the *ananas*, the pineapple of commerce. This sub-family has species which grow on rocks, the ground, and in trees. The strictly terrestrial genera such as *Ananas*, *Bromelia* and *Cryptanthus* have no 'vases'. The last mentioned genus is frequently seen in cultivation due to the small size and hardiness of its members. They are popularly known as 'Earth Stars'. Undoubtedly the most frequently seen genus is the *Aechmea*. The grey-leaved *A. rhodocyanea* with its pink bracts and blue flowers is regularly exhibited at flower shows. Other genera offered for sale are *Nidularium*, *Bilbergia* and *Neoregelia*.

## Gymnocalycium Study Meeting

It is usually assumed that the detailed study of a particular genus is the prerogative of a few dedicated enthusiasts, or should be in the hands of specialist Societies. Such an approach has much to commend it but does suffer from the considerable disadvantage that specialists often find it difficult to assemble sufficient living plants to make a statistically significant study of the inter-relation of various species. Ideally, the stronger Branches of the two major cactus Societies can offer considerable assistance by organising occasional study meetings to which members bring their plants of the genus under consideration for examination and comment by those qualified to pronounce on them.

The Croydon Branch of the N.C.S.S. have been among the pioneers in this field; they organised a *Notocactus* Study Evening in 1966 and this proved successful enough to encourage a similar venture with *Gymnocalyciums* in 1967. The North Surrey Branch of the Great Britain Society also held a *Gymnocalycium* Study Evening in 1967 and, as with those in Croydon, this proved of value. The factors which ensure success for a meeting of this type are now evident; the members must co-operate by bringing along a large number of plants and two specialist speakers should be available, one to introduce the subject and the other to summarize at the end of the meeting. The topic for study must also be selected with care, to ensure that it is not too extensive for a two hour meeting. It is now clear that genera of the size of *Notocactus* and *Gymnocalycium* are as large as can be tolerated; it would be quite out of the question to have study meetings on *Mammillaria*, *Euphorbia* and *Lithops*.

*Gymnocalycium kunzeanum* Photo: Mrs. B. Maddams



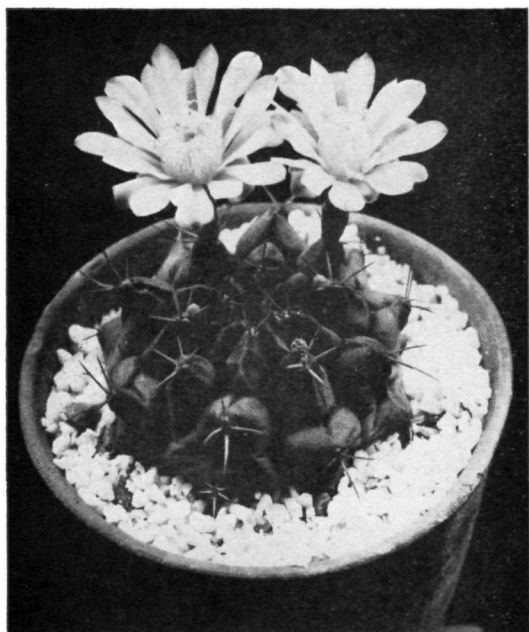
*Gymnocalycium andreae* Photo: Mrs. B. Maddams

The meeting organised by the North Surrey Branch on 1st August 1967 merits a report for two reasons. Mr. J. D. Donald and Mr. E. W. Putnam who, respectively, introduced the subject and summarised the findings, gave valuable talks which should be put on record. Additionally, it is hoped that this account will encourage other Branches of both Societies to organise similar study meetings. The value of these is evident from Mr. Donald's lucid discussion of the variability amongst succulent plants.

The number of plants available for examination and discussion was well in excess of 100 and to facilitate comparison they were divided into groups of related species comprising the *bruchiae*, *denudatae*, *platenses*, *calochlorae*, *quehlianae*, *baldianae*, *lecanae*, *multiflorae*, *gibbosae*, *mazanenses*, *saglionae* and *mihanovichiae*. This is more or less the arrangement used by Backeberg and, although it should not be regarded as a final one, it is convenient for general usage. The meeting was opened by Mr. Donald who has kindly written up the substance of his talk, as follows.

\* \* \*

One of the first lessons to be learnt in the study of any sample is that the sample must consist of sufficient individuals numerically to be significant statistically. In other words it is no use passing judgement upon a species of plant if you have only one individual to study. Since most of our collections consist, for spacial and economic reasons, of only single representatives of each name, none of us are really in a position to make



*Gymnocalycium schickendantzii*

Photo: W. Beeson

sound judgements. Not that we should not make observations in our own plants, but that we should not come to definite conclusions as a result of these observations. Instead we should pool our observations, because collectively we would have a statistically significant number. The importance of gatherings such as this should now be clear. Here in front of us we have large samples of many species and varieties, from which we ought to be able to get a good understanding of the natural variation which exists within each species population. My message tonight is to look at the plants and see how similar they are, not how different. If one looks to see similarities, the differences that exist take upon themselves a new importance and a new clarity. One gets a broader understanding of the concept of species, one no longer expects an exact tally of characters with the description given for the taxon concerned. Exact numbers of spines per areole, exact linear dimensions of floral parts, etc., no longer have the significance they once held in our minds. Instead we pay more attention to comparative values, to ratios, to two dimensional and three dimensional measurements rather than linear.

*Gymnocalycium*s have a very wide distribution but they can conveniently be grouped into a number of sections on a geographical basis; to do so is sound ecology and better than the somewhat arbitrary system adopted by Backeberg which is purely morphological. However, it is not our purpose to quarrel with Backeberg tonight; his treatment of *Gymnocalycium* is one of his last controversial acts. In fact for display purposes

it is quite convenient, as it is with the morphology of the plants, that we are primarily concerned with recognition of each species.

All of us want to have our plants properly named—there are few plants that are more easy to recognise than a *Gymnocalycium*, but it is considerably more difficult to say which species! This is possibly due to over specification, a common complaint amongst the *Cactaceae*, or in fact any group of plants of popular appeal. It is too easy in the *Cactaceae* to assume that because a plant looks different from its namesake that it is different. Plants collected in neighbouring valleys can superficially appear very different, and indeed local races within species do frequently occur, but they are still one and the same species. Plotting the recorded habitats of published species shows six distinct groupings within *Gymnocalycium* with a particularly dense distribution in the Argentine province of Cordoba. Here in the north-west corner of this province no less than 22 distinct species have been described and possibly there are at least a dozen more unnamed so called spec. nova in circulation to boot!

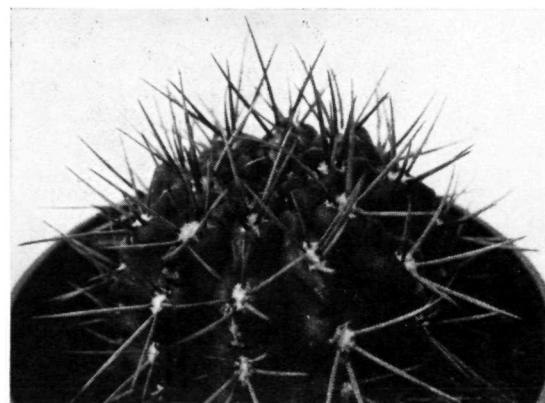
The geographical localities can be to a certain extent matched with the preponderance of species having a characteristic seed type. Czech workers prior to the war found that *Gymnocalycium* could be conveniently studied according to seed type and produced a classification containing five sections. By and large these five sections still hold despite the three-fold influx of new species. More recently a regrouping into nine sections has been suggested.

Characteristic seed type corresponding to a definable geographic distribution suggests a common origin to the individuals and hence in my mind to a common species of greater breadth.

The distributions appear to be centred as follows: in (1) the east, Uruguay and Southern Brazil and Entre

*Gymnocalycium gibbosum*

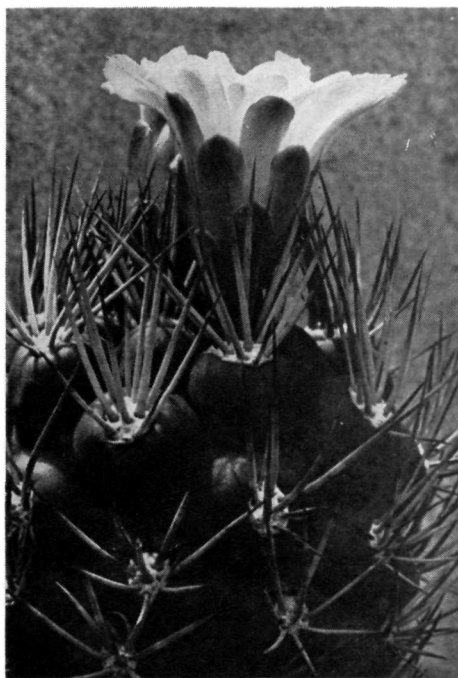
Photo: Mrs. B. Maddams



Rios in Argentina; (2) Southern Paraguay and Misiones in Argentina; (3) south, Patagonia, i.e. Chubut, Rio Negro, La Pampa and Southern Buenos Aires provinces; more southerly references than 44°S on the Rio Chubut would appear to be in error; (4) west in Northern San Luis, N.W. Cordoba and E. Rioja extending north-west (4a) to Catamarca, Tucuman and S. Salta; (5) north in Bolivia, i.e. Tarija, Chuquisaca, S.W. Santa Cruz and Cochabamba and Potosi (Millares); and (6) north-east, the Gran Chaco region of Santa Cruz in Bolivia and Northern Paraguay.

Two anomalies become apparent, one is the isolation or occurrence of *G. schickendantzii* and *G. joosensianum* from Cordoba, Catamarca to Tucuman, far from the main centre of their seed group and relatives in the Gran Chaco, i.e. *G. mihanovichii*, *anisitsii*, *damsii*, *marsoneri*, etc.; and to the appearance in Cordoba of two bright citrus yellow flowered *Gymnocalycium*s, *G. andreae* and its variety *grandiflorum*, well away from the main stand of the other yellow *Gymnos* in Uruguay, (*Weingartia* excepted). The Uruguayan species, *G. artigas*, *G. guerkeanum*, *G. lecanum* and *v. netrelianum*, *G. uruguayense* form a very close community and possibly should be united into a single species as *G. uruguayense*. *G. hyptiacanthum* and *melanocarpum* also probably belong here but with less certainty. The first four species mentioned all have the habit of producing basal offsets beneath the parent body like *Notocactus ottonis* (also from Uruguay and Brazil), and both *G. artigas* and *G. guerkeanum* have been recorded as having monoecious flowers; it would be pertinent to examine the others in this light.

Another problem that presents itself is the position occupied by *Gymnocalycium* in the hierarchy of the S. American globular cacti. Which are its nearest relatives? *Weingartia* certainly and probably *Neowerdermannia* as well and indeed Paul Hutchison has already included them in *Gymnocalycium*. Both these genera are really beyond our terms of reference tonight, but it is interesting to note that *Weingartia* itself can be split into two distinct groups geographically and also by seed type. A southern group (Potosi-Jujuy) distinctly *Gymnocalycium* like, e.g., *W. neumanniana*, *fidaiana*, *westii*, etc., and a northern group Santa Cruz-Chuquisaca, distinctly Lobivoid, e.g. *W. cumingii*, *W. pulquinensis*, *W. erinacea*, *W. sucrensis*, etc. *Neowerdermannia* also has two parts, the east Andean Bolivia—N. Argentina *N. vorwerkii* and its many forms, *Gymnocalycium*-like, and the west Andean Chile—Peru borders *N. chilensis* and its form *peruviana* of less certain affinity. *Discocactus* possibly also shows some affinity with *Gymnocalycium*. *Sulcorebutia* is probably only distantly related via the Lobivoid *Weingartias*. Finally, there is some suggestion of distant affinity with *Notocactus* and *Wigginsia*, not so much on a morphological basis despite the deceptively *Gymnocalycium*-like appearance of some of the new



*Weingartia fidaiana*

Photo: L. Fuaux

species, e.g., *N. arachnites*, *N. crassigibbus* and *N. uebelmanniana*, but more on a seminological basis.

Amongst the plants on show, there are several fine specimens labelled *Gymnocalycium curvispinum*. As far as I am aware there is no authentic species published under this name. *Curvispinum* to me means a *Neoporteria* (*Nichelia*) from Santiago. However, Fric did list a plant with this name from Catamarca but never published a description. Backeberg suggests that it might be *G. nigriareolatum* but I do not think so; certainly they are distinct from my own plant of that name. I also understand that these "*curvispinum*" plants have flowers with deep rose-lilac throats which is wrong for *nigriareolatum*. My own inclination is that they are very near *G. valnicekianum*, which itself is often found under the name *G. centeterium*, Fric listed the habitat as Portezuelo which is not in Catamarca but in Atacama, Chile; I suspect that he meant Serrazuela on the borders of Catamarca and Cordoba.

These are but a few of many intriguing problems that may face you when undertaking a more than casual study of any group of plants. The paper botanists may have fun in changing the names and affinities of the plants, but in the end you should always remember that the plant itself does not change, only how you look at it!

\* \* \*



*Gymnocalycium curvispinum* Photo: Mrs. B. Maddams

The Chairman then invited comments, questions and discussion on any aspect of what Mr. Donald had said. The comment and discussion largely centred around the value of having an appreciable number of plants brought together for comparison and there was general agreement that Mr. Donald's opening sentences were of particular importance and that every opportunity should be taken to collect variability data and to impress upon cactus collectors that the written description of a species should only be used as a general guide to its detailed characteristics. The questions covered quite a number of the species on show. There was then an interval of about 20 minutes to give all present the opportunity of examining the many interesting plants on display.

The final stage of the meeting, the summing up, was in the hands of Mr. E. W. Putnam and, in so doing, he took into account various points which emerged during the general inspection of the plants. We are indebted to Mr. Putnam for the following account, prepared from notes he made on the evening.

\* \* \*

The array of plants brought along enables members to see the great diversity of this genus. In one short evening it is clearly not possible to do justice to the genus as a whole—the number of recognised species approaches a hundred now, and these fall into several fairly obvious groups. For convenience we have arranged the plants brought into 12 groups which corresponds more or less with the arrangement used by Backeberg. It is probable that from a conservative view-point there are not more than a dozen good species at most, the others being only geographical variants of these.

It is not possible, in the short time available to members for examining the plants and discussing them, for Mr. Donald or myself to answer all the queries or to make a close examination of each group of plants. However, we have studied the *G. damsii* group fairly closely and have had an interesting discussion on it in which we tried to point out the close relationship between *G. damsii*, *G. mihanovichii*, *G. anisitsii*, *G. joosensianum*, *G. schickendantzii*, *G. marsoneri* and *G. michoga*, as shown by their flower form and by the presence of a relatively high proportion of red pigmentation in the epidermis, among other factors. These plants are linked geographically, apart from *G. schickendantzii* which seems to have an anomalous habitat, being separated from the rest by the large marshy areas of Northern Argentina and Western Paraguay. In discussing this group of plants one cannot avoid mentioning the red cultivar of *G. mihanovichii* which has become comparatively common in collections recently. This plant excites varying reactions—some people are much attracted by it but others find it repulsive. However, one cannot but admire the painstaking selection process by which E. Watanabe, in Japan, finally obtained this plant.

We have also examined the *G. baldianum* group, which contains some very nice specimens. A common error occurs with plants of this group in that *G. baldianum* is known in Europe in two forms, derived from separate collections made in different parts of the habitat. It is quite a variable species, and the two forms commonly met with look fairly distinct from one another. This situation is further confused by the existence of two names for the species. The name *G. venturianum* is invalid, but is still widely used. Not a few enthusiasts have plants representing the two forms of *G. baldianum* and have one of these labelled *G. venturianum*.

In the *G. multiflorum* group there are a number of plants of *G. valnickeianum* masquerading under the name "*G. curvispinum*". This name has no validity at all. We are given to understand that it originated in a European seed-catalogue.

Cultivation problems do come up with this genus, though it presents very little difficulty. A common question refers to the need to shade the plants. Neither Mr. Donald nor myself use shading for any except young seedlings. One hears of sun-burn damage: it is my firm opinion that sun-burn is caused by plants becoming soft through lack of sunlight. I have known it to occur with Lithops yet one would think that plants from the scorching Karroo deserts would be immune to sun-damage in this country. If plants lack sufficient light over a period they tend to become susceptible to sun-burn. You might reply that your plants are not deliberately shaded, yet you have had them damaged. So have I. Often in our climate we get long spells

of dull cloudy weather: this leads to the plants showing greater susceptibility to the sun. It is particularly noticeable if you get strong spells of sunshine in early spring after a long dull winter.

This meeting has been well supported in every way and I believe most of you have found it interesting and enjoyable. I trust there will be many more meetings of a similar kind.

## Succulents Among the Spires

by Mrs. B. Maddams

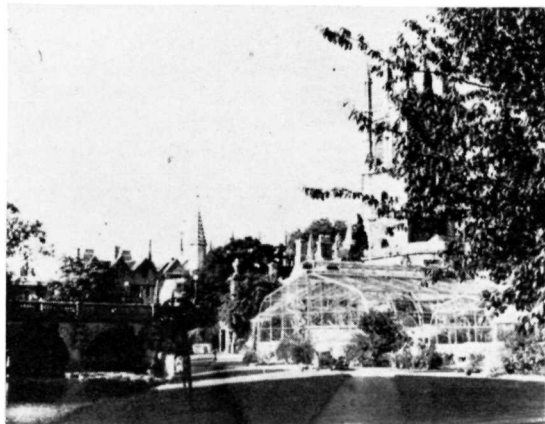
so far we have described visits to succulent collections outside England, but there are a number of "publicly owned" collections in this country, too. Of these, the collection at the Oxford Botanic Gardens is certainly worthy of note.

The succulents here are housed in a large and high greenhouse jutting out in a southerly direction and reaching almost to the banks of the Isis. There is an extensive central bed and staging along the sides, with a high shelf above which catches the sun, but can hardly be seen without stilts.

As my visit was in mid-September, my eye was immediately caught by the various *Asclepiads*, many in flower, on the right of the door. There were some fine plants, well-grown and forming clumps. To mention a few, *Huernia keniensis* was profuse with its velvet-red bell-shaped flowers, while *Stapelia lepida* had flowers of a similar shade of red but much more open. There were two other fine *Stapelias* in bloom, but regrettably they were amongst the few plants in the whole collection without labels. Two large pans of *Stapelia nobilis* must have looked very fine a week or so before, but, alas, the many flowers were over.

I proceeded along the western side of the greenhouse and my eyes lighted on a large *Zygocactus truncatus* (their labelling; botanic gardens are rarely up-to-date with nomenclature); whether grafted or not, the stem was woody with many large spines. Here, too, were large *Gasterias* such as *G. verrucosa* and *G. nigricans* in very good condition.

Oxford Botanic Gardens



*Crassula perfoliata*

Further along and raised on tiers were *Haworthias* and Epiphytic Cacti. These seemed in a very sunny position for such plants, but I was told that they grew extremely well there—as indeed was evident—and that a neighbouring beech gave them dappled shade in the heat of the day and this made the situation ideal. Being particularly interested in Epiphytic Cacti, I was very pleased to see a good selection growing and flowering well, *Lepismium chrysocarpum* had an open white flower on tubular stems, the pinkish red filaments of the stamens giving a very attractive effect. The stems of *Rhipsalis peginella* (by the label, but probably *R. pulvinigera*) were quite different, being almost Epiphyllum-like, but the white flowers growing all along the leaves, and the red fruit left no doubt as to its affinities. On a more fleshy and triangular stem were the gay pink flowers of *R. myosurus*.

Most of the remainder of this branch was filled with large *Aloes* and some *Agaves*, all in good condition. *Aloe mitrifomis* must have had a good display of flowers judging by the seed pods on the stem and *A. reitzii* with its clear red-toothed edges to the bluish-green leaves was a very clean plant.



*Rhipsalis speginella*

The corner of the staging was occupied by hybrid *Epiphyllums*; again, this seemed a very sunny position for such plants. The South end was filled entirely with insectivorous plants, some very fine and interesting specimens but not relevant where Succulents are the theme. However, there were more of the latter on the eastern staging. It was difficult to sort out the good from the bad, as many of the *Echeverias*, *Kalanchoes* and *Sedums* were very overgrown and woody and would have looked far better for some judicious pruning and re-rooting. There was a plant of *Pachyphytum bracteosum* flowering at the top of a very woody stem and an *Aeonium arborescens* in a twelve inch pan with flower buds and the leaves very clean and green. *Cotyledon retusa* seemed a fascinating plant, the leaves on the flower spike were bluish-green in comparison with the bright green leaves of the rosette below. There was a large *Dudleya* labelled "sp." which had a particularly velvety appearance. The *Echeverias* were not particularly noteworthy; several would have been better for re-starting as small cuttings. A fine, tall well-leafed *Crassula perfoliata* rather dominated the group. *Aichryson domesticum variegatum* was attractive with its pinkish green rosettes.

There was only a small collection of the *Mesembryanthemaceae*, mainly *Pleiospilos* (including *P. willow-*

*morensis* and *P. dekenahi*—the latter name I had not met before) and *Faucaria*. These being on the east side of the house, it was not surprising that they were showing little signs of flower. Farther along, *Glottiphyllums* which seem to be prominent in most large collections, were spreading themselves well and a few flowers were showing.

Opposite the *Stapelias* were *Euphorbias*, some fine large specimens. Two taller ones, *E. balsamifera* and *E. canariensis*, about six feet tall and branching, were exceptional in good colour right to the base, with no evidence of browning which often mars a tall *Euphorbia*. Fronting these were a few *Ceropegias*, a good plant of *Ceropegia sandersonii* amongst them.

The centre bed, which was quite extensive, might have been improved. The contrast between the tall specimens of *Aloes* and *Cereus* such as *C. jamaracu* and the tiny clumps of *Mammillaria gracilis*, and *Echinopsis multiplex* at their base, was too much. The smaller plants, though a few were choice, were quite dwarfed by the monsters above and did not appear to be growing well in many cases and they were certainly not shown to best advantage.

There were a few "medium-sized" plants which fitted in well. Amongst these, a four foot clumping specimen of *Cleistocactus straussii* was clean and attractive and there were a few smaller *Trichocereis* such as *T. candicans* and *T. pasacana* which looked well.

The larger plants were quite impressive. Several *Hyolocereis* and *Heliocereis* clambered over the roof and must have had a wealth of flowers. *Euphorbia grandidentata* rose to five feet six inches and a pale *Kalanchoe beharensis*, a good nine feet tall, set me worrying about our own! Large clumps of *Opuntias* such as *O. laevis* and *O. rufida* were clambering untidily around. In some cases the *Mammillarias* such as *M. polythale* and *heeriana* (which I suspect was *M. sheldoni*) were struggling for survival in between the pads. A plant labelled *Grusonia bradtiana* struck me as closely resembling *Mammillaria grusonii* and I wondered if there had been a slip. As expected, there was a very shrub-like plant of *Euphorbia splendens (mili)* which seems to be a stock plant for Cactus beds in most large collections.

Altogether the collection, though perhaps rather lacking in the smaller and globular cacti, was quite an attractive and well-kept display. I can recommend any member visiting Oxford to include the Botanic Gardens in their itinerary.

## SMALL ADS.

1968 LIST OF SURPLUS PLANTS READY: Wide variety. One price 2s. each. S.A.E. for list, J. Pilbeam, 51 Chelsfield Lane, Orpington, Kent.

SMALL COMPREHENSIVE COLLECTION (150) CACTI FOR SALE, 11 St. James's Avenue, Hampton Hill, Middx. 01-979 5828.

WANTED G.B. Journals: Vol. 11 No. 4, Vol. 14 No. 1. Good price offered. Offers of any other Journals or books welcome. J. V. Mortimer, 30 Cefn Coed Avenue, Cardiff CF2 6HG.

## Notes on the 1968 Seed List

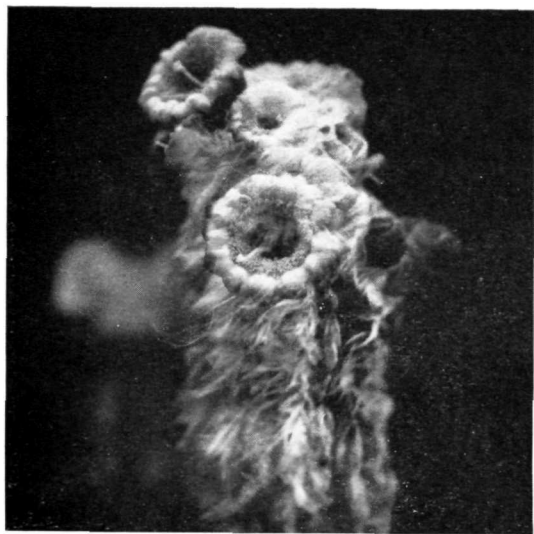
WE gather that the notes on the 1967 seed list which appeared in the February 1967 Journal were appreciated by many of the less experienced members. We are therefore repeating this feature which should be the more valuable on this occasion because it has been our deliberate policy to obtain seed from a range of less common species of Cacti and the other Succulents, some of which are not widely known. Space precludes mention of all of them so attention is focussed particularly on those which have come into circulation of recent years and for which descriptions are not readily available in English.

The 1967 list contained *Acanthocalycium violaceum* and we now offer *A. peitscherianum*, a more recent and less well known but equally interesting species. *Borzicactus morleyanus* is not new but it is not common in collections. It is native to Ecuador and so prefers some warmth during winter. It makes groups of cylindrical stems and bears carmine zygomorphic flowers. *Bolivicerus* (1) *samaipatanus* is another of the lesser-known South American *Cereanae*; it is similar in habit to most *Cleistocacti* but the red flowers open completely. All *Blossfeldia* species are slow growing and we therefore suggest that members who are not experienced at raising from seed should avoid *B. liliputana*, desirable though it is.

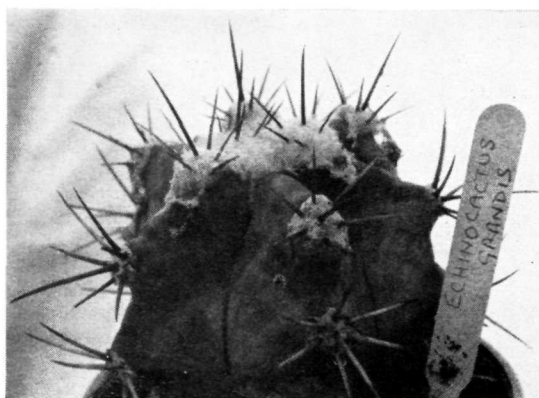
*Cephalocereus palmeri* is one of a number of species of this genus which are often found under the generic name *Pilosocereus*. As they reach maturity these plants develop a distinct pseudocephalium consisting of a

*Cephalocereus palmeri*

Photo: R. Russell



(1) See illus. Vol. 28. 2. p. 35.



*Echinocactus grandis*

Photo: Mrs. B. Maddams

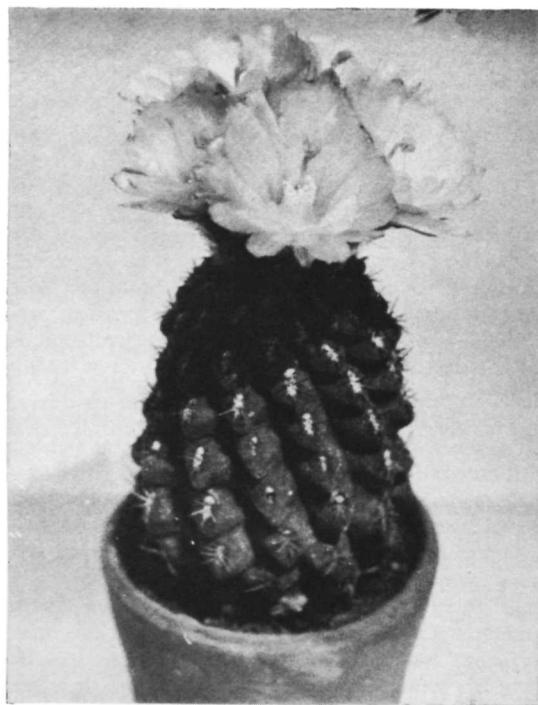
dense mass of wood and bristles down the side of the stem near to the apex. *Cephalocleistocactus ritteri*, described by Backeberg, was originally published as *Cleistocactus ritteri*, also by this writer. It is really a *Cleistocactus* which develops a bristly pseudocephalium when it reaches flowering size. Those with access to "Die Cactaceae" will find an excellent illustration as Fig. 3353. *Echinocactus grusonii* is known to all of us and *E. horizonthalonius* is moderately common in collections but the other *Echinocactus* species are sadly ignored. *E. grandis*, a rather slow-growing plant, is one of the best of these and is much recommended. It has points of resemblance both to *Astrophytum ornatum* and a number of *Ferocactus* species.

We have deliberately selected a group of pectinate *Echinocerei* for this distribution because these plants are so attractive and are comparatively easily raised from seed. *E. pectinatus* v. *rigidissimus*, the "rainbow cactus" is the best known of these but *E. fitchii*, *perbellus* and *purpureus* are equally interesting and *E. dasyacanthus* has thicker spines than most other members of the group. *E. websterianus* is not found in many collections and we are pleased to have available seed of this attractive yellow-spined species. *Echinopsis huottii* is by no means typical of the genus because it is semi-columnar in habit and the body colour is an attractive yellow-green. *Escontria chiotilla* is not a new species but is seldom found in cultivation. It is one of the large-growing Mexican *Cerei* and is rather similar to *Stetsonia coryne* from Argentina.

*Ferocacti* are not favourites with the majority of collectors, despite their fine and often colourful spines, and this is probably because many of the species are difficult to flower in cultivation. This is not true of the two now listed. A medium sized specimen of *F. glaucescens* which had just been in flower was to be seen at the Society Show last June and *F. townsendianus*

will often bloom when about six inches in diameter. The only *Gymnocactus* species seen at all frequently is *G. bequini*; *G. saueri*, known since 1928, is equally interesting both for the contrast in spine colours and for its flowers. Likewise, when *Hamatocactus* is mentioned the ubiquitous but rewarding *H. setispinus* comes to mind. However, *H. hamatocanthus*, which is occasionally still found under the synonym *Brittonia davisi*, with its long, deep red spines can be striking when grown well.

*Horridocactus* (*Neoporteria*) *tuberisulcatus* v. *minor* is one of a number of representatives of the genus now available as seed and all of them can be propagated in this way without difficulty. In essence, the *Horridocacti* are *Neoporteria*-like plants with a heavier spination and the majority of them flower when some four inches in diameter. It is gratifying that seed of various *Melocactus* species is now becoming generally available. These plants, are tender by comparison with most other cacti but one stands a far better chance of succeeding with seedlings than with imported mature cephalia-bearing plants. Given a minimum temperature of about 50°F there should be little trouble with seedlings. *M. intortus* is one of the classical "Turk's cap" species from the West Indies and *M. maxonii* which has a smaller cephalium comes from Guatemala. *Neochilenia* (*Neoporteria*) *napina* is a distinctive and comparatively well-known species which owes its specific name to the



*Neochilenia* (*neoporteria*) *napina* Photo: A. P. Rayner

*Echinocereus fitchii*

Photo: C. Backeberg



heavy tap-root. *N. mitis*, which is probably the same as the plant Ritter has called *Chileorabuttia glabrescens*, has distinct affinities to *N. napina* and some writers have suggested that it is no more than a smaller form.

Of recent years varieties of *Notocactus scopia* with a whole range of spine colours have become available. The variety *glauzeriana*, with yellowish spines, is one of the best of these. It is a good species for those with little experience of raising from seed. *Neolloydia matehualensis* was described by Backeberg in 1948. It is not unlike *Thelocactus bicolor* in general appearance but the ribs, composed of rows of tubercles, spiral more acutely than those of most *Thelocactus* species. The flower of *N. matehualensis* is not mentioned in the original description but, by inference from other *Neolloydia* species, it will be attractive. *Parodia comorapana* is one of a group of recently discovered species which have distinct affinities to the genus *Notocactus*; this particular plant shows a definite resemblance to *N. ottonis*. They do not have the dust-like brown seed of the "classical" *Parodia* species; the seed is black and comparatively large and the seedlings make reasonably rapid growth.

The genus *Rathbunia* belongs to the sub-tribe *Cercanae* but its species are, perhaps, a little atypical. They have groups of comparatively thin stems and tubular red flowers. *R. alamoasensis* has been available from time to time but *R. pseudosonorensis* is seldom

seen in collections. *Rhipsalis* and allied genera are sadly neglected; they display an interesting range of stem forms and although their flowers cannot compete with those of the *Epiphyllum* hybrids for size and beauty, they have a real appeal. These plants are easily propagated from cuttings and, for this reason, seed is not common but we are pleased to offer *R. fasciculata*. Last but not least among the Cacti is *Tephrocactus glomeratus* v. *longispina*. This, and allied species, will be found under the genus *Opuntia* in some books but the neophyte should not be misled into regarding it as a typical *Opuntia* as he knows them. This plant is in the group with globular joints and papery spines; it is slow growing and choice. Its home is in South Argentina and it will stand quite low temperatures when dry. The seed germinates better after freezing and one satisfactory method is to sow it in its own container and leave it out of doors over winter. Germination will then occur with the onset of warmer weather. Alternatively, the domestic refrigerator may be pressed into service, to cool the seeds for some weeks before sowing.

Turning now to the other succulents, it is always a problem to obtain seed of many of them. We are listing a more extensive range than usual; some are quite well known but others will be new names to quite a few members.

*Neolloydia texensis*



*Echinocereus purpureus*

Photo: C. Backeberg

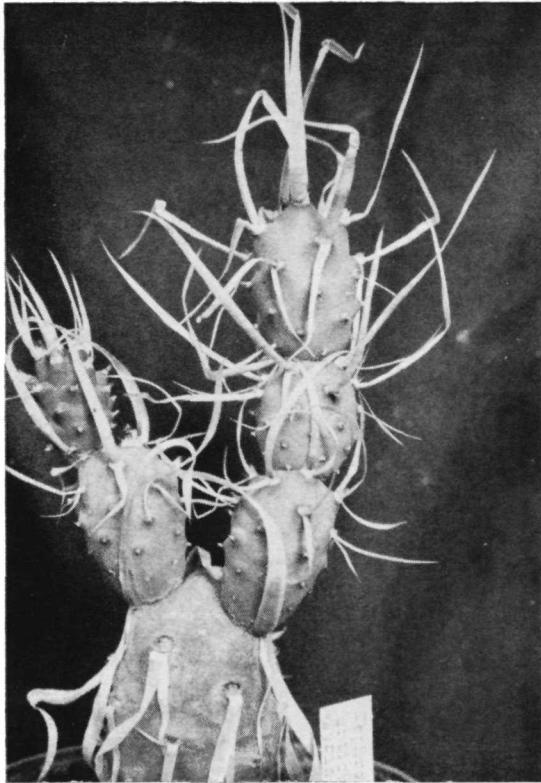
*Agave parviflora*(2) is one of the delightful dwarf Agaves that everyone should try; the seeds are large and generally germinate quite quickly, but unlike *Aloes* the characteristics of the adult plant are not evident for some time. In this case, these characteristics are very distinctive, the strong, sharp leaves have whitish markings and short, white threads curling from the upper parts of them.

There are two *Cotyledons*; *Cotyledon decussata* is a tallish plant with pruinose, red-tipped leaves which make it attractive even without the yellowish-red flowers. *Cotyledon wallichii* was mentioned by Mrs. Stilwell in her article in the last (November 1967) issue and her recommendation should be enough!

The three *Crassulas* on the list are of very different types. *C. hemisphaerica* is one of the fascinating dwarf species with neat, dark green rosettes; the white flowers appear from the centre in early spring. *C. rupestris* is a more vigorous grower which can be used for hanging baskets; the fleshy leaves are edged brown and the massed, tiny flowers are yellow-green. *C. turrita*, on the other hand, is a tall growing species with hairy leaves in rosettes up the stems. *Crassula* seed is almost dust-like, but mixed with a little sand and spread on the surface of the compost it should germinate well.

Now we leave South Africa and have two plants from the other side of the world though still in the *Crassula* family. *Dudleya brittonii* comes from the coastal areas in northern Baja California; its leaves are whitish with soft hairs and the flower is yellow.

(2) See illus. Vol. 28. 2. p. 37.



*Tephrocactus articulatus v. syringana*

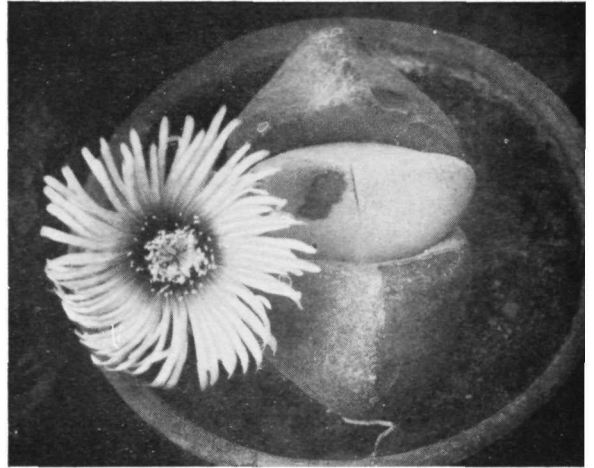
Photo: Mrs. B. Maddams

*Echeveria glauca* has its habitat in the State of Mexico; the leaves form attractive rosettes with their shiny surface and white edges, and though somewhat large growing it is worthy of a place with its attractive shape and red flowers.

*Euphorbia mauritanica*(3) takes us back to S.W. Africa; this is a rather variable species which can be easily raised from seed. The Chairman (Mr. S. W. I.

*Kalanchoe beharensis*

Photo: Mrs. B. Maddams



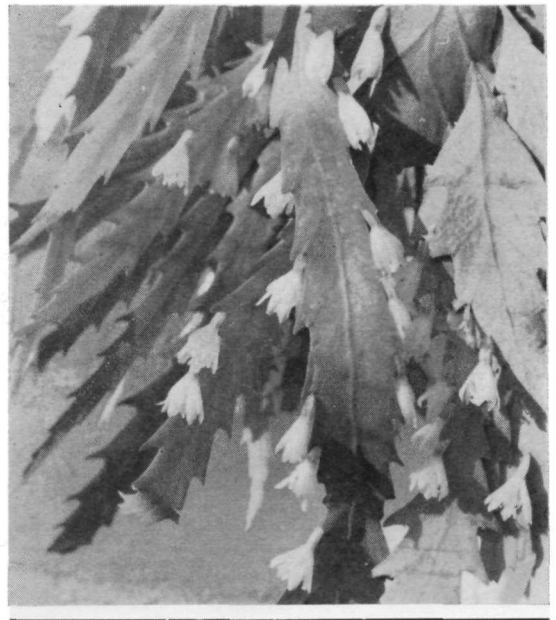
*Didymaotus lapidiformis*

Young) will be interested to hear about and see members' plants grown from this seed to see what variation is in evidence. The stems can be different thicknesses and the leaves are small and narrow.

*Kalanchoe beharensis v. viridis* with its green velvety leaves and *K. marmorata* with its serrated leaves with brown blotches probably need no introduction. However, again the seed is very fine and should be treated as mentioned with the *Crassulas*; it is also

*Rhipsalis houlettiana*

Photo: Mrs. B. Maddams



(3) See illus. Vol. 28. 3. p. 46.

advisable to prick out as soon as the true leaves have developed to prevent the plants going "leggy". Both these species come from Madagascar.

As usual there is a wide selection of Mesembryanthemaceae on the list as these are always popular with members and need little introduction. However, there are a few which may not be familiar to newer members.

The two *Argyrodermas*, *A. orientale* which has pink flowers and *A. patens* with lemon-yellow ones, will be rather slow growing but when the flowers finally appear they will be worth the wait. *Cheiridopsis peculiaris* is, as its name implies, a rather odd-shaped plant with its very succulent, flat leaves, but the yellow flower is attractive. Another amongst the rarer of the stemless Mesembryanthemums is *Didymaotus lapidiformis* which is rather more difficult to raise from seed; great care must be taken not to overwater, in fact to err on the dry side is better. The plant body somewhat resembles a *Pleiospilos* but the flowers are white or pinkish. Incidentally, this is a monotypic genus and comes from a small area in the Karroo.

