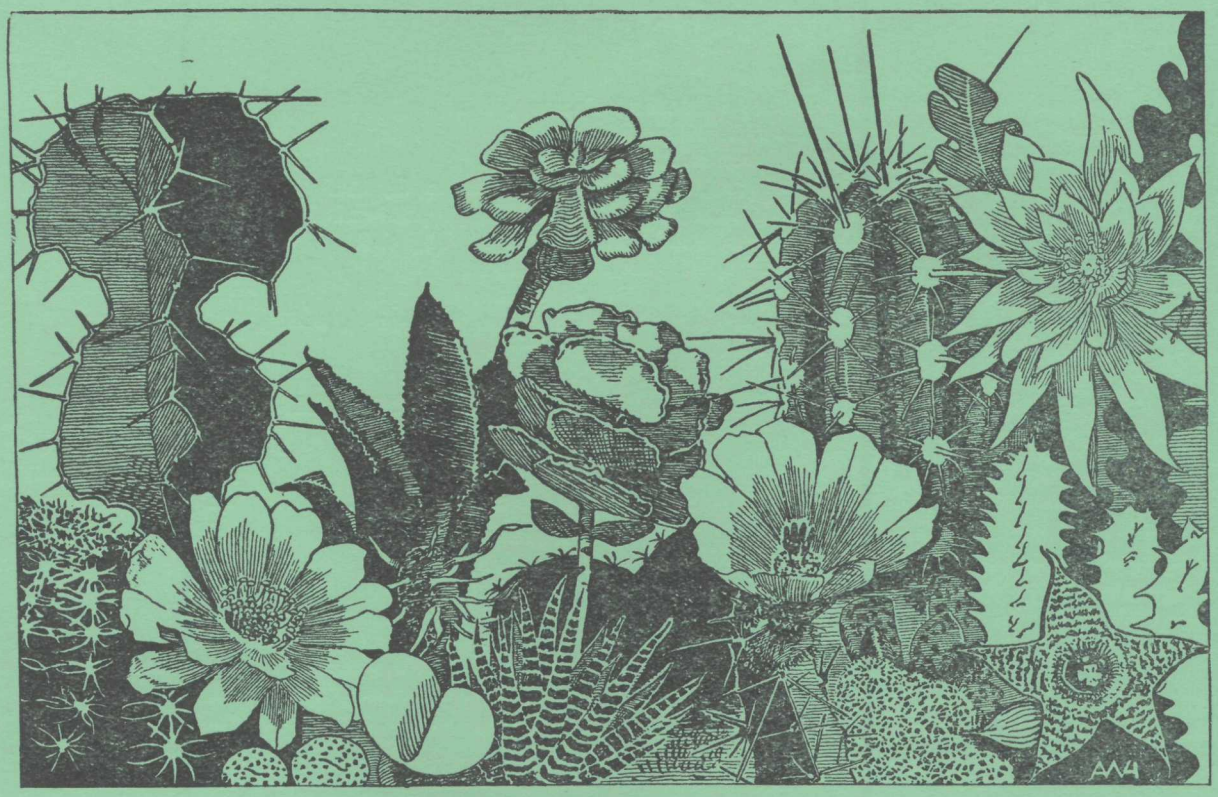
The Cactus and Succulent Journal of Great Britain

Established 1931

Vol. 36 *FEBRUARY 1974* *No. 1*



Published Quarterly by The Cactus and Succulent Society of Great Britain

25p

SUBSCRIPTION RATES

Full Membership	£1.50
Joint Membership	£2.25
Associate Membership	50p
Junior Membership	75p

Residents overseas may subscribe to the Journal without membership of the Society at an annual cost of £1.00 plus postage for four issues; payment to be made in sterling.

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Full page	£6 per issue
Half page	£4 per issue
Quarter page	£2 per issue

In addition SMALL ADS are accepted at 8p per line minimum 24p.

BACK NUMBERS of the Journal are obtainable from Mr. A. W. Heathcote, Southwold, Station Road, Bishopstone, Seaford, Sussex, BN25 2RB; price:

Vol. 20–22	15p per number
Vol. 23 onwards	25p per number

Postage extra overseas.
Each volume is made up of 4 numbers.

Published by the Society at COURTLANDS LODGE, PARK ROAD, BANSTEAD, SURREY, SM7 3EF.

THE CACTUS AND SUCCULENT JOURNAL OF GREAT BRITAIN

Vol. 36 February 1974 No. 1

Echeveria cv 'Berkeley Wright' (photo: M. J. Martin)

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From the President

What a year this has been for cactophiles all over the World. The I.O.S. Congress held at Reading University proved that by the numbers who took the time and had the interest to attend the various lectures and functions. The exchange on all aspects was very interesting as well as the stimulation of personally meeting so many people of different nationalities and to hear about their diverse needs and aspirations. 'Save the Succulents' was the theme, and conservation. Both themes are very demanding and, necessarily, immediate. The present ideas on conservation strike a strange note to the older generation. Seeds are a very necessary part of conservation. Sowing and growing them in the hope of preserving the plant where that may be in danger of destruction from bulldozers or other causes in their habitat or of ensuring the re-establishment of a species where that is in danger. Much print and discussion has and will be involved on the subject of conservation and I do not intend to enlarge on it here. Let us take joy in our hobby it can be boundless so I would wish you a very successful year in 1974 and uch success to your seed-raising efforts!!

Dora Shurly

Editorial

WITH this issue the Journal breaks a link with the past by appearing without Mr. Arthur Boarder's customary article on cactus cultivation. Since the first post-war number in July, 1946 Mr. Boarder has contributed with unfailing regularity his cultural notes, initially on succulent plants in general but latterly on cacti in particular. His wisdom and practical knowledge have been communicated in simple language to generations of readers against a background of show successes and a widely known collection. We regret that circumstances have compelled him to bring to an end his regular feature after twenty-eight years, but we hope to hear from him as an occasional contributor to our pages for many years to come. In the meantime we shall publish selected aphorisms from the Boarder saga from time to time so that we may not loose all that is buried in past volumes. This, for example, is extracted from his July, 1946 article:—

> "If any pots appear unduly wet a few days after having been well watered, they also need repotting; do not put this off as the plant will soon die if the soil is waterlogged."

Not for the first time, we find ourselves being gently reproached for (a) printing too many scientific articles and not enough for the beginner and (b) including too much that is elementary or unnecessary cosy chat. We do in fact try to steer a course somewhere down the middle because that is what the majority of our members expect from their Journal. Just what we do print, however, is largely governed by the notes and articles submitted by our contributors. On the question of articles for beginners it should be noted that the Society publishes a booklet on this subject called 'How to Grow Cacti and Succulents'. This is usually on sale at branch meetings, price 15p.

Contributors are invited to submit their articles typed, double spaced, on one side only and with ample margins. Absence of facilities for typing does not rule out anyone from joining in, however. Owing to greatly increased costs in providing illustrations we are loath to accept colour transparencies. Exception can be made in particularly worthy cases, but as a general rule we must stipulate good, glossy, black and white prints.

Liaison Meetings

ONE of my first actions, upon taking over as Chairman, was to contact the Secretaries of the various Branches in the London area with a view to arranging a liaison meeting. I felt that there was insufficient contact between the Branch and Society Officers and that an improvement could not fail to be advantageous. In the event, the organisation of the