There are three more shrubby members of the family which many members may not have encountered previously. *Malephora engleriana* is found in S.W. Africa and is of spreading habit with small slightly waxy leaves; the flowers are shiny, yellowish inside and a more orangish-red on the outside. *Prenia pallens* has somewhat similar growth habits but the leaves are downy and the flowers pink or white. *Ruschia schollii* is more erect in its growth, with fresh green leaves covered with fine transparent dots; the flowers are red.



*Cheiridopsis peculiaris*

Photo: J. Himmerman

*Titanopsis schwantesii* (4) presents no cultural difficulties and can often be flowered the second year from seed. The attractive grey-green leaves with the whitish-yellow "warts" are a picture in themselves even before the bright yellow flowers appear in the autumn.

Last but not least there is *Fockea crispa* (5) which grows a turnip-like caudex at the base of the stem. The seeds are large and thin and it is best to place them flat side vertically with soil just covering. W.F.M.

(4) See illus. Vol. 28. 4. p. 68.

(5) See illus. Vol. 28. 4. p. 4.

## Correspondence

To the Editor:

May I comment on several topics raised in the Journal for November 1967?

Mr. Boarder need have no fears about the use of "Pestex" on seedlings. I suffered very badly from the attentions of the *Sciara* fly in 1965 and was then advised to obtain a systemic insecticide containing Rogor. ("Rogor" is the commercial name for a substance known to chemists as *dimethoate*.) Rogor is incorporated in at least two proprietary insecticides available in Britain. I have only used Fison's Pestex myself, but no doubt the Murphy preparation is equally effective.

Since 1965 I have used Pestex on all my cacti, including all seed-pans. I have also used it on my wife's extensive collection of succulents, other than the Crassulaceae. To date no ill effect has been observed on any treated plants, but *Sciara* flies were not seen at all during 1967 and no seedlings were lost other than the usual few which succumbed to damping-off fungi.

Pans of seedlings of pin-head size which had been thoroughly drenched in Pestex at the recommended dilution in 1966 remained free of flies and the seedlings grew on to a good size during 1967.

Although I raise relatively few Mammillarias (unlike Mr. Boarder!) my pans included *M. mendeliana* and *M. sheldonii*. Also treated were some rather older (1964) seedlings of *M. guelzowiana* var. *splendens*, a difficult enough species at the best of times. The latter were in sufficiently robust health in August 1967 to excite the admiration of Mr. and Mrs. Maddams when they called on us.

The cactus seedlings treated with Pestex included species of *Gymnocalycium*, *Neoporteria*, *Copiapoa*, *Notocactus*, *Escobaria* and *Cleistocactus*. I felt sufficiently confident of the harmlessness of Pestex to treat several pans containing choice seedlings from the recent Horst-Uebelmann expedition to S.E. Brazil and note that, among others, a good crop of *Arrojadoa rhodantha* is still in prime condition and free from pests.

To refer now to Mr. Brewerton's comments on the sun-burning of *Lithops*; we too have had the experience of having *Lithops* and other highly succulent Mesembryanthema burned to death by the sun. I have commented elsewhere on my views about sun-burn and I think they apply equally to Mesembryanthema as to Cactaceae; viz. that plants easily become "soft" in our climate, sometimes through the weather being dull and sunless for long periods. Such plants then become damaged very easily by strong sunshine. Although it was usual to recommend the placing of many kinds of plants close to the glass in the greenhouse, I feel sure this is not good advice. In summer plants close to the glass are always in danger of being overheated and literally cooked by strong sunshine and in winter they may suffer from extreme cold.

It is certainly startling to find such plants as *Lithops* and *Pleiospilos* succumbing to sun-burn in Britain, but it does happen. Equally surprising is the readiness with which some cacti clothed in dense hair and spines will suffer sun-burn damage, while other relatively unclad species seem immune. Among my *Matucanas* I have had bad damage done to *M. haynei*, densely covered with white spines, while *M. aurantiaca*, a much more open species, has been unaffected. Similarly *Oreocereus celsianus* received some bad burns one very hot day while adjacent *Trichocerei* with, apparently, far less protection for their skins, were unscathed.

Finally, on the "cactus drug" nonsense: Mr. Maddams is absolutely right, of course. It is very unfortunate that one or two people spoke unthinkingly to press reporters at cactus shows during 1967 and thus, no doubt quite unintentionally, provided the material for a lot of absurd and hysterical publicity about the alleged dangers of young people being able to obtain certain cacti. I hope that those concerned will have realised the perils of presenting sensational stories to journalists and that we shall hear no more of this nonsense. At a time when there are genuine fears about drug-taking among a small minority of young people it is only to be expected that any story about drugs in plants will receive head-line treatment in the press. In the case of cacti this can only rebound to the detriment of cactus-lovers who wish only to be left in peace to cultivate their plants. As a result of the foolish talk at the Southport Show (which originated from an officious local gentleman who knew nothing of cacti) I and other cactophiles serving as stewards at the show were pestered continually by young people wanting to buy "the L.S.D. cactus". In one case a young man actually leaned over a fine pan of *Lophophora williamsii* to ask me where the plant was that he had seen on television the previous evening. Fortunately the "hippies" are as yet not trained in plant recognition! (The enquirer was blandly told that we knew nothing of such plants.)

E. W. Putnam,  
Hooley, Surrey.

To the Editor:

Like Mr. Brewerton (Journal of November 1967), I placed my *Lithops* in the hottest part of the greenhouse last summer. The greenhouse is six feet square, protected by a fence eight feet high to the north, and the shelf was five feet high on the north side. Seaford is not the driest or the warmest place in Britain but many claim it to be the sunniest.

I lost three of my total collection of four plants by July. I moved the survivor and some replacements to a shelf lower down on the western side and suffered no further casualty. I filled the hot shelf with *Opuntia* and these prospered.

I gather from persons more knowledgeable than myself that in their own habitat, *Lithops* spend much of the time almost buried by sand—presumably wind-borne. We tend to keep our plants growing above the soil to keep them dry in our climate. I wonder whether in mid-summer we should add gravel to the pots up to the level of the face of the plants:

P. Wootton,  
Seaford, Sussex.

Re Journal Vo. 29 No. 4 Page 79 which is incorrect, the photo or description under the heading *C. orbiculata*? One thing is certain, that the photo is not as named. A. C. Sears.—(Any comments? Ed.)

## Secretary's Notes

### Letter from South Africa.

I recently had the privilege of writing to Dr. Louisa Bolus in Cape Town, sending her congratulations from the Society on her 90th birthday. More recently I had the pleasure of receiving her reply of thanks.

In her letter Dr. Bolus expressed a feeling of unworthiness because of "the many regrettable errors" in her works on the *Mesembryanthemums*, even though most of these have since been corrected. She expressed concern that many *Mesembryanthemums* still remain to be discovered, and that with the "march of civilisation", there is no time to be lost. She also expressed the hope that "the intrepid climbers of our mountains will continue to make notes on previously undescribed species so that future monographers may have as ample and complete a record as possible available".

We owe Dr. Bolus a great debt of gratitude for her years of work and devotion. A humble letter of thanks and congratulations seems small reward for this most gracious lady.

### Shows in 1968.

The Show Committee has been hard at work reconstructing the Schedules for the June and September Shows at Westminster. Several new classes have been

introduced and many of the old ones re-worded. An attempt has been made to give the Shows a more even balance between cacti and other succulents. The Committee hope that members will approve the changes made and where possible support these Shows wholeheartedly.

The Essex Branch are holding their 16th Annual Show at the Town Hall, East Ham on Saturday 1st June. The Schedule has been increased to 50 classes, covering a very wide range of plants. There are ten open classes for members of *any* Horticultural or Succulent Society. Schedules can be obtained from C. G. Brown, 86, Campbell Avenue, Barkingside, Ilford, Essex.

The West Kent Branch have planned their 2nd Show for Friday 19th April. This Show is for Branch members only, and it is hoped to increase the number of classes from last year. Visitors will be made welcome during the evening. Details from Branch Secretary, C. E. Parker, 14, Teynham Green, Hayesford Park, Bromley, Kent.

I would welcome details of other Branch Shows for publication in the May issue.

WE have been reminded that the 1968 issue of *Gardens to Visit*, listing the gardens open to the public in aid of the Gardeners' Royal Benevolent Society and the Royal Gardeners' Orphan Fund will be on sale as from the end of March. From Gardeners' Sunday, White Witches, Claygate Road, Dorking, Surrey. 1s. 4d. inc. postage, or 1s. from bookstalls.

#### Obituary.

It was with regret that we received the news of the death of Mr. W. H. Grounsell of Wembley. Mr. Grounsell was well known as a speaker and admired for his wonderful close-up photography of cacti and succulent flowers. He will be sadly missed by his many friends. He was due to speak at the meeting of the Society in November of this year. His sudden and unexpected death will necessitate a change of programme, which will be announced in a future issue of the Journal.

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### IMPORTANT NOTICE

#### ANNUAL GENERAL MEETING.

The date of the Annual General Meeting has been postponed until March. The meeting which was to have taken place in March has been brought forward to the February meeting and the Annual General Meeting will now take place on the 20 March to enable members attending to put forward their views on the suggested amalgamation with the National Cactus & Succulent Society outlined in the notice included with this issue of the Journal.

Members are asked to make a particular effort to attend.

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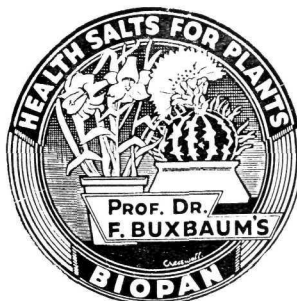
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C. Brabban,  
83 Coverts Road, Claygate, Esher, Surrey.

From New Zealand.

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I notice in one of your reports a correspondent reports improvement with the exception of Harrisias. My experience is quite different. One of these had been standing still for over 3 years and in 2 months after its first treatment with your salts it had doubled in size and is continuing to grow.

While these were the more spectacular results the general tone of my collection has improved out of all sight.

Edgar A. Chivers,  
Bag, Christchurch, New Zealand.

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J. Peet,  
3 Kenilworth Gardens, Newton-le-Willows, Lancs.

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R. S. Hollman,  
1 Gloxinia Road, Southfleet, Gravesend, Kent.

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Ronald Yorke,  
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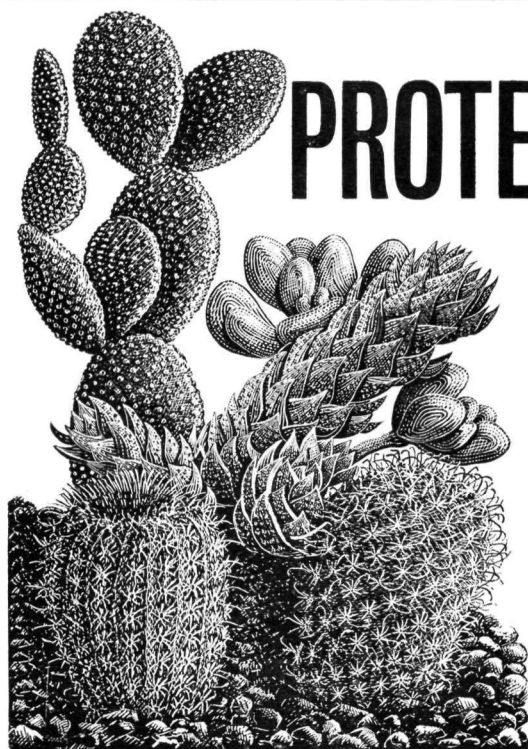
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*Encephalocarpus*, *Epithelantha*—groups up to 100  
heads, *Glandulicactus*, *Gymnocalycium*, *Gymno-*  
*cactus*, *Homalocephala*, *Islaya*, *Leuchtenbergia*,  
*Melocactus*—with or without cephalium, *Neo-*  
*gomesia*, *Obregonia*, *Parodia*, *Pediocactus*, *Pelecyp-*  
*phora*, *Pyrrhocactus*, *Sclerocactus*, *Strombocactus*,  
*Sulcorebutia*, *Toumeyia*, *Weingartia*, *Utahia*, and  
many others.

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Succulent Journal*

*of Great Britain*

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# THE CACTUS AND SUCCULENT JOURNAL OF GREAT BRITAIN

Vol. 30

May 1968

No. 2

## Editorial

AS I sit down to write this Editorial Note, the fate of our Society still hangs in the balance. The result of the vote will not be known until after the Journal has gone to press, but I believe it is planned to include a notice with the Journal giving the result, so that by the time you read this you should know the outcome.

At the Annual General Meeting there was quite a good attendance and the matter was fully discussed, salient points being put forward by those in favour and those against the amalgamation of the two societies and as it was a fine evening and the windows were open, a certain amount of hot air was able to escape without causing any major explosions.

If you look at the inside cover of this issue of the Journal (and I hope you always do) you will notice that certain additions have been made to the officials. Mr. D. V. Brewerton, who took over the post of Secretary on the death of Keith Walden, has found it too much to cope with the Secretarial work and also arrange the meetings and act as Show Secretary. The

three together make almost a full-time job, and Mr. Brewerton has his business career to consider. Therefore two new posts have been created and Mrs. Hodgson has taken on the job of Show Secretary and Mrs. G. Sharman that of Meetings Secretary. In addition Mr. E. W. Young, who has been our Treasurer for some 15 years has found it necessary, for health reasons, to give up this post which has been taken over by Mr. Ivor Newman. Members are specially asked to make a note of this to save Mr. Young having to forward a lot of correspondence. Our thanks are due to Teddy Young for having battled with this job for so long. Please also note Mr. Brewerton's new address.

With this issue are also enclosed the Show Schedules for 1968, and on page 34 you will find some notes on the Schedules contributed by our Show Committee, to give you some guidance when choosing your entries. Will you help our new Show Secretary by making this the best Show ever?

E.M.D.

## Cultivation Notes

### *Cacti—A. Boarder*

BY the time this journal reaches members it is probable that most of the repotting has been done. The plants should now be making good growth and many flowers should be in evidence. If any plant appears to remain too wet after watering it is well to examine the drainage hole to make sure that it has not become clogged up. Nothing will cause a plant to fail quicker than if the soil in the pot is continually wet. Such a condition can often be relieved by pushing up the drainage crock slightly. This allows any surplus moisture to drain away and the plant will soon benefit from the better drained soil.

The next important task will be to prick out any seedlings which have been raised. Opinions vary as to when this should happen and no hard and fast rule can be applied. Generally speaking the time to move the seedlings will depend on whether the foodbag or cotyledon has been used up completely. The young cactus plant appears on top of this cotyledon and until the latter has been used up the cactus will not have formed a very strong root system. The tiny rootlet is very fragile at first and is easily broken. If this happens the seedling will die. When a good root system has been formed the plantlet can be moved without fear of damage. The time to do this also

depends on the type of seedling to be moved. Some kinds will grow much faster than others. If seed was sown in February or before, the seedlings should be ready for pricking out by the end of May or the beginning of June.

Do not put these seedlings into tiny pots. These are quite useless as they would dry out very quickly and the tiny roots could be killed. I use concrete boxes, but there are many fine plastic ones on the market which are very good for this purpose. They should be about three inches deep if possible and have drainage holes. If the pans have no holes in the bottom some can be made quite easily with a hot soldering iron. There is no need to use any drainage crocks but just cover the bottom with some of the coarse matter from the compost. If some is placed in a bowl and shaken well, the large pieces will come to the top when they can be picked off with a large spoon for placing in the bottom of the pricking out tray. If some granulated charcoal is handy this can be mixed with the base matter. The tray is then almost filled with the potting compost. I use the same mixture as for potting cacti with less fertilisers, but see that there is plenty of finer matter near the top. If some J.I. seed compost has been left over from sowing, this can be utilised by adding to

each bushel,  $1\frac{1}{2}$  oz. hoof and horn grist and  $\frac{3}{4}$  oz. sulphate of potash. To make up a fresh mixture use two parts good loam, one part moss peat and one part sharp coarse sand. To each bushel add  $\frac{3}{4}$  oz. ground chalk or limestone,  $\frac{3}{4}$  oz. sulphate of potash,  $1\frac{1}{2}$  oz. hoof and horn grist and  $1\frac{1}{2}$  oz. superphosphate. Mix this up well and make sure that it is of the correct dampness. It must not be wet nor dust dry. In either of these conditions it will be impossible to prick out the small seedlings. It is a matter for experience for one to tell when the compost is of the correct crumbly moist condition. It should not be so wet as to soil the hands but not so dry that it will not hold a small hole when made in it.

Lift the seedlings up carefully with a small stick and place them in the hole which must be large enough to take the roots without having to bend them. Firm the soil around the seedlings gently and place them about an inch apart. I have found that it is a good plan to keep the rows straight and to press the soil down slightly between the rows of seedlings. This is the same principle as mound planting with adult plants. By depressing the rows between the plants one is able to ensure that any surplus moisture can drain away and not remain to wet the base of the seedling for too long. The seedlings can be watered with a damping-off repellent and then left in a semi-shaded position. If the seedlings have been raised in a temperature of about  $70^{\circ}\text{F.}$ , then keep them at this temperature for some time until they start growing when the temperature could be gradually lowered to that of the frame or greenhouse. Make sure that the direct rays of the sun do not reach the seedlings until they are strong enough to stand this heat. It may be that for the whole of the summer and autumn some slight shade will have to be provided. It is a fact that if the seedlings get scorched they are likely to stop growing for months and may never recover.

From now on most of the plants will be growing at their maximum and so plenty of water is needed. Use rain water whenever possible and if tap water has to be used try to let it stand in the air for a couple of days to let the chloride of lime pass away and to take the chill off it. I always use rain water whenever possible and do not strain it at all as I consider that any matter from decaying leaves or from soot will be of benefit to the plants. Should my rain tanks run dry I fill up partly with rain water and do not use it for two days. Without doubt the most important part of growing cacti is the watering. Without it they will not grow at all and with too much they can die. The amount of water depends not only on the type of soil and the weather but also on the species of cactus. Some fast growers require plenty of water whilst those which are mature and slow growing need not have nearly as much.

If one has a few cactus plants it is quite simple to

water correctly as one can lift a pot to test its weight or tap it, if a clay one, to see if water is needed. When one has hundreds of pots of cacti it is a very difficult task to make sure that all have been correctly watered at one watering. In fact I think that it is quite impossible to do this and I find that with a thousand pots or more in the greenhouse it is certain that in my collection, some plants get too much whilst others do not get enough. During the warm weather I can water over all the plants as well as giving each pot its amount. With many pots it is not enough to fill to the brim with water but one has to go over the pots again with a similar amount to make sure that all the soil is watered well. Then there is no need to water again until the soil has dried out. This depends on the weather and the texture of the potting compost. Some soils dry over very quickly and this can be too fast as the plant will not have time to absorb enough moisture before the soil has dried right out. There must be a happy medium so that sufficient moisture is available for the plant for at least 24 hours. Although a pot may be immersed in water at the beginning of the season to make sure that all the soil gets thoroughly soaked I do not recommend this method of watering for the rest of the year, as too much soluble nourishment could be washed right out of the pot.

I have sometimes suggested that it is a good plan to spray all the plants on the evening of a hot day and close the greenhouse up completely afterwards. I am now of the opinion that this is not a very good idea where spiny cacti are concerned. I think it is far better to leave at least one window in the roof slightly open to allow some fresh air to enter. The close, damp atmosphere would be ideal for the epiphytes, such as *Epiphyllums*, *Zygocactus*, *Schlumbergeras*, etc., as they would relish the damp warm atmosphere but most other types of cacti will appreciate the fresh air. I think that during the months of June, July, August and September, it is better to refrain from closing all the windows at nights.

The possibility of scorching in the greenhouse is often discussed among members and whilst some say that they never have a plant scorched others complain that one or two plants have been during hot spells. I have had one or two bad cases of it myself and think that I know the reason. If one does not use any form of shading for the adult plants it may be quite safe with one important proviso; that is to make sure that plenty of fresh air is available at all times when the sun is at its hottest. Any plant which gets scorched is usually the one in a position where it does not get a good flow of fresh air around it. I think that my cases of scorch have occurred when I have been away from home and the windows have not been opened enough. My greenhouse has four large windows in the roof, one large one at the end of the house and two smaller ones at the other end, also there is a good

adjustable ventilator in the bottom of the door. With this means I am able to ensure that there is a good circulation of fresh air at all times. During most of the winter I have been able to have one or two windows in the roof open very slightly all night. I have had some air also from the bottom of the door to keep the oil lamp burning brightly. I have found that on most nights the temperature has not fallen below 50°F. The lamp is a blue flame type and quite powerful, when kept on day and night it burns five gallons of paraffin in a week. I have electric cables as well and these are controlled by a thermostat set at 40°F. This is set in the coldest part of the greenhouse and has only been on very occasionally during the coldest nights.

During this summer I shall not close the top lights of the greenhouse on any night and I feel sure that the plants will benefit from this. In most of the habitats of cacti there are very hot days with cold nights, often with heavy frosts, but the plants do not seem to suffer from these variations. During the day time the lights will be well open and with this free flow of air I do not think there will be much danger of scorching. I have a large frame in which I grow on many seedlings and the glass of this is shaded with "Summer cloud". This can be painted on according to instructions and will usually last the summer when the remnants can be washed off.

During the summer when the wood-work of the greenhouse is quite dry it will be a good time to paint the house. First of all remove all loose paint as if any flakes are left behind this will mean that the next coat can peel off. Rub down all wood-work with medium sand-paper and clean away any dust. Then paint with a good lead undercoat, making sure that the cracks

between glass and wood-work are filled in with putty before being covered with paint. Once the first coat is dry (usually one day is enough if the weather is good) the second coat can be applied. For this I use a good aluminium paint. A good coating of this leaves a thin metal film over all and with 45 years experience of painting greenhouses I find that this lasts better than any other type of paint, either for outside or inside. Naturally any panes of glass which are broken should be repaired first. When doing this or glazing a house for the first time, never place a fillet of putty over the glass by the bars. This is quite unnecessary and usually means that after a time this peels off. When glazing, just lay a bed of putty along the bars, apply the glass and smooth down firmly over the bar edges, not in or near the middle of the glass. Then drive in sprigs, one each side near the top and one each side near the bottom. The top two hold the glass above from slipping down and the bottom two keep the glass firm. No other sprigs are necessary. Clean off all surplus putty and also remove it from the inside. The small strip of putty on the outside should be level with the glass. After a few days the fresh putty can be painted over. The bottom piece of glass should have a strip of zinc bent over the base and which is then nailed to the bottom plate. This stops the glass from sliding down.

A regular painting of a wooden greenhouse will so preserve the timber that it can last for many years. One house which I constructed in 1930, is still functioning well in a garden near me, having been moved to a fresh garden on three occasions. Watch out for pests during the warm weather and treat with some good insecticide such as Malathion or Pestex. These will kill mealy bug, root bug, scale and red spider.

## Cultivation Notes

*Other Succulents—Mrs. M. Stillwell*

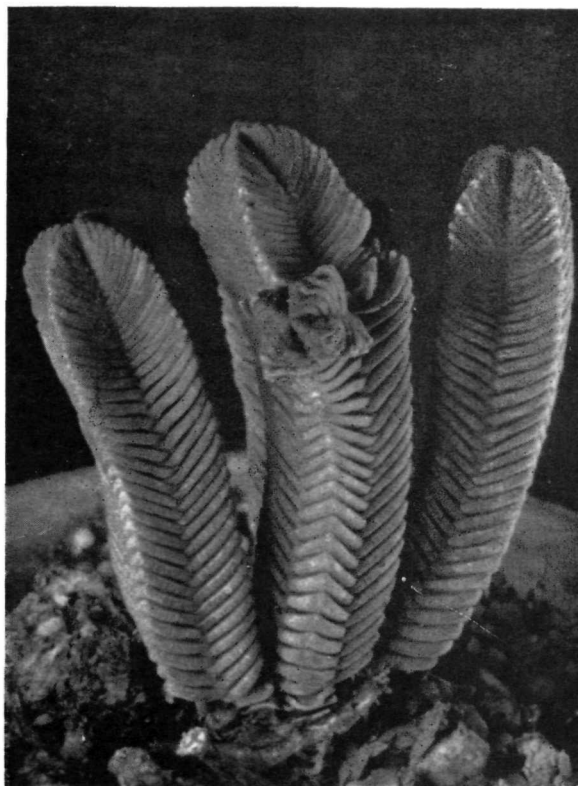
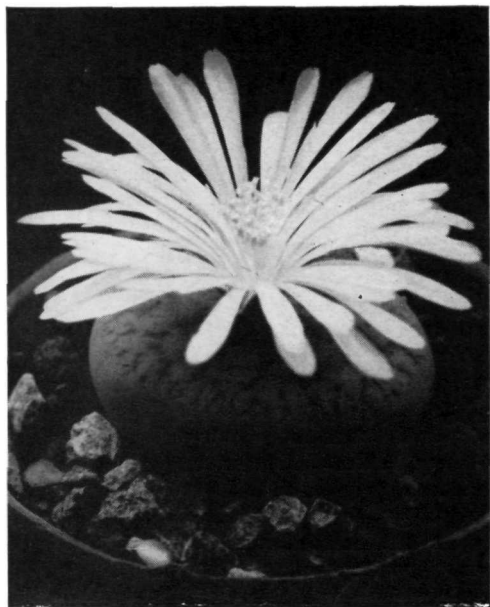
I SEEM to have sparked off a lot of controversy by placing my *Lithops* on a south side shelf of the greenhouse. Let me state here and now, that to be able to do this, your *Lithops* must be grown very hard and firm, and be of a good colour. If you have been in the habit of feeding your plants with certain well known liquid feeds, and keeping them in plastic pots, well I can only say you will be asking for trouble if you expect them to stand up to conditions on the south side shelf that I have mentioned, and scorching will doubtless occur. Of course conditions vary from one greenhouse to another, and the strength of the sun is always more intense nearer to the coast, than in a smoky industrial area, so please do be sensible and use your discretion over what you read in these notes, which are based mainly on my own experience in my own greenhouse. I have found that early morning is the most dangerous time for scorching, as it is so easy to be caught napping

at weekends when the doors and windows are not always opened quite so early as during the weekdays. Windows that open automatically are perhaps the answer to the whole problem, and having enough of them correctly placed to ensure an even distribution of air in the right places. This would of course be a costly business, and not one that all of our pockets could afford. As a general rule, *Lithops* will not be ready for watering until about May, but as with scorching, so with watering, growing conditions vary one to another. You will find that most of the *L. pseudotruncatella* varieties will be ready for watering earlier, some possibly in March, as these are the first to flower, and therefore lose their old bodies much quicker. Some belonging to this group are: *L. alpina*; *L. farinosa*; *L. Edithae*; *L. Elizabethae*; and *L. mundtii*. There are certain *Lithops* that will remain solitary or with no more than two heads for the whole of their lives.

This is quite natural, and no amount of forcing will make any difference. If you aim to grow nice large many headed *Lithops* I would suggest any of the following: *L. salicola*; *L. bella*; *L. olivacea*; *L. pseudotruncatella*; *L. insularis*; *L. lericheana*; or *L. otzeniana*. The latter having very striking markings. Should you find that at any time, a *Lithops* head shows signs of becoming soft and rotting, cut it out immediately, as this disease can spread very quickly. Dust around the part where you have cut with flowers of sulphur. I once lost a beautiful pan of *Dinteranthus inexpectatus* with this disease and try as I would I did not save one head.

At the time of writing, which is the second week in March, I am still in the process of inspecting every plant in the house, and giving its first watering where necessary. The weather has been so cold that it has not been safe to create too much dampness before. I try to get this done on the nice sunny mornings, so that by evening the body of the plant at least is dry. I like to immerse the plant completely under water, for its first watering of the season; this ensures that the roots are really wetted and also all the dust of the winter is washed away, and the pores are once more able to breath properly. In a few days the plants soon plump up again, and the whole collection looks a lot more interesting. Any stray mealy bugs and other pests can be treated at the same time. Always be sure to have a look underneath the pots, particularly around the drainage hole which is a favourite spot for mealy bugs to hide in. I have been trying Corry's mealy bug killer, and it seems quite satisfactory and easy to use. I never start repotting until I have completed this first

*Lithops alpina*



*Crassula pyramidalis*

big operation, which takes several weeks, according to the weather.

There have been quite a few flowers out already this year. The *Gibbaeums* are still flowering well, also *Titanopsis*, *Aloinopsis Stomatium*, *Nananthus*, *Echeverias*, and a number of *Crassulas*. *Crassula pyramidalis* has a number of heads in full bud, and should be very interesting when the white flowers open. This plant is often difficult to keep in first class condition, as the lower stems, which are comprised of rows of tightly packed leaves tend to go brown and die back. When this stage is reached, it is best to break off the offending heads and start again as cuttings. Do this during the summer months when they will probably root quicker. *Crassula mesembryanthemopsis* has now finished flowering. This plant likes a sandy soil with some limestone chips added, and of course very careful watering. It grows mostly during the autumn and winter, but I keep it on the dry side, and it becomes firm and compact. In their native habitat they are almost buried in the soil except for the little triangular leaf tips. The dwarf leafy types of *Crassula* often get attacked by mealy bug under the leaves, if kept too dry during the winter. While most insecticides bear the warning "Not to be used on *Crassulas*", I have been trying Fowler's Mealy

Bug Killer made by Corry's, which has to be applied with a soft brush. It certainly makes short work of the mealy bugs, and is said to kill the eggs also. I leave it on for a few minutes and then wash off thoroughly in clean water, just to be on the safe side, and also keep the plant out of the strong sun for a day. *Crassulas* to me, have always been a big problem, where mealy bug is concerned and if you are in doubt, only try the treatment, whatever it is, on a very small section of the plant, and test for reaction. Never use any preparation containing Malathion on *Crassulas*.

I do not sow any succulent seed until about the end of March, as many grow fairly quickly and would therefore need to be removed from the propagator within a few weeks. Had the seed been sown in January this could give rise to problems, should there be a cold spell; seedlings must be kept warm until all danger of frost is past. It is a somewhat different matter with cacti, which are usually slower growing and can be left in the propagator for a longer period without becoming leggy. Such things as *Stapeliads*

often have to be removed in a week or two. I still have faith in plastic bags for seed raising, as it overcomes all watering difficulties, and prevents the sciarid fly from gaining an entry. I use the small square plastic pots, and a plastic bag that is just large enough to take the pot. After sowing the seed the pot is soaked in fairly hot water and placed at once into the bag and sealed at the top, while it is still nice and steamy. The bag at once clouds up with beads of moisture, and this is how it remains until you wish to open it, which need not be for several months. No more worrying about the seedlings drying out, while you are away for the weekend, it just cannot happen. The best soil mixture for seeds is a sandy John Innes seed compost with the addition of a little coarse vermiculite. After the seed is sown, and before watering, sprinkle a little sharp sand thinly on top of the pot. It is very seldom that algae will form on top of the pots, but of course there is always the odd exception. *Jatrophas* will hit the top of the bag in a few days and will of course have to have the bag removed. Good growing with your new seasons seed what ever method you use.

## HOWARD GATES

Further extracts from letters from the late Howard Gates to the late Mr. E. Shurly, by permission of our President, Mrs. D. Shurly.

From letter dated 12th November 1946.

### Note on Dudleyas

A simple layman's rule for distinguishing *Dudleyas* from *Echeverias* is that the leaves of the *Dudleyas* clasp the stem and cannot be easily broken off while the leaves of *Echeverias* appear to be stuck into the stem of the plant and often are easily knocked off.

*Dudleyas* are found all along the Pacific Coast from the Columbia River on the Northern Oregon line to the tip of the peninsula of Lower California. A few species are found on the interior mountains and desert regions of California, Arizona and Lower California. Most of them are difficult to grow, especially the thin leaved desert types. They are intolerant of coddling and will not stand to be under the drip of roof eaves. They like to be planted between the rocks of a rockery and the tops should be tilted so that the leaves will not cup and hold water. The majority of them like a mild climate as they are most abundant in the north-western littoral of Lower California. They are often dominant plants of the landscape in that territory.

*Echeverias* are principally from the mainland of Mexico. It is remarkable that their habitats do not overlap. There is not known to be a single *Echeveria* in the territory occupied by the *Dudleyas*.

My explorations have convinced me that there are many more *Dudleyas* than have been recognised but their study is very difficult owing to their variations resulting from location, sun, shade and soil.

From letter dated 28th February 1951

From the 17th to the 23rd, I enjoyed a nice though rather hurried trip. On the 18th I was judge at Marshall's cactus show at the Desert Botanical Garden. There were a number of very nice exhibits put on by the Phoenicians. The Botanical Garden was in good shape too as this winter was milder than the last couple. On the 19th I visited the Boyce Thompson South-western Arboretum and went on through Tucson to Nogales on the Mexican Border. On the 20th went through Sonora to the port of Guaymas which is on a beautiful bay with several others close by. The Carnegias followed us for a distance. Then the only large cactus were an abundance of *Lophocereus* and *Lemaireocereus thurberi* together with a heavy branched *Fouquieria* which I had never seen before. Around Guaymas we saw *Pachycereus pecten aboriginum* and *Pringlei* together with *Ferocactus alamosanus* and a few *Mammillaria sheldonii* which looked very much like *Dioica*. After spending the night near Guaymas we returned to Nogales. On the 22nd we went through the mountains north-west of Nogales where we found *Echinocereus rigidissimus* and *Mammillaria macdougalii* growing on the ridges then west across the Papago Indian reservation where there were many Carnegias and very large *Ferocactus wislizenii*. We spent the last night out at Yuma. There is an old story that a resident of Yuma died. A few days later a friend met him on the street and upon enquiry found that he had indeed died and gone to the wrong place, but found it so cool he had to come back for his blankets! However, the night we were there was so cool that we found the dew had frozen on the top of our auto when we arose in the morning.

# Succulent Plants in West Tropical Africa

by L. E. Newton

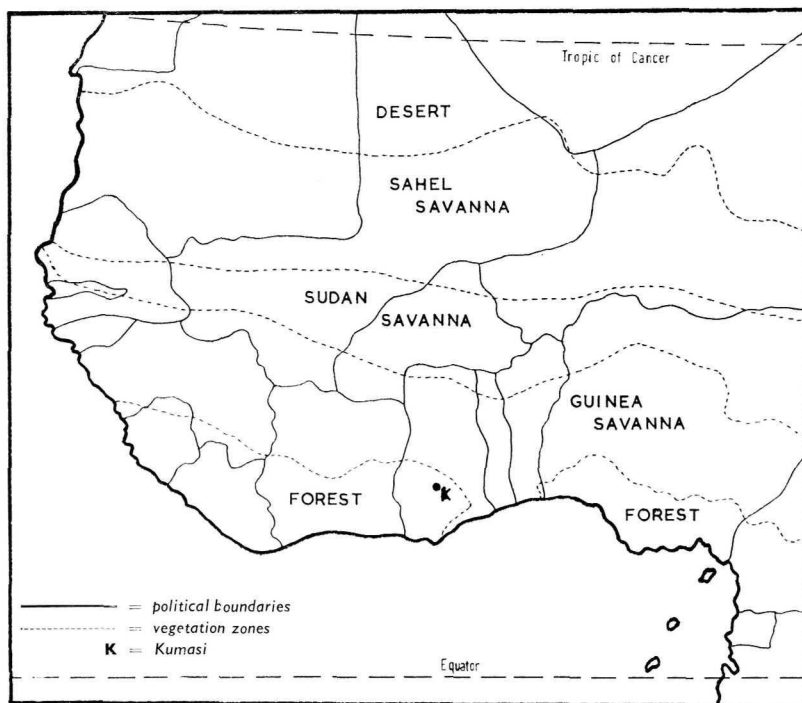
"STEAMY jungles and Cocoa trees". This is how one friend admitted in a letter that he visualised Ghana—certainly not the place to find succulent plants. When I came to Ghana in 1966 I knew that I was not going to find anything like the wealth of succulents existing in other parts of the African Continent. This impression was strengthened as soon as I arrived in Kumasi and looked at my new surroundings. The University campus, where I live, covers about six square miles and is situated in a forest clearing about four miles south-east of Kumasi. It costs the University about £60 a day to keep the forest at bay, mostly in wages (7/- a day per person) to the army of men who are constantly clearing the invading seedlings and creepers.

After travelling around in Ghana and several other West African countries, however, I found that the West African flora has its quota of succulents after all. Some library work revealed a total of about 120 species, of which over half are reported from Ghana. Many of these species are not listed in Dr. Jacobsen's "Handbook" and so are presumably not known to succulent plant enthusiasts. The list would be longer if one included the fleshy halophytes, tuberous-rooted climbers and

savanna geophytes. The latter two groups would undoubtedly be included by some members of the A.S.P.S., whose bulletin has described many similar plants, but I think it is stretching the definition somewhat to call many of them succulent, or even caudiciform. (Not that I consider them to be any the less interesting, for I grow some of these plants in my own collection.)

The major vegetation zones in West Africa are shown on the accompanying map, though this is considerably simplified. Distinctive vegetation types of limited extent, such as the coastal Mangrove swamp forests, are omitted. Over most of the region there are lateritic soils which are acidic and low in nutritional value, but often quite deep. Rainfall is very heavy indeed during the rainy season, approximately April/May to September/October, and the humidity is then very high. During the dry season the occasional shower may fall in the forest belt, but savanna regions are extremely dry. (In Kumasi I find that unless I keep a check on them, my books go mouldy in the wet season and their covers curl up in the dry season!) The temperature mostly remains between 75°F. and 85°F. throughout

*Major vegetation zones in West Tropical Africa*





A view on the Accra Plains, in South Ghana. The arrowed tree is *Elaeophorbia drupifera*. In the right foreground are two plants of *Aloe keayi*, for which this is the type locality

the year in Kumasi. In the dry season we are usually subjected to the harmattan, a dry, dust-laden north-westerly wind which brings the temperature down into the 60's (when we have to put blankets on our beds and wear sweaters!) and sometimes even right down to the 50's, but it lasts for only a couple of weeks. In the open savanna regions the temperatures are much higher during the day (over 100°F.) and lower at night (often down to 45°F. in some places).

The forest is mostly semi-deciduous rain forest, with trees up to 200 ft. or more high. It is never completely leafless, even at the height of the dry season. Very little virgin forest is left in West Africa; most is now secondary forest, large areas having been cleared at some time for farming and allowed to grow again. The continuous leaf canopy allows little light to penetrate and so the ground flora is rather sparse. As might be expected, there are few succulents in the forest. The succulent epiphytes of the Cactaceae which enrich the South American forests have no counterpart in Africa, though there are many non-succulent epiphytes such as ferns and orchids. The one epiphytic cactus which is widely distributed in tropical Africa, and which is common in the forest around Kumasi, is *Rhipsalis baccifera* (syn. *R. cassutha*). This is the only cactus in Africa which is known not to have been introduced by man, and is believed to have been introduced originally by birds. Apart from several *Ceropegia* species, none of which matches the South African and Madagascan

species for desirability, and *Elaeophorbia grandiflora*, a small succulent tree, the forest has little of interest for the succulentist.

Like the forest, the Sahara Desert has few succulents. When I visited Timbuktu last year the only succulent which I found in any abundance in the surrounding desert was *Sarcostemma viminalis*. I seem to remember seeing this species nominated for the title "the most boring and uninteresting succulent" in the N.C.S.S. journal some years ago—just the sort of plant one would expect to find at what is reputed to be "the last place on Earth" (there wasn't even any beer there)! There are also some *Caralluma* species along the edge of the desert where it merges with the Sahel savanna, but very little else of interest.

It is in the savanna that one finds the greatest number of succulent species, especially on rocky hills. The term "savanna" embraces a wide range of habitats whose common feature is a reasonably well developed ground flora, frequently consisting of very tall grasses. As one travels northwards there is a gradual transition from the savanna woodland adjoining the forest, to the open plains with sparse vegetation which lead into the Sahara Desert. Ecologists have distinguished and named several savanna types, and one commonly used zonation is shown on the map. One feature of much of the savanna which may limit the number of succulents that can grow there and might even threaten the existing species is the annual occurrence of bush fires. Early in



*Euphorbia deightonii* on the Accra Plains, South Ghana

*Euphorbia poissoni* on rocky hill with shallow soil, in Togo





*Caralluma dalzielii* in Sahel savanna near Ayorou, Niger

Leafless tree in secondary forest near Kumasi, Ghana.  
The epiphytes are ferns, orchids and *Rhipsalis baccifera*



*Aloe keayi* at the type locality, near Oduponkpehe, South  
Ghana



the dry season all the dried grass and other vegetation is burnt. Some fires are possibly of natural origin, but most are started deliberately to prepare land for farming, to drive out game for hunting, or for sheer pyromaniacal pleasure. Most of the plants which survive this annual ordeal are trees with very thick bark, or plants with underground stems or other perennating organs. Many of the succulents grow in rocky areas where the soil is too shallow to support the luxuriant grass which characterises the fire areas.

The most prominent succulent species in the savanna landscape is *Adansonia digitata*, the Baobab tree, which is well known from other parts of Africa. Another succulent tree, though less impressive, is *Elaeophorbia drupifera*, a *Euphorbia* relative which is common on the Accra Plains in Southern Ghana. There are over a dozen succulent *Euphorbia* species, some of which were featured in the N.C.S.S. journal a couple of years ago (21: 51-54). Some are large cactiform shrubs, e.g. *E. unispina* and *E. deightonii*, whilst others are dwarf geophytes with perennial tubers and annual succulent stems, e.g. *E. бага* and *E. ledermanniana*. Like the Baobab, *Adenium obesum*, called here the "Desert Rose", is not confined to West Africa and is already well known. Another plant with a very wide distribution is *Aloe buettneri*, said by Dr. Reynolds to have the widest distribution range in the genus, extending as it does over 3,500 miles. This species is found in the savanna fire regions of northern Ghana and in this connection it is interesting to note that it has an underground bulb. There are several other West African Aloes, of which *A. keayi* (described as recently as 1963) and *A. schweinfurthii* (formerly called *A. barteri*) also occur in Ghana. Among the other more familiar genera with representatives in West Africa are *Ceropegia*, *Caralluma*, *Huernia*, *Cissus*, *Kalanchoe*, *Crassula*, *Senecio*, and *Sansevieria*. *Caralluma retropiciens*, with stems up to 2 ft. high, is probably the largest of the Stapeliads. A number of *Cyanotis* species grow here and the two which I have found so far, *C. arachnoidea* and *C. lanata*, are more eligible for the epithet "succulent" than the *C. somaliensis* which one sees in British collections. Several *Brachystelma* species also hail from this part of the world, and the recently (1966) described *B. constrictum* was discovered in Ghana.

Some of the West African succulents have little horticultural merit. *Portulaca foliosa*, for instance, which I have collected in Mali and in Togo, has tiny yellow flowers and is an untidy plant. This species is illustrated in Jacobsen's Handbook, where it is wrongly called *P. foliolosa*. Jacobsen includes the genus *Raphionacme* in his Handbook because of the tubers. *R. daronii*, which I have collected in Ghana, has attractive flowers but the tuber is completely subterranean. *Cyanotis lanata* has distinctly succulent leaves, but is an annual. *Kalanchoe pinnata* (the famous *Bryophyllum calycinum*,

much studied by physiologists) is a confounded weed! I have difficulty in controlling it in my garden.

A number of introduced plants have found conditions favourable. There are, of course, the inevitable naturalised *Opuntias*, of which *O. dillenii* seems to be the most common along the Ghanaian coast. *Talinum triangulare*, of American origin, is now a widespread weed and the leaves are often eaten as a vegetable. Garden plants include species of *Agave*, *Furcraea*, *Opuntia*, *Cereus* (and allies), *Pereskia*, *Pedilanthus*, *Jatropha* and *Euphorbia*. *Jatropha podagrica*, the tallest of which I have seen is over 6 ft., is in flower throughout the year. It has explosive fruits, and numerous seedlings appear all over the garden—to be pulled up and thrown away! *Euphorbia milii* var. *splendens* is grown as low hedges which are rarely out of flower. *Plumeria* species, included in Jacobsen's Handbook (erroneously as *Plumiera*), are commonly grown in gardens here because of their very fine flowers, but I would not regard them as succulent.

It will be evident from the foregoing rather sketchy account, which is intended only as a generalised introduction, that West Africa has *something* to offer to the succulent plant collector, albeit a small offering. The succulents have certainly proved to be more numerous and more interesting than I had expected. I have yet to find many of them in the field, and some I shall possibly never reach because of the difficulties of travelling in a politically unstable continent.

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## IMPORTANT

### Reprint of Society Journals.

The following letter has been received from S.R. Publishers, of Wakefield, who are handling the reprint of the Journals and members are asked to note the alteration in price:

"I must tell you that the influence of devaluation was most unfortunate as far as the pricing of this book was concerned. The pre-publication price of £6 6s. was of course established before devaluation but we are having to pay more since devaluation for the copies that we are bringing in.

However, in all the copies that have been despatched, we have honoured the pre-publication price at which they were offered.

What we can no longer do, however, is to accept post-publication orders at £8. This post-publication price must now be increased to £9 9s. and I hope you will be able to advise your members about this.

We shall be making the appropriate amendments in the literature which we send out ourselves. Of course we shall still offer the 20% discount".

# Some Interesting Texas Cacti

by Richard O. Albert

## *HOMALOCEPHALA TEXENSIS*

THIS plant is commonly called devil's head over much of its range, but sometimes the more general term devil's pincushion is used to designate this plant as well as numerous other species. The Mexicans call it *biznaga*, and here in South Texas at least this name means quite specifically this particular plant. This may be variously spelled *biznaga*, *visnaga*, *biznagre*, etc., as many of the less literate Mexicans cannot distinguish between b and v, and many Spanish common names vary from place to place with the change of a few letters or a syllable or two. In some areas, however, *biznaga* means any medium sized barrel type cactus, while the diminutive term *biznaguita* means any small round cactus such as *Stenocactus*, *Mammillaria*, etc. The Mexicans also call it *manca caballo* or *manca de caballo*, as horses are sometimes crippled by getting some of the very thick strong spines embedded in the foot.

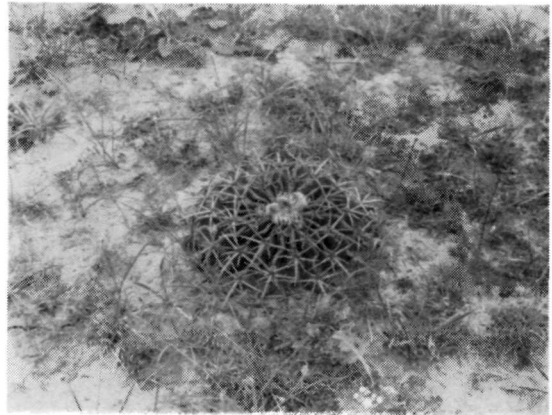
I think this cactus is very unique and has more character than most other cacti that I know. You might say that it is one of my favourite species. It is a fairly good-sized plant, and yet may be quite difficult to find—many are found only after they are stepped on. It is a beautiful plant, and it is very showy when in flower or fruit. I think of it as being very masculine, as it is so well muscled in appearance, with prominent ribs and very strong stiff spines and a very hard tough body so that it can grow out in the open without any shelter at all and yet not be afraid of injury.

The stem (which is sometimes used in making candy) is so hard and tough that it can be stepped on without making any perceptible dent into it. Even horses and cattle can step on it and usually leave only a slight bruise or perhaps a small cut. The average-sized specimen will measure from 12 to 18 cm. in diameter and from 0 to 10 cm. in height. Quite frequently the top of the plant will be flush with the surface of the ground, and in that case the body of the plant will of course be deeper and more difficult to find. Occasionally the bulk of the plant will be above ground, but usually the specimen will be about half-way between these two extremes. I have one devil's head that is 25 cm. in diameter and 15 cm. high, but that is far larger than usual. They must get larger than this, but some stories that I have heard of plants up to two feet in diameter—well, I will have to see that before I believe it.

The stem is very prominently ribbed, with from 12 to about 25 ribs on mature plants, the usual number being 13. These ribs are rather broad at the base and acute at the edge, and are about 1.5 to 2 cm. in height and about 2 to 2.5 cm. apart. As the plant grows older, additional ribs are usually supplied by one rib dividing into two, rather than by an extra rib being added between two existing ribs.

The areoles are about 3 cm. apart along the ribs, and may at times be somewhat recessed. They are rather large, about 1 to 1.3 cm., in length and nearly as wide. They are covered with a thick layer of cream-coloured wool near the centre of the plant, but most of this wool is lost as the areole ages.

The spines are erect and blood-red as they form in the young areoles, but soon spread and mature and are rather brownish-tan or even grey in colour. These spine clusters form a quite formidable armament, and can inflict deep and painful punctures or lacerations on the unwary. The spines are very strong and tough, rather prominently ringed along their entire length, and are quite rigid yet so resilient and springy that they do not break readily, even when the plant is stepped on.



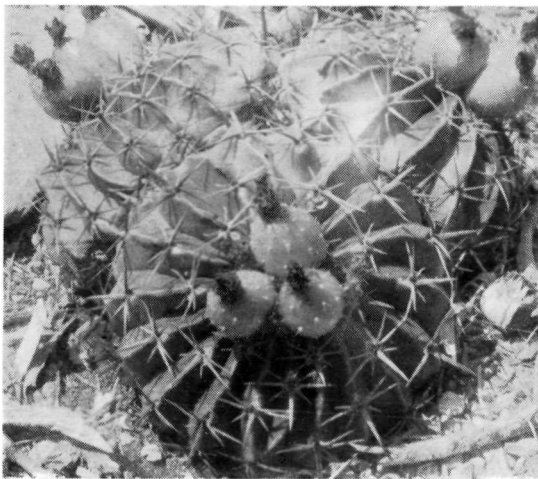
*Homalocephala texensis* in habitat

The single central spine is flattened dorsoventrally and is the largest, varying from 2 cm. in length in some individuals to a maximum of about 7 cm. in others. It is more or less depressed, and may sometimes be straight but more usually is recurved downward. Rarely, it may even be somewhat hooked at the end, or sometimes may be twisted or curled in various directions. This twisting and curling seems to be brought about by a heavy crop of fruit at the centre of the plant while the young spines are being formed. I have one specimen that has the central spine divided into two separate spines. The central spines on most specimens are about 3 or 4 mm. in diameter, but an old cactus buddy of mine (Ted L. Austin) found a plant in Tamaulipas that has central spines 8 and 9 mm. in diameter—by far the widest I have ever seen.

The radial spines are usually six in number, with three spreading on each side, and all may be somewhat appressed and recurved. These are smaller than the

central spine, with the middle one being the largest of the three. They are still worthy of considerable respect, however. Some plants have an additional radial spine sticking from the north end of the areole, or there may be four radials on each side.

To emphasize the strength and efficiency of these spines, I will relate the following incident that happened to a friend of mine (Guadalupe G. Garza) when he was about 12 years old. He had the misfortune to step on a *biznaga* while out playing one day, and one of the spines stuck through the sole of the leather shoe, all the way through his right foot about an inch proximal to toes 3 and 4, and out through the leather of the top of the shoe. In this instance the spine broke off, and the boy's father had to cut the top of the shoe and pull the spine on through with a pair of pliers. So you see, these spines really can be dangerous.



As I stated, these spines are very hard and wiry, but on two occasions I have found *biznagas* that had each spine neatly trimmed off at the base, cut as though by a chisel. This was the work of packrats—they must have diamond-edged teeth to cut these spines off so cleanly, or else they carry hack-saws around with them. I have no idea what they do with the spines.

The flowers are rather large, being about 5 or 6 cm. in diameter. They are pink to darker pink in colour, and when five or ten are open at one time they make a beautiful bouquet. The petals have deeply fringed edges, and are quite a bit darker near the centre of the flower. The flowers close at night but usually open on two or three successive days. The perianth is persistent, though I have seen a specimen in which it was shed. The stamens are yellow with much pollen. The pistil has a white style and 11 red stigma lobes. I have one plant that bloomed for the first time this year. It

had only two flowers, but both were orange instead of pink—the only orange flowers I have seen.

The fruit is bright green as it grows, and enlarges up to about 5 cm. in diameter, it usually being a little taller than wide. Soon it becomes a bright pink or red, and when there are a number of these ripe at once I feel that the plant is at its showiest. In wet years the fruit is quite juicy and sweet, and eventually bursts open across the side or the top. The pulp is very pale pink in colour and has a sticky yet somewhat crystalline consistency. In very dry years the fruit is dry and much less tasty, and usually does not burst open at all.

The seeds are rather large, measuring about 3 mm. in greatest dimension. They are rather bean- or kidney-shaped, with a prominent hilum, and are black. They germinate readily, and form little fat seedlings with fat cotyledons. The first areoles are formed on low nipples, but by the time the plant is about 8 mm. in diameter there are already about five low ribs being formed.

The *biznaga* prefers a low sandy hill in the mesquite and scrub brush country where the brush is rather open, and only occasionally will it be found in the lower areas where the soil is much heavier and the brush is much thicker. It sometimes grows under the protection of a thorny shrub or a prickly pear, but more commonly it grows in the open with the Indian blanket and Texas star and bluebonnet around it and the broiling sun full in its face. It grows in rocky soil also, but there, quite logically probably, it presents more of its body above the ground surface. Wherever it grows, the roots are very strong and fibrous, and hold the plant very securely anchored. One or more tap roots up to 10 cm. in length are almost always present. The plant is solitary, with individual plants usually being several to many metres apart. Occasionally the plant will have several growth centres from dichotomous division. If the growth centre of a plant is destroyed, several pups are produced at the different areoles and so a cluster will develop. It apparently does not cluster unless the original growth centre is lost or injured.

I found one good-sized devil's head with the growth centre destroyed from an unknown cause—there was a vertical hole directly through the centre of the plant. I brought this plant home to see what it would do, and the first year it did nothing except get a little fatter. The second year it produced one flower from an areole nearest the centre of the plant, and subsequently developed fruit. The third year, a pup grew out of this same areole, and as this grew I noticed others growing around it, so that now it has nine heads all growing out of that one original areole or from the base of the original pup.

This monotypic genus has a rather wide range, being found over most of Texas, northern Mexico, and New Mexico.

# The Liliaceae

by B. Makin

Several well known genera come within the family Liliaceae and contain a wealth of interesting species. This account, in which the author deals particularly with smaller growing plants, is based on the lecture he gave at the Society's London Meeting of November 1967.

THOSE who are interested in the genus *Aloe* are fortunate in having at their disposal two very fine monographs in English, both by the late Dr. G. W. Reynolds. In 1950 he published "The Aloes of South Africa" and followed this with "The Aloes of Tropical Africa and Madagascar", in 1966, shortly before his death. The genus is widely distributed, from the extreme north of Africa to the southern extremity, and also in Madagascar and parts of Arabia; *A. buettneri* occurs at localities stretching from Zambia to Mali and *A. myriacantha* spreads from South Africa to Kenya and Uganda. Likewise, there is a wide contrast in the size of the various species: from *A. pillansii*, reaching 30 feet at maturity to the miniature *A. saundersiae* and *A. descoingsii*, which looks like *Haworthia tessellata* with spots.

The large growing species soon become an embarrassment in all except the largest greenhouses and to avoid disappointment one should concentrate on the dwarf species, which have much of interest to offer. It is a matter of personal choice as to what one accepts as a dwarf *Aloe*; for present purposes they will be defined as those which can be grown in a four inch pot when they have reached maturity. With this criterion, *A. confertifolia* is one of this species which is just acceptable. Among the choice species in this group are *A. haworthioides*, much sought-after and now not quite such a rarity, and its variety *aurantiaca* with fiery flowers, *A. bellatula* from Madagascar and *A. parvula* from the same locality, the attractive *A. rauhii*, the popular South African species *A. thompsoniae*, *A. jucunda* with a pleasing flower, from Somaliland, *A. albida*, a tiny white flowered species from South Africa which has a nasty tendency to rot in the autumn, and *A. albiflora*. This last is somewhat larger and rather like *A. bellatula* and is worth a place in the collection for its wide-opening campanulate flowers.

Most *Aloe* species are easy to grow and have no particular preference regarding the type of soil. Clay pots and the usual type of compost, based on the John Innes formulation prove very satisfactory. Faster growth and earlier flowering are obtained in plastic pots but there is a tendency for more open growth and this can spoil the attractiveness of the dwarf species.

There are several genera, containing a few species only, which are closely related to *Aloe*. One such is *Lomatophyllum*, from Madagascar, whose species have fleshy fruits and this is one of the main differentiating

features. Another is the monotypic genus *Chamaeloe*, the solitary species of which, *C. africana*, comes from Cape Province, South Africa. It is like a small stemless *aloe*, with very slender tubular flowers.

The genus *Gasteria*, with an appreciable number of species, is more easily distinguished from *Aloe* by the floral characteristics. It is more difficult to identify some of the species within the genus because the appearance of the plant changes quite markedly with age. The juvenile forms of most species have the leaves in a distichous (opposite) arrangement but these become rosette (rosette) with age. In the case of *G. armstrongii*, one of the gems of the genus, the distichous arrangement may persist to the time when the plant flowers.

The genus *Haworthia*, with the second largest number of species, is probably the best known and most popular member of the Liliaceae. It has been the object of detailed study by a number of workers, notably by Karl von Poellnitz, who was killed during the Second World War before he had completed the classification of the genus. On the basis of what has been done by Berger, von Poellnitz and G. G. Smith, it is usual to divide the genus into 20 sections. Keys have been given which have been based on the leaf arrangement and on the flowers, but the latter is not completely satisfactory. The genus contains a number of dwarf species, *H. angustifolia* v. *liliputana* being a particularly good example. The series *Retusae* contains some choice and interesting plants but, because some of them will not offset, they are not easy to obtain.

Two genera related to *Haworthia* are *Astroloba* and *Poellnitzia*. The former is separated on the basis of its flowers which have their petals arranged regularly. *A. bullulata* and *A. egregia* are especially worth growing. The small genus *Poellnitzia* whose species look like glaucous *Astrolobas*, is also separated on account of floral characteristics.

The family Liliaceae also includes a number of other genera of very varying form. Undoubtedly, the best known of these is *Bowiea*; the onion-like bulb and thin climbing stems of *B. volubilis* will be known to many. Less familiar but very similar is the genus *Schizobasopsis*, which Jacobsen does not accept. *Bulbine* is found in many collections and has several species, all more or less succulent, some being quite choice, and having the added attraction of being easy to flower, usually yellow, with fluffy stamen filaments but, rarely, white.

Finally, there are several genera which are just about acceptable as succulents; *Scilla*, which has attractive bulbous growths on the surface of the soil and leaves with interesting markings, the related *Drimopis*, e.g.

*D. maculata*, find *Drimia haworthioides*, a monotypic genus, with a bulbous base and long deciduous leaves. This latter plant is highly recommended as a collector's item because of its fleshy leaf bases which persist when the blades fall off, and stand apart like the leaves of a small, sunburned *Haworthia*, in which phase it flowers.

Last, and very definitely least, we have the monotypic genus *Litanthus* which, for reasons best known to him, is found in Jacobsen. The solitary species *L. pusillus* is a minute bulbous plant, which, in all honesty, I cannot consider as a succulent plant but which I would not like to be without now that I have grown it for a few years, both for the fact that it grows well in "succulent" conditions and for its fascinatingly diminutive flowers, surely one of the tiniest "lilies" of all. Thread-like

leaves, two or three inches long, grow in late summer from the little pink bulbs and the pot should be watered occasionally, even in the winter, until the leaves start to fade in spring. I rest my pan, dry and in the sun, through spring and into summer and am rewarded by a succession of wiry flower stems bearing one or sometimes two tiny white bells. *Litanthus* is rarely collected wild because it escapes notice on account of its size yet it occurs from Natal and Swaziland south-westwards to Uitenhage and was named by Harvey as long ago as 1844.

It is a far cry from the three-quarter inch flower stem of *Litanthus* to the giant tree *Aloes*, yet both are examples of the wide variety to be found in the fascinating family *Liliaceae*.

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## Help to make a Show of it

by B. Maddams for the Show Committee

AS many of you know, and can now see, the Shows Committee has been hard at work revising the Show Schedules this year and we thought it a good idea to make some comments and suggestions which might encourage more members to "have a go".

You will see there are more classes in both Shows and they are each more evenly balanced between Cacti and Other Succulents. This should give those who specialise in one or the other a more even chance at each show, also the judges work will be made somewhat lighter. We have tried to encourage the Juniors and those who are new at the game; the Juniors have two classes in each Show, one for Cacti and one for Other Succulents and we hope many more Junior members will try at one or both of these—remember there is a Shield to be won! The "Novices" (those who have not won a first prize in a particular section) have the same two classes with a slight pot restriction to give those who have not long started a better chance; please note also, if you have won a First prize for Cacti you are still eligible to enter for "three Other Succulents" until you win a First in that, too, and vice versa.

Now, a quick review of the classes in the June Show. The class for three Cacti is the one to show a group of different genera; in fact, wherever there is a "general class" the more genera shown the better. In this case, perhaps you may choose a *Mammillaria*, *Echinocereus* and one of the columnar *Cerei*, but balance your entry carefully so that it does look a group and not just three odd plants. The next class for *Rebutias* and *Lobivias* does not include *Sulcorebutia* or *Chileorebutia* but these can be included in the three *Echinocactanae* class; however, *Aylosteria* and *Mediolobivia* are included.

Six *Mammillarias* with a pot size restriction is a new venture. We hope this will encourage those whose *Mammillarias* are as yet not up to some of the giants

we see to show them; this should also give a chance for some of the choicer *Mammillarias* such as *M. aureilanata*, *M. pennispinosa* and *M. magallanii*, which never reach very large proportions, to be seen.

The term *miniature Opuntias*, does not mean immature plants of *O. robusta*, *O. subulata* or other large-growing types, but mature plants of the real dwarfs which never reach much more than two feet in height. The main varieties in this section include those of the Sub-genus *Clavatorpuntia* and *Sphaeropuntia* (*Tephrocactus*) and a few from the Groups *Airampoe* and *Pubescentes* (see Borg's Cacti).

Three plants in *Echinocactanae* give wide opportunity. It does not necessarily call for the "fossils" of *Ariocarpus*, *Aztekium* and such genera; well-grown and sizeable, clean plants of *Gymnocalycium*, *Astrophytum* or *Neoporteria*, to mention only a few, can earn enough points to equal the "rarities", and also quite often look much more attractive on the Show bench.

The next two classes require no explanation. However a note may be made of the date restriction now set on the imported Cactus and the smaller container in the Cacti from Seed Class. This, we hope, will encourage more entries as complaints have been made that too much space is needed to keep too many seedlings for up to two and a half years.

In Section B, the classes for Succulents other than Cacti there have been a number of alterations which we hope will encourage more of you to enter. *Echeverioideae* includes not only *Echeveria* but the hybrids such as *Pachyveria* and *Graptoveria*. *Euphorbiaceae* covers the related genera *Jatropha*, *Monadenium*, *Pedilanthus* and others. Three plants in *Liliaceae* has appeared in the schedule before but, for some reason, has never been a popular class. Surely, nearly everyone can produce say, an *Aloe*, a *Haworthia* and a *Gasteria*

that are reasonably balanced for size and attractiveness, even if tastes do not stretch to *Astrolobas*, *Poellnitzias* or some of the hybrids.

The *Asclepiadaceae* give a wide choice of genera, too numerous to list here, but as in the previous classes, for more information a quick reference to Jacobsen will solve the problem. Class 16 needs no further explanation, while Class 17 gives an opportunity to show such plants as *Senecios*, *Crassulaceae*, *Kalanchoes* or *Sedums*, or even any *Mesembryanthemums* that are in growth. The Juniors, of course, can select from any succulent families for their group and again, remember, three different genera from three different families will increase your chances of winning. One caudiciform succulent is a new class for those who appreciate the "turnips," and suchlike; this is definitely for plants with a caudex such as *Adenia*, *Brachystelma*, *Idria* and *Testudinaria*.

The same suggestion can be given to the novices in Class 20 as the Juniors in Class 18—variety is the spice

of life! Make a good selection in your five-inch pots.

The three classes in Section C are more for display and decorative effect apart from Class 21 where the balance of the two plants (which must be of "specimen" standard) is important. In response to many requests the Miniature Garden can now include both Cacti and Succulents; we hope to see all those gardens whose owners complained about the Cacti or Succulents stipulation before.

We hope these comments have helped you and will encourage you to fill in those entry forms and get them along to the Show Secretary in good time (that does not mean on the closing date—she has plenty to worry about without last-minute entries)! If you are still in doubt about any class and cannot find the answer to your problem in Borg or Jacobsen, please do not hesitate to attack any member of the Show Committee; they will do their best to help you. Make sure you help make this the best Summer Show ever and the best of luck; you cannot all lose.

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## A Propagator with Artificial Illumination

by R. D. Ganiard

I BECAME interested in the use of artificial light for raising cactus seedlings because of the difficulties which afflict many of you in Great Britain, namely that our area of California and much of the British Isles have it in common that the amount and duration of the sunlight is wholly unpredictable. We get long foggy spells and these may be followed by bright sunshine and whereas larger seedlings do not seem to mind such extremes young seedlings definitely do not take kindly to them.

As I was acquainted with the use of "Gro-lite" tubes for the cultivation of the leafy types of plants, I considered that they should be suitable for cacti and the other succulents, although it would probably be necessary to use a higher light intensity. This surmise proved to be correct and, after various trials, I have found what I believe to be the optimum conditions. This article deals with the system I use and the propagator I have constructed. So far as this latter is concerned, the precise details are not of particular importance; for example, many readers will not wish to build a propagator as large as the one described below.

At the outset I decided to build the propagator from concrete but, to minimise the weight and make it semi-portable, I used a lightweight concrete mix. This consists of a mixture of one part of cement to five or six of perlite, or vermiculite which is an adequate substitute. The secret with this recipe is to mix it much wetter than normal concrete; it must be rather sloppy or it will not properly fill the mould and will contain air bubbles, which are detrimental to the strength of the concrete.

The mould was nothing more elaborate than a wooden box fixed inside a larger box. The outer one was 54 x 30½ inches and the inner one 48 x 24½ inches, giving a wall thickness of three inches. This may sound excessive but it ensures mechanical strength and with the lightweight mix I use it is not excessively heavy. The disposition of the two boxes is arranged so that the thickness of the base is two inches. Before concrete is put into the mould the wood should be painted with motor oil, to prevent the concrete adhering.

When the moulds have been removed to leave the concrete casting, two holes are drilled in the base; this is easy because this type of concrete is comparatively soft. One hole is for drainage purposes and the other for the entry of the heating cable. This is of 130 watts rating and is 26 feet long and is capable of raising the temperature to 100°F. if necessary; it is laid evenly to and fro on the base. A piece of brass tubing is inserted through the drainage hole to be flush with the inside surface and is then plugged with a cork. The whole of the base is then covered with a one inch layer of sand and cement. This is worked with a trowel to obtain an even slope down to the drainage hole. Then, when the plug is removed, surplus water will drain out completely. When this base has dried it is advisable to paint it all with a cement-water mixture to render it quite impervious and prevent leaks, particularly around the drainage pipe. When in use the propagator holds 128 three-inch square plastic pots and the watering is done by tipping in a bucket of luke-warm water with the cork in the drainage hole. After adequate time has elapsed the cork is removed and excess water drains away.

The other major feature of the system is the arrangement of the Gro-lite illuminating tubes. There are four of these, arranged parallel to each other, spaced  $5\frac{1}{2}$  inches apart and 7 inches above the tops of the pots. One convenient way of doing this is to mount the tubes in a wooden frame and, as my propagator sits against a wall, the frame is hinged directly to the wall and is easily raised for access to the propagator. The artificial illumination is required for something like 15 to 18 hours per day and no longer, as a period of darkness is essential for photosynthesis. Control of this on-off period is through an interval timer whereas the heating cable and its associated simple inexpensive waterproof circuit are connected directly to an electric

point which is always on.

This propagator has been used successfully to raise many types of seedlings, with complete success. They include many *Mammillaria* species and a range from the following genera: *Astrophytum*, *Cleistocactus*, *Coryphantha*, *Oreocereus*, *Stenocactus*, *Gymnocalycium*, *Lobivia*, *Melocactus*, *Parodia*, *Haworthia* and an assortment of stemless mesembryanthea, including 38 species of *Lithops*. In general, the seedlings are left to reach about half-an-inch in diameter before they are pricked out. This size is reached in a somewhat shorter time than with those grown in normal daylight and I feel that the method has much to commend it. I hope that others will be encouraged to use this system.

## Book Reviews

**Städtische Sukkulentsammlung Zurich:** Katalog der in Kultur stehenden Arten. Published by the Städtische Sukkulentsammlung, Mythenquai 88, CH -8002, Zurich, Switzerland, at SFr. 8.00 including postage (about 16s.). Payment by International Money Order preferred.

This book which is, in essence, a catalogue of the succulent plants in the State collection at Zurich, is of much wider interest than might be supposed, as a glance at the contents will quickly reveal. Its varying facets will appeal to the ordinary cactophile, to those who are likely to visit the collection, to the specialist, to those who are attempting to establish a reference collection in Great Britain, and to those with taxonomic inclinations. The fact that it is written in German is only a minor disadvantage; readers unable to follow the introductory section on the history and the organisation of the collection will be able to obtain the requisite background from accounts of the collection written by English cactophiles from time to time. These include an article by Mrs. T. Watt, on page 143 of the April 1961 issue of *The Cactus and Succulent Journal of Great Britain*, and recently, by W. T. Tjaden, on page 102 of the December 1967 issue of *The National Cactus and Succulent Journal*.

Many cactophiles will wish to purchase this book solely for its photographs. There are 66 of these and, at about 3d. each, they are excellent value for money. Overall, they are good and if this standard could be emulated consistently in the various cactus journals, they would be the better for it. I would rate almost one third of these illustrations of "three star" standard, either for photographic merit or for portraying particularly interesting plants. Some of those worthy of mention are *Cryptocereus anthonyanus*, one of the less common epiphytic cacti, *Cleistocactus baumannii* v. *colubrinus* in flower, *Lophophora williamsii* in normal and cristate forms, *Melocactus maxonii* with cephalium and fruit, *Notocactus* (*Malacocarpus*) *tephracanthus*, *Pereskia*

*grandifolia* in flower, *Testudinaria elephantipes* (a real gem), the curious *Sarcocaulon multifidum* in flower and a group of three of the mimicry *Anacampseros* species.

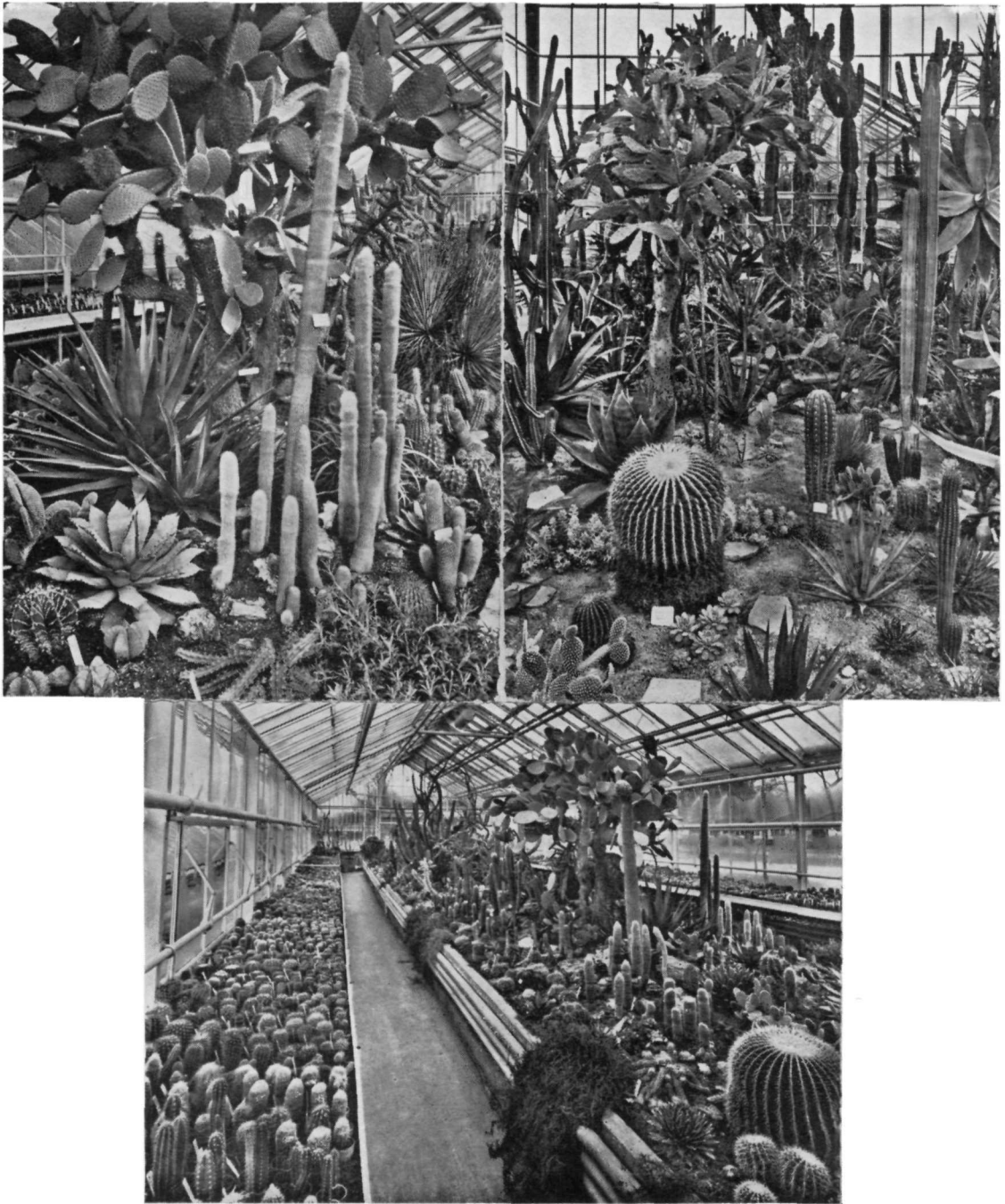
The Zurich collection contains some 16,000 plants, comprising 4,306 species of 28 families and to inspect it carefully is clearly a major undertaking. To attempt to do so without a catalogue of its contents, is clearly out of the question and the present book should enable those whose time is limited, to make the most of the opportunity. It is arranged systematically and in alphabetical order of families. For example, it opens with the *Agavaceae*, and under this heading come *Agave*, *Dasyllirion*, *Dracaena*, *Nolina*, *Sansevieria* and *Yucca*. These systematic lists together with the photographs, account for most of the 194 pages.

The specialist is provided with a happy hunting ground, whether his interests be the caudiciform succulents, stapeliads, newer South American cacti, mammillarias or stemless mesembryanthemums. It is clearly out of the question to comment in detail on the wealth of interesting material making up the 4,300 species, both on the grounds of limitation of space and the inability of one person to cover this vast range competently. The representation of Mammillarias is excellent and includes such choice items as *MM. albiflora*, *barbata*, *boolii*, *carrettii*, *davsonii*, *eichlamii*, *flavihamata*, *gasseriana*, *graessneriana*, *hastifera*, *knippelianae*, *lenta*, *lesaunieri*, *mainae*, *napina*, *neopalmeri*, *phitaiana*, *pullihamata*, *roseocentra*, *tetrancistra*, *vetula* and *wrightii*. Likewise, a collection of 69 species and varieties of *Coryphantha* must be reckoned good by any standards. Our friends in "The Chileans" will doubtless be impressed by the representation of their favourites. There are 27 species of *Copiapoa*, five of *Islaya*, 19 of *Matucana*, six of *Mila* and 54 species and varieties of *Neoporteria* in the broad sense in which the name is used by Donald and Rowley.

Turning to succulents other than the *Cactaceae*, the array is no less impressive. The informed reader will



*The photos on this and the following page were originally published in the Journal for October, 1951 (Vol. 13, No. 4) in connection with an article by the late Mr. E. Shurly on the Zurich Collection, and we thought they might be of interest to readers in connection with the review of the Catalogue of this collection*



expect a good representation of the genus *Monadenium*, for example, but the collection of 33 species and varieties, including some un-named as yet, deserves the epithet outstanding. The *avant-garde* coterie, with their current enthusiasm for what are colloquially known as turnips, parsnips and carrots, will find much of interest although, not surprisingly, this collection can hardly compete with what Professor Rauh has to offer at Heidelberg. Turning to the genus *Conophytum*, rather mysteriously out of favour with most collectors, one finds 139 examples, although gems such as *C. stephanii* and *C. cupreatum* are missing. In short, anyone seriously studying a particular genus will be able to find most of the species which are of interest to him.

It is to be hoped that the ready availability of the detailed contents of this first-class collection will bring home to most cactophiles the extent to which we in Great Britain are the poorer by not having something akin to it. If this happens, then it will greatly strengthen the hand of the enthusiasts in The Succulent Plant Institute, who are seeking ways and means for forming and maintaining such a collection. Surely there are lessons to be drawn from the fact that a country as small as Switzerland can achieve something which those with seemingly greater resources cannot. Perhaps the parochialism that must come from her geographical environment leads to a better and more worthwhile scale of values than is found among those who dissipate their substance in seeking to maintain authority at the four corners of the earth.

This catalogue will probably meet with a mixed reception by taxonomists, real and pseudo, depending on their affiliations, and it is by no means a case of belonging to the "splitters" on the one hand or the "lumpers" on the other. Rather, there does seem to be an inconsistency in the overall level at which genera are accepted. As indicated above, the mildly conservative approach of Donald and Rowley regarding Neoporteria and allied genera is adopted but we also encounter the Buxbaumian practice of splitting off highly doubtful genera such as *Leptocladodia*, *Mammilloidia* and *Oehima* from *Mammillaria* upheld. Various species which most of us have long known under the generic name of *Malacocarpus*, and have just about come to accept under the heading *Wigginsia*, are here given under *Notocactus*, a classification which will surprise many, although the abandonment of *Eriocactus*, in favour of *Notocactus* is less radical. The appearance of new generic names, including *Espostoopsis*, *Irechoereus*, *Jaenocereus*, *Normanbokea*, *Praecereus*, *Pseudoechinocereus* and *Pseudopilocereus* will infuriate some but will be received with pleasure by others who, reputedly, have shares in firms manufacturing labels. Here, as in other directions, the hand of Buxbaum is very apparent. Among the succulents other than cacti, there is probably less scope for controversy but, here again, some inconsistency is evident. For example,

we find *Frerea indica* under its correct new name *Caralluma frerei*, whereas the two *Tavaresia* species still bear that generic name, not the now accepted *Decabolone* and we find *Echinus apiculatus* whereas the name should now be *Braunsia apiculatus*.

Herr Krainz and his colleagues are to be congratulated on producing this informative and valuable volume, which is far more than a catalogue. They will doubtless now be visited by many more cactophiles and the benefits should be mutual. Likewise, it is safe to predict a market for this book in Great Britain.

W.F.M.

**Epiphytes, Volume 1, Number 1.** Published for the Epiphytic Plant Study Group, N.C.S.S., by A. J. S. McMillan, 5, Oakfield Road, Bristol, 8; printed by M.B.S. Ltd., 24, Bond Street, Bristol, 1. Subscription: 10s. 6d. per annum.

There seems to be an increasing tendency to issue booklets or newsletters on specialist subjects amongst succulent enthusiasts; one of the latest is this first issue of EPIPHYTES presented by the Epiphytic Plant Study Group of the National Cactus and Succulent Society. The Editor assures his readers that this newsletter will not replace the round robins but will provide more direct communication and articles of more general interest.

This latter point raises the question of how general should articles of a specialist Society be. In the main, the contents of this first issue may well encourage interest in this group of plants from the non-specialists, rather than supply further knowledge for those who are already studying epiphytic plants. For this reason it can be recommended to more general readers. Naturally, the contents is governed by what the Editor can procure or elicit from writers, but one genus, *Rhipsalis*, which is probably among the largest of genera where epiphytic Cacti are concerned, was notably absent from comment; however, the complexities of this genus may be discussed in a future issue.

The article by Dr. Tomlinson on Epiphytic Bromeliads is most clear and helpful, particularly the table at the end where 20 better-known species are listed and tabulated showing their flower and leaf colour, habit and conditions preferred. For those not familiar with this group of plants and intending to start a collection all the required information is supplied here. As the Editor comments, Mr. Innes has really only whetted our appetites with his interesting descriptions of "Some Other Epiphytes" and we hope there will be an opportunity to hear more about those that he lists briefly at the end. A brief chatty couple of pages by Marion Turnock makes light relief before Mr. McMillan tackles the always somewhat debatable problems of the Christmas Cactus nomenclature. Another controversial question is also raised here with his suggestions

for the culture of *Zygocactus*; he considers the plants should never be completely dry although less water should be given just before buds develop and just after flowering. No doubt other growers have just as successful results with different methods and a good deal must depend on the situation, temperature and humidity of the greenhouse or other locality of the plants. There was no room for the promised bibliography at the end of the newsletter, but it is hoped that this will materialise next time.

With the advent of this new size and style of journal or newsletter, it is interesting to make a few comparisons with those of other Cactus Societies. EPIPHYTES is no doubt neat, and of handy pocket size, but a little calculation shows it is rather wasteful of space. This, however, is true of some of the other specialist Societies, too, where with smaller membership, the best use of available funds is essential. Measuring the average words per square inch of paper used, EPIPHYTES gives 6.4, this is slightly improved by the Mammillaria Journal with 8 words per square inch, but in contrast to this, both the National Cactus and Succulent Society Journal and the American Cactus Journal total 18.5 words to the square inch. Some interesting deductions for those with economy in mind.

However, EPIPHYTES has made quite a good start and further issues will be awaited with interest.

B.M.

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## Correspondence

To the Editor,

Perhaps I may make a few comments on Mr. Ganiard's interesting article on "A Propagator with Artificial Illumination", appearing elsewhere in this issue. I am in the fortunate position of having seen the manuscript prior to publication and I have been in touch with the author for several months. As the result of his encouragement, I am experimenting in this field and my remarks are intended to complement one or two aspects of his technique. In particular, I have not used the special "Gro-lite" type of fluorescent tube because it is not easily obtainable in Great Britain.

There is still doubt as to the precise distribution of energy throughout the visible spectrum needed for optimum plant growth; it may not be the same for seedlings and older plants. However, it does seem clear that a certain intensity of red light is mandatory. I selected the "Daylight" grade of fluorescent tube as most likely to combine the necessary red light with a high output elsewhere in the visible spectrum. In my arrangement a normal twin three foot tube system is used; this is mounted some seven inches above the propagator and illuminates an area of approximately 26 by 17 inches. The two tubes are mounted in a

diffuser and a sheet of aluminium foil is fixed above this, to reflect back light which would otherwise be wasted. A 16 hour day is used, the on-off period being controlled by a time switch. This costs about £5 but has other domestic uses and so represents a reasonable investment. Measurements with an exposure meter indicate that the average light intensity is that of a normal summer day but no shading is required as there is little ultraviolet radiation emitted by the tubes.

This system has been in operation for about eight weeks, which is not a long enough period to draw final conclusions. However, I have considerable experience in raising seedlings and I judge that progress is rather faster than with the conventional approach; many types of cacti are already showing a definite body with spines between the cotyledons.

I agree with Mr. Ganiard that an artificially illuminated propagator is a practical proposition and it provides the means for those without greenhouse facilities to raise healthy seedlings, wherever space is available in an ordinary house. In some cases, and I come into this category, it permits seed raising to continue when the greenhouse is filled to capacity. I also hope that readers will be encouraged to use the system.

W. F. Maddams,  
Banstead, Surrey.

To the Editor,

I understand that the reprint of the pre-war Journals are now available from the publishers. As someone who has managed to build up an *almost* complete set, over a long period of time, I am somewhat loath to buy the complete volume (or volumes) to fill in the gaps. It occurs to me that there are probably several other members who have similar incomplete sets, some of which may be so incomplete as to make it virtually impossible to complete them. Many will no doubt decide to abandon the loose Journals, and will buy the reprint. It might be that these members would be willing to offset the cost of the reprint by selling the odd copies to those of us who would prefer to complete a set.

Might I suggest that the process be centralised in some way, so those with Journals to sell could be put in touch with those who wish to buy? I would not wish to overburden our already well-worked officials, but will offer my own services—there is little enough I can do for the Society at such a distance from London. If anyone with Journals to sell would send details of issues available and prices asked, and similarly those who wish to buy would send a list of issues required, I will try to fit the two together.

W. C. Keen,  
8, Stonehouse Close, Cublington,  
Leamington Spa.

To the Editor,

In reply to the query of A. C. Sears concerning the photograph of *Cotyledon orbiculata* (Vol. 29, No. 4, Page 79), I agree that this does not appear to be correctly named, but it is I believe, not very far from being correct. At first glance the plant pictured resembles, in general appearance a *Pachyphytum*, perhaps *P. hookeri*. However, an inspection of the flowers shown in the photograph indicates that the plant is certainly one of the *Cotyledons*. Reference to "A Handbook of Succulent Plants"—H. Jacobsen, Vol. 1, Figs. 281 and 283, is sufficient to satisfy me that the plant in question is either *C. orbiculata* var. *dinteri*, *C. orbiculata* var. *oophylla*, or one of the intermediate forms which connect the two varieties. Both of these plants originate from S. W. Africa, much farther north and nearer to the equator. This accounts for the more succulent appearance of the leaves. Another variety of this plant is *C. orbiculata* var. *higginsiae*, from the somewhat cooler regions of the Cape Province, resembling the type of species which has almost flat leaves. This is believed to be a transitional form between the type species and var. *dinteri*, which I believe to be the plant illustrated in the photograph under discussion.

D. V. Brewerton,  
Upminster, Essex.

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## Secretary's Notes

### South London (Lambeth) Branch.

We regret to announce that this Branch has found it necessary to close down, owing to lack of support. Since the untimely death of its founder, Mr. Bill Fraser, low attendances at meetings have forced Mr. W. Heatly to take this action. The Council have expressed their regret at this decision, but wish to thank Mr. Heatly for his untiring if unsuccessful efforts to keep the Branch alive.

### Shows in 1968.

The North London Branch Show will be held on Saturday 6th July. This Show is held in conjunction with the Totteridge Horticultural Show and Fete in the beautiful gardens of "Ettrelita", one of the many large houses in Totteridge Lane. There are over 20 competitive Classes for Branch members, forming part of a general flower and vegetable Show, housed in a large marquee. Side-shows, raffles, competitions, etc., help to make this a pleasant afternoon out for all the family. Ample car parking facilities are available, so why not come along and join the fun. The Classes for cacti and succulents at this Show will be judged again by Mr. C. Brown and myself.

The Hillingdon Borough Show Society, one of our

affiliated Societies, are holding their Horticultural Show on Saturday 22nd June, at Park Road, Uxbridge. The schedule includes a number of classes for cacti and other succulent plants. There is a class for a collection of plants to fill a space 6 ft. x 2 ft. 3 in., with a 1st Prize of £2, and no less than 11 open classes with prize money ranging from 2s. to 15s. for exhibits of *Mammillarias*, *Echinocactaceae*, *Opuntias* and *Mesembryanthemums*, as well as for specimen cacti and succulents. Members living to the west of London should endeavour to enter some of these classes, or at least visit the Show and help support one of our affiliates. Mr. Arthur Boarder will be judging the exhibits. Details, schedules, etc., from Hon. Secretary, Mr. R. D. Beauchamp, 20, The Chase, Ickenham, Middlesex.

The Berks and Bucks Branch Show, held in conjunction with the Royal Windsor Rose Show is on July 5th and 6th. The Branch stages exhibits covering 60 ft. of table space and the twelve or so classes will be judged by Mr. Boarder. The Royal Windsor is a very popular Show and once again would make a most pleasant trip for members, and a chance to meet fellow members of the Society.

### Chelsea Show (May 22nd to 26th).

The Officers of the National Cactus & Succulent Society have invited this Society to share their stand at this years Show. It is hoped that this joint venture will help to cement relationships between the two Societies. Any members able to visit the Chelsea Show are invited to make themselves known to those on duty at the Cactus and Succulent stand.

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## News from Branches

THE NORTH SURREY BRANCH opened their 11th year with a talk by Mr. D. V. Brewerton and appropriately enough, their second visiting speaker, Mr. J. W. P. Mullard holds the same position of Secretary but in the National Cactus and Succulent Society. Mr. Mullard gave an amusing and informative talk on *Rebutias* and *Lobivias* illustrated by some fine slides. Other visiting speakers this year will be Mr. K. Halstead talking on *Notocactaceae* in April, and Mr. W. C. Keen on "Greenhouse Experiments" in June. The Branch outing on 19th May will be a visit to the nurseries of Mr. C. Innes and Mr. D. Brooks. Any members of the Society but not of the Branch who are in striking distance of Sutton are welcome to join any of these events.

The Branch will also be putting on displays at Shows—the Sutton Horticultural Society Show in July and the Carshalton Show in September, and judges will be supplied for the Cactus and Succulent classes in several local Shows.

(continued over)

WEST KENT BRANCH: Please note change of Secretary. The new Hon. Secretary of this Branch is: Mrs. M. Dobson, 13, Montague Avenue, Brockley, London, S.E.4.

NORTHERN COUNTIES BRANCH: This Branch is now producing a monthly Newsletter for the further interest of members and would like it to circulate among as many isolated members in the area as possible. Would any members in the Northern Counties Area who would like to receive a copy every month send to Mrs. D. I. Hutchinson, 53 Hampton Road, Marden Farm, Cullercoats, Northumberland, enclosing 3s. to cover postage for twelve months.

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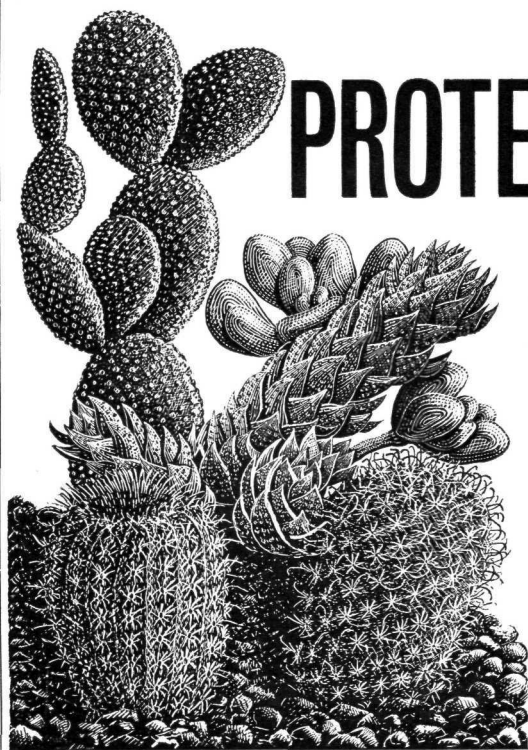
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# THE CACTUS AND SUCCULENT JOURNAL OF GREAT BRITAIN

Vol. 30

August 1968

No. 3

## Editorial

MEMBERS will by now know that as a result of the referendum, the two Cactus Societies are not combining and the G.B. Society is continuing its independent existence under the Chairmanship of Mr. A. Boarder, who has for so long been one of our stalwarts. There appear, however, to be some strange ideas circulating as to the financial position of the Society which might perhaps be clarified. The Society is certainly not "broke", but the continued rise in costs on all sides means that unless we cut down expenses to a considerable degree, or alternatively, and preferably, increase our membership to cover these higher costs, we shall find it difficult, before long, to meet our commitments. And this is where you can help. If even half our members could each enrol one new member, many of our troubles would be over. What about it? Can you help

the Society by persuading just one friend to join?

On looking through the contents of this issue of the Journal, it strikes me that it might almost be headed "Show Number." Certainly this is the time of year for the Shows and with reports of two Shows and hints for a third, and a light-hearted article on the backstage work, they certainly take up a good deal of our space this time. However, this is not altogether fortuitous. After all, one of the means of drawing attention to our hobby is to let our plants be seen by as many members of the public as possible, and a show is surely one of the best ways of doing this. My own Branch (North Surrey) has not yet ventured to put on a full scale public show with competitive classes, though we are considering the possibility, but we do

*Continued on page 51*

## Cultivation Notes

*Cacti—A. Boarder*

THE main flowering time for many cacti will now be over but plenty of fruits or seed pods may now be in evidence. Many of these may be as attractive and colourful as the flowers, especially on many of the *Mammillarias*. Most of these are red, but a few have a terra-cotta shade and can last for many weeks. Some species of *Mammillaria* produce their seed pods soon after flowering whilst others will not send out the pods until the following year. In a large collection it is surprising how some of the pods seem to appear overnight. It may be that one does not notice them soon enough, but it often happens that I enter the greenhouse and find that seed pods have grown on a particular plant which to my recollection showed no signs the previous day.

The *Epiphyllums* have a large fruit which is very highly flavoured and makes good eating if one can avoid the seeds. Some of the *Echinocereus* seed pods are also very showy but when one tries to clean the seeds it is found to be a very difficult task. The seeds are embedded in a type of jammy substance and even when they are washed under a tap in a sieve, some of the jelly adheres most strongly to the seeds. Rubbing them through a tea strainer and then on blotting paper appears to me to be the only method of cleaning them. The cleaning of seeds does not follow any pattern, as even in the same Genus it will be found that some species are easy to clean whilst others are very difficult. In the *Mammillarias* it is possible to gently rub some seed pods

between the fingers when the seeds fall out, whilst other species are very tricky to deal with. The *M. rhodantha* are mostly awkward to get seeds from their pods as they are well bedded in tough jelly-like substance. Some of the pods may appear to be difficult to deal with but if they are left on the plants for some time the fruits dry up well and it is then much easier to extract the seeds.

With many of the *Mammillaria* species it is possible to remove the pods as soon as they start to shrivel and the seeds and pulp can then be squeezed out on blotting paper and so cleaned. One must make certain that the seeds are quite ripe before attempting this as they may not germinate unless they are completely ripe. Just because a pod is red it does not signify that the seeds are ripe and fit for sowing. The pod must have at least started to shrivel before the seeds can be ready.

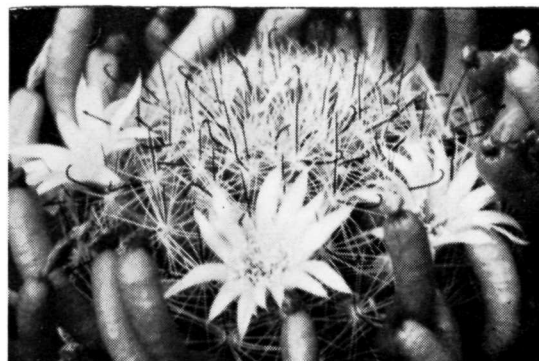
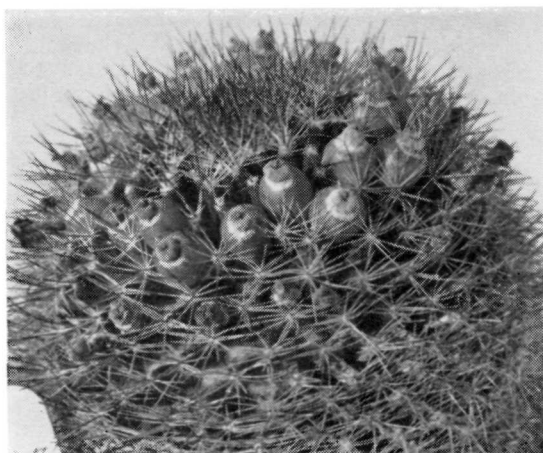
I sometimes find seed pods on a seedling *Mammillaria* which I do not remember having flowered the previous year, but of course it must have done so, but in a large collection it is easy to miss a plant or two when in flower. It often happens that a cactus will flower when one is on holiday and this happens with some plants which one is particularly anxious to photograph in flower. On return from holiday the dead flowers are seen and then one has to wait another year. I have just returned from a week's holiday and have found that several plants have flowered whilst I have been away. I had left the plants un-watered during this period

which was a very sunny one. I left the four top windows open all the time and a ventilator in the door. No plant appears to have been adversely affected and there is no sign of scorch. I had not shaded the glass of the greenhouse at all although my large garden frame had been coated with a film of "Sumer Cloud."

On my return I found that my plant of *Mammillaria viperina* had produced a number of flower buds at or near the tops of the stems. This plant has not flowered before and it looks as if it will be quite attractive. The buds are rather long and coloured somewhat similar to the flowers of *M. bella*. A bud has also formed on *Lobivia huascha* v. *aurea*. Another interesting happening is that the *Stapelias* which I raised from seed last March have developed buds, and *S. nobilis*, has a large bud well developed. I know that I should not be dealing with the other succulents as this is the province of Mrs. Stillwell, but I have mentioned these plants before and shewn one at a meeting. They are quite large plants and only a little over a year old from seed, which does demonstrate how easy it is to raise many of the other succulents from seed.

Whilst on holiday I met many members of a Cactus Society and it was very interesting to hear the different ideas which are around with regard to the growing of cacti. It has never ceased to make me marvel at the stated success which some growers achieve by using so varied methods. I suppose that it just emphasises how adaptable these plants are. Whether it is the different localities or the shapes or positions of greenhouses, I do not know but what would kill a plant in some conditions seems to encourage growth in others. There will always be the different likes and dislikes as to the merits of plastic versus clay pots, but I am firmly convinced that the majority of cacti grow better in plastic ones. Since all my plants were repotted into them they have grown better than they did in clay pots. Of course one must be careful when watering

*Mammillaria brandegeei* in fruit Photo: B. Maddams



*Mammillaria "sanluisensis"* showing flowers and previous year's fruit Photo: B. Maddams

but cacti can be killed by this even in clay pots. One just has to use a little common sense and then it will be found that not only is the watering time cut down, but the plants actually grow better in the plastic pots.

Then there is the question of method of watering. Some water from above whilst others immerse the pots. How one can do this latter method with a large collection I do not know. I find that in hot weather even plastic pots require watering every day and in my case, having a thousand plants in pots I would be forever dipping pots in and out of the water all day long and most of the night as well. I find that my method of watering is very labour-saving. I am fortunate in having my greenhouse lower in the garden than my rain tub, which enables me to have a long plastic hose leading from a tap at the base of the rain tank into the length of my greenhouse and also into all parts of my 20-foot frame. The brass nozzle with a tap enables me to water each plant individually but also allows me to fit a rose so that a good spray can also be used. With a 100-gallon tank and an overflow one holding 80 gallons, with tap, I am usually well supplied with rain water. On any rare occasion when rain water is lacking I can partially fill the water tank with tap water and allow it to lose its chlorination during a couple of days.

The tap water in this district is very limey and if plants were watered over-head with it there is no doubt that in a short space of time most of the spines would show a white coat of lime and lose their attraction.

Besides the question of which pots were being used I found that a variety of potting soils were also giving rise to speculation. There is the school of thought which advocates a different type of compost for each Genus and others use one type for all plants. I am among the latter as I use one compost only for all my plants which not only includes many Genera of cacti but a very comprehensive collection of Lithops. They are all grown in the same mixture. I use the J.I. seed compost for seed raising and a modified J.I. No. 2, potting compost, making it more porous with added roughage.

The many types of potting compost used with varying success indicates most strongly how adaptable are these plants.

I can recall how I used to grow my first cactus plants, 63 years ago. I then used ordinary garden soil as found in the average London back yard. That it did not kill my plants is evidenced by the fact that I still have the original *Echinopsis* which was the start of my collecting and also the plants I have of *Mammillaria gracilis*; *M. prolifera* and *M. pusilla*; are the direct descendents of the plants I had all those years ago. At that time my collection was very small compared with my present one, and I can remember a *Haworthia*, a *Gasteria*, an *Opuntia* and an *Epiphyllum*, then known as a *Phyllocactus*. There were also a few others such as *Kleinia articulata*, and a *Cereus peruvianus*, plants which will be recognised as beginners' plants today. That these plants lived for many years was not because of the care I took with them, but in spite of the treatment which would be frowned upon today by enthusiasts.

This all goes to prove how very tough many of our plants are. One often finds someone with a fine specimen of cactus and when the question is asked as to how it has been grown the answer is that it is watered and cared for as any other type of plant. When one hears growers who swear by their own method as being the only one to bring success it would be very disconcerting for them to see what others can do with their own supposedly quite wrong methods.

This variation in methods is perhaps more marked when the question of seed raising is being discussed. One finds such varying ways of growing that it appears to be quite remarkable that so many different ways can be successful. I have been growing from seed for about 45 years and with slight adjustments have carried on in rather the same manner. On reading an article in our Journal of 1932, I find that what I wrote then is very

similar to the method of growing seeds which I carry out nowadays. One grower I spoke to the other day said that he moved his tiny seedlings from the pan as soon as they were up. I have never done this but like to wait until the seedling has developed a true cactus-like growth on top and the cotyledon or food-bag has been absorbed. The above grower contended that he had no losses when using this method.

There have been many of my *Lobivias* in flower this year but as usual the flowers did not last more than a day, especially if the weather was warm. One of my plants to flower for the first time from seed was, *Lobivia kermesina*, which I had seen in bloom and admired. My plant had two flowers but they hardly opened properly before they died off. Unlike many of the *Mammillarias* most of the *Lobivias* are not very attractive when they are not in bloom and as their flowers are so short-lived I wonder if they are not taking up valuable space which could well be used by me to repot many of my *Mammillarias* into larger pans. The trouble I have had in trying to get half-pots in plastic over six inches in diameter may be solved by the purchase of plastic pot saucers. I already have a large one about a foot across for my *M. plumosa*, and I shall try to get others for some of the large groups of this Genus. Of course they have no drainage holes but these can be made quite easily with a hot soldering iron.

Most cacti will benefit from a good watering as often as they dry out during the months of August and September, but care must be taken towards the end of the latter month to ensure that no water is given during very dull weather or the pots may take a long time to dry out. Although watering need not stop at this time a lot will depend on the temperature of the greenhouse especially at night. Once it drops below 50°F cease watering.

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## Cultivation Notes

*Other Succulents—Mrs. M. Stillwell*

As I write these notes it is a very hot day and I have just finished watering the plants and making sure that every available window and the door is wide open. In very hot weather, especially if I am going away for the weekend, I throw down several buckets of water on the concrete floor of the greenhouse; this helps to counteract the hot dry atmosphere that can encourage red spider, without actually wetting the plants. I have been busy removing the dead skins from the *Lithops* and repotting where required. This is always better done just at the commencement of the growing season. It is very difficult to remove the skins from the base of the *Argyrodemas*, as they are of a much harder texture, and therefore many of mine get left on. A few of the early growing *Conophytums* were also ready for watering and the

removal of the skins. This is a tedious job, but must be done annually, to keep the plants looking neat and tidy. Do not attempt to force the old skins, for when they are ready they come away almost by themselves, with just a gentle rub.

Take any succulent cuttings during mid-summer and in most cases they will soon root up in peat and sand. I have a large *Hoya carnosa* which had become very overcrowded, so I have removed most of the old growth by dividing at the root and have potted up the newer shoots, which have the fresh stems showing flower buds. I washed the complete plant in soapy water, as I find the thick leathery leaves get very dusty and dirty with age, and there are often signs of mealy bug in the joints. I find it does best for me, standing on the floor of the

greenhouse and trained round canes in the pot. The exquisite pink waxy flowers make it a worth-while plant to grow. *Hoya bella* with white flowers and a more miniature form, I find, is not quite so easy to grow, although a fine plant when well established and very free-flowering. They benefit from a liquid feed now and again.

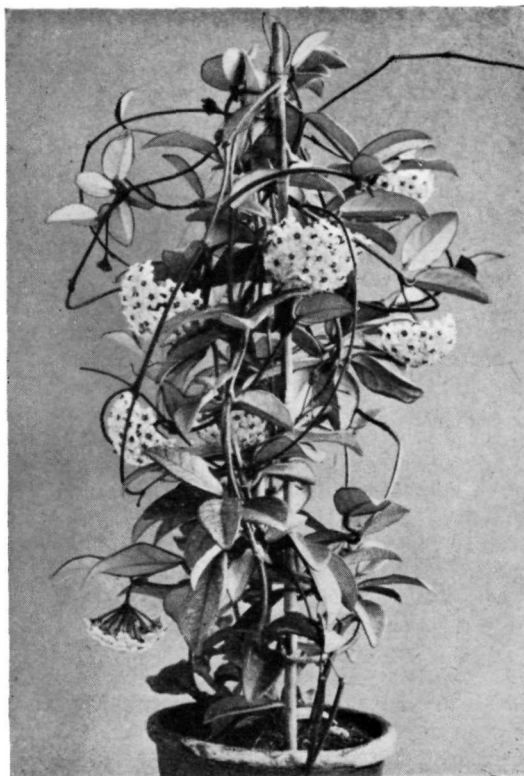
I have just repotted my *Crassula pyramidalis* which has flowered for the first time with five heads. The whole flowering section of course dies afterwards and has to be removed. It prefers semi-shade. If you have the *Crassula* hybrid known as "Morgan's beauty" or "Morgan's Pink" do grow it in absolutely full sunshine to get the best results. It will become almost pure white and will flower well.

I still have one or two *Gibbaeums* flowering well. *G. album* is just about to open and *G. pachypodium* is full of pale pink flowers. After flowering *Gibbaeums* like to rest until towards the end of the summer, with just an occasional drink. Keeping them fairly dry during the summer, I find, ensures plenty of flowers later on, and ripens the growth well to withstand the winter. Most *Gibbaeums* vary in times and methods of growth, so it is difficult to state exactly when to water and when not to; it is just a matter of getting to know your own plants.

The *Glottiphyllums* are looking very colourful in the strong sunshine and many are a beautiful shade of mauve, showing the promise of plenty of flowers to come. Two of my favourites are *G. erectiflora* and *G. nelii*. *G. suave* is another with very large flowers and a lovely fresh scent reminiscent of Spring. I am putting a lot of succulents, glottiphyllums included, back into clay pots, as I find plastic makes them grow far too quickly and far too lush and out of type. They are ideal for the slower growing cacti and for all problem plants, but one must keep a check on the succulents.

*Haworthias* can soon be ruined in plastic pots, which seem to encourage an awful lot of offsets. This is good for propagation purposes, but not for the serious collector. After hearing a talk on *Haworthias* and seeing the

#### *Glottiphyllum nelii*



*Hoya carnosa*

results of plants grown in full sun, it makes me wonder if we keep our *Haworthias* too green. I have been experimenting with certain ones grown in the sun. They need a lot more water of course and must not be grown too near to the glass, where scorching could occur. If you have but little space, try and grow just one head per pot of the larger ones and remove unwanted offsets as they appear. If a rare plant, use your own discretion. I am very fond of the *Haworthias* but see no point in keeping a large pan of the common kinds, when one small pot will tell me exactly what the plant is like, and how it differs from its neighbours. Seed very seldom comes true from *Haworthias* but pretty little hybrids result. These should not be distributed under the same name as the parent, but always referred to as hybrid to prevent confusion.

If you like a small compact plant that gives plenty of flowers, I can recommend *Delosperma abadense*. It was given to me by a friend as a small cutting and is now about 3 ins. across and has been a mass of flowers for weeks. Very easy to grow and likes plenty of water and full sun, and the cerise red flowers are most attractive. Try a few cuttings of the shrubby *Mesembryanthemums* out of doors for the summer; they will often flower better. Take cuttings for the following year and dispense with the old plants at the end of the season.

# Haworthias

by Bill Keen

HAWORTHIAS have been known in cultivation for something in excess of 250 years, but it may be instructive at the beginning of this article to peer back even further through the mists of time, to the early part of the seventeenth century. This was a period of great activity on the part of the maritime nations of Europe. Not many years earlier Sir Francis Drake had opened up the possibilities of trade with the Far East, and now the merchant ships of the great powers were regularly plying the route around Africa. Quite frequently ships put into the bays and inlets of the Cape area, in order to replenish their supplies of food and water, and it may well be that the novel plants growing in the vicinity attracted the attention of the sailors, and that seeds or cuttings may have found their way back to Europe. By the middle of the century the practice of calling at the Cape had become so established that the Dutch East India Company resolved to set up a permanent victualling station there. Consequently, at the beginning of April, 1652, Jan van Riebeeck arrived in Table Bay in command of his little fleet of three ships, and the first European colony in South Africa was established.

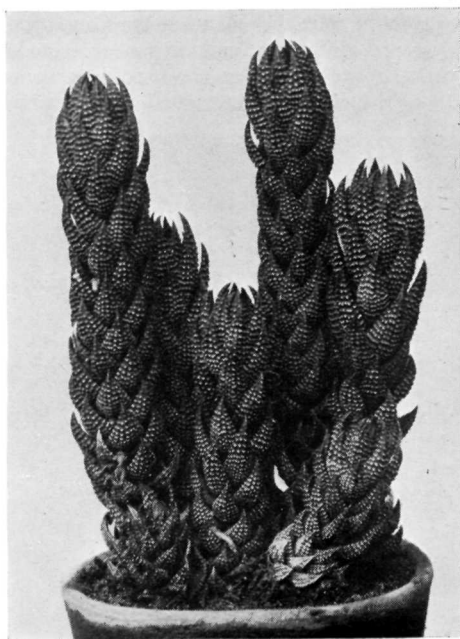
Having set up his base, van Riebeeck wasted no time before sending out small parties to explore the interior. From 1655 onwards, a succession of exploratory

journeys were undertaken by soldiers and others, gradually reaching into the more remote regions. At the Cape, gardens were constructed to provide fresh fruit and vegetables for the colony, and as the expeditions returned with strange plants which had been collected during their travels, these also were cultivated in the gardens. These gardens reached the peak of their fame during the latter part of the century. During this period Simon van der Stel served first as Commander and later as Governor, and under him the Company gardens had as Superintendent Hendrik Oldenland. As botanist, Oldenland had earlier accompanied an expedition led by Ensign Schryver, which had spent three months exploring eastwards from the Cape. Appointed to the post of Superintendent in 1695, he set about improving the Company garden, and more importantly for us, began regularly to send plants and seeds back to Holland, to the botanical gardens of Leyden, Amsterdam and Gouda. Oldenland also collected and dried a large number of Cape plants for his herbarium, and began to prepare a catalogue of these plants, but his death in 1697 prevented completion of this. His widow married "a man who will not trouble himself with these fooleries" and sold her late husband's collection and papers to the highest bidder. Simon van der Stel retired in 1699, and was succeeded by his son Willem, who has been described as the most corrupt of the early Governors, and was recalled in disgrace in 1707. However, he continued the horticultural work of his father, both by extending the Company gardens and by sending material home to Holland.

Among these early introductions were several which we now include in the genus *Haworthia*—*retusa*, *recurva*, *margaritifera*, *herbacea*, *marginata* and *arachnoidea*. In Commelin's *Hortus Medicus Amstelodamensis* published during the period 1697-1701 can be found mention of *H. retusa* being propagated from leaf-cuttings in 1699. Presumably these and other propagations were distributed to botanical gardens outside Holland, as around this time the first species are reported to have reached England. The author has been unable to trace any details of these first introductions. Frequently one reads that *H. recurva* was "the first *Haworthia* introduced into England" and "introduced into this country in 1701", but Baker, in the "Flora Capensis" states that this species was "introduced into cultivation by Masson in 1795". He cites the early eighteenth century as the period of introduction of the other species listed above, which leaves us with the mystery as to why *H. recurva* should so frequently be cited as the first introduction into England. Can anyone solve this puzzle?

The *Haworthias* received from the Cape were identi-

*Haworthia reinwardtii v. tenuis*



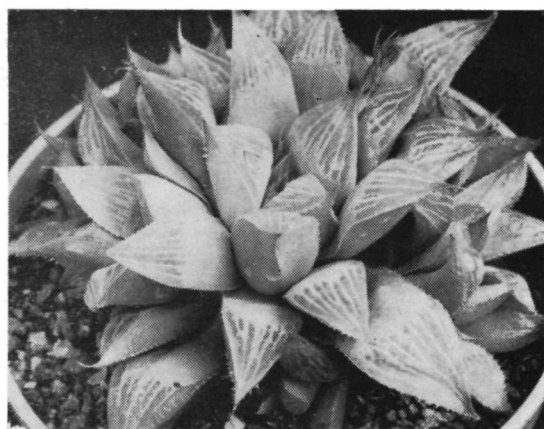
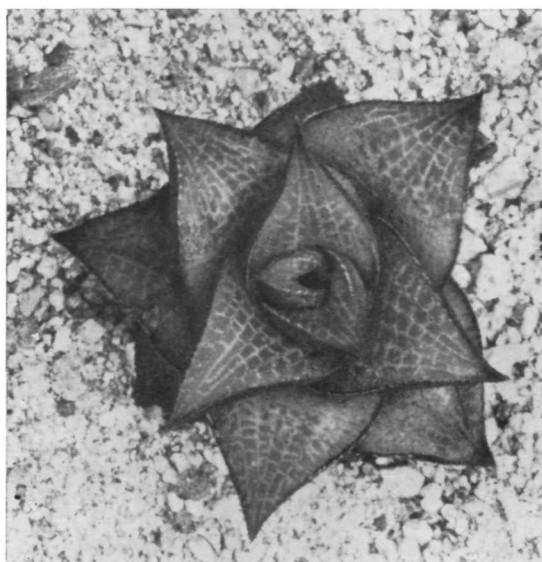


*Haworthia cuspidata*

Photo: W. C. Keen

fied, in keeping with the practice of the time, by long Latin names which were basically a brief description of the plant, and with what we now recognise as *Aloe*, *Gasteria* and *Kniphofia* were included in a single group. Thus we find, for example, the description "*Aloe Africana, folio in summitato triangulari et rigidissima, marginibus albicentibus*" applied to the plant we now know as *H. marginata*. With such a cumbersome system, it is not surprising that other authors described the same plant in different terms, and it was not until 1753, with the publication of the "*Species Plantarum*" that a really workable system was devised. In this important work, Linnaeus introduced his binomial system, and included our *Haworthias* in his genus *Aloe*.

*Haworthia tessellata parva*



*Haworthia emelyae*

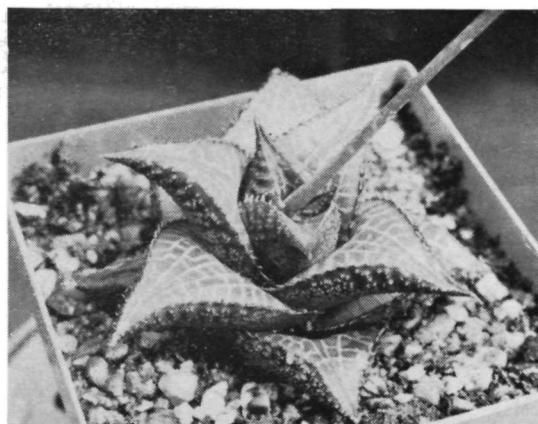
Photo: W. C. Keen

The year 1769 saw the publication of the first catalogue of plants in cultivation at Kew, John Hill's "*Hortus Kewensis*". This list contained four species now recognised as *Haworthias*, *arachnoidea*, *retusa*, *viscosa* and "*Aloe pumila*" which may have been the present-day *H. herbacea*, or possibly one of several other species.

During the three year period 1768-71, Captain Cook made his famous voyage around the world. He carried on board a party of naturalists, and one of these, Joseph Banks, was so impressed by what he saw at the Cape, that on their return he pressed the authorities to send someone out there to collect botanical material for Kew gardens. The man selected was a young under-gardener at Kew, Francis Masson, who accordingly spent the period 1772-75 collecting plants in the Cape area. He made a second visit in 1786 and this time remained there for a period of ten years. Masson was a diligent collector, and among the many plant introductions credited to him

*Haworthia tessellata*

Photo: W. C. Keen



we find *H. tortuosa*, *cymbiformis*, *mirabilis*, *recurva* and several others.

In 1804 the great English botanist Adrian Hardy Haworth rearranged the genus *Aloe*, and on the basis of floral characteristics set up three sections, *Grandiflorae*, *Parviflorae* and *Curviflorae*. This separation was later adopted by Henri Duval, who produced in 1809 a small pamphlet "*Plantae Succulentae in Horto Alenconio*" in which he renamed the section *Parviflorae* as a new genus, *Haworthia*, "in memoriam Adriani Hardy Haworth, botanici in succulentis celeberrimi". Haworth immediately returned the compliment by splitting off from *Stapelia* a new genus, also characterised by its small flowers, which he named *Duvalia*. Between 1812 and 1821, Haworth published his "*Synopsis plantarum succulentarum*" followed by his "*Supplementum*" and "*Revisiones*", in which he listed about fifty species.

The introduction of new species continued apace. In 1816 James Bowie was sent out to collect for Kew, and in the space of the next few years he discovered and introduced many *Haworthias*. Among these were *H. cuspidata*, *tessellata*, *turgida*, *coarctata*, *bolusii* and several others. Unfortunately, funds ran out, and Bowie was recalled to England in 1823. There he went through a period of hardship and took to drink to such an extent that on his return to the Cape in 1827, his intemperate habits prevented him from re-establishing himself as a collector.

Another famous collector of this time was Thomas Cooper. He was employed by W. Wilson Saunders of Reigate, who possessed one of the most important gardens of the period, and specialised in exotic plants. Cooper spent the period 1859–62 in South Africa, where he collected not only plants and seeds, but all kinds of natural history material, insects, shells, and so on. Like Bowie, Cooper fell on hard times when he returned to

England. His employer, Saunders, lost his entire fortune, and was unable to pay Cooper the money owing to him. Luckily, Cooper's daughter had married the famous botanist Dr. N. E. Brown, and Thomas Cooper was able to move to Kew, where he lived out the remainder of his long life, dying in 1913 at the ripe old age of 98.

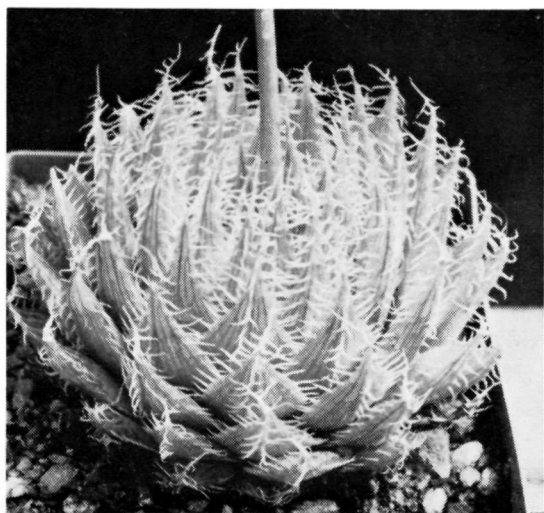
Despite Duval's publication of the name *Haworthia*, not all subsequent authors adopted it, and in the "*Monographia Generum Aloes et Mesembryanthemi*" published during the period 1836–63, we find Salm Dyck still including this species under the genus *Aloe*. Salm Dyck must have been one of the earliest members of the "lumping" school. After admitting that on the basis of floral characteristics it is possible to subdivide the genus, he then argues in favour of retaining these sections as sub-genera, "The number of genera has already become disturbing, and one feels the need of some restriction. It seems rather desirable to resort to subdivision so that we can get a clearer view. . . . In this way I will try to prevent the crumbling of the ancient genus *Aloe*". However, John G. Baker, in the "*Flora Capensis*" Vol. VI, published in 1896, returned to the generic name *Haworthia*, and since that time no serious doubts have been cast on the validity of the genus.

The first attempt to subdivide the genus was made by Alwin Berger in Engler's "*Das Pflanzenreich*" published in 1908. Recognising the difficulty of distinguishing between the somewhat similar floral structure, he based his subdivision on vegetative characteristics, and split the genus into a number of sections. Karl von Poellnitz adopted and slightly modified these sections when publishing his "*Key to the Genus Haworthia Duval*" in the *Cactus Journal* 1936. Although this work is now out-of-date, it remains the only usable key to the genus. Later workers in the field, notably G. G. Smith and A. J. Uitewaal, have drawn attention to the possibility of using certain floral characteristics to separate sections. Uitewaal pointed out that the perianth-tube cross-section is approximately triangular in some species, while in others it is approximately hexagonal. He proposed the names *Triangulares* and *Hexangulares* for these two groups. He also noted that the *Triangulares* group have soft, transparent leaves, while the *Hexangulares* group have hard, opaque leaves. The nature of the inflorescence, whether simple or branched, is another characteristic which might be used.

At the present time, the genus comprises around four hundred species, varieties, sub-varieties and forms. This seems to be far too many! There is scope for a considerable amount of rationalisation and reduction. One weakness is the fact that names have been erected on the basis of vegetative characteristics, and these often vary only marginally from one variety or form to another. Particularly in this genus, vegetative characteristics are modified by environment—amount of available water, sunny or shady situation, etc. As many species have been based on single collections with insufficient data

*Haworthia setata*

Photo: W. C. Keen



given to allow recollection, it seems likely that many names could be no more than untypical plants of other species. Again, several species are unknown in habitat, and have been described from plants found in various botanical gardens. These could possibly be no more than chance hybrids. It should be possible to take a broad view of some species with large numbers of varieties and forms, and to accept a reduced number of variable species. R. S. Farden in the pre-war Cactus Journal related how he observed slight variations between plants of *H. attenuata*, and sent sample leaves to a number of nurserymen with a request for them to let him have examples of any similar plants. From the small number of plants obtained in this way, Farden was able to name and describe over a dozen varieties and forms of the

species. How many of these are really valid today, and how many of the varieties of, for example, *H. reinwardtii* are more than habitat forms? The time is ripe for someone to take a broader view of the genus!

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*BILL KEEN is a Lecturer in Mechanical Engineering at Lanchester College of Technology, Coventry and his interest in succulent plants is by way of relaxation (?) from teaching (his own words). He describes himself as a non specialist, but with particular interests in Haworthias, Stapeliads and some of the smaller growing cacti. He has been growing succulents for about twenty years but is now trying to find time from committee work, etc., to learn something about them.*

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## Gibbaeums

by Peter Bent

PLANTS within the genus *Gibbaeum* are not what one would call common in cultivation. This fact, I think, is probably due to their rarity and, to a certain degree, their cultivation requirements. Here it must be pointed out that each species requires different treatment from every other, added to the fact that some are winter growers, while others are summer growers and these grow very well in this country, soon forming large typical clumps (for that species).

Unfortunately, these plants cannot have enough sunshine (radiation) in this country so that their typical form cannot be achieved; however, underwatering helps in obtaining true shape and above all a plant which has a chance of remaining alive through the winter (an overwatered, bloated plant has little chance). The effect of underwatering is to produce approximately the correct body colouring, which in many species is grey or even white. Overwatering causes the colour to become too green. I might add that the above remarks apply to many of the mesembryanthemums, including all low growers such as *Lithops*, *Conophytums*, *Didymaotus*, *Muiria*, etc.

In Kew Gardens, Surrey, they irradiate many succulents in their inner sanctum, known as the Pits, which, for security reasons, is not open to the public. Artificial irradiation is still in its infancy, although the Americans and the Germans seem to be advancing faster than we are in this country. Basically, what irradiation means, is the lengthening of daytime by using electric light at a very high intensity or keeping the light source a matter of inches away from the plants.

The lamps which are used are of the discharge type. For close work, fluorescent tubes generally supplied under the Gro-Lux label are used, (Information may be obtained from B.L.I. Thorn Electrical Ltd.) while Mercury Vapour lamps are used for distant work and may be seen at Kew in other houses. It should here be stressed that both these lamps need control equipment (choke capacitors, etc.) and should be installed by some-

one qualified to do so as very high voltages can be obtained.

Advantages of irradiation are self-explanatory, giving plants a longer period of daylight; therefore shy flowerers will often oblige and the growth rate increase, but the period of light must be carefully controlled with mesembryanthemums or etiolation will occur. Seed raising may be undertaken this way and I understand that very good results have been obtained by others.

Getting back to the *Gibbaeums* let us clarify the groups and mention some old names which may still be in use:

<i>Protogibbaeum</i>	=	Species	<i>luteoviride</i> (Haw) N.E.Br. <i>esterhuyseniae</i> L.Bol.
<i>Muiriopsis</i>	=	"	<i>gibbosum</i> (Haw) N.E.Br. <i>pilosulum</i> (N.E.Br.) N.E.Br. <i>cryptopodium</i> (Kensit) L.Bol.
<i>Gibbaeum</i>	=	"	<i>pubescens</i> (Haw) N.E.Br. <i>shandii</i> N.E.Br. <i>geminum</i> N.E.Br.
<i>Imitariopsis</i>	=	"	<i>angulipes</i> (L.Bol) N.E.Br. <i>dispar</i> N.E.Br. <i>album</i> N.E.Br.
<i>Mentocalyx</i>	=	"	<i>velutinum</i> (L.Bol) Sch. <i>haagei</i> Sch. <i>schwantesii</i> Tisch <i>pachypodium</i> (Kensit) L.Bol.
<i>Argeta</i>	=	"	<i>petrense</i> (N.E.Br.) Tisch <i>tischleri</i> Wulff
<i>Rimaria</i>	=	"	<i>blackburniae</i> L.Bol. <i>comptonii</i> (L.Bol) L.Bol. <i>heathii</i> (N.E.Br.) L.Bol. <i>luckhoffii</i> (L.Bol.) L.Bol.

Miscellaneous—Synonymous species, sometimes encountered:

<i>G. dubium</i>	=	<i>G. heathii</i>
<i>G. helmae</i>	=	<i>G. cryptopodium</i>
<i>G. molle</i>	=	<i>G. cryptopodium</i>
<i>Imitaria muirii</i>	=	<i>G. nebrownii</i>

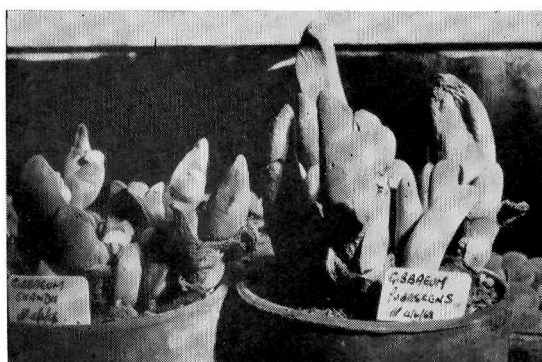
Now for descriptions, cultural requirements, sizes, mode of growth, etc., of some selected species;

*G. album* Bodies up to 1 in. on imports, rarely above  $\frac{3}{4}$  in. in cultivation. Colour white and very distinct. Note that new bodies show flower channel which is more evident on imported plants. Pubescent covering. Water very sparingly during growing period (generally winter). Very slow grower. Imports occasionally seen and are very beautiful indeed. Plant body should be firm to the touch. This plant is one of the parents of *Muirio-gibbaeum muirioides* (Herre) Rowl; the other is *Muiria hortenseae*. Habitat—L. Karroo.

*G. pubescens* Very distinct indeed. Here one sees the real anisophylla or shark's head appearance. My own plant is an import and very clump-forming. Growths erect but in cultivation I think they tend to become procumbent. Leaves (long)  $1\frac{1}{2}$  ins., (short)  $\frac{3}{4}$  in. Colour grey. *G. shandii* is very similar, but having leaves  $\frac{3}{4}$  in. long. Flowers reddish-violet. Winter growing, therefore somewhat difficult.

*G. petrense* In cultivation very popular and easily grown. Often seen under its old name of *Argeta petrensis*. Forming vast clumps of silvery bodies often each with more than one pair of leaves. Growing period—summer. Habitat—L. Karroo.

*G. velutinum* Another popular plant; a well known species, often seen. I obtained a nicely grown specimen last year. Clump forming with grey green leaves which are hardly united at all. Growing period—late summer—winter. It is interesting to see that one of the leaves per body is hooked and the other straight.



*Gibbaeum shandii* and *G. pubescens*

*G. heathii* Very distinct giant. Leaves very united to form a ball  $1\frac{1}{2}$  ins. in diameter. This clumps slowly. Colour of leaves—grey-green. Several varieties exist and have been proved to be varieties. All are worth growing.

*G. pilosulum* Bodies green, obovate and pubescent. Forms clumps when old. Flowers—violet. This species is somewhat difficult as it is a winter grower. Well worth growing. Habitat—Cape Province.

*G. cryptopodium* as *G. pilosulum* but not pubescent and once again well-worth growing. Habitat—Cape Province.

I have not mentioned all the species but listed those which should be obtainable, with their requirements. Please let me add that growing times and flowering times are not static and are variable, so it is essential to observe the plant before withholding or starting watering. All *Gibbaeums* are worth growing and a very good collection can be built up, but do avoid hybrids. "Artificial hybrids" are of no botanic interest to those wishing to possess as near type material as can be obtained.

WANTED: Loan of 35 mm. slides of *Hylocereus*, *Selenicereus*, *Heliocereus speciosus* FLOWERS for copying by Kodak on 8 mm. cine film for use by member in cine film on Epiphytic Cacti to be shown at Essex Branch Meeting on November 16th next. K. A. Grounds, 11 Alloa Road, Goodmayes, Ilford, Essex. Tel. 01-590 8101.

WANTED: Copy of Volume 11, No. 4 of the Society Journal. Will any member who has a copy available advise Mr. A. W. Heathcote, Southwold, Station Road, Bishopstone, Seaford, Sussex.

Continued from page 43

put on a non-competitive display at Local Flower Shows, either one or two each year, and considerable interest is shown by members of the public, who are amazed to see what our plants can do. So many people still think Cacti never bloom, or at most once in seven years, and a good show of plants in bloom always arouses great interest. I would suggest this is one way in which Branches can help to draw attention to our Society and gain the extra members we seriously need if we are to continue to flourish as well as our plants.

E.M.D.

# Results of the June Show 1968

## Judges

Cacti: Mr. E. W. Putnam.

Succulents: Mrs. M. Stillwell.

### Class 1 Six Cacti (any genera). 6 entries

- 1st Mr. L. Jeffries. *Gymnocalycium kurtzianum*, *Echinocereus pentalophus*, *Notocactus ottonis*, *Mammillaria neopotosina*, *Notocactus scopa* v *ruberrima*, *Ferocactus wislizeni*.
- 2nd Mr. J. E. Taylor. *Malacocarpus pauciareolatus*, *Coryphantha elephantidens*, *Echinocereus knippelianus*, *Gymnocalycium saglionis*, *Notocactus ottonis*, *Oreocereus celsianus*.
- 3rd Mr. J. D. Harding. *Rebutia wesneriana*, *Parodia maxima*, *Notocactus scopa* v *ruberrima*, *Gymnocalycium valnicekianum*, *Mammillaria ingens*, *Ariocarpus furfuraceus*.

### Class 2 Three Cacti (for members who have not won a First prize in any cactus class). 14 entries

- 1st Mr. E. G. Canham. *Parodia suprema*, *Notocactus schumannianus*, *Gymnocalycium curvispinum*.
- 2nd Mr. J. Kane. *Gymnocalycium quehlianum*, *Oreocereus celsianus*, *Mammillaria parkinsonii*.
- 3rd Dr. and Mrs. G. Randall. *Mammillaria hahniana*, *Ferocactus wislizeni*, *Lemaireocereus thurberi*.
- C Mr. J. A. Bastow.

### Class 3 Three Rebutias and/or Lobivias (for Luty-Wells Cup). 6 entries

- 1st Mr. L. Jeffries. *Lobivia huariensis*, *Rebutia pseudodemina* v *schumanniana*, *R. senilis iseliniana*.
- 2nd Mr. J. E. Taylor. *R. wesneriana*, *L. wrightiana*, *R. senilis iseliniana*.
- 3rd Mr. and Mrs. W. F. Maddams. *R. marsoneri*, *R. fiebrigii*, *L. jajoiana*.

### Class 4 Three Mammillarias. 9 entries

- 1st Mr. J. E. Taylor. *M. hahniana*, *M. bombycina*, *M. centricirra*.
- 2nd Mr. L. Jeffries. *M. plumosa*, *M. lanata*, *M. ocotillensis*.
- 3rd Mr. and Mrs. W. F. Maddams. *M. buchenauii* (falsi-crucigera), *M. praelii*, *M. magnimamma* v *bockii*.
- H.C. Mr. R. H. I. Read.

### Class 5 Six Mammillaria in pots not exceeding 4½ in. dia. 13 entries

- 1st Mr. J. D. Harding. *M. neomystax*, *M. lasiantha*, *M. peninsularis*, *M. discolor*, *M. marksiana*, *M. New white* (Gates).
- 2nd Mr. C. Parker. *M. olivae*, *M. winterae*, *M. klissingiana*, *M. ocamponis*, *M. hahniana*, *M. weisingeri*.
- 3rd Mr. and Mrs. W. F. Maddams. *M. zeilmanniana alba*, *M. carrettii*, *M. lenta*, *M. egregia*, *M. armillata*, *M. densispina*.
- H.C. Mr. J. E. Taylor.
- C. Mr. G. A. Page.

### Class 6 Three Miniature Opuntiae. 8 entries

- 1st Mr. G. G. Leighton-Boyce. *O. articulata papyacantha*, *O. glomerata*, *O. pentlandii*.
- 2nd Mr. J. E. Taylor. *O. rufida*, *O. russellii*, *O. diademata*.
- 3rd Mr. C. G. Brown. *O. diademata*, *O. ornatum*, *Tephrocactus nigrispinus*.

### Class 7 Three plants in Echinocactanae. 14 entries

- 1st Mr. J. D. Harding. *Astrophytum ornatum*, *Obregonia denegrii*, *Leuchtenbergia principis*.
- 2nd Mr. and Mrs. W. F. Maddams. *Notocactus schumannianus*, *Horridocactus setosiflorus*, *Sulcorebutia steinbachii* v *gracilis*.
- 3rd Mr. L. Jeffries. *Gymnocalycium baldianum*, *Lophophora williamsii*.
- H.C. Mr. C. E. Canham.
- C. Mr. J. E. Taylor.

### Class 8 Three Cacti (for Juniors under 18) 6 entries

- 1st Mr. M. Ede. *Mammillaria crucigera*, *Lophophora williamsii*, *Lobivia aurea*.
- 2nd Mr. J. Wright. *Lobivia bruchii*, *Echinopsis species*, *Echinopsis multiplex*.
- 3rd Mr. J. Andrews. *Pelecyphora aselliformis*, *Lophophora williamsii*, *Astrophytum myriostigma nuda*.

### Class 9 Mammillaria candida 7 entries

- 1st Mr. and Mrs. W. F. Maddams.
- 2nd Mr. J. E. Taylor.
- 3rd Mrs. J. A. Wells.

### Class 10 One cactus imported since 1st January, 1965 7 entries

- 1st Mr. and Mrs. W. F. Maddams. *Copiapoa cinera*.
- 2nd Mr. C. Parker. *Ferocactus acanthodes*.
- 3rd Miss I. E. Potton. *Escobaria dasyacantha*.

### Class 11 Cacti raised from seed by the exhibitor (sown on or after 1st January, 1966, in container not exceeding 15 in. square). 6 entries

- 1st Mr. E. G. Canham.
- 2nd Mr. D. T. Best.
- 3rd Dr. and Mrs. G. Randall.

### Class 12 Three plants in Echeverioideae 3 entries

- 1st Mrs. H. Hodgson. *Echeveria leucotricha*, *E. metalica*, *Dudleya farinosa*.

- 2nd Mrs. B. A. Baldry. *E. nodulosa*, *E. metalica*, *E. harmsii*.

- 3rd Mrs. E. Potton. *E. metalica*, *E. spectabilis*, *E. Crispa*.

### Class 13 Three plants in Euphorbiaceae. 9 entries

- 1st Mrs. T. Watt. *E. decepta*, *E. suzannae*, *Monadenium schubei*.
- 2nd Mrs. and Mrs. W. F. Maddams. *E. stellaespina*, *E. obesa*, *Monadenium schubei*.
- 3rd Mr. R. H. I. Read. *E. bupleurifolia*, *E. obesa*, *E. squarrosa*.

- H.C. Mr. J. D. Harding.

### Class 14 Three plants in Liliaceae. 9 entries

- 1st Mr. J. D. Harding. *Aloe rauhi*, *Gasteria armstrongii*, *Haworthia setata*.
- 2nd Mr. R. H. I. Read. *Haworthia truncata*, *H. viscosa* v *concinna*, *Aloe plicatilis*.
- 3rd Mr. C. G. Brown. *Haworthia bolusii*, *Gasteria lili-putana*, *Aloe somaliensis*.

- H.C. Mr. D. V. Brewerton.

### Class 15 Three plants in Asclepiadaceae. 4 entries

- 1st Mr. P. Bent. *Hoodia gordonii*, *Tricocaulon cactiforme*, *T. officinale*.
- 2nd Mrs. T. Watt. *Tricocaulon simile*, *Fockea crispa*, *Diplocyatha ciliata*.
- 3rd Mr. C. G. Brown. *Fockea crispa*, *Frerea indica*, *Huernia species nova*.

- H.C. Mr. and Mrs. W. F. Maddams.

### Class 16 Three Adromischus. 4 entries

- 1st Mrs. J. A. Wells. *A. marianae*, *A. antidorcatum*, *A. umbraticola*.
- 2nd Mr. J. D. Harding. *A. pulchellus*, *A. herrei*, *A. marianae*.
- 3rd Mr. D. V. Brewerton. *A. umbraticola*, *A. schoenlandii*, *A. cooperi*.

### Class 17 Three plants not covered by classes 12-16 7 entries

- 1st Mr. C. G. Brown. *Sarcocaulon pattersonii*, *Alluadia procera*, *Cissus hypoluca*.
- 2nd Mr. J. D. Harding. *Lithops optica forma rubra*, *Cheiridopsis herrei*, *Testudinaria sylvatica*.
- 3rd Mr. P. Bent. *Pachypodium rosulatum*, *P. densiflorum*, *P. brevicaule*.
- H.C. Mr. and Mrs. W. F. Maddams.

**Class 18 Three Succulents (for juniors under 18). 5 entries**

- 1st Mr. J. Andrews. *Haworthia truncata*, *Euphorbia obesa*, *Lithops fulleri*.  
 2nd Mr. J. Wright. *Brussingaultia baselloides*, *Stapelia hirsuta*, *Aloe variegata*.  
 3rd Mr. M. Ede. *Echeveria setata*, *Fenestraria rhopalophylla*, *Stapelia variegata*.

**Class 19 One Caudiciform succulent. 6 entries**

- 1st Mr. P. Bent. *Jatropha podagrica*.  
 2nd Mr. C. Parker. *Gerrardanthus macrorhizus*.  
 3rd Mr. J. D. Harding. *Fockea crispa*.

**Class 20 Three Succulents, any genera, in pots not exceeding 5 in. (for members who have not won a First prize in any succulent class). 6 entries**

- 1st Mr. B. C. Marshall. *Haworthia asperula*, *Crassula teres*, *Trichocaulon piliferum*.  
 2nd Dr. and Mrs. G. Randall. *Neohenricia sibbettii*, *Sinocrassula yunnanensis*, *Caralluma caudata*.  
 3rd Mr. J. Wright. *Euphorbia splendens*, *Bowiea volubilis*, *Euphorbia caput-medusa*.  
 C. Mrs. B. A. Baldry.

**Class 21 One cactus and one other succulent. 6 entries**

- 1st Mr. R. H. I. Read. *Mammillaria gigantea*, *Euphorbia horrida*.  
 2nd Mr. C. G. Brown. *Fouquiera digueti*, *Opuntia zhenderii*.  
 3rd Mrs. E. Sharpe. *Gerrardanthus macrorhizus*, *Mammillaria nunezii*.

**Class 22 Group of cacti and/or other succulents to cover space not larger than 2 ft. wide by 2 ft. 6 in. deep arranged for decorative effect. 2 entries**

- 1st Mr. and Mrs. W. F. Maddams.  
 3rd Mrs. E. Sharpe.

**Class 23 Miniature garden of cacti and/or other succulents to cover space not exceeding 18 in. sq., arranged for decorative effect; natural rock or stone may be used, but not ornaments. 7 entries**

- 1st Mrs. E. Sharpe.  
 2nd Miss I. E. Potton.  
 3rd Mrs. M. Kane.  
 H.C. Mrs. E. Potton.

**BRANCH RESULTS, June, 1968**

North Surrey	..	..	..	..	..	74 points
Essex	..	..	..	..	..	27 points
Bucks. and Berks.	..	..	..	..	..	4 points
West Kent	..	..	..	..	..	9 points

*June Show-Seedling class E. G. Canham*



## Impressions of the June Show 1968

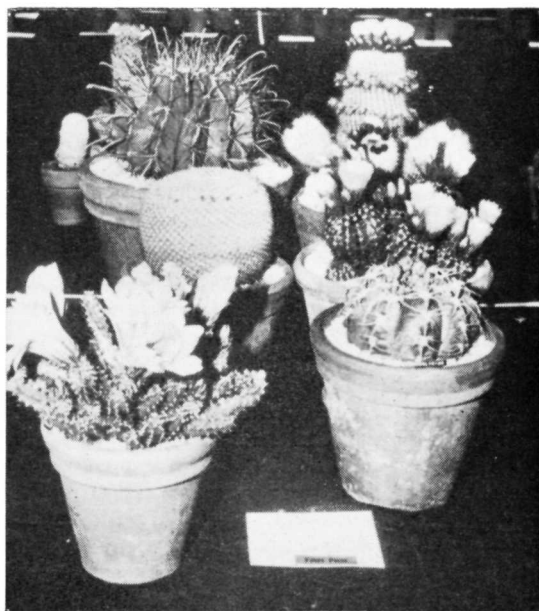
by Mrs. M. Fereday

IT was well worth a visit to the R.H.S. Show on Tuesday and Wednesday 18th and 19th June to view the colourful display of cacti and other succulents, 23 classes in all, which made up the Society Competition. I admired many of these plants and, although I have picked out a number of them to mention specifically, there were many more which I might well have chosen.

I particularly liked the six cacti of any genera exhibited by Mr. L. Jeffries; the *Daily Mirror* even printed a photograph of them on their Saturday Gardening Page! His *Echinocereus pentaplophus* was a lovely sight with its large colourful flowers. In Class five, I wondered why the judges awarded only third prize to an entry of six very choice dwarf *Mammillarias*. These included *M. armillata*, which is seen infrequently and *M. carrettii*, an even more unusual species. All the plants were in tip-top condition and, taking rarity into consideration, I thought they deserved a higher rating than third.

Class seven, for three *Echinocactanae*, produced a number of very interesting plants including several that I had not seen previously. I particularly liked the specimens of *Sulcorebutia steinbachii* v. *gracilis*, *Leuchtenbergia principis* and *Gymnocalycium baldianum*. In class eight, three cacti for members under 18 years of age, I think the youngsters are to be congratulated on their choice of plants. In contrast, there were several instances in other classes when I considered that the adults were

*June Show—6 Cacti L. Jeffries*



not exhibiting plants of R.H.S. Show standard. Among the imported cacti I liked one which did not win a prize, a specimen of *Blossfeldia liliputana*. To me it was a most attractive plant. In class eleven, for cacti raised from seed since 1st January 1966, the judges must have had a very hard task to award prizes as all the exhibits were really first class.

Class fourteen for three plants in Liliaceae, produced several good entries. I admired an *Aloe bakeri*, which I had not seen before, a *Haworthia truncata* and an *H. mirabilis*. Here again, I considered that some of the exhibits were not of R.H.S. standard, being too large and ordinary. Among the Crassulas one I had not previously seen was *C. mesembrianthemopsis* and some well-grown plants were also to be found among three other succulents for Juniors. In class twenty one, for one cactus and one other succulent, a magnificent specimen of *Euphorbia horrida* was shown; it looked more like plastic than a real living plant. I was also very intrigued with the specimen of *Gerrardanthus macrorhizus* which resembled a living flat rock!

One of the two entries, that of Mr. and Mrs. Maddams, in the class for a group of plants to cover a space two foot six by two foot caught the eye of many visitors, some of whom openly admitted that they did not like cacti and succulents. This particular display was just wonderful. The cacti flowers began to open in mid-morning and, together with the colourful succulents, provided a breath-taking sight. There were seven entries in the class for miniature gardens and, here again, the judges must have had a difficult task to make the awards. It does seem to me that these miniature gardens should really look established and not just arranged for show purposes. With several of the entries I am sure the plants could not survive set out as they were.

In many cases throughout the various classes I think exhibitors would have done better to have put in



June Show—Group by Mr. and Mrs. Maddams

fewer entries and so avoided mixing good plants with ones of a lower quality. When it comes to selecting an entry of three a good many of us have two decent plants but spoil the exhibit by having to complete it with a much inferior plant. I am sure that the Show Secretary, or Branch Secretaries for that matter, will be pleased to advise members in this direction, and so improve the overall standard of the exhibits.

## It's Show Time Again

by Mrs. B. Maddams

JUDGING by various remarks, the previous article about the Summer Show helped a number of you to decide to show and/or to decide what to show; as this is being written some time before that event, we are just hoping our (and your) efforts will be justified. In the meantime, here are a few hints for the Autumn competition and we hope your schedules are still to hand.

This time, there is a class for three Cacti which is open to any who have not won the class; this means those who have won three Cacti for novices are still eligible, so here is a chance for a start. The next two classes are self-explanatory, although we hope to see other plants besides the genus *Cereus* itself; Borg gives an extensive list including such favourites as *Espostoa*, *Stetsonia* and

*Wilcoxia*. We have added class five in the hope that we shall see more of the small-growing gems amongst the Echinocactanae such as *Encephalocarpus*, *Aztekium* and *Frailea*. These cannot really be shown to good effect amongst the larger growing Echinocactanae.

The next class, for three South American Cacti, is a new one and should be well-supported judging by the interest always shown in *Copiapoa*s, *Neoporteria*s, *Parodia*s and, again, some of the columnar *Cerei*. Those whose interests lie in Epiphytic Cacti will find a number eligible for this class as well. Class nine is another innovation which may appeal to quite a number of members and should certainly be of great interest to those of the general public who look round the show.

There is a wide selection of Mammillarias and Opuntias which are found in cristate forms for a starting suggestion.

As for the classes for Succulents other than Cacti, there are few changes from last year's schedule. However, it might be mentioned that Class ten states four Euphorbias which limits to one genus instead of Euphorbiaceae as in the June Show and the three Crassulas should be dwarf growing ones. One specimen Haworthia is a new class and there should be some fine plants on show; it is proposed to change the genus for this specimen class each year.

Six stemless Mesembryanthemums sometimes causes a little trouble, but a careful look in Jacobsen will tell you which genera are eligible for this class. Lithops and Conophytums are obvious choices but others such as Titanopsis, Argyroderma and Aloinopsis are not so often seen and should all be growing well in September.

Class seventeen gives a wider choice; others of the Crassula family besides Crassula themselves, caudiciform succulents, Agaves and succulent pelargoniums may present you with some ideas for a start. The class for six South African Succulents, with restricted pot size, gives another opening for a wide choice of plants.

However, it is wise to check again with Jacobsen to make sure that the particular species you have chosen does come from the mainland of South Africa. We stress this, as some plants have been disqualified in the past because they have their habitat in the surrounding islands. Once again there are many members of the Aizoaceae which can be shown, together with Anacampseros, many Crassulas and some Euphorbias and Stapelias. Make a good selection from as many genera as you can.

As in the previous show the seedling class—but this time for Other Succulents—has a smaller area to cover. We hope this will encourage more growers to enter; a large amount of free seed goes out to members each year and we should like to see how they get on with it.

The classes that are not mentioned above are the same as in the June Show and I commented on them in detail in the previous article. It will be sufficient to remind you that selection and good balance of exhibits, cleanness of pots and top dressing and clear labelling all go to making plants worthy of another look from the judge. So all that it remains for you to do now is to have a good look at your collections and select the plants that will help to make the show a success.

B. Maddams, for the Show Committee.

## Oddities

### *Strange goings-on in the greenhouse*

The aim of this series is to report unusual growth forms observed in members' collections. Members are invited to send contributions to the series, preferably including a photograph or line drawing. If any morphologists among our readers can provide an explanation of these phenomena, the Editor will be pleased to hear from them.

#### 7. *An Abnormal Fruit on Mammillaria Centricirrho* by W. F. Maddams

The six previous notes in this series have all been concerned with abnormalities of growth or flowering. It is not unreasonable to expect that malformed fruit will occur occasionally and this report is concerned with just such an event. It relates to a plant of *Mammillaria centricirrho* owned by Mr. M. G. Simmons in Guernsey, which was seen by the writer earlier this year.

The fruit of *M. centricirrho* is clavate, 15–20 mm. in length, 4–5 mm. in diameter, with the dried perianth persisting, and carmine red in colour. As may be seen from the accompanying photograph, the abnormal fruit on Mr. Simmons' plant consists of about twenty miniature clavate growths arranged around the remnant of the flower in the axil. The adjacent tubercles give some idea of the overall scale. Each fruit is 6–8 mm. in length and 1.5–2 mm. in diameter, the colour being normal. The photograph also shows another unusual feature, namely what is tantamount to a small areole at the tip of each fruit. This consists of a small clump of



wool from which several short white spines emerge.

It is, perhaps, rather surprising that something of this type has not been reported previously. It is well established that some *Mammillaria* species offset on the tips of the tubercles and several *Opuntia* species, *O. salmiana* for example, often produce both flowers and stem growths on the tips of fruits. The present phenomenon has points of similarity to both of these. In normal circumstances the fruit of *M. centricirrho* dries up within a few months; it will therefore be interesting to see what occurs in this instance. As yet, no attempt has been made to dissect one of the miniature fruits and ascertain if seed is present. If this should prove to be the case, a test for viability would be indicated.

## The Essex Branch Show

EAST Ham Town Hall was the venue of the 16th Annual Show of the Essex Branch, on June 1st, 1968. This enterprising Branch provided a Show Schedule with fifty classes, some being well-supported and others not so well. Perhaps the most disappointing were the ten Open Classes. No other Branches had sent in entries this year although the schedule was well-advertised, and this meant there were few plants in these classes. Perhaps members of other Branches near London might suggest why they did not enter—was it the difficulty of getting to East Ham the night before or earlier than 10 a.m. on a Saturday morning, or merely lethargy on their part? Whatever the cause, it is disappointing for Show organisers who invite other Branches to take part to find no co-operation at all.

The other two sections in which entries were low were the Novice and Junior Classes. Whether the Essex Branch are really short of these types of member or, again, it was lack of effort, could not be established.

The members' classes were well-supported on the whole and many classes showed one or two outstanding exhibits although there were, regrettably, some entries that were perhaps not really show-worthy.

The first two classes were for specimen plants, the second with a restricted pot size. The larger plants were not of particular note but the plant of *Notocactus ottonis* belonging to Mr. Taylor which was awarded First Prize was a fine multi-headed specimen. At first sight it appeared to be several separate plants, but it is the habit of this *Notocactus* to reproduce vegetatively by sending out runners on which the new heads grow. There were more attractive entries in the second class including a fine example of *Echinocereus subinermis* which was clean and well-budded. This is one of the lesser-known, slow-growing globular *Echinocerei* which has fine yellow flowers.

The two *Opuntia* classes were very contrasted; the larger ones were mostly common varieties and no pair was really good, but the winning set had an attractive plant of *O. monacantha variegata* which added some interest. There were few entries in the dwarf *Opuntia* class but Mr. Brown's were clean and interesting, including a good spreading plant of *O. ovatum*.

The *Mammillaria* classes were, without doubt, amongst the best-supported in the show. The three large *Mammillarias* were of good standard, particularly Mr. Taylor's First Prize winning group which many of us have had the chance of seeing at the Show at Westminster. The class for three *Mammillarias* in small pots was disappointing because, although there were a good number of entries, they were mainly small, immature specimens of larger growing *Mammillarias* rather than the attractive smaller growing species. However, a fine plant of *M. guelzowiana* in the group owned by Mr. Tomkins which gained first place was a joy to see.

It was gratifying that there was a class for Other Coryphanthaceae and that it had a good selection of plants in it. People rarely have a chance of seeing *Thelocacti*, *Escobaria*, *Coryphantha* and *Dolichothele* on the show bench and there were some small, but well-grown plants of all these genera shown.

Three *Cereanae* gave a wider selection of genera than is usually found in this class, including some fine *Wilcoxias* and a *Winteria urispina*. Seed of the latter is becoming more widely available now and this plant from South America is likely to become very popular with its glistening golden spines and shapely form similar to a thickened *Aporocactus*; the flowers are an attractive pink. The classes for *Echinocactaceae* and *Echinocerei* included some of the usual and perhaps less interesting genera but also some more attractive ones. In the former, Mr. Taylor's *Malaccarpus paucicauleolatus* and in the latter his *Acanthocalycium violaceum* had both attained a good size for the particular genus.

There were few *Lobivias* in the *Lobivia* and/or *Rebutia* class, and although the *Rebutias* were very colourful they were mainly common varieties. However, the class for two Epiphytic plants was a far better standard than is usually found at Branch Shows, that is, if a class for these plants is included at all! Though there were some hybrid *Epiphyllums* as is usually found, and which judges and specialists would much prefer to be classed on their own, there were also some well-grown *Rhipsalis*. It was pleasing that the judges awarded First Prize to Mr. Tomlin's fine *Rhipsalis crucifera* and *R. rhombea*, two contrasting specimens, the former with angled stems and woolly buds with pink petals showing through and the latter more like a *Schlumbergera* at first glance. Whether these two plants were rightly named is perhaps a matter of doubt, particularly as the first had a very close resemblance to *R. myosorus*, but nomenclature among the *Rhipsalis* is a matter of much debate at present. However, Mr. Brown's *Rhipsalis pilocarpa* was most certainly true as there is no mistaking the furry appearance of the cylindrical stems of this species, nor the starry, creamy-coloured flowers with pink stems which generally appear in December.

The next two classes might almost be termed the 'weirdies'. *Cristates*, however, always seem to attract the general public and Mr. Brown's *Monvillea* was a plant not so often seen in cristate form. The other class, for grafted plants looked like so many lampposts, but again, Mr. Brown had a more charming specimen, a *Blossfeldia liliputana* which was well budded. After that, there were two classes, one for two plants not included in previous classes and two Cacti for novices, that were not well-supported, but, in contrast, the class for a specimen succulent showed some fine plants. Outstanding was the *Agave stricta* with a spread of nearly two feet and in perfect condition, which won the First Prize. There



Essex Branch Show: Class for 3 large mammillarias. *Agave stricta* behind  
Photo: B. Maddams

were fewer entries in the specimen succulent with restricted pot size and this included two *Cissus hypoluca* which were as yet small, but already attractive plants.

On the whole there were not so many entries in the Other Succulent classes which followed, but, again, there were some of the more unusual genera. In three Compositae, the *Senecios* displayed were quite colourful but not so much as in three *Echeverioides* which followed. No doubt the plant which called for most attention was *Dudleya brittonii*; a good sized plant with its felted grey leaves quite unspoilt. There was little to choose between the first three in the *Crassulas*; all had several of the choice dwarfed growing species in the trios including the grey mimicry *Crassula mesembryanthemopsis* and *arta* and *C. teres* often called the 'Brussel sprout' *Crassula* as its small heads resemble this vegetable.

It was perhaps a little early to expect *Lithops* to be up to show standard and maybe some had been overhurried into growth in consequence. However, Mrs. Chambers had a colourful selection of varieties in her group of five. The next class for three other *Mesembryanthemums* did not give a very interesting selection, but on the other hand, the two classes for *Euphorbias* showed a fine selection of plants. In the larger pot size *E. valida* was very striking and Mr. Brewerton's group including *E. suzanneae* and *E. pillansii* demonstrated how attractive the smaller members of the genus can be. Of the three entries in *Stapeliads*, Mr. Brown's group showed some choice plants including an unusual *Huernia* in flower, and in the next class, for three *Liliaceae* there was no doubt as to the eye-catching feature. This was the shiny bulb of *Boweia volubilis* which sat like an unripe tomato, large, green and smooth, taking all interest away from the labyrinth of stems and greenish flowers above. Jacobsen does mention that these bulbs can become quite large, but it is surely unusual for them to remain as smooth and mainly unblemished as this one.

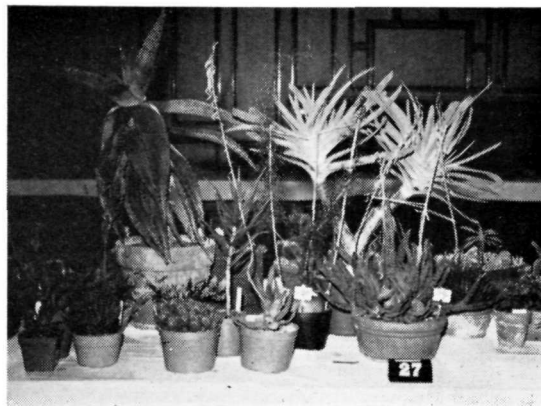
The classes that followed, those for *Adromischus*, *Haworthias* and a *Cristate Succulent* did not boast many entries, and although there were some choice plants amongst *Haworthias* they were as yet small for their variety. In the last of the members' succulent classes Mr. Brown exhibited some small choice plants—*Pachypodium*, *Alluadia* and *Sarcocaulon*.

Leaving the poorly supported novice class, the next few classes were mixed Cacti and Succulents, beginning with two plants in flower which gave a good splash of colour. Amongst the species shown were *Echinocereus blankii* with its large mauve flowers, some *Epiphyllums* and *Parodia cata maricensis*. The seedling class had a number of entries of variable standard but on the whole there was a good selection of genera. This was even more the case with "A standard seedbox containing not less than twelve plants in separate pots". This was a most impressive set of entries with some very good small plants attractively arranged, some, however, needed to be somewhat more mature before they could give such a display as in Mr. Tomlin's box which won First Prize. Amongst his plants were an *Astrophytum asterias*, *Gymnocalycium* and *Euphorbias*. This was certainly a good chance for members to show their smaller growing plants and they took good advantage of it.

There were no really outstanding miniature gardens but Miss Potton had an interesting selection and arrangement in her bowl. The next four classes for Juniors have already been referred to, although an exceptional succulent plant named *Boussingaultia* with a climbing habit somewhat like a *Ceropegia* must be noted amongst the single entries in each class. Attention has already been drawn to the Open Section with its lack of entries from other Branches, but members of the Essex Branch had stretched themselves to put up some display in these classes. At least there was the chance of seeing some more of Mr. Taylor's fine *Mammillarias* and in later classes other

Essex Branch Show: 3 *Liliaceae* class

Photo: B. Maddams



cacti but the entries for the Other Succulent classes in this section were low though on the whole more choice than in the members' classes. The selection of six Mesembryanthemums was more varied, for example and very fine specimens of *Aloe thompsonii* and *Aloe bakerii* were shown by Mr. Tomlin in Six Liliaceae. The popular plant in Four Echinocactanae was without doubt *Astrophytum ornatum*; a fine example of this species was present in several of the groups, all of which had some interesting and well-grown plants.

Four Echinocerei only drew three entries, but the plants in them were full of bud and flower and included once again was a clean, large plant of *Echinocereus subinermis* well-budded. Again, four Asclepiadaceae had but two exhibitors but Mr. Brown's First prize group had some interesting plants in it, including a delightful *Huernia paradoxa*. In six Cereanae Mr. Benton had some well-matched plants including *Lemaireocereus thurberi* and *L. marginatus* both in very good condition. The class for Canarian succulents and the group in a two foot by two foot space had only two entries each, but the groups, particularly Mr. Lodge's which gained First prize, were very well-arranged and colourful.

Altogether, the Essex Branch must be congratulated for their enthusiasm in putting on such a Show. It is only hoped that if they continue to have Open Classes that other Branches will support them with entries.

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## Secretary's Notes

### Chelsea Show.

The display of cacti and other succulent plants staged by members of this Society in conjunction with members of the National Cactus and Succulent Society proved to be a great success. An award of a Flora Silver Medal was gained and both Societies sold several hundred booklets to make it a financially successful venture also. Grateful thanks are extended to all who contributed plants for the display and to those who gave up valuable time to act as Stewards during the five days of the Show.

### November Meeting

We have been very fortunate in obtaining the services of Dr. C. J. Hardy of Abingdon, Berkshire, for the meeting of the Society to be held on November 20th. This change of programme was made necessary by the death of Mr. W. H. Grounsell of Wembley. Dr. Hardy will give a talk on "The Botanical Gardens of Arizona and California", which will be illustrated by slides taken during his travels. We owe thanks to our new meetings Secretary, Mrs. S. G. Sharman, for arranging this visit by Dr. Hardy.

### Cactophiles in Czechoslovakia.

I have recently been in correspondence with the Secretary of the Czechoslovakian Cactus Society. There is quite a strong group active in that country and as several members seem to be able to read English, they wish to receive our Journals. The Council has agreed to send three Journals of each issue at the Society's expense, but at least 10 of their members have asked to receive our Journals and are prepared to pay for the privilege. As it is not possible to send money to this country from Czechoslovakia, an exchange of Journals is being arranged. I should very much like to be able to send the 10 Journals requested and would therefore appreciate any donations from members to help this fund along. Copies of the Czech Journal will be added to the Society library and will be available to members. Perhaps some of our Branches might like to avail themselves of the opportunity to add these useful Journals to their own libraries. Branch Secretaries or individual members wishing to receive copies, issued six times a year, should send 15s. to me (for a full overseas subscription), but all donations large or small will help foster this friendly association with cactus growers behind the Iron Curtain. It is very seldom that an appeal for money is launched by this Society, but this is for a very good cause, and if the response is generous enough, it may be possible to extend this exchange of Journals to other countries with similar currency regulations.

### Retirement of Librarian.

Mr. P. V. Collings announced his intention of retiring from the position of Librarian of the Society in a recent letter to me. Mr. Collings has been the custodian of a large collection of books, many of them rare and now unobtainable, since the inception of the Society library in 1932. We owe him a great debt of gratitude for the amount of time and labour which he has devoted to the task of caring for these books and dealing with the vast amount of correspondence connected with the library. Mr. Collings has agreed to carry on until a new Librarian can be found. I am sure that my letter of thanks to him will be endorsed by every member of the Society.

### Change of Meeting.

The meeting of the Society held on July 10th was to have been a lecture by Mr. C. G. Brown on the genus *Ceropegia*. Mr. Brown stepped down in order that the members might have a full opportunity to discuss the future of the Society following the decision not to amalgamate with the National Cactus and Succulent Society. Mr. Brown will be invited to give us his lecture during 1969, as the chance to learn more about this unusual and little appreciated genus must not be missed.

# The Annual Show

by Daphne Hutchinson

*Visitors to a cactus show are the only people who view it as a whole picture; exhibitors who also work behind the scenes see it in the jigsaw parts they themselves are in, and their separate accounts of the same show would provide many more facets than here depicted—but the following is one member's view:*

GLOSSING over the obvious fact that, for members who do the organising, work for every annual show begins the day after the last annual show, and discounting one's puny assistance at intervals during the months previous, one starts this narrative a week before The Big Day.

The programme is formidable: one has not yet made the final selection of plants for entry (that is to say, one keeps thinking it's made, then has second thoughts), on which depend the repotting and pot-washing lark. One must find the entry form and then remember to fill it in—correctly—and scrape together the fees, and remember to take it to the long-suffering Hon. Sec. in time. One must next decide what form one's offerings to the refreshment section will take—which depends on one's first consulting with Hon. Sec.'s wife who is in charge of catering. Then one must remember to make the cakes or cut the sandwiches, or buy the squash and/or biscuits or packet of tea one promises. This has to be done during the last days when one is quite busy enough already with picking out plants, pot-washing and/or repotting, top-dressing, and packing boxes full of the prickly blighters.

This week before the Annual Show is the only week of the year when one is most liable to hate the sight of cacti, wish one had never joined the Society, and feel heartily sick of the whole bally caboodle. But this is only because all this work jolts one from one's customary lethargy, and one resents it. Amazing how quickly this is forgotten at sight of a few prize tickets.

One must also plan meals for the show day which will more or less cook themselves, and resign one's family to the fact that one will be absent for almost the whole day whether they say yea or nay. The yea or nay which is really serious, is: will one be granted use of the car as a motorised wheelbarrow two evenings in succession? One's husband will not forget how, after every similar use of it, his passengers subsequently find themselves treading grit and compost all over the floor and sharing seats with large hairy spiders (still trying to find the plant they fell out of) or large shiny beetles (still trying to find the pot they used to hide under). Also, the family car becomes Father's Baby at weekends and needs fond nursing, feeding, nappy changing, washing, bandaging, new bits and pieces fitted, and sometimes extra fancy doo-dahs added. Since the cactus show is always held at the weekend, obtaining use of the car can be a real battle.

On this occasion the dear one says "Okay, but on condition you do my errands for me Saturday". Usually his errands consist of two packets of cigarettes and a piece of sandpaper, so one cheerfully agrees, not realising that he is going to need things with which to occupy himself to compensate for not having his Baby to nurse.

Staging night: one has spent all day packing plants—no, not quite all day, one hour of it was devoted to baking one's own peculiar brand of cakes destined for the catering counter—into boxes and lining them up in the garage, ready for loading when car's there after tea. One keeps a list as well as the entry form, counts plants and counts both list and entry form, and is faintly surprised that the answer's the same in all cases. They are all there. This is a very encouraging start indeed.

One finally sets off—is stricken by thoughts that it's going to be dark and chilly when one gets back, and dashes on foot to go and shut greenhouse ventilators and make all secure. How funny the staging looks, empty except for the orphans that can't go to the show. . . . Must remember to sweep staging before returning all the plants.

One finally really does set off, but halfway to the hall hears an ominous thud from somewhere, stops regardless of other traffic or double yellow lines, and investigates. One large plant on the floor has swayed, staying upright itself but knocking over all the smaller ones packed round it. Next Monday morning passengers are going to be treading grit and compost all over the floor AGAIN. Luckily one has, for the first time, remembered to bring packet of grit and trowel for last-minute top-dressing, and will be able to repot the casualties.

The trip continues, with corners taken very sedately indeed in second gear; impatient roadhogs roar by leaning on their horns, one only just manages to restrain oneself from making suitable but very rude retort, and wishes one had a notice in the back window saying "CAUTION—EXPLOSIVE, POISONOUS, FRAGILE LOAD—PLEASE PASS". What views might The Law take of that, though? Anyhow, the usual 'Running In' one would do just as well—though the effect of that seen on *our* car would be to reduce other road users to helpless mirth.

At the hall is chaos—not ordered chaos either, but complete, frenzied, noisy chaos. Members are unloading plants, piling up boxes of them in big heaps anywhere on the floor for everybody to fall over, others are putting up tables, setting out fancy paper, putting on class numbers and markers (constant cries of "Have you any more drawing pins—is there any more tape—Fred come and

knock this in—Freda come and hold this—has anybody seen the scissors and where's Hon. Sec.?"

Hon. Sec. is everywhere at once yet nowhere when people want him; one catches a fleeting glimpse of him often, between tables, behind boxes of plants, flitting through doorways, never in one spot for two minutes together. Either his arms are full of plants or his hands are full of lists and forms or schedules and notices, but always his face wears the same formidable expression and nobody dares try stopping him to ask something. One once heard a new and bewildered member, with an armful of *Cleistocactus straussii*, enquire of Hon. Sec: "Where should I put this?" and is still lost in admiration of the way he kept command of himself and withheld the time-honoured rejoinder.

One unloads one's plants and piles up the boxes in a heap anywhere on the floor for everybody to fall over—takes a good look at other plants in other boxes in other heaps, and very nearly starts reloading. Thinks: Lor, what hopes for my miserable motheaten lot here?

However, the show's the thing, and the more plants on view the more for visitors to see, regardless of whether they're prizewinners or not. So one commences staging. When fifteen or more others are also staging, also dashing from boxes to tables, from class to class, and checking lists and schedules, asking one another which plants should go where, it is nothing else but a grand *mêlée*. One catches another fleeting glimpse of Hon. Sec. and his face is showing signs of the despair one feels. How can this lot ever be sorted out into a show on time?

But it is. Come Saturday morning and final staging of latecomers' plants, all is in splendid order and a miraculous calm prevails as judges are awaited. Hon. Sec. nodding happily with Judges' Clerk, Chairman openly smiling round at everything, catering department being stocked up and the day's first pot of tea being mashed, members roaming in who look as though they'd had no part in last night's furious scrum, asking for jobs.

One has volunteered to be Judges' Clerk's Runner, and because two judges are judging two sections simultaneously, is kept running fairly hard and has no chance to register astonishment at seeing one's own name on the lists occasionally. Near the end of this hushed hour of concentration the local press photographer arrives, takes photos, makes copious notes and stays longer than intended because he is so interested (which results in a good publicity splash across centre pages of his paper's next issue). Judging completed in good time, one must then rush home to feed the family, and afterwards is presented with list of husband's errands. The next hour consists of a frantic chase around various shops in two towns, hunting for the specified paint and paper, brushes and paint-removers and various pieces of house for do-it-yourself jobs with which he has decided to amuse himself, and delivering these items to

him along with the customary two packets of cigarettes and piece of sandpaper.

One re-enters the hall halfway through the afternoon, hot, damp, and hating hardware shops, paint and paper shops, timber shops, chain stores, shopping crowds on Saturday afternoon, do-it-yourselfers in general and one in particular. What a mood in which to be told presentation of prizes has already taken place! Enquires resentfully whether this was done in order to get judges away before lynching party could be formed. Nobody had thought of that, only that judges live a long way off in the country and wanted to see our bit of seaside while here. All agree they have done an excellent job and there are no quarrels with decisions.

One recognises that one should avoid other people until normal serenity returns, and wanders round benches, gazing wonderingly at own prize tickets here and there: calm mood creeps deliciously over one. Fit for society once more, one meets visitors and other members and chats gaily with all. Has no opportunity to watch film show given on stage by Chairman behind drawn curtains, but catches glimpses round curtain-edge of part of funny cactus film on screen. Is reminded that every member has promised to act as door-keeper for half an hour by turn, and it is now one's turn.

For some strange reason (one's startlingly unusual countenance?) visitors stop coming in by the drove or the dozen, or indeed even half a dozen; one feels a very cold draught and begins steadily to go numb, is joined by exhausted fellow members seeking rest for tired tongues and aching feet who draw chairs round and listen to cricket commentary on transistor radio. Visitors enter at rate of two every twenty minutes; members' children are now bored, and play around, and upset papers, and say they want to watch television. Stiff with cold, one eventually realises that everybody else has forgotten this half-hour-by-turn stunt, and that one has in fact been door-keeper for one and a half hours. Rendered immediately unfit for human society, one leaves companions in charge, marches into hall and claps icy hands on hapless Chairman—who says "Have a cuppa tea, quick".

Thawed out, mentally as well as physically, one takes proper tea in jovial company, chats gaily—until it is realised that Chairman has ended giving film show and one still hasn't seen it.

There follows the Packing Up Chaos which is only equalled by the Staging Chaos; one collects one's own plants and loads them safely out of way on car, then returns to help others gather theirs and load them. Why is it that the same number of plants will never fit back into the boxes they arrived in? One keeps thinking all are packed, then sees others left behind; the counting and ticking-off is repeated so often it becomes maddening. With plants cleared away at last, all knock down tables and trestles, roll up paper and fill rubbish baskets with millions of sundry bits of paper. Finally

one joins in sweeping up, with monster brushes which remind everyone else of road-sweepers and they hurl funny insults which one returns with gusto.

It is still only 8.30 p.m., and nearly two hours of daylight yet, so one can return one's plants to their customary places in the greenhouse—forgetting, alas, to sweep stagings first. Perhaps this job will get done after the next Annual Show.

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## Correspondence

To the Editor:

In view of the admirable sentiments expressed by our Chairman in the circular giving the result of the recent ballot for or against amalgamation, I must make it plain at the outset of this letter that nothing I write below is in any way intended to contradict the appeal for us all to pull together. Rather, I hope, it will lead to a more united effort in one particular direction.

Of recent years I have travelled around a good deal in the southern half of the country and have met many cactophiles. Almost without exception they have had interesting things to tell me during the course of casual conversation and I have acquired useful information on a variety of topics. Why is it, therefore, that they are so reticent in committing their comments to paper? I am sure that they have no fundamental desire to withhold their observations and it needs only a few to come forward to ensure that the Correspondence Column of the Journal really comes alive.

I therefore put the question to the two hundred and seventy three members who voted in favour of the continuation of the Society in its present form. What are you proposing to do to practise what you preach and, in particular, how are you intending to enliven and invigorate our Journal? How many of you propose to make a contribution to the Correspondence Column? Or are you still going to let the other fellow do the work? If so, you have not considered the implications of the choice you made on your ballot paper.

W. F. Maddams,  
Banstead, Surrey.

*(Hear! Hear! Ed.)*

To the Editor:

I was somewhat dismayed on reading through the show schedules for 1968 to see that the practice of splitting the two shows effectively into one for cactus enthusiasts and one for other succulent growers has been discontinued. I am a strong believer that people still

tend to specialise in either cacti or other succulents whatever the Show Committee may say to the contrary, and whilst one may be willing to make the effort to exhibit several plants in one or other of the shows, to force such specialists to enter a much more restricted schedule twice a year may well put people off entering altogether.

If, as we are led to believe, people do not specialise, why have we had in the past a cactus specialist and a succulent specialist to judge both shows? The very fact that the well-known growers do specialise to a great extent strengthens my point. I accept that most of us do have some plants of the group other than the one we are most interested in, and that in Local Branch Competitions we may well enter them, but this is greatly different from exhibiting at the R.H.S. Hall. Mr. Boarder commented in his Cultivation Notes for November last year that the 1967 Shows had been the best since the war. Surely this is then a most inappropriate time to radically alter the schedules. The time for change is on the low ebb in such competitions.

Again, reading the schedule, it strikes one that Mammillaria specialists are a favoured race. Three out of eleven classes exclusively for them! With the continual increase of such genera as Parodia and Notocactus, some space could well be left for a class or two for such attractive plants. As to the class for imported plants SINCE 1965; surely the test of ability to cultivate as opposed to ability to pay would be to restrict them to imports BEFORE 1966, to give one a chance to spoil them!

E. G. Canham,  
Lower Kingswood,  
Surrey.

*(How do you feel about this? I am sure the Show Committee would like to know your reactions either way. Ed.)*

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### PLEASE NOTE:

The Editor would welcome articles, preferably, but not necessarily, accompanied by photographs, on various aspects of our hobby. What about some notes on your favourite genus, or your experiences with some of your plants. Or perhaps you are in touch with a grower or collector abroad who could write on growing plants in another country, or on plants in their native habitat.

For many of our members the Journal is the main return for their Subscription and it must be worth their money. But the Editor cannot publish articles she has not received, and the standard of the Journal is bound to fall unless members do their share in supplying material. Please do what you can to ease the Editor's headaches!

## American Viewpoint

*The two following articles are reprinted from the "New York Times" dated 21st January, 1968.*

### **Curiouser and Curiouser** by Chester B. Dugdale

"A CURIOUSLY-SHAPED PEBBLE . . . proved to be a plant," was first discovered in Africa in 1811 by William John Burchell. Ever-increasing numbers of plant enthusiasts, including myself, are becoming intrigued with these desert gems, called Lithops, which belong to the Mesembryanthemum tribe.

In fact, I became so intrigued with them I set forth last spring to seek out Lithops in their natural habitat in the Union of South Africa. Since my work at Fairleigh Dickinson University includes the procurement of new plants to study, I gathered as many as my "Plucking Permit" would allow.

Many hours were spent wandering over the koppies (hills) in the Prieska District and at some 35 other sites from Warrenton on the east to Klein Karas in South West Africa hunting for these little plants that are so well camouflaged. Their colours and textures blend so perfectly with the soil and rocks that surround them, they are very difficult to find.

My own interest in Lithops is the study of their cellular structure, particularly those peculiarities of structure that enable them to survive in a hostile environment.

Deserts are characterized by low rainfall, low humidity, intense sunlight and heat by day with considerable temperature drop at night. All of these factors combine to produce a high rate of evaporation which would suck all the moisture out of an ordinary plant but Lithops can be exposed to these conditions for months on end and suffer no permanent damage.

The structure of the Lithops resembles a child's spinning top. The entire plant consists of from one to several pairs of inverted, conelike leaves. In most of the 80 or more species, the leaf pairs are so well fused into one body that only a narrow fissure remains between them. The central core is composed of large water-storing cells interspersed with smaller supporting cells. Covering the entire leaf is a single layer of heavily walled epidermal cells.

The details of this cellular construction are important to help hobbyists understand how to grow these stonelike plants indoors. They unlock the secret of successful maintenance. Lithops must be given as much sunlight as possible because the sun's rays must pass through the epidermis and through the water-storing cells before they reach the chlorophyll where the growth-producing sugar is synthesized. Also, while Lithops grow deeply buried in Africa, protected from the drying effects of the wind, in pots the plant "bodies" should be kept free of soil and be given as much fresh air as possible.

In Africa, Lithops bloom in the rainy season. Since their range includes both winter and summer rainfall areas, and since the African seasons are reversed from ours, newly imported plants are likely to find the situa-

tion a bit confusing. However, after a year or so, they become synchronized with our seasons and bloom and put on a spurt of new growth during September-November.

Lithops' flowers are either yellow or white, depending on the species and they open about 3 o'clock in the afternoon on three or four successive days. Seeds are borne in very unusual five to seven-sided capsules which open only when wetted by the rains of the following season.

About six months after blooming, two new little leaves begin to develop deep within the body of the plant. They arise from the top of the stem and slowly grow up through the crevice between the old leaves. As the new leaves grow, the water of the old ones is transferred to them until, when they reach maturity, they are surrounded by the withered remnants of their predecessors. During this growth phase Lithops are least tolerant of soil moisture and should not be watered. Most hobbyists maintain the drying-off period for the entire summer and only start watering when the fall flowering season approaches. However, because homes may be even drier than deserts, the plants may be watered cautiously and sparingly during this dry season if the appearance of the plant indicates excessive dehydration. Plants in the field usually have small secondary roots that grow at a sharp upward angle from the main roots. These ascending roots gather moisture from the morning dew and from transient showers that may occur during the dry season.

The most fascinating aspect of the study of Lithops is observing the colours and markings on the exposed top surface of the plant. Here one finds what is undoubtedly the ultimate example of protective mimicry in the plant kingdom. On my collecting trip, I found it advisable to drop little squares of red cloth over each plant as soon as it was seen because an inadvertant turn of the head would permit a plant to "escape" and much time was lost trying to find it again. Casual passersby never see Lithops in their natural habitat.

For pot culture, use coloured pebbles and rocks to match the plants. For example, the grey-green Lithops salicola is invisible when growing in the grey clay of South African salt pans, but it will not change its colour to match the soil in the pots. Protective mimicry is the result of thousands of years of evolution; it is not a chameleonlike colour-change. Some individuals of a colony match the predominant colour of the soil of that area better than others do. Those that do not match very well are found and removed by insects, animals, birds (and collectors). In the hobbyist's flower pot, chips of rock should imitate the colour and texture of the plant. The chips also help the plants to grow better.

For house plants, a windowsill with a southern or

eastern exposure is satisfactory; the warmest and driest section of a greenhouse is excellent. Temperatures of 55-60° F. during resting phases and 80-90° F. during active growth are preferable, although fluctuations in either direction are not dangerous for short periods of time. It is well to remember that Lithops can be burned by sunlight shining through glass, especially if they have not been hardened to it by gradually increasing exposures.

An indoor collection can be started either from seed or with grown plants. The advantage of seedlings is that those that survive the rigors of amateur care will be specimens with a good life expectancy. The disadvantage is that Lithops are rather slow growing (three-four years to flowering) and the mimicry patterns do not appear until the plants are mature.

To raise Lithops from seed, the following technique is suggested. For each 100 seeds of one species to be raised, use an aluminium pan that is two inches deep and has about 40 square inches of surface. Punch several small drainage holes in the bottom. Fill it with a mixture of two-thirds fine sand and one-third light garden loam, well sifted together. Smooth the surface. Sow the seeds evenly and do not cover them with soil. Immerse the pan in water to just below the soil level and repeat when necessary to keep the soil gently moist until germination is complete. Do not let the seeds dry out. At about 80° F., germination will start within several days if the seeds are properly matured. A paper-covered glass plate may be used to cover the pan to maintain the moisture content of the air if drying is too rapid.

After germination, the cover should be gradually removed to lessen the possibility of damping off, which is a great danger. In fact, I am inclined to believe that all Lithops culture would be less risky if a fungicide were added to the soil. The seedlings need not be pricked out for a year or even two.

When the plants begin to assume their mature form and colouring, they should be transplanted to either clay or plastic pots that are at least four inches deep. Use the same type of soil mix described or the following, which is unorthodox but very successful. Add one part black humus to six parts Perlite. Thoroughly rub out all lumps from the humus after it is mixed with the Perlite. A top dressing of broken rock selected for its mimicry effect should be placed around the plants. By this time these young plants will have begun to follow the growth cycle of their kind and water will have to be withheld during the resting period and given adequately during the flowering period. At all times they will require all the sunlight and fresh air they can get.

Mature plants from nurseries are shipped with bare roots. Like cacti and other succulents, Lithops can remain out of soil for months without permanent damage. Carefully trim off broken roots with a pair of scissors and delay planting for a day to permit the cut to heal. Select pots that are at least four inches deep and use either of the two soil mixes described. Bury the roots,

but keep most of the plant exposed. Support the plant with small rocks that enhance the mimicry effect. Water new acquisitions sufficiently to stimulate the root system into new growth.

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## Saga of the Saguaro, the Giant of the Desert

by John V. Young

TUCSON, Ariz.—A surefire way to get into an argument hereabouts is to come up with a theory about what really is happening to the saguaros. This huge and often grotesque member of the cactus family, whose fragrant and waxy white blossom is Arizona's state flower, is the symbol and essence of the desert South-west. No six-gun saga is complete without a few saguaros in the background, even if the setting happens to be a thousand miles from the nearest specimen of *Carnegiea gigantea*.

The trouble is that a lot of saguaros are dying, and the experts do not agree on the cause, other than old age. Many of the saguaros now dying sprouted before the American Revolution. Old age for a healthy specimen is at least a couple of centuries, but no one knows their actual life span.

One of the major areas of diminishing cactus population is in the oldest and largest section of the two-part Saguaro National Monument. In the Rincon Mountain section, just east of Tucson, saguaros are dwindling in number; fortunately, this is not true of the Tucson Mountain section, not far northwest of town.

The focal point of the Rincon section is the new Visitor Centre at the end of the Old Spanish Trail, an eastward extension of Tucson's Broadway. The Cactus Forest Drive, a nine-mile loop road that is popular with motorists and cyclists, starts at the Visitor Centre.

Well-marked foot trails lead to more distant points of interest in and around the 78,644-acre monument, and horses are available for hire at neighbouring ranches. Besides an awesome concentration of saguaros, there are many other varieties of desert plants to be seen, as well as a host of small animals and birds. Cliffs, canyons and colourful rocks contribute to the spectacular setting.

There is a large picnic area near the Visitor Centre, but there is no firewood and camping is not permitted. There are some trails and picnic facilities in the 15,500-acre Tucson Mountain section, but there is no drinking water.

Gaunt skeletons attest to the fact that death comes to saguaros, just as it does to all living things. A kind of rot called bacterial necrosis sets in if the saguaro is damaged by vandals, cattle, wind, rodents, fire or frost.

It is thought by some that the disease is spread by the moths that flourish around the cactus blossoms. On the other hand, some plant biologists argue that the necrosis is merely nature's way of removing the remains of any dying plant.

The fact that there are few, if any, younger saguaros in

some of these areas is more baffling. One theory is that the climate hereabouts was more favourable to saguaros a couple of hundred years ago.

The saguaro has many enemies. Grazing livestock trample the young plants and crop away the shade they need; erosion sends devastating floods down unprotected slopes to sweep away both soil and plants, and wholesale destruction of predators—eagles, owls, hawks, coyotes and bobcats—has made the saguaro forests a safe and happy feeding ground for all manner of rodents.

Even full-grown saguaros, which sometimes attain heights of 50 feet and weigh 10 tons or more, are susceptible to attack. When they are in poor condition from continued drought, any superficial injury can become a source of fatal infection.

And, although saguaros require relatively little moisture from year to year, their special ability to store up tons of water is also a hazard. If a sudden freeze should hit them while they are engorged with water, the result can be fatal.

Thus, survival for the saguaros has always been a delicate balance between feast and famine, too much or too little water, heat and cold, varying animal populations and, lately, the mischief of men.

Under favourable conditions, however, some of these desert giants survive even severe injury, such as having an arm torn off by a windstorm. The resulting cavity is quickly healed over by sap, and usually becomes a nesting place for woodpeckers, elf owls, flycatchers and other small birds.

The Papago and Pima Indians, still numerous in southern Arizona, built their whole culture around the saguaro. They still use the long, strong ribs of the cactus skeleton for building materials and fuel.

From the egg-shape fruit, three inches long and perhaps half that thick, they extract a vivid red pulp, rich in sugar, which they make into jam or syrup. The seeds are ground up and baked into a cake.

The Indians call July the "moon of the saguaro harvest." They are still permitted to harvest the fruit in the monument area.

The saguaro blossoms appear in May and June. In common with other members of the cereus family, the flowers of the saguaro open at nightfall and close in the morning, unless the day is cloudy. The name cereus is from the Latin word for wax candle, and refers to the candelabra-like branching of the stem.

Of the billions of seeds produced each year by the saguaros, only a few germinate. Those that lodge in the dead branches under a paloverde tree have the best chance to take root.

Saguaros are among the slowest growing of large plants, averaging no more than two or three inches a year in good years. At 30 years, an average saguaro will still be only a few feet tall. It may take 75 years for one to reach a height of 15 feet and start to develop its first blunt branch.

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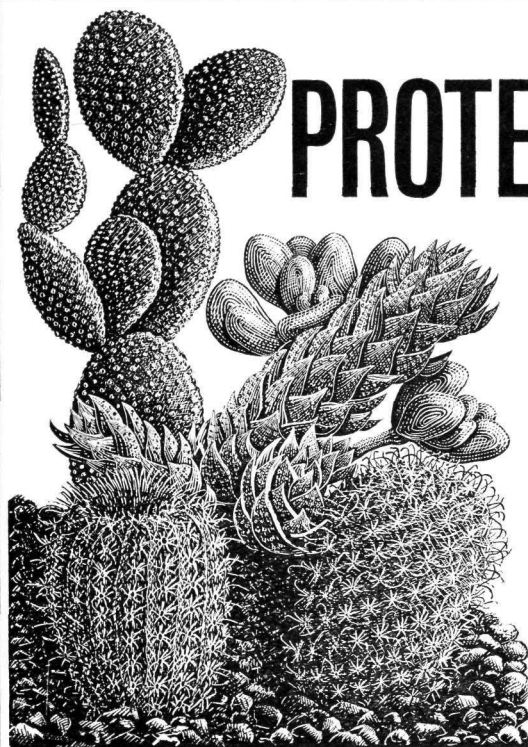
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*Ariocarpus Aztekium*, *Brachycalycium*, *Discocactus*,  
*Encephalocarpus*, *Epithelantha*—groups up to 100  
heads, *Glandulicactus*, *Gymnocalycium*, *Gymno-*  
*cactus*, *Homalocephala*, *Islaya*, *Leuchtenbergia*,  
*Melocactus*—with or without cephalium, *Neo-*  
*gomesia*, *Obregonia*, *Parodia*, *Pediocactus*, *Pelecyp-*  
*phora*, *Pyrrhocactus*, *Sclerocactus*, *Strombocactus*,  
*Sulcorebutia*, *Toumeyia*, *Weingartia*, *Utahia*, and  
many others.

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# *The Cactus and Succulent Journal*

*of Great Britain*

Established 1931

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*Vol. 30*

*NOVEMBER, 1968*

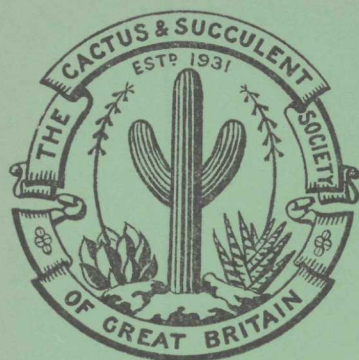
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# THE CACTUS AND SUCCULENT JOURNAL OF GREAT BRITAIN

Vol. 30

November 1968

No. 4

## Editorial

I AM HAPPY to see that this time a number of members seem to have taken my earlier comments to heart and sent along contributions for the Journal. In particular the correspondence column is flourishing, largely, it appears, thanks to the comments by Geoff Canham on "Shows". I am sure the Show Committee will consider all these comments seriously.

We have two new series in this issue which I hope will be of interest to readers. First we are starting a queries column "Your Queries Answered" in which we hope to publish queries received from members together with the answers supplied by a panel of readers who have specialised in particular genera. In this connection, I

should be glad to hear from any members who would be prepared to help with these answers, together with a note of the genus or genera in which they are particularly interested. I would then send them any relevant questions received in the hope that they could let me have an answer for publication in the Journal at the same time as the original query.

The second column is a more light-hearted effort, by a new member "Sally Cornioides", and she would be glad to receive (via the Editor) any snippets you may come across in your reading or which you may overhear at shows etc. for inclusion in this column.

E.M.D.

## Cultivation Notes

*Cacti—by A. Boarder*

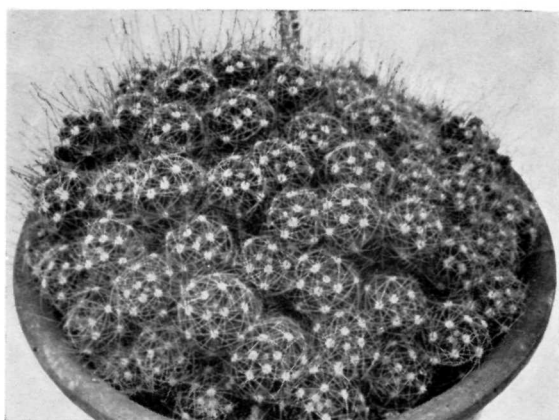
AT THIS time of the year the watering of most cacti will have ceased. If any is given at all during the winter months the amount will depend on the position of the plants. If any are kept in the house, especially where central heating is used, most cacti will require some water according to their type. Some of the *Opuntias* with pads may need a little water once a month or some of the pads may drop off. The air will be very dry for most of the time and so enough water must be given to prevent the plants from shrivelling. On the other hand too much water must never be given as this could lead to the plant starting into growth. This winter's growth should not be encouraged as it is likely to be weak and unhealthy.

If any cacti are kept in an outdoor frame which is kept just frost proof through the winter, it will be important to refrain from any watering. The drier the frame can be kept the better will the plants go through the cold weather. Many cacti could stand a little frost or temperatures down to 30°F., as long as the soil in the pots was quite dry and the atmosphere inside the frame as well. In a greenhouse the amount of water given will depend on the temperature which is kept and the types of plants. For most cacti there is no need to aim at a higher temperature than 40°F. This will ensure that the plants get a good rest and that they are not forced into unnatural growth during their resting period. If young seedlings of the year's growth are kept in the greenhouse it may be necessary to give these some water occasionally. They should also be in the warmer part of the greenhouse. For most seedlings so young, a temperature of 50°F.,

will be better. With most forms of heating there is usually at least one part of the greenhouse which is warmer than the rest.

When any water is given during the winter it is wise to do so when the weather is bright and not frosty. At some time during all winters there is a time when the temperature outside is in the middle or upper fifties and it is then that water could be given. The one important point to watch is that no surplus water must lie about in the greenhouse and that the general atmosphere is kept as dry as possible. Many growers complain of types of moulds which appear on certain plants during the winter. Some plants are more adversely affected than others. The worst type is often those *Coryphanthas* which have the tiny features at the areoles which exude a form of sap. This soon gets a black mould formation on it which looks very unsightly. This can be obviated by always ensuring that the atmosphere in the greenhouse is as dry as possible. Should any of this black mould appear it can be kept in check with Tulisan. This is a fungicide in a powder form. If a small brush is wetted some of the powder can be picked up and painted on the mould. Do this during a dry spell when the air is not damp.

The atmosphere inside the greenhouse will be varied as to the type of heating used. An electric fan heater is likely to keep the air circulating better than a static one. Although this is so it is still important to ensure that the general atmosphere is as dry as possible. No water must be allowed to lie on the path or staging in the house and any watering done should only take place during suitable weather. Where solid fuel is used in a hot water



*Mammillaria surculosa*

system it is possible that at times when the wind is in a certain quarter, the fire will draw up and the water can boil. There will then be a quantity of steam coming from the pipe feeder opening. Such steam will soon make the whole greenhouse an unsuitable place for cacti during the cold weather.

Electric heating is drier but can be very expensive when used to keep a greenhouse at any temperature above 40°F. Some growers use the tubular heaters but I found that a lot of the warmth was lost if these were situated anywhere near the glass. The heat from these tubes rises quickly to the roof and quickly becomes useless. I changed over many years ago to cable heaters. These are run all over my staging so that no pot is more than a couple of inches away from a cable. The type I have in use are 80 foot cables rated at 300 watts. They plug in directly to the mains at 240 volts. I have a thermostat which is set at 40°F. In addition I use a good paraffin heater. I had to install this after I had lost a large number of specimen cacti through power cuts during the winter of 1962-3. My paraffin lamp is one of Bryant, 'Monster' blue flame types which heats double water pipes connected with a small boiler affair, like an inverted saucepan. Above the double water pipes is the fume pipe. To this pipe of three feet I have added polyglaze tubes which I rolled up and fixed to the ends of the pipe. This extends the pipe to 14 feet in my 20 foot greenhouse. Not only does this spread the warmth but the fumes from the paraffin condense and water drops out of the ends of the tubes into pots at the rate of about a pint each night. All this condensation would have settled on the bars or glass of the roof and run down. Now all the inside of the roof is perfectly dry every morning.

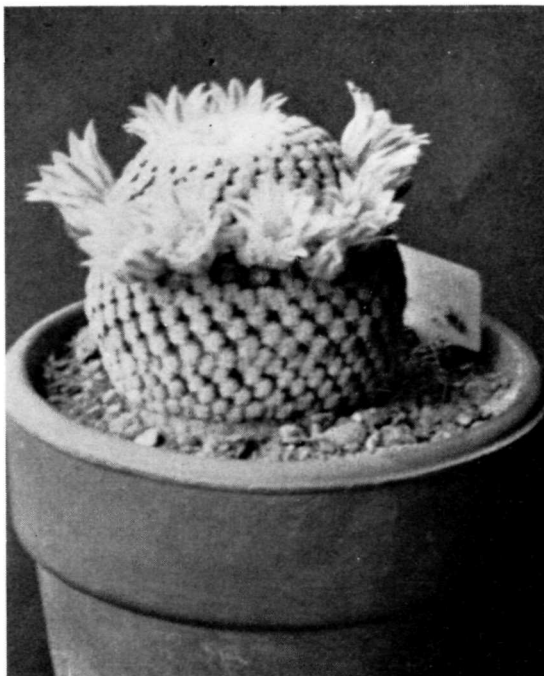
I always advise the use of a blue flame lamp in preference to the white flame type. The former is more efficient as it burns more oxygen, gives more heat and less paraffin is wasted. I am often asked if paraffin heaters harm cacti. I am sure that no harm will come to the

plants from using this form of heating. Of course one should always use the best paraffin and see that the lamp is kept clean and properly attended to. I have used forms of paraffin heating for my cacti for at least forty-five years and have found no ill effects. I would go so far as to say that many pests are discouraged by this heating, especially mealy bug.

Many growers become specialists in one or two genera after they have gained experience with many other kinds. Most beginners are rather confused by the hundreds of different species of cacti and are at a loss as to which kinds to grow for a beginning. In most genera there are many plants which are rather similar in appearance. In a fairly small collection the grower would no doubt like to have those plants which are different in shape or colour from many others of the same genus. Although the choice must be left largely to the individual, it may be of some assistance to the beginner if I give some of the plants which are rather different from others in the same genus. In the case of the very popular genus *Mammillaria*, there are over three hundred species from which to choose and the grower may be at a loss as to which are the best ones to grow. Among such a large genus will be found many plants which resemble others so very much that their inclusion in a small collection will be unnecessary and only take up space which could well be used for better types.

As there are so many *Mammillarias* I will name just a few which will grace any collection and be of varied

*Solisia pectinoides*



shapes, spine formations or colours. Some of the more easily obtained ones are *MM. gracilis*; *elongata*; *prolifera*; *wildii*; *bocasana*; *rhodantha*; *elegans*; *camptotricha*; *schiedana*; *plumosa*; *sheldonii*; *surculosa*; *parkinsonii*; *compressa*; *celiana* and *microheliopsis*. There are many others which can be of different shapes but the above list will give a good varied range. In the genus *Notocactus* the following will make a good basis:- *N. ottonis*, *leninghausii*; *haselbergii* and *scopa*. For the *Lobivias* try:- *L. aurea*; *famataensis*; *jajoiana* and *leucomala*. Many *Echinopsis* are rather similar in appearance and one can choose from:- *E. tubiflora*; *campylacantha*; *obregona* and *multiplex*. The *Rebutias* are rather alike except when in flower so try:- *R. minuscula*; *marsoneri*; *senilis* and *krainziana*.

Many *Gymnocalyciums* are similar but these are quite good:- *G. gibbosum*; *mihanovichii*; *venturianum* and *leptanthum*. For *Malacocarpus* grow:- *M. erinaceus* and *pauciareolatus*. The *Echinofossulocactus* are interesting and *E. crispatus* and *xiphacantha* will prove interesting. Among the *Echinocereus* try:- *E. pectinatus rigidissima*; *procumbens* and *scheerii*. The *Astrophytums* are a must, so grow *A. myriostigma*; *asterias* and *capricorn*. For tall growing types choose from:- *Cereus peruvianus*; *Cleistocactus strausii*; *Cephalocereus senilis*; *Oreocereus celsianus* and *Espostoa lanata*.

Several genera have only a few species and so one of each could be picked such as:- *Aporocactus flagelliformis*; *Harrisia martinii*; *Selenicereus grandiflora*; *Chamaecereus silvestrii*; *Schlumbergera gartnerii*; *Zygocactus truncatus*; *Epiphyllum hybrid*; *Mammilopsis senilis*; *Epithelantha*

*micromeris*; *Coryphantha radians*; *Escobaria tuberculosa*; *Pelecyphora asselliformis*; *Solisia pectinata*; *Thelocactus bicolor*; *Dolichothele longimamma*; *Echinocactus grusonii* and *Hamatacactus setispinus*.

There are of course many more kinds which can be grown but the above will make a good start for any collection as it includes many of the more interesting but yet available kinds.

Many of the above can be raised from seed and though some may take a few years to reach flowering size, it will be found that any plants grown from seed will usually be in very fine condition and not be damaged as many imported ones are. Once spines are broken they will not grow again and any damage to a plant may take years before the new growth pushes down the scarred parts. I noticed at the autumn 1968 show at The R.H.S. Hall there were several imported plants which I had to down-point because of many broken spines. I was particularly pleased to see such a fine lot of *Cerei* on show. I cannot remember seeing such a fine display of these plants at any of our shows. Although there may not have been quite as many entries as at some other shows I am sure that the quality was very good and many fine specimens were to be seen and admired. I liked the *Mammillaria schwarzii* cristate which was on show as it was a real gem; pity it had an undeveloped part near the base. The class which was rather puzzling was the one for three South American cacti. There are so many genera which could have been included in this class that I think that a more limited number of genera could be asked for in future.

## Cultivation Notes

### Other Succulents—Mrs. M. Stillwell

COLLECTORS of stemless mesembryanthemums always look forward to the late summer and autumn, when their plants are at their best. The ultimate aim is of course to get them to flower, which is the culmination of correct growth and the proper treatment. It may be difficult for the layman to realize that these plants must be given a complete rest to achieve flowers in their respective seasons. They must all be watched and treated as individuals. With experience one can tell the commencement of the watering period by signs of new growth on the plants, and a general brighter look. Many such as *conophytums* and many of the *gibbaeums* rest during the summer in this country, and are completely at a standstill, and therefore resent continual watering as received by many of our other plants. This presents no difficulties if you water all your plants individually, as I do, but if in the habit of using a hosepipe, or other mass method of watering, group together those plants that are to be kept dry, and just pass them over, although personally I do not like moving my mesems from one

place to another once I have found the best place in the greenhouse to induce them to flower. I have proved that some plants flower better in one place than another, possibly because they catch the rays of the sun from a different angle, or are slightly nearer or farther from the glass in a position that suits them. This may sound hard to believe, but when it comes to flowers many of our plants can be very temperamental. Some will seldom flower in this country, owing to the fact that we do not have enough hours of daylight and strong sunlight during the latter part of the year when they are due to flower. This is where experiments could take place with artificial lighting, as practised in many nurseries today with the many pot plants now seen on the market. Personally I get quite a lot of flowers without resorting to these unnatural practices and am quite satisfied. I think I have flowered all the *Gibbaeums* with exception of *G. geminum* which stubbornly refuses to flower, although a large plant and many years old.

Writing these notes early in September, I noticed



*Argyroderma testiculare*

today the first of the *Argyrodermas* in flower, a very pale pink. It has several heads, is of course quite an old plant, unfortunately I do not know its name. I find *argyrodermas* flower very freely for me once they have reached maturity. The commonest colour is of course yellow, but I also have them in white and other shades of pink up to magenta. There are unfortunately a lot on the market today that are not always true to name, and it can be very disappointing to find that a plant sold to you as one of the pink flowered varieties turns out to be just another yellow. I keep mine dry from the end of November until about May or June, according to the weather, and if the old pair of leaves are drying off well. It is rather difficult to remove the old leaves at the base, they are very firmly attached, and mine usually get left on, as in the process of removing, it is very easy to break off the whole head. I do not water my *argyrodermas* unless they look slightly shrivelled, as this is when they show signs of needing it. Too much water, or excessive feeding will not result in large and perfect plants but will only cause ugly open splits to appear, and disfigure the bodies. A nice thick layer of coarse natural coloured aquarium gravel on top of the pots, not only presents them well, but also keeps the top of the soil from clogging hard, and prevents the soil splashing up on to the plants when watering. *Argyrodermas* keep a nicer colour and a firmer texture if grown in clay pots in a very gritty mixture with about one third lime stone chips, or chicken grit.

Try growing your *Lithops vallis-mariae* in two thirds limestone grit and one third of your usual compost. I

find it responds beautifully. All my *lithops* are looking very well, and several are in flower. They are still on the shelf touching the glass on the south side of the greenhouse, including last year's seedlings, and I can honestly say there is not the slightest sign of scorching, and there is no shading on the glass. The shelf is about mid way from floor to ceiling of the greenhouse, and practically all of them are in clay pots and grown hard to develop the true bright colourings of each individual species. There is of course a good current of air circling round the greenhouse day and night during the summer. Do not put *conophytums* too near to the glass, for they do scorch quite easily.

Dwarf aloes are becoming very popular, and many whilst being very attractively marked, also flower quite freely. The one perhaps most sought after is *A. haworthioides*. To the beginner this could easily be mistaken for a *Haworthia*, until it flowers, and then there is no doubt as to its identity. It is a small stemless plant, forming a dense rosette with numerous white spines on the leaf margins. I am particularly fond of *A. albiflora*, often referred to as *Guillauminia albiflora*. Mine is in flower for the first time, and is a great thrill, with its charming inflorescence of pure white flowers and protruding stamens. *Aloe Africana* is another spiny little rosette which is just coming into flower, which if it is true should be an orange-yellow. *A. bakeri* is a prettily marked dwarf stemless variety, but tends to branch and get rather untidy with age. It can be relied upon to flower freely as does *Aloe thompsoniae*. It offsets very freely and will soon flower from every rosette but can soon out get of hand if grown too quickly. *Aloe humilis* and its many varieties have always been very popular, and have coral red flowers. I prefer the small compact true species, many of the hybrids have much longer leaves, and a more untidy form of rosette, they all have prominent teeth on the leaves, which are more pronounced if the plant is kept rather on the dry side. I prefer to see these in clay pots, for while they no doubt grow well and quicker in plastic they tend to get rather lush. I am gradually putting my choicer *Haworthias* back into clay pots, for several of them seemed to bolt away, and I was left with a mass of small offsets at the expense of the main body. I noticed at the September show many choice little succulents had been badly over-potted, and one's eyes were drawn more to the pot than to the plant. Let us hope that after the show they returned to a pot more in keeping with the size of the plant, for a large pot does not make a small plant show size, and will not influence the judges any more. Often three small plants well grown take precedence over three very large plants which are usually very easy to grow, hence their size. There were some very fine *Haworthias* in the show, particularly in the *setata* and *retusa* groups, which are always great favourites of mine. It is seldom one sees a true *H. bolusii* at the shows, which has an all over thick white appearance, I have what I believe to be the true species, it is a

plant imported many years ago, while most of those grown in this country from seed seldom come true, as they hybridize so easily with other species, and even

*September Show. Class 22. 1 Cactus 1 other Succulent*



though the seed comes from a true plant, it is surprising the different variations that result and should never be distributed as true species.

*Class 9. 1 Cactus 1 cristate same Species. F. Johnson.*



## Photographing your Plants

*by Eileen M. Drage*

IT SEEMS that nowadays, for the Cactus and Succulent enthusiast, second only in importance to the successful cultivation of his plants is the recording of them with a camera, preferably on colour transparencies, and no doubt it is very satisfying to be able to view again these glorious flowers during the long cold evenings of winter. It was, in fact, the sight of other people's pictures of their plants that led me, in the first place, to discard my old folding camera and take up 35 mm. photography to record my own plants in colour.

Whereas many readers undoubtedly are already experts in this line, perhaps a few hints may help others who have not yet started or who are not satisfied with their results.

I have mentioned colour in particular as this is perhaps the obvious choice nowadays for a newcomer to photography, particularly as the colour is such an important factor in the flowers of our plants, but black and white photographs can also be very rewarding and for reproduction purposes are definitely preferable, as, in the case of transparencies, black and white prints have to be made before the blockmaker can do his part and the results are rarely as satisfactory as from a good black and white print. As the basic techniques are similar, much of this article will apply equally to both types and I will try and make it quite clear where variation occurs.

### *Equipment*

Obviously the first essential is a camera and this is where some people are put off. I have so often heard the remark "Oh, I've only got a little cheap camera" or "I can't afford an expensive camera like Mr. So and So's." Well, of course, certain types of camera are more adapted

to close-up work than others, and make the job easier, but even the simpler types can produce quite good results with a certain amount of care, and I am assuming here you have one of the simpler cameras.

After the camera, another important item is a firm tripod. Though perhaps not absolutely essential, it is a very great aid to good pictures. Many shots are ruined by "camera shake". One essential of close-up shots is that they must be sharp—a fuzzy picture is no good—it does not show the details you want to see and though you may think a fraction of a second is too fast to show any movement, believe me, it is not, and when the subject is only a few inches from the lens, the slightest jerk will cause unsharpness. Also, if your camera allows you to focus on the subject, it is difficult to keep this in sharp focus while holding the camera in the hand. I don't say it can't be done, but a tripod makes the job much easier and a good result is much more likely (Myself, I try never to take a shot slower than  $1/250$ th of a second without some support). With a firm tripod and a cable release (costing only a few shillings) fitted in your shutter release button (this is the button you press to take the picture) you need not fear any movement.

Now, having got the camera fixed on the tripod, let us choose a plant and get ready to photograph it. First of all, I will assume you have a simple camera with few refinements. This probably means that you cannot normally get nearer than several feet from your subject—maybe three feet or even further away—which means that a small plant will appear very minute on the slide. To enable you to get nearer, and thus get a larger picture of the plant, you can buy one or more supplementary

lenses. These are simple lenses costing a few shillings, which will fit on to the front of your camera lens and enable you to get much closer to your subject. They are sold in varying strengths—known as *dioptries*. 1 dioptry, 2 dioptry and 3 dioptry are the most usual and if you have all these, used singly they should enable you to photograph your plants at distances between 3 ft. and 13 inches. A table is supplied with the lenses showing the relative distances; by using two supplementary lenses together—the higher dioptry number next to the camera lens and the lower in front of the higher—you can get the equivalent of the sum of the two lenses, i.e. 1 d. + 3 d. = 4 d., 2 d. + 3 d. = 5d. If you can focus your lens to 3 ft. with the 3 d. supplementary, you can get to within  $9\frac{1}{2}$  inches of the subject, which is sufficiently close for most purposes. Table No. 1 shows the distances for various supplementary lenses and focussing settings. *NOTE.* Measurement should be taken from the front of the lens.

**TABLE 1**

Supplementary lens	Camera/subject distance Infinity setting	Frame aperture
No. 1	39.4 in.	18 × 27 in.
„ 2	19.7 in.	9 × 14 in.
„ 3	13.1 in.	6 × 9 in.
„ 4		
(1+ 3)	9.85 in.	4½ × 6¾ in.

It must however be realised that any extra piece of glass put in front of the lens will tend to reduce the quality of the resulting picture. This is due to the refraction of light which is a complicated subject and quite outside the scope of this article, and I would not advise the use of more than one supplementary lens unless it is essential to get great detail of a very small part of the plant.

These supplementary lenses can be obtained from your photographic dealer in sizes to fit most cameras without interchangeable lenses.

#### *Parallax*

Having fitted the suitable supplementary lens, the next difficulty is caused by the fact that when you are taking a subject at such close quarters the viewfinder of your camera does not give a true picture of what is seen by the lens. It will show you approximately the amount included but according to the position of the viewfinder on your camera relative to that of the lens, you will find that the top of the plant will be missing from the top of your picture and there will be too much space at the bottom, (We have all seen those snaps of Uncle Tom with his head missing!) and if the viewfinder is not immediately above the lens, the plant will also be to one

side instead of in the middle of the picture. This is because the viewfinder is arranged to coincide with what the lens sees at a distance of some 6 or 7 feet or further away, at which distance the slight discrepancy due to the displacement of the viewfinder is not noticeable, but at the close quarters at which you are working it makes a considerable difference. (See Fig. 1). Allowance must therefore be made for this and with practice you can probably get to judge the right position. This may mean however a number of disappointments before you learn how much allowance to make and here are some ideas which help to overcome the difficulty and avoid guesswork.

(1.) Tables have been published showing the size of the picture area at various distances from the lens and it is fairly simple to make a small wire frame of size suitable for use with the majority of your plants and fit it on two struts which when the ends are placed at the base of the camera will hold the frame at the correct distance and by placing this so that it frames the plant, the camera should automatically be in the right position. (See Fig. 2). Table 1 shows the size of the frame needed for certain distances and should be a guide in working out sizes for other settings.

(2.) Another simpler though possibly less accurate method is to place a rule or straight stick or rod at the side of your camera lens, level with the centre of the lens, pointing towards the plant. The rod must of course be held at exact right angles to the front of the camera and will then point (as near as no matter) to the centre of the field of view of the lens. (See Fig. 3).

(3.) A third method, particularly if you have a tripod with a centre column is to get your plant correctly sited in the viewfinder and then raise the camera exactly the same distance as the distance of the viewfinder above the lens.

Neither of the last methods allows for the sideways displacement of the viewfinder, but this can be much more easily gauged by getting the plant slightly to one side of the viewfinder to bring it into the centre of the view of the lens.

These hints may also serve those of you who have rangefinder cameras which suffer from the same disadvantage in this matter as the cheaper cameras. Some rangefinder cameras do, in fact, have markings on the viewfinder allowing for parallax, but even so, few of them allow for such close ranges as are needed for our plants.

#### *Focussing*

Whether you have a camera which allows you to focus the subject or a fixed focus camera, you will have to be very careful to get your distance exact, as, at such close quarters, the depth of field is very small, only a matter of a fraction of an inch. (For those of you who are not used to technical terms, this means that when you have focussed on a certain distance, anything more than

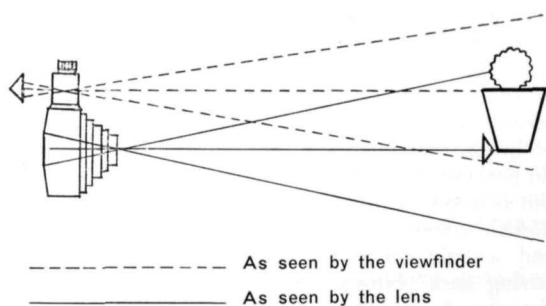


Fig. 1

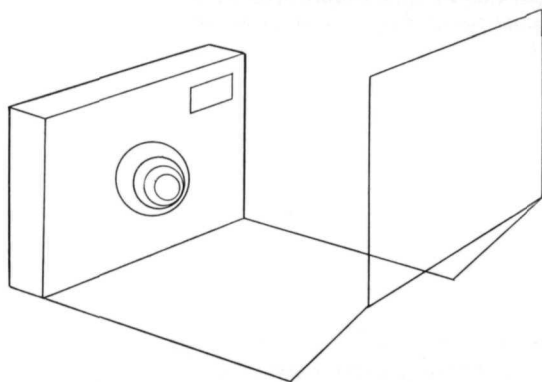


Fig. 2



Fig. 3

a fraction of an inch in front of, or behind this distance will be less sharp.) Therefore it is essential that the part you want really sharp should be at the exact distance stipulated by the table supplied with the supplementary lens. So, unless you have reflex viewing, always use a rule or a tape to measure the distance, which should be taken from the front of the supplementary lens. A steel spring tape is very good for this. Of course, if you have made a frame as mentioned in the previous paragraph, this should do the measuring for you, though it is always as well to check this. Also, remember that it is more distracting to have an unsharp foreground than an unsharp background, so try and have the important part at the nearest point and let the further side of the plant go unsharp.

If your camera has several stops (marked f. 4.5, 5.6, 8, 11 etc.) always use a small stop (highest f. number) as this does increase the depth of field, but only very slightly at this close range.

#### Exposure

If you have no control over the speed at which you take the photographs, it is wise to take your pictures on a sunny day (if you want flowers you will probably be doing this anyway) as, although it is possible to get good shots of distant scenery etc., without the sun, these close-ups require more light and therefore if you cannot increase the length of the exposure you must make sure you have plenty of light. If your camera has a number of stops and exposure speeds, use preferably a small stop and a slow speed to give greater depth of field as mentioned in the previous paragraph.

#### Lighting

Obviously most of the photographs of cacti and succulents will be taken in sunlight as you will want to get the flowers at their best, but if you follow the instruction so frequently given to beginners of "always have the sun at your back" you will get a rather flat picture of your plants. I always prefer to have the sun coming at an angle of about 45° over my shoulder. If the light comes directly from the side it will show up the surface of the plant very well, but one side of the plant will tend to be underexposed and come out very dark. This can be overcome by using a largish white card or paper, or even better, card covered with tin foil, to reflect some of the light back into the shadow side of the plant, but I find that 45° sunlight is pretty satisfactory as a rule. This aspect is perhaps more important in the case of black and white photography than in colour shots where a flat lighting is less noticeable, but the 45° lighting does even in these show up better the shape of the tubercles.

When photographing plants with largish white or bright yellow flowers with sheen on the petals it is very easy to overexpose them, and I would suggest cutting the exposure by  $\frac{1}{2}$  a stop as given by the exposure meter. This is because white and bright yellow have a very

strong reflective power compared with the greens of the plant bodies.

If you want to take your night flowerers then of course flash will be the obvious solution, as very long exposures are not advisable because the colour balance is upset and you are unlikely to get a satisfactory colour rendering. Most cameras, nowadays, even the cheapest ones, are synchronised for flash; in fact some have their own built-in flash. The only thing to remember here is that the guide numbers do not usually apply at such close quarters and you may have to do a certain amount of experimentation. The best thing to do is to get an extension lead for your flash (costing a few shillings) so that you can take the flash off the camera and hold it, (or get someone else to hold it for you!) at about 3 ft. from the subject and calculate the exposure from the guide number based on a distance of say 5 feet. Again, hold the flash preferably slightly to one side of the camera. This may sound somewhat contradictory but for these real close-ups rather more light is required than for more distant subjects. If your flash is built into your camera and you find your pictures are overexposed, shield the flash with one or two layers of white hankerchief, which should cut down the light sufficiently.

One thing to remember is that guide numbers for flash are based on a room with light reflecting walls and ceiling, and if you take your plants indoors at night into a lighted room these should be correct, but if you have to take them in the greenhouse, say for *Selenicereus* etc. and your greenhouse is not well lighted you will have to increase the exposure considerably, say one or two stops according to the surroundings. Another thing is that if the flower is near the glass you will probably get nasty reflections back from the glass and it is a good idea if possible to slip a card or piece of paper between the plant and the glass to avoid these reflections.

Incidentally, if you are not sure of the exposure for a plant of which you are most anxious to secure a good picture and which may be unrepeatable, it is worth while taking two or even three shots at different exposures, making a note of what you have done, and this will act as a guide for future occasions.

### *Backgrounds*

Do please remember the importance of the background when photographing your plants. Nothing spoils the picture of a lovely plant more than an untidy background, including say a flower pot or two, and the spout of the watering can etc. I have seen so many otherwise good pictures spoilt in this way. Take your plant out of the greenhouse, unless you are taking a group of plants you want to show as you grow them, or perhaps if it is really too big to move. Stand it on a stool or a table in front of a plain background. For this you can use a piece of hardboard painted a suitable colour, or else a plain wall, but do not use the wall of an old shed or a brick wall which will detract from the impact of the

plant itself, and in any case keep the plant as far from the background as possible—for two reasons: (1) if the sun is shining you will get an ugly shadow which spoils the picture and (2) if the surface of the background has any texture or pattern you want to make sure it is well out of focus so that only a soft general plain colour shows in the final picture. As regards the colour of the background, this is largely a matter of choice though obviously a darkish colour is better for a light spined plant and a light colour for one that is dark green, or having dark brown spines which you wish to show up. A good idea is to paint one side of a piece of hardboard (with *matt* not gloss paint, which will cause reflections) a darkish green and the other pale grey. Some people prefer black but this is sometimes apt to be too contrasty and in any case makes exposure estimation more difficult. Obviously these remarks apply if you are using colour film; if you are using monochrome film then black one side and white the other will do perfectly well.

As a makeshift, *but only as a makeshift*, a piece of cloth draped over the clothes horse will answer the purpose, but if there is any wind, it will blow and flap and if there are any folds or creases, and these are difficult to avoid with woven material of any sort, they will certainly show and detract from the picture. This may seem a small point but it is amazing how an apparently insignificant thing can catch the eye and stand out like a sore thumb, thus distracting one's attention from the real subject. It is often these little points which make all the difference between a good shot of one's plants and a really superb one.

Obviously the background must be sufficiently large to fill the picture and not allow odd objects to protrude beyond the edges, but if you do find occasionally that the board has not quite filled the slide and something is peeping round the edge, it is a very simple matter to mask off the edge of the finished transparency with a small piece of black masking tape which can be bought from your local photographic dealer and you will be surprised how it improves the picture. Of course in the case of a black and white print, this can be attended to when the enlargement is made.

Having given all these instructions about a background, I must admit that personally I stand the plants on a small stool on the lawn using the green grass as a background. This is well out of focus and is unrecognisable as grass and forms a pleasant restful background, always providing I can avoid the daisies which grow so prolifically in my lawn and which if they do show as large out of focus white blobs are definitely distracting! Strange how often we give a counsel of perfection to others, while going on in our own sweet way ourselves!

### *Film*

There are a number of colour films on the market which are suitable for this purpose. My own choice,

which I have used now for some years, is Agfa CT18 as I find the colour rendering as accurate as can be hoped for and more pleasing than some films. One advantage it has over Kodachrome II is that it is faster and exposures are therefore shorter, or alternatively and even more advantageous, one can stop down further and thus gain greater depth of field. There are faster films still, but on the whole I do not find the colour rendering as accurate which is an important point to be considered when photographing our flowers.

For black and white prints, any medium speed fine

grain film is suitable and I think the new Ilford FP4 is probably as good as any one can get, and is a general purpose film so that it can be used for other types of photograph on the same roll. If you use a slower film which might give better detail, though I think this is doubtful, it may be a hindrance if you want to use the rest of the film for other subjects.

I hope these notes will help those of you who have or anticipate buying a simple camera. In a later article I hope to deal with taking photographs with more elaborate cameras.

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## One Hundred Years Back to Lemaire

by G. G. Leighton-Boyce

IT WAS in 1868 that there appeared from the Libraries Agricole de la Maison Rustique in Paris a small book called "Les Cactées, Histoire, Patrie, Organes de Végétation, Inflorescence, Culture etc." It bore the name of a distinguished cactologist, author of many first descriptions, Charles Lemaire. Although he was a Professor of Botany, a contributor to many learned journals, this was intended as a popular book for those generally interested in the plants then commonly appearing in the conservatories of the great and wealthy as well as in botanic collections. It bore signs of lack of editorial revision, and has been overlaid by many later and fuller popular works. It preceded by quite a few years the first such in English (Castle's "Cactaceous Plants: their history and culture" of 1884).

To look back at this book is to re-enter a world in which, of course, far fewer of the plants were known and far less about them. In many cases, the country of origin was far from certain and the flowers unknown. What is not always realised is that at this time the leading botanists concerned with cacti were still not agreed upon even the terms by which the plants should be described. Lemaire would not, for example, use areole to indicate the part of the surface from which the spines arise. Because areole had already been used botanically for different features of other plants, he insisted upon a new name. He coined "tylcole", deriving it from the Greek word for a cushion. For that matter, as cactus spines were not true spines, he referred to them as thorns or needles. And no warts, please! As warts could also confuse the unwary with other formations he produced the exact term, as he saw it, for this characteristic of cactus bodies, "cyrtôme", from cyrtoma (= gibbosity) derived from a Greek adjective meaning humped or convex. I would suggest "protuberance" as a reasonable English equivalent. He did not gain the support of several of his distinguished contemporaries in this and, one suspects, a number of other matters. One gets the impression that he may have been in some ways almost as prickly as his plants.

On classification he was also a controversialist. Basing

himself on the slender evidence available he did his best to create a logical, ordered system, working like his contemporaries mainly on gross morphology. Lacking the sophisticated techniques developed in the succeeding century, he should be admired for the amount of his work which stands rather than criticised for what now seem with hindsight to have been untenable assumptions. At a time when the next shipment of American material, half dead and of the vaguest provenance, might revolutionize the whole subject, one had to fill the factual gaps with a certain amount of theorising.

He was a considerable authority on the *Opuntia* family and divided them into five genera, *Cactus*, *Tephrocactus*, *Nopalea*, *Consolea* and *Opuntia*. The first two were among his most disputed creations—the first defeated by the code of nomenclature as it developed, if indeed not abortive when he announced it, and the second languishing in obscurity until its restoration by Backeberg, which is not now very widely accepted. But the basic idea was intuitively sound, though inadequately expressed and necessarily tentative. There is a group, perhaps a subgenus, of plants otherwise within *Opuntia* which have a distinctive growth pattern of their own. Lemaire thought they were South American, but he cast his net too wide: some of the material he examined and classified here belonged to Central, and even in a few instances, North America, thus invalidating the geographic part of his scheme. He knew *floccosa*, but kept that in *Opuntia* proper, with *vestita*, *pulverulenta* and *cylindrica*. The quotation of *Emoryi* and *imbricata* under *Cactus* appears to have been an editorial slip because they appear also in the same book under *Opuntia* proper (much more reasonably) with *rosea*, *Davisii*, *acanthocarpa* and many others. There are a few other likely confusions, but the following translation of the relevant passage may serve to give something of the flavour of the author to those to whom he is so far only a name from the remote past.

### 25th Genus. *Cactus*.

Observation. We have spoken above of the extreme

diversity of the *Opuntias*. It has seemed to us that one could logically separate from them the dwarf lying down or scarcely climbing species, often forming enormous clusters spread on the ground, with ovoid or oblong joints, instead of being erected, raised, arborescent, flattened or cylindrate. The known species are here divided into two genera: *Cactus* (we have wished to recall here and sanction the Linnaean name) and *Tephrocactus*, which differs little from it. It is remarkable that one should not know, and that we understand so little so far of the flowers of these two genera although they are generally cultivated in collections. Until the flowers of the species decide for or against us, these two genera will remain doubtful. Nevertheless, their so different appearance is a justification, up to a certain point, for their creation.

*Opuntia curassavica*, *aurantiaca*, *Salmiana*, *pubescens* and *fragilis*: the first two with joints superposed, a little compressed, and the last three with cylindrate joints form a natural transition from the true *Opuntias* to the two genera in dispute, and it would perhaps be better to reunite them with them as a section (1). (Author's footnote:- (1) And thus:- *Cactus*. Firstly, with compressed joints *C. curassavicus*, *aurantiacus*. Secondly, with cylindrate joints *C. Salmianus*, *pubescens*, *fragilis*. One knows the flowers of many of them.)

### Etymology

*Cactus* and *Cactus*. This was the name among the Greeks and the Romans of a spiny plant, unidentifiable nowadays, which Linnaeus took over to name generically the very small number of cacti known in his day.

### Generic Characteristics

Flowers unknown. Slightly shrubby, very low, much branched, jointed, cespitose or slightly raised. Joints rounded, or egg shaped or oblong, cylindrate, very fleshy. Short protuberances. Biform thorns, arranged as with the *Opuntias*, long, numerous, very sharp. Skin green.

*Cactus clavatus*, *Pentlandi*, *bolivianus*, *eburneus*, *corrugatus*, *ovoides*, *bulbispinus*, *imbricatus*, *Emoryi*, *Parryi*, *echinocarpus* etc.

### 26th Genus. *Tephrocactus*.

#### Etymology

*Tephra*, ash, colms of the skin.

### Generic Characteristics

Dwarf plants, some sub-erect with superposed joints, others with cespitose joints, branched, egg shaped, elongated. Pronounced gibbous protuberances. Thorns biform, directed downwards, for the most part flat foliaceous; those in the centre or the small bristles, soft, fine, silky. Skin smooth, of an ashen brown.

This genus would appear to be more distinct from *Opuntia* than the previous one.

1. Joints superposed in dwarf stems: *Tephrocactus diadematus*, *Turpinii*, *calvus*.
2. Joints grouped, branched at the base. Plants dwarf, very cespitose; protuberances sometimes very swollen, with thorns lengthened, flat, arranged in tridents and deflected: *T. platyacanthus*, *andicolus*.
3. Joints grouped, very short, thorns very small: *T. pusillus*, *retrospinosus*.
4. Joints often very large (the size of an apple and bigger), ovoid or rounded; protuberances approximately pentahedral at the base; thorns very strong, length .04-5 and even .10, flat, twisted on themselves, and coming out of the tyloles by a tearing of the skin. A single species as rare as it is magnificent: *T. aoracanthus*.

### Habitat

The habitat of the species of the two genera would seem to be South America.

Those interested in the subsequent history of these particular plants may care to consult the Succulent Plant Institute, which has in preparation translations of the Salm-Dyck and other original descriptions not quoted in full in modern reference works, and which help to explain the way in which some of the specific names had led to be combined and replaced by later authorities, to the frustration of many plantsmen. Discounting *pusillus* and *retrospinosus*, which have more in common with his *Cactus*, Lemaire certainly picked a very closely related series of plants as a foundation for *Tephrocactus*.

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# Results of the September Show 1968

## Judges

*Cacti* : Mr. A. Boarder

*Succulents* : Dr. K. V. Mortimer

### Class 1 Six Cacti (any genera). 3 entries

- 1st Mr. J. E. Taylor. *Trichocereus pascana*, *Mammillaria bombycina*, *M. hahniana*, *Soerensia bruchii*, *Notocactus ottonis*, *Echinocereus knippelianus*.  
2nd Mr. K. Grantham. *Mammillaria plumosa*, *Espostoa melanostele*, *Astrophytum ornatum*, *Obregonia denegrii*, *Ariocarpus fissuratus*.  
3rd Mr. R. H. I. Read. *Ariocarpus fissuratus*, *Pseudolobivia kermesina*, *Mammillaria pottsii*, *Gymnocalycium multiflorum*, *Aztekium ritteri*.

### Class 2 Three Cacti (any genera). (Previous winners may not enter this class). 8 entries

- 1st Mr. E. G. Canham. *Cleistocactus strausii*, *Gymnocalycium curvispinum*, *Ferocactus glaucescens*.  
2nd Mr. C. Parker. *Lophophora williamsii*, *Stenocactus xipacathus*, *Ferocactus acanthodes*.  
3rd Mrs. P. M. A. Poulter. *Parodia stuemeri*, *Mammillaria sulphurea*, *Astrophytum ornatum*.

H.C. Mrs. H. Hodgson.

### Class 3 Three plants in Cereanae. 8 entries

- 1st Mr. J. E. Taylor. *Eulichnia saintpieana*, *Winteria aureilana*, *Oreocereus celsianus*.  
2nd Mr. and Mrs. W. F. Maddams. *Thrixanthocereus senilis*, *Espostoa huanucensis*, *Eulichnia saintpieana*.  
3rd Mr. K. Grantham. *Trichocereus fulvicollis*, *Oreocereus trollii*, *Webaocereus winterianus*.

H.C. Mrs. T. Watt.

C. Mr. C. Parker.

### Class 4 Three plants in Echinocactanae. 7 entries

- 1st Mr. J. E. Taylor. *Stenocactus vaupelianus*, *Malacocarpus pauciarcolatus*, *Leuchtenbergia principis*.  
2nd Mr. and Mrs. W. F. Maddams. *Sulcorebutia steinbachii* v *gracilis*, *Notocactus schumannianus*, *Ariocarpus retusus*.  
3rd Mr. E. G. Canham. *Parodia suprema*, *Notocactus schumannianus*, *Echinofossulocactus ochoterreanus*.

H.C. Mr. K. Grantham.

### Class 5 Three plants in Echinocactanae (pot not exceeding 3½ in.). 10 entries

- 1st Mr. C. Parker. *Obregonia denegrii*, *Echinomastus maddowellii*, *Stenocactus*.  
2nd Mr. and Mrs. W. F. Maddams. *Copiapoa montana*, *Aztekium ritteri*, *Encephalocarpus strobiliformis*.  
3rd Mr. J. E. Taylor. *Neoporteria multicolor*, *Stenocactus heteracanthus*, *Gymnocalycium cardenasianum*.

H.C. Mr. E. G. Canham.

C. Mr. K. Grantham.

### Class 6 Three cacti in pots not exceeding 5 in. (any genera). (For members who have not previously won a First in any Cactus class).

- 1st Mr. J. G. Brown. *Ferocactus wislizenii*, *Mammillaria echinaria*, *Trichocereus chiloensis*.  
2nd Mrs. E. Potton. *Mammillaria bocasana splendens*, *Leuchtenbergia principis*, *Echinocereus reichenbachii*.  
3rd Miss I. E. Potton. *Gymnocalycium schickendantzii* v *de Laetii*, *Mammillaria campotricha*, *Soerensia bruchii*.

### Class 7 Three South American Cacti. 5 entries

- 1st Mr. C. Parker. *Matucana crinita*, *Weingartia pulquiensis*, *Neoporteria nidus senilis*.  
2nd Mr. J. E. Taylor. *Gymnocalycium species*, *Lobivia huariensis*, *Cleistocactus strausii*.  
3rd Mr. and Mrs. W. F. Maddams. *Rebutia marsoneri*, *Lobivia jajoiana*, *Lasiocereus rupicolus*.

### Class 8 Three Cacti (for Juniors under 18 years) 5 entries

- 1st Mr. J. Wright. *Mammillaria pringlii*, *Echinopsis multiplex*, *Lobivia bruchii*.  
2nd Mr. J. Andrews. *Lophophora williamsii*, *Astrophytum myriostigma* v *nuda*, *Mammillaria parkinsonii*.  
3rd Mr. M. Ede. *Lophophora williamsii*, *Lobivia aurea*, *Mammillaria crucigera*.

### Class 9 One Cactus and one Cristate of the same Species 6 entries

- 1st Mr. F. Johnson. *Mammillaria rhodantha*, *M. rhodantha rubra cristata*.  
2nd Mr. and Mrs. W. F. Maddams. *Mammillaria schwarzii*, *M. schwarzii cristata*.  
3rd Mr. J. G. Brown. *Cereus peruvianus*, *C. peruvianus* v *monstrosus*.

### Class 10 Four Euphorbias. 4 entries

- 1st Mr. K. Grantham. *E. fianarantzae*, *E. decaryi*, *E. stellata*, *E. decuda*.  
2nd Mrs. S. G. Sharman. *E. dentonii*, *E. valida*, *E. bupleurifolia*, *E. lophogona* × *splendens*.  
3rd Mrs. T. Watt. *E. pugniformis*, *E. decepta*, *E. suzanne*, *E. bupleurifolia*.

H.C. Mr. D. V. Brewerton.

### Class 11 Three Crassulas in pots not exceeding 4½ in. 7 entries

- 1st Mrs. S. G. Sharman. *C. arta*, *C. tecta*, *C. Morgan's Beauty*.  
2nd Mrs. H. Hodgson. *C. dinteri*, *C. schoenlandii*, *C. species*.  
3rd Mrs. P. M. A. Poulter. *C. species*, *C. columella*, *C. Morgan's Beauty*.

H.C. Miss I. E. Potton.

C. Mr. K. Grantham.

### Class 12 Three plants in Asclepiadaceae. 5 entries

- 1st Mrs. T. Watt. *Fockea crispa*, *Huernia transvaalensis*, *Diplocytha ciliata*.  
2nd Mr. K. Grantham. *Trichocaulon kubusense*, *Fockea crispa*.  
3rd Mr. C. G. Brown. *Duvalia reclinata*, *Huernia spec nova*, *Stapelia surrecta*.

H.C. Mr. and Mrs. W. F. Maddams.

C. Mr. D. V. Brewerton.

### Class 13 Three Aloes and/or Haworthias. 8 entries

- 1st Mrs. T. Watt. *H. mirabilis*, *H. limifolia*, *H. setata*.  
2nd Mrs. H. Hodgson. *H. species*, *H. truncata*, *A. albiflora*.  
3rd Mrs. S. G. Sharman. *H. bolusii*, *H. setata*, *H. mirabilis*.  
H.C. Mr. R. H. I. Read.

C. Mr. K. Grantham.

### Class 14 Six Lithops. 6 entries

- 1st Mr. and Mrs. W. F. Maddams. *L. schwantesii*, *L. framesii*, *L. pseudotruncatella*, *L. aucampiae*, *L. laterita*, *L. optica forma rubra*.  
2nd Mrs. S. G. Sharman. *L. aucampiae*, *L. marmorata*, *L. optica forma rubra*.  
3rd Mr. K. Grantham. *L. rugosa*, *L. bella*, *L. commoda*, *L. julli* v *reticulata*, *L. meyeri*, *L. turbiniformis*.

H.C. Mrs. H. Hodgson.

C. Mrs. P. M. A. Poulter.

### Class 15 One Specimen Haworthia. 6 entries

- 1st Mrs. H. Hodgson. *H. truncata*.  
2nd Mrs. S. G. Sharman. *H. truncata*.  
3rd Mrs. T. Watt. *H. bolusii*.

**Class 16 Six Stemless Mesembryanthemums. 7 entries**

- 1st Mrs. S. G. Sharman. *Argyroderma viletti*, *Lithops salicola*, *Gibbaeum album*, *Conophytum ramosum*, *Dinteranthus van zyl*, *Cheiridopsis pillansii*.  
2nd Mr. and Mrs. W. F. Maddams. *Pleiospilos bolusii*, *Lithops terricolor*, *Ceroclamys pachyphylla*, *Fenestraria aurantiaca*, *Conophytum cupreatum*, *Aloinopsis schooneesii*.  
3rd Mrs. H. Hodgson. *Herreanthus meyerii*, *Frithia pulchra*, *Dinteranthus pole-evansii*, *Gibbaeum album*, *Lapidaria margaretea*, *Conophytum subglobosum*.  
C. Mr. K. Grantham.

**Class 17 Three Succulents not covered by Classes 10 to 16. 7 entries**

- 1st Mr. K. Grantham. *Adenia glauca*, *Idria columnaris*, *Dideria trollii*.  
2nd Mr. and Mrs. W. F. Maddams. *Kalanchoe behariensis*, *Cissus bainesii*, *Monadenium schubii*.  
3rd Mr. C. G. Brown. *Sarcacaulon pattersonii*, *Cissus hypoluca*, *Alluaudia procera*.

**Class 18 Six South African Succulents in pots not exceeding 4½ in. 7 entries**

- 1st Mr. K. Grantham. *Euphorbia bupleurifolia*, *Trichocaulon simile*, *Pachypodium bispinosum*, *Sarcocaulon herrei*, *Lithops marmorata*.  
2nd Mr. and Mrs. W. F. Maddams. *Gasteria lilliputana*, *Huernia pillansii*, *Pleiospilos bolusii*, *Crassula globosa*, *Lithops bella*, *Conophytum scitulum*.  
3rd Mr. C. Parker. *Gasteria armstrongii*, *Euphorbia caput medusa*, *Lithops denterii*, *Haworthia maughanii*, *Euphorbia suzanne*, *Conophytum bicarinatum*.

H.C. Mrs. H. Hodgson.

**Class 19 Three Succulents in pots not exceeding 5 in. (any genera). (For members who have not**

**previously won a First in any Succulent class). 4 entries**

- 1st Mrs. W. Francis. *Cheiridopsis candidissima*, *Echeveria setosa* Oliver, *Kalanchoe rhombopilosa*.  
2nd Miss I. E. Potton. *Aeonium* species, *Pleiospilos simulans*, *Graptopetalum pachyphyllum*.  
3rd Mr. J. C. Brown. *Kalanchoe tomentosa*, *Crassula arborescens*, *Hoya carnosa*.

**Class 20 Succulents raised from seed sown by the exhibitor on or after 1st January 1966 in container not exceeding 15 in. by 15 in. 2 entries**

1st Mr. and Mrs. W. F. Maddams.

2nd Mrs. E. Potton.

**Class 21 Three Succulents (for Juniors under 18 years). 5 entries**

- 1st Mr. A. G. Rivett. *Euphorbia aggregata*, *E. tuberosa*, *E. clandestina*.  
2nd Mr. J. Andrews. *Haworthia truncata*, *Crassula mesembrianthemopsis*, *Stapelia asterias lucida*.  
3rd Mr. J. Wright. *Euphorbia caput medusae*, *Stapelia variegata*, *Faucaria tigrina*.

H.C. Mr. M. Ede.

**Class 22 One Cactus and one other Succulent. 4 entries**

- 1st Mr. R. H. I. Read. *Mammillaria gigantea*, *Euphorbia horrida*.  
2nd Mr. K. Grantham. *Pachypodium brevicaulis*, *Mammillaria plumosa*.  
3rd Mr. and Mrs. W. F. Maddams. *Euphorbia stelleriana*, *Mammillaria candida rosea*.

**Class 23 Group of Cacti and/or other Succulents to cover space not larger than 2 ft. in width by 2 ft. 6 in. in depth, arranged for decorative effect. 1 entry.**

1st Mr. and Mrs. W. F. Maddams.

**BRANCH RESULTS, 1968 FINAL TOTALS**

North Surrey	..	..	..	..	..	..	..	121 points
Essex	..	..	..	..	..	..	..	57 points
West Kent	..	..	..	..	..	..	..	18 points
Berks and Bucks	..	..	..	..	..	..	..	17 points

**CUPS AND TROPHIES, 1968**

The Banksian Medal

The Sir William Lawrence Cup for Cacti

The Evelyn Theobald Cup for Succulents

The Joan Farrow Memorial Cup for Groups

The Challenge Shield for Juniors

The William Denton Memorial Trophy for Branches

The P. V. Collings Cup for Euphorbias

The Mrs. Pryke Howard Cup for Six S. A. Succulents

The Mrs. Luty Wells Cup for Three Cacti

The S. J. Pullen Cup for Miniature Gardens

The Sarah Cutler Memorial Cup for One Mammillaria

The Mrs. Hedges Cup for Succulents from Seed

The William Denton Medal for Six Stemless Mesemb

Mr. and Mrs. W. F. Maddams

J. E. Taylor

Mrs. S. A. Sharman

Mrs. T. Watt

Mr. and Mrs. W. F. Maddams

J. Wright and J. Andrews

North Surrey

K. Grantham

K. Grantham

L. Jeffries

Mrs. E. Sharpe

Mr. and Mrs. W. F. Maddams

Mr. and Mrs. W. F. Maddams

Mrs. S. G. Sharman

# What is Haworth's *Opuntia Glomerata*?

by J. Iliff

THERE are two views on the identity of *O. glomerata* Haw. According to one, it belongs to the "*diademata-articulata*" group of *Opuntias*. If this view is correct, the name is the oldest in the group, and has priority if any are to be reduced to varietal status. This is the position taken tentatively by Borg (Cacti, 1951), and systematically by Rowley in his list of transfers from *Tephrocactus* to *Opuntia* (The National Cactus and Succulent Journal, March, 1958.) It stems from Britton and Rose. Their position, however, is complicated, and is discussed later. The other opinion, held by Backeberg, places it in the "*andicola*" group. I speak deliberately of groups; we need not wait for an exact identification to see that each of the two alternative meanings is clear in its general terms and quite distinct from the other. The names "*diademata*" and "*andicola*" are reasonably well known and should point in the right direction even if their precise meaning is in doubt, but to make the distinction clear I will briefly outline their characters. By the "*diademata-articulata*" group ("*diademata*" group for short) I mean all the forms such as those within Backeberg's *Tephrocactus articulatus* and its varieties which, whether spined or not, have comparatively few, comparatively large, fragile, usually globose, often glaucous joints, dark glochids, and sparse roots. By the "*andicola*" group I mean those forms with a low, dense, compact, tough habit; smallish, fairly elongated and pointed ovoid joints which are usually darkish (sometimes purplish) and glossy when young; the usual pale glochids; and abundant roots, often with a thick woody tap-root. The narrow flat spines vary within small limits as to number (usually 1-3), colour and angle, but are fairly constant in size and in being straight or only comparatively slightly curved. There are often a few short, hair-like subsidiary spines, which are never found on plants of the "*diademata*" group.

*O. glomerata* is a name of central importance in the *Tephrocactus* section of *Opuntia*, and it is surprising and unfortunate that there should still be disagreement about its meaning. A reference to Haworth's original description ("Mr. Haworth's Twelfth Decade of New Succulent Plants", Philosophical Magazine, 1830, p. 111) settles the main question without doubt:

"Ramis caespitose confertis; spinis centralibus solitariis, linearibus, acuminatis, utraque planis, longissimis. Habitat in Brazilia et in nobili horto Hort. Soc. Londini nunc sine floribus viget. Planta tota fere glomeratim hemispherica est. Ramuli sublancoolato teretes carne farctim crassi, subvirides, vix semiunciam lati. Areolae ordinariae setis brevissimis, densissimis, uniformibus, unaque spina plus minus centrali, cornea, corneoque colore, biunciali, vix flaccida, neque rigida, sed in arcum flexibili.

"With branches packed together in a clump, (and)

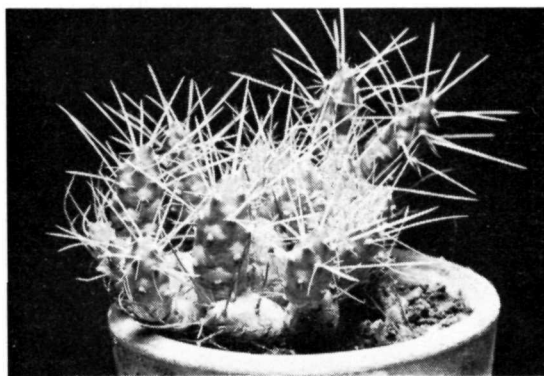
single, straight, narrow, very long central spines, flat on both sides. The plant as a whole is a rounded almost hemispherical mass. The individual joints (are) somewhat pointed, terete, fleshy, plump as if stuffed, greenish, hardly half an inch thick. The areoles normally (have) very short, dense, uniform bristles and one spine, more or less central, of a horny quality and colour, two inches long, hardly weak, yet not rigid, but capable of being bent into a curve."

It will be seen at once that Haworth could not have had a plant of the "*diademata*" group before him. The small, terete, pointed joints and dense, rounded habit forbid this; and it is highly unlikely that spines of that length on a "*diademata*" group plant would ever qualify as either "narrow" or "straight". On the other hand these same characters are typical of the "*andicola*" group. It seems clear that Backeberg has made a substantially correct assessment, and that, out of the varieties listed by Rowley in the article referred to above, four at least (*calva*, *inermis*, *oligacantha* and *polyacantha*) cannot be accepted, as they indicate "*diademata*" group forms. We should be grateful for Haworth's clarity (if only some of the descriptions in Backeberg, or even in Britton and Rose, were as full and vivid as this!) and also for the good fortune by which he saw what was obviously a large, well-developed plant, from which he could give such a clear picture of the general appearance and habit.

The reference to Brazil seems unlikely; but Pfeiffer, in quoting Haworth, records the plant from Mendoza. (Enum. Diagn. Cact., 1837.)

Britton and Rose (The Cactaceae, I 1,919) have telescoped 18 names into synonymy under *O. glomerata*, including *O. articulata*, *calva*, *diademata*, *papyracantha*, *turpinii*, *andicola* and *platyacantha*. On the face of it they seem to be attempting the impossible task of combining

*An Opuntia of the andicola group in the collection of Mr. R. Ginns. (For an example of the diademata group see this Journal February 1968, page 18.)*



the above two groups into one species. In fact, I believe the attempt is more apparent than real. It is clear, both from their description and their illustration, that they view the species purely as a complex of “*diademata*”-like forms. They record having found intermediate types of spination linking the various entities, but from the context we must understand all these to be variants of the tortuous, papery kind of spine of the “*diademata*” group. It can only be concluded that they do not attach the same meaning or importance to the synonyms on the “*andicola*” side as we do. How they were led to interpret the name in this way; how they avoided the implications of Pfeiffer’s clear descriptions of *O. andicola* and *platyacantha*, let alone those of Haworth’s description of the species, is hard to understand. The fact remains that they have given their authority to an interpretation which can only be seen as a profound misconstruction of the meaning of the name.

The “*andicola*” group—which should now more properly be regarded as the “*glomerata*” group, as that is the older name—is widely represented in collections under such names as *andicola*, *russellii*, *darwinii* and sometimes *glomerata*. Is it possible to isolate *O. glomerata* itself from this material? It is noteworthy that Haworth makes no mention of subsidiary spines. The “dense bristles” are clearly glochids. Subsidiary spines are a normal feature within the group, but they are not invariably present, and we are probably unduly conscious of them from cultivated specimens. There is no doubt that cultivated conditions encourage their growth. Indeed, on a small new cutting or on a specimen in poor health the principal spines may vanish altogether, while the subsidiary spines may increase from the normal 1-2 to 4-5 or so, making the plant unrecognisable. Backeberg (Die Cactaceae, I, 1958) considers Werdermann’s *O. hypogaea* to be a re-discovery of *O. glomerata*; and Werdermann’s description, which he quotes, refers explicitly to single spines. It seems very possible that the two are the same, and that this is a form distinguished by absence of subsidiary spines in habitat; even so, the distinction might be lost in cultivation. The remaining clue is a single, perhaps rather exceptionally large main spine. I have seen well-grown single-spined specimens with almost exactly Haworth’s dimensions of spine and joint, which suggests the presence at least of a *glomerata*-like strain in the population. But there are many intermediate strains of this order of definition to be found within the group, principally on the basis of variation in spine number, colour, and angle. The extent to which any one of these can be firmly established as distinct, or linked with a published description, must remain a subject for further enquiry. This will not be easy; for it seems probable that the entities concerned tend to approximate to one another under cultivated conditions.

## Obituary

IT IS WITH extreme regret and a great sense of loss, that we have learned of the death, on the 25th August last, of our esteemed friend and member of the Cactus and Succulent Society of Great Britain, George R. Ibbotson.

He had been an active member of the Society for very many years and a member of the Council from 1957-1966, and was well known to the members who attend the London meetings as a cheery and kindly soul who was always ready to help and advise those less knowledgeable than himself.

George Ibbotson’s activities included the distribution of the Society’s Booklets, which was no mean task when the number of copies ran into many thousands.

He had a large personal collection of plants which included some notable specimens, and which he took a pride in keeping in very good condition. This included a large number of Mammillarias, some of which he had had for many years and which had grown into specimen plants. He had also a fine collection of very attractive Astrophytums, and of imported Copiapos. He specialised in cacti rather than succulents though he also had a number of very attractive specimens of the latter. In fact when I visited him on one occasion, I came away with several very nice succulents which he insisted on giving me. A typical gesture of a generous man.

George Ibbotson was also a very enthusiastic member of the Croydon Branch of the National Cactus & Succulent Society and supported their activities wholeheartedly. He will be sorely missed by cactophiles here and abroad.

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### Later Note by Mr. J. Iliff.

Might I claim a little space to expand my reference to the article by Gordon Rowley, which I mentioned in my own article, “What is Haworth’s *Opuntia glomerata*?” in this issue of this Journal. Mr. Rowley’s article is entitled “Reunion of the Genus *Opuntia* Mill.” It appeared in the March issue of the N.C.S.S. Journal, 1958, with a supplement in the June issue following. It presents a brief, wisely reasoned, and to my mind entirely convincing case for reunion, with individual assessments of the various genera which have at one time been separated from *Opuntia*. It makes no attempt at more detailed revision, and specific names are mentioned only to provide the correct nomenclatural alteration in the case of those species or varieties which had not previously been published under *Opuntia*. I should have made this clear in my original reference, and express my regret to Mr. Rowley that I did not do so. I would add that the list of such names is in itself a valuable source of reference, particularly in the case of the section *Tephrocactus*, where a great many names stood to be transferred.

Yours etc., James Iliff.

# Succulent Snippets

by Sally Cornioides

THIS issue heralds a new column of news and views to set you thinking and talking. If you have any snippets, please send them to the Editor with complete references.

To start in a highbrow kind of way, an excerpt from *The Economist* August 3rd, 1968:

*The Day the Cactus Bloomed*

Spanish politics are like one of those sullen spiky cacti that not only seem lifeless but positively discourage interest for months on end—and suddenly produce an exotic bloom. A memorable flowering occurred last week . . . .

Perhaps the Spaniards should try something different from *Opuntias* or fossil-like imports!

Talking of the latter, my *Ariocarpus kotschubeyanus* may well qualify as for most of the year it looks as dead as a doornail, but up until a year ago it produced its vivid magenta flowers within a day or two either way of 15th September. Last year it missed out altogether, when a second smaller plant in close proximity came into bloom early in October. This year the absence of sunshine in July and early August led me to suppose that if the larger plant flowered at all it would be later than mid-September. I was therefore not a little astonished to find a fat bud on the 19th August and the colourful flower opened two days later. Is this unusual and what are the implications? I cannot decide as there seems to be a dearth of information on the point.

This is one of the obvious gaps in our knowledge of cacti and other succulents and their behaviour. There have been few co-ordinated attempts to collect information on flowering periods, the most recent and detailed being that of the *Mammillaria* Society; information on other genera is very sparse. It has, however, been established that a few plants in the *Cactaceae* are of the short-day type e.g. they need a certain period of darkness greater than that of the English summer to stimulate bud formation, and *Schlumbergera buckleyi*, better known to many as *Zygocactus*, is one such. However, these cases are few and far between; by and large photoperiodic studies on succulent plants are wanting.

My eyes seem automatically drawn to any mention of cactus, so it was not surprising I spied this short paragraph in the *Daily Mail* in August:

*"Archibald Pays Up"*

"Mr. Archibald Edwards, who refused to pay the part of his rates which supports the students, then said he would offer the bailiffs cactus plants in payment, gave in yesterday. Mr. Edwards paid the 10s. 2d. by cheque."

Good job he changed his mind, they would probably have gone to a University Botanical Garden!

How many of you saw the fine specimen of *Cipocereus pleurocarpus* at the National Society's Southern Area

Show? It caused something of a stir there and, as a consequence, a nurseryman found a ready market for small specimens. It seems this plant has definite points of resemblance to *Winteria aureispina*, a fine specimen of which was on display in Mr. Taylor's group of three *Cerei* at the September Show at Westminster. I rank *Winteria aureispina*, which was introduced by Ritter a few years ago, amongst my favourite plants. It has the habit of *Aporocactus flagelliformis*, but the stems are thicker and are covered with bright yellow spines. The salmon-pink flowers, appearing from late summer to late autumn, develop on specimens four or five years old from seed. It is unfortunate that there have been arguments about the naming of the species, which is found on steep, sandstone cliffs on the eastern flanks of the Andean foothills, south of Santa Cruz, in Bolivia. The name *Winteria aureispina* was bestowed by Ritter but is not acceptable as *Winteria* has already been used to describe a genus of algae. As a result Backeberg has used the generic name *Winterocereus* whereas Ritter has proposed that it be called *Hildewintera*. No doubt all three will be used indiscriminately in a few years time!

Incidentally, *Cipocereus pleurocarpus* seeds are now available from one source in U.S.A. and we should soon have more opportunity to see and study this interesting plant which hails from Southern Brazil, as do a good many other fascinating recent introductions, mostly in the genera *Notocactus* and *Parodia*.

Referring back to the problem of names. Succulent growers are not the only ones who suffer from receiving plants which are wrongly named. Have just heard of someone who purchased fifty mixed *Gladioli* from a reliable firm and they all flowered white!

I daresay some of you read the column from which the following was abstracted, either in the *Daily Express* or other papers:

**CACTUS IS THE GREEN GROWTH ON MARS**

" . . . . A new theory put forward by Russian scientists is that the green areas on Mars indicate the presence of plants resembling cactus."

What a picture this builds up in the imagination! Just think of it—collecting trips to Mars and will the plants require an import licence or Phytosanitary Certificate—or maybe mealy bugs and red spider mite are unknown there! The mind boggles at future possibilities—class in Westminster Show 1984—three Martian Cacti, for example. Let's hope they are worth collecting at any rate!

Judging by the Editor's comments recently, we are still getting plenty of oddities reported from this country, let alone from farther afield—and may they continue to roll in. Several questions emerge on this point. Are people more observant these days, and so the peculiarities among their plants are coming to light and being recorded in print and photograph, or is it that modern methods of cultivation are causing abnormalities which never occurred in the 'good old days' when

everything was grown in sandy composts and mealy bug was dealt with with spirit and a brush? I hope it is mainly the former and hope, too, that other members who have had the same occurrences in their collections as the oddities printed will send in any further information on the matter. There seems little doubt that an algal suppressant, now widely available, if used in too large doses can cause abnormalities in small seedlings. Most widely reported have been the tendency for

double—or even triple—headed plants at an early age

*Unconverted!*

Comment, to the accompaniment of gasps of other visitors looking at the 1st prize-winning group at the June Show “No, I can’t stand even those”!

Well, if you have stood all this rambling, perhaps you will be converted to sending in a contribution yourself for the next issue.

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## Your Queries Answered

### Identification of *Notocacti*

From Mr. E. C. Trise, London, S.W.16.

We have several plants labelled *Notocactus tabularis* and *N. muricatus* obtained from different sources. The plants can be divided into two groups: those with 22 or 23 fairly acute ribs, light green, white radial spines and white central spines with brown tips; flowers small; and those with about 20 ribs, dark green and plump, with brownish black central spines thin and curved as in the former; the flowers are also larger. Unfortunately one plant labelled *N. tabularis* looks similar to another labelled *N. muricatus*.

Looking through the available literature at various times has got us no nearer to finding the true identity of our plants. So many of the descriptions and photographs vary, *N. tabularis* sometimes being described as *N. muricatus* and vice versa. We are pretty sure that our plants are *N. muricatus* and *N. tabularis*. Fortunately we have sorted *N. apricus* out.

We have also been unfortunate with *Notocactus rutilans*, receiving a plant under this name which produced yellow flowers and turned out to be *N. mammulosus*; however we have a plant labelled *N. mueller-melchersii* which from a description is probably *N. rutilans*. (I have just purchased another *N. rutilans* which differs in its vegetative characteristics and have *N. mueller-melchersii*.)

The problem becomes even more complicated when we find that an *Eriocactus grossei* is different from most descriptions in the literature, although the plant is still young. I have also seen a plant labelled *N. albisetus*, looking very much like *Brazilicactus haselbergii*, but with long fine hair-like bristles, as well as spines.

Could I possibly have some information on these three genera?

Mr. Kenneth H. Halstead of Southampton, who has specialised in *Notocacti* has sent us the following in reply to the above letter:

I can appreciate the confusion over identifying *tabularis*, *muricatus* and *apricus*. I once found myself in the same predicament and sought similar advice which amounted to the fact that most of the plants in our own collections are probably hybrids of all these three, which

makes it impossible in most cases to identify such a plant accurately. Unfortunately seed taken from our plants, even if these plants are true versions of the species may not produce valid offspring if cross pollination has taken place. I have seen many plants labelled *tabularis* which more closely resemble *apricus*. To add to the fun, Backeberg, in his *Die Cactaceae* lists five pseudo-varieties which have all been produced from habitat collected seed of *apricus*—i.e. A—pseudo-muricatus, B—pseudoapricus I, C—pseudoapricus II, D—pseudo-tabularis, and E—pseudotabulomuricatus. Readers will no doubt be relieved to hear that even the Arch-splitter Backeberg, himself admitted there was a case for integration. It has been suggested by some authorities that this group could be collapsed even further with *tabularis* and *muricatus* as varieties of *apricus* and the continental study groups suggest that *apricus* is possibly only a form of *concinus* with *tabularis* and *muricatus* as varieties.

Whilst on the subject of *muricatus*, I would like to point out that the *apricus* type *muricatus* is incorrectly named and is not the true Otto version. The latter is more like a many ribbed (16) *ottonis* but still having a small flower. The intention is to rename the *apricus* type version, *bommeljei*.

*Tabularis* is a whitish spined, tall globular plant with a bluish green body on which the spines seem to dominate whereas in the *muricatus* and *apricus* plants the lighter green body appears more prominent than the spines which are darker and more variable than with *tabularis*. The body, particularly in *apricus* is flatter. The first group of plants described by Russell Williams would appear to be nearer to *tabularis* but for the light green body which gives me the impression that it has been crossed with *muricatus* particularly if the flowers are small. Those in the second group are no doubt closer to *apricus*. Perhaps one should identify any doubtful plants that are likely to be halfbreeds as *Notocactus apricus* type.

As for the mix-up with *rutilans* and *mueller-melchersii*, I am not the least bit surprised. This question has been raised with me earlier this year and it was painfully obvious that a couple of nurseries in the south of England had the species names reversed. The flower of *rutilans* is pinkish at the tips changing to white below with a

yellow ochre throat; *mueller-melchersii* has long thin yellow petals; *rutilans* differs from the latter in body characteristics in that it is more compact and has a pinkish appearance due to the coloration of the spines whereas *mueller-melchersii*, which has shorter spines has a more green look.

*Eriocactus grossei* is now accepted as a synonym of *E. schumannianus*. Schumann originally described it with 16 ribs and four radial spines. Most *grossei* sold on the market in this country are closer to the description of *schumannianus*.

*N. albesitis* is no doubt *Brasilicactus haselbergii* v. *albesitis* which like so many new species and varieties coming on to the market, has not to my knowledge been officially described. With the discovery in the last few years, of many new species of *Notocacti*, *Eriocacti*, and *Wigginsia* (late *Malacocarpus*) the boundaries between these genera are fast disappearing. The splitting of the *Notocactus* genus by Backeberg into *Brasilicactus*, *Eriocactus* and *Notocactus* looks like being reversed and in fact was already begun in 1966 by Krainz and Buxbaum with the transfer of the newly discovered *Eriocactus magnificus* back to *Notocactus* together with many of the *Wigginsia*.

It is superfluous to explain that the situation of *Notocactus*, therefore, is somewhat complex at the present moment but I feel that a more detailed article on this subject may be of value to readers. It must be stressed that any observations made, covers the interim period between what was originally accepted as a compact straightforward genus of *Notocactus* and what will be eventually gathered together into a more complex genus. It is hoped we will retain the nomenclature of *Notocactus*, although this is by no means certain as this name is disputed taxonomically for *Notocactus* was not properly described by Berger when it was first raised to full genus.

### Opuntias in the Canary Islands

From R. V. H. Butters, of Stafford.

I should be very grateful if you could help me identify three species of cactus cuttings of which my brother brought back from a recent holiday in the Canary Islands. All three are *Opuntiae* of the "prickly pear" type.

Type 1 was a large tree-like *opuntia* growing prolifically all over the island, up to 12 ft. in height. Pads grey-green, very large, thin, oval-elongated, areoles about 2 in. apart; spines thin, white, about  $\frac{1}{2}$  in.—1 in. long, one or two (occasionally more) per areole. Flower yellow.

Type 2 was a bushy plant not more than 3 ft. high. Pads up to 6 in. long, oval-round, rather thick, pale green. Areoles up to 2 in. apart, 6-9 spines per areole, most pines very hard and stout (yellow) many over 3 in. long. Flower red.

Type 3 was a bush about 2 feet-3 feet high. Pads grey-green, large, areoles closely spaced, less than 1 in. apart.

Spines 3-8 per areole, over 1 in. long at edge of pads, but less elsewhere, white thin, mostly pointing downwards. Flower not observed.

The following reply to this query has been received from Mr. G. G. Leighton-Boyce of London:

The prickly pears of the Canary Islands are not strictly indigenous but have grown wild ever since the heyday of cochineal farming there in previous centuries. Although Haage and others refer to *Nopalea cochenillifera* as the species chosen for the purpose, it was not by any means the only one used. A mixture of species was favoured by the old time Spanish experts including *Op. hernandezii*, *Op. ficus-indica* and *Op. ficus-indica* v. *splendida*; and, of course, a number of hybrids occurred and were sometimes selected. Any or all of these may have been tried on the Canaries, and other prickly pears would probably have been grown there for their fruit. Lamb noted the presence in quantity of a form of *Op. dillenii* in 1964. This was introduced long ago as a hedging plant and for its spines.

Mr. Butters' type 2 as described has some features of *Op. tuna* but is more likely to be *dillenii*. This is a highly variable species, sometimes remaining bushy and sometimes becoming tree-like in growth, with strong yellow spines. Although the typical flower colour is lemon yellow, Backeberg noted that in several forms the flowers open red. This may explain R. G. Argent's observation in 1962 of different flower colours on the same bush on Teneriffe. It is also said to be common on Gran Canaria.

Type 1 is possibly a form of *ficus-indica*, noted on Teneriffe by H. P. Meed in 1961, but may be a hybrid. Type 3 seems rather spiny for a shrubby form of *ficus-indica*, but sounds like a close relative.

### References

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## Correspondence

I was pleased to read the letter from E. G. Canham, in the August Journal respecting the classes for cacti at the shows. For years I have been pleading with members to let the council know if they would like any different classes with little result. I too would like to see more classes but we have always been up against the lack of space provided for us by the R.H.S.

I do agree with him that *Mammillaria* growers are a

favoured race, but surely this is as it should be. *Mammillarias* are the favourite cactus genus and it is very evident that more of these are grown in the British Isles than any other genus.

During the past twenty-two years I have judged cactus shows at many centres including: Berkhamsted, Birmingham, Bolton, Bristol, Harrow, Gravesend, Ilford, Lancaster, Leicester, London, Nottingham, Wellesborough, Willesden and Windsor. At all these shows and at many more table shows the number of *Mammillarias* on show has far exceeded any other genus. On more than one occasion at Bristol there has been more than one class for *Mammillarias* and in one class alone there has been over twenty plants. At many shows the entries of *Mammillarias* have exceeded those of five or six other classes. Show committees are always very anxious to get as many plants on show as possible and so it is likely that there will always be sufficient classes for *Mammillarias*.

Arthur Boarder,  
Ruislip, Middlesex.

I support Mr. E. G. Canham's adverse comments in the August journal on the re-arrangement of the schedules for the shows at the R.H.S. Hall. In the June 1968 show the resulting reduction in the number of classes in the Cactus Section produced a schedule that might have been appropriate thirty years ago; however, it gave little opportunity to exhibit the more interesting, recently described plants that many collectors now possess.

It is only possible to compare like with like, thus one cannot logically include in a single class such diverse plants as *Gymnocalycium*, *Parodia*, *Neoporteria* and *Copiapoa*, to give only a few of the popular genera eligible for entry as 'Three plants in *Echinocactanae*'. The class for a specimen of one species should surely attract unusual and inspiring plants. With what justification, therefore, are species in the genus *Mammillaria* repeatedly selected?

A further retrograde step is the imposition of a restriction on pot sizes in the novice classes for cacti and succulents. This encourages poor cultivation and, in addition, it penalises well grown common plants, exhibition specimens of which may require containers of twice the maximum specified diameters—it is incorrect to assume that the majority of those who enter the novice classes are new to the cultivation of succulents since, for a variety of good reasons, competitors may not have shown before. Do *Mammillaria* enthusiasts, for whom Class 5 was presumably included, really believe that plants in pots of 4¼ in. diameter or less are more show-worthy, or a greater test of skill in cultivation than certain of those that require larger pots? Slow-growing species, such as *Mammillaria schiedeana*, should not be excluded because, for example, the root system of a fifteen year old plant requires a 5½ in. pot—are smaller specimens of this species worth showing anyway?

Presumably the Society Shows are meant to appeal equally to the succulent plant enthusiast and the uninitiated, but horticulturally-minded member of the public. In my view the present exhibitions fulfil neither aim. When will more of our members take the trouble to present their plants in an attractive manner by positioning them centrally in containers of adequate size and proportion, the application of top dressing and the artistic arrangement of groups of pots on the show bench? These are the hallmarks of good cultivation and showmanship, so admirably demonstrated by the Alpine Garden Society competitions, reports on which justifiably receive prominence in the National and Gardening Press.

Leonard Jeffries,  
Little Bookham, Surrey.

I have three points to make about shows in general.

First, Mr. Canham says in his letter in the August Journal, that, taking into consideration something which Mr. Boarder said in 1967, it "is then a most inappropriate time to radically alter the schedules. The time for change is on the low ebb in such competitions". With this, I would disagree—when attendance is flourishing, it is the time to experiment. This is the time when new ways can be used to try and make the shows appeal to everyone, including the public, and thus to make them an even bigger success. Secondly, I think one of the reasons why members hesitate in going to shows, is the problem of transport and finding out where exactly the building, where the show is being held, is situated. The latter problem can easily be remedied by a small map showing the whereabouts of the building.

Finally I would like to ask why shows are not held, for one of the days, on a Saturday. Surely, there are more members of the public around in town, and more members of the society free from work or school on that day. (Also there are often cheap returns to London on Saturdays!)

P. J. Southern,  
Rugby.

Mr. Canham has raised a number of controversial issues in his letter about Show Schedules in the August number of the Journal. In particular, if his assertion that people tend to specialise in either cacti or other succulents, and therefore that the practice of splitting the two shows into one for Cactus enthusiasts and one for the other succulent growers should be resumed, can be substantiated then it ought to be considered carefully by the Show Committee.

Only one person, the Show Secretary, has the information to give a firm answer rather than an opinion on this matter. However, in that entries from members of the North Surrey Branch accounted for some 40% of the combined total of the June and September Shows, and I have a detailed breakdown of these, the information

from them should prove a good statistical sample. There were entries from seventeen members of the Branch and twelve of these, 70% of the total, showed in classes both for cacti and the other succulents. Mr. Canham was one of the 30% minority.

The Show Committee act on behalf of the members to the best of their ability and I am quite certain that they will amend the 1968 Schedules if they see that a particular class has not been adequately supported. In the light of the figures I have given above there seems to be no case for returning to the previous type of schedules. As for the suggestion that Mammillaria specialists are a favoured race, I shall be surprised if other members do not challenge this point. One has only to peruse page 52 of the August Journal and to note that classes 4, 5 and 9 were well-supported to realise that the Show Committee have decided wisely.

I have one point of criticism, namely that the practice of sending out the schedules for the September Show with the May issue of the Journal is unwise. Some members lose them and they are overlooked by others. In that the second show in 1969 is not until 9th-10th September, there is adequate time in which to circulate the schedules in the August Journal and have them in the hands of the Show Secretary by the requisite date.

W. F. Maddams,  
Banstead, Surrey.

I read with interest the Editorial of the August Journal. As an active northern member I would agree fully with the points raised, I would also lay at the door of our Council a certain amount of responsibility for the lack of out of the London area interest.

Is it necessary for the membership card to carry details of the London meetings only. A new member not within easy reach of London on receipt of his or her card when reading it feels at once that they have made a mistake and joined some London organisation. Let's have some change of policy and let the card give details of branches until such times as it becomes too small for this purpose. Until this time fill it up with details of the library service and other choice information of use to all and especially new members.

Whilst the wind of change is blowing why not make a change in the payment of annual subscriptions. I believe that a person should pay 25s. and then be a member from this date for one year. The following year's subscription being due on the same day the year following the previous payment. Too many demands are made on the pocket early in the year when one is recovering from the cost of the festive season. The present system also deters new members. Who is going to pay six months membership fee in August onwards for two or three months of benefit. Many a person attends our Branch meeting as a guest for the later part of the year and then signs up in late December for the following year. A few being short in the pocket stay

away for a few months before returning solvent to the fold later in the year. A bird in the hand is worth two in the bush and I feel that our Council must overcome the difficulties of full year membership and introduce it at an early date. If we are to survive we must change our methods and fight with all means possible. Antiquated methods must go and the result must be a better organisation.

Eric L. Jennison,  
"Alric", 7 Sandfield Road, Marden Farm,  
Tynemouth, Northumberland.

I have found that a number of my pots (at the drainage hole) are affected by a yellow mould containing eggs, a sample was sent to the British Museum and I am enclosing photostat copy of their verdict.

I thought this information would be of value to members of the Society, so perhaps you would like to print the report in a future number of the journal.

I have not yet purchased the algacide mentioned, so cannot give an opinion as to its effectiveness.

R. P. Harris,  
Upminster, Essex.

"Dear Sir,

The organism occurring in shingle and at the drainage holes of flower pots, sent for identification, was first passed to the Zoological Department in order to determine the nature of the "eggs". They reported that these bodies were not the eggs of spiders, worms or snails, but in fact appeared to be botanical in structure.

On sectioning and microscopical examination, the egg-like bodies are composed of a compacted fungal mycelium. These bodies, known as *Sclerotia*, represent the sterile, non-fruiting stage of various fungi, and as in your material, do not develop beyond this stage. The yellow "mould" also consists of fungus mycelium, and is in all probability the same as that compacting and forming the *Sclerotia*. This fungus organism is unlikely to attack or injure either the cactus roots or plants.

Complete control is difficult, as fungicides tend to adversely affect healthy plants. I would suggest treating the shingle and plant pot bases with one of the proprietary brands of algacides, such as "Dimanin" manufactured by Baywood Ltd. This solution, providing it does not come into contact with foliage, is said to be harmless to plants, and although used primarily to prevent algal growth, it would control the spread of fungus mycelium.

Yours faithfully,  
J. B. Evans,  
Mycologist,  
Dept. of Botany,  
British Museum  
(Natural History)."

I have recently been in communication with a gentleman in Mexico who contacted me after my plea in your Journal with regard to exchange of seedlings. He has already forwarded to me two specimens of *M. Vetula* which variety he says, is almost lost to European collectors, and also Mexican.

He has recently made a journey into the Barranca de Tolantlonga, in the State of Hidalgo and collected *M. fragilis*, *polythela*, *phaeacantha*. *E. pulchellus*, *dicracanthus*. *C. senilis*, *A. ornatum*. *S. spindosus*, *befida* etc.

Felipe says that in Craig's *Mammillaria*, *M. erectacantha*, foester, which has not been found again since it was originally discovered, its type, locality and range have remained unknown. However my correspondent has been lucky enough to rediscover it in Sierra de Gualupe. He also discovered a new species of *Echeveria* which is described in the next journal of the *Cactaceas y Suculentas Mexicanas*. This the smallest of the genus, and is being named by Dr. Meyran, *Echeveria minima*. My friend has most kindly offered to send me a specimen.

My Mexican friend has mailed a parcel to me containing a seedling of *M. magnifica*, the equally rare *solisoides* and *M. erectacantha*. He mentions that *M. erectacantha* is a long lost *Mammillaria* with a beautiful red flower and sweet scent. Whether or not he is correct in saying that I am one of the very few persons possessing *M. erectacantha* and *magnifica*, I am not in a position to say. If so, I have only my very kind friend to thank.

Perhaps one of your members who is knowledgeable about *Mammillarias* would like to comment on these plants.

Further to my letter dated 21st August, I now have a few more particulars of some of the plants mentioned.

*M. magnifica* was collected in the State of Puebla.

*M. solisoides* in the State of Oaxaco.

My friend says that the common *M. sempervivi*, var. *tetracantha* grows in very dry conditions and seems that it must really struggle for its existence.

*M. phaeacantha* was found growing under a little shade of pine trees at 8,500 feet above sea level, near the Barranca de Tolantlonga, in the State of Hidalgo.

J. A. Bastow.

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## Library

As a preliminary to considering ways in which better use might be made for the benefit of the membership as a whole of this important collection of material, the Council has asked Gilbert Leighton-Boyce to compile a new catalogue of the Society's Library. Will members please search their shelves for any books or magazines bearing the Society's bookplate or stamp (apart from those sent out by Mr. Leighton-Boyce since 1st October, 1968) and return them to him or any member of the Council within the next month so that stocktaking can be completed and work on the catalogue commenced. Apologies and explanations are not needed—just a few unlocated items, including a Backeberg, a Vaupel and some American Journals!

## News from Branches

### Northern Counties

We in Northern Branch are very proud of the way our membership has grown this year, largely due to a highly successful two-day show at the beginning of June, and to the Trojan efforts of Hon. Sec. and Hon. Treas. in putting up displays and sales stalls at flower shows, agricultural shows and traction engine rallies throughout these counties, and southern Scotland. These two officers, Eric and Alice Jennison, have devoted nearly every weekend and some holidays as well to this effort: in fair weather and foul (mostly foul) they have sold thousands of plants and captured the interest of hundreds of people in rural areas where cacti etc. are a great novelty; they have run their van to death (*literally*) in doing so, and though I know they will protest at having their work shouted abroad like this, the members of our Branch want it known, and want to record their appreciation and thanks—especially because they are able to assist the Jennisons only at local shows and the Branch Annual Show.

Our own show is the largest in the area and 1968's the most successful yet: exhibitors came from far and near (round the corner or up from Hull), 666 entries were made, staging over 1,600 plants, and attracted hundreds of visitors which resulted in a highly encouraging number of new members and prospective members. Meetings are crowded and very merry—for which Mr. and Mrs. D. V. Brewerton can vouch, having paid us a visit in August: we were delighted to meet them and hope in future to welcome them again and to meet other Society officials.

Since February we have published a monthly Newsletter (an ambition we'd had for years) which grew from a single sheet to three, and finally to its present six foolscap pages—a magazine as well as a Newsletter, with several contributors. It has a distribution well beyond our own immediate membership; in addition, spare copies are handed out to interested visitors at shows, display stands and meetings and help to further capture their interest. Also since February this year we have set up a Branch Library of reference works, monographs, handbooks and various Journals—another dream come true. 1968 for us has proved a great year and put this Branch, six years old next February, on a really firm footing. We look forward to a future of continued steady growth and many more years of enjoyment.

Daphne Hutchinson

### A Date for your Diary

After the tremendous success of their experiment in two day showing when on May 25th and 26th the Northern Counties Branch show attracted 666 entries featuring 1,607 plants, plans went ahead for a similar show in 1969.

We are now pleased to announce that the 1969 show will be held on May 31st and June 1st in the Social Service Centre, Park Road, Whitley Bay.

The Branch would be pleased to receive from experienced out of the area members offers to judge at this show.

All letters and requests for schedules to the Branch Secretary, Eric L. Jennison, Alric, 7 Sandfield Road, Tynemouth, Northumberland.

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## Secretary's Notes

The report in a recent issue of *Garden News* that a group of members had requested an extraordinary meeting of the Society, following the rejection of the proposed amalgamation with the N.C. & S.S., was quite correct. This meeting has not been called because there was not the necessary number of names attached to the request, as required by the Rules of the Society. The sponsor of this request was informed immediately, but up to the time of writing these Notes, no further action has been taken in this matter. The failure of this group to secure an extraordinary meeting was due to a misinterpretation of the Rules on their part, not to any wish of mine, as Secretary, to prevent such a meeting, as has been suggested.

A sub-committee has been set up to revise and re-write the Rules of the Society and will be presented to members in good time for their approval, or otherwise, at the Annual General Meeting to be held on the 26th February 1969 at 6.30 p.m. for 7 p.m.

Part of my holiday this year was spent in the north-east of England, and I took the opportunity to visit the collections of several of our members in the Newcastle area. I also had the honour of being invited to act as Question Master at a Quiz contest between members of our North Eastern Counties Branch and the Sunderland Branch of the N.C. & S.S. I was very impressed by the variety of activities entered into by the members of the Branch and by the happy atmosphere of the meeting. In particular I was pleased at the obvious co-operation and friendliness between members of this Society and members of the National.

Greetings to all my new friends in Tynemouth, Whitley Bay, Cullercoats and Newcastle. Keep up the good work!

The lack of Branches of this Society outside the London area has been the cause of great concern to the Council for several years. One of my first ventures on becoming Secretary was an attempt to fill this need by sending a questionnaire to every member of the Society on the subject of Branches. I received only a 7% return of these questionnaires, and regretfully had to abandon

the project. At a meeting of the Council, held in July, Mr. A. F. Clare was appointed as New Branches Organiser, at his own request, and he will be pleased to hear from any unattached members who are interested in forming or attending a new Branch of this Society. Please write direct to Mr. Clare at 26 Albert Street, St. Albans, Herts.

Mr. P. V. Collings who has held the post of Librarian for many years has at last found himself compelled to relinquish this task, and our thanks are due to him for having done it so well for so long. Mr. G. G. Leighton-Boyce has been good enough to take on the post of Librarian, for which we are most grateful and we only hope he is not quite buried under the piles of books which have been passed on to him! Will members please note that in future any demands for books should be sent to

Mr. G. G. Leighton-Boyce,  
220 Leigham Court Road,  
Streatham,

Tel.: 01-769 4844 London, S.W.16.

I cannot close my notes without a mention of Mr. G. Ibbotson of Caterham, one of our most senior members. News of his death reached me recently and an obituary will be found elsewhere in this publication, written by a member who knew him better than I. To me, Mr. Ibbotson was a kindly gentleman, always ready with a friendly greeting and a firm handshake. We will miss him greatly at our Westminster meetings.

It was surely a unique occasion when the Chairman of the National Cactus and Succulent Society, Dr. K. V. Mortimer, joined with the Chairman of the Great Britain Society, Mr. A. Boarder to judge the September show at Westminster. Both of these gentlemen commented on the very high standard of the exhibits, and of the difficulties they experienced in judging many of the classes where the competition was particularly keen. Our new Show Secretary, Mrs. Hazel Hodgson, is to be congratulated, at the end of her first Show season, for the capable manner in which she has organised and arranged the two Society Shows this year. The September Show in particular can have brought nothing but credit to the Society.

As this Journal goes to Press we are very sorry to learn of the death of Mrs. Vera Higgins, so well known among Cactus and Succulent growers the world over. An obituary will appear in our next issue.

As this Journal goes to Press, we learn that a description of *Mam. erectacantha* has been published in the current issue of *Cactaceas y Suculentas Mexicanas* the Journal of the Mexican Cactus Society, and we hope to publish this in the next issue.

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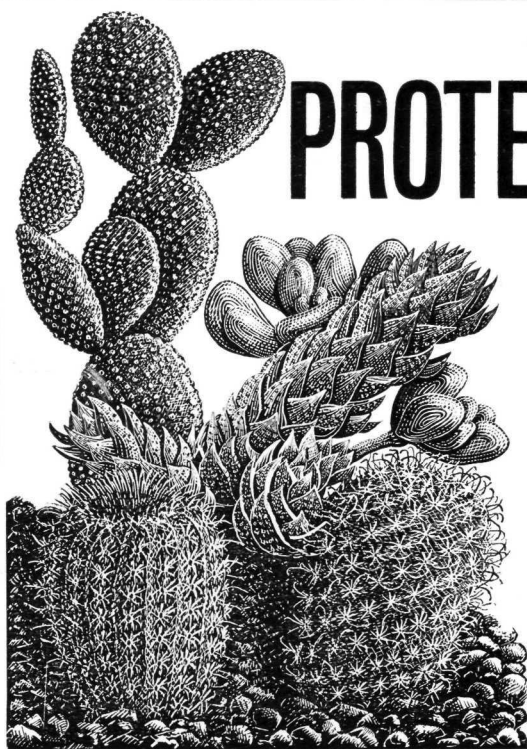
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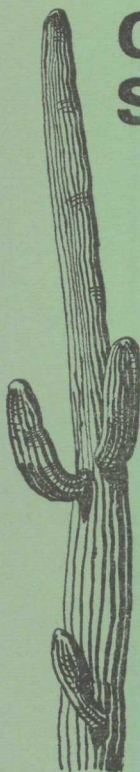
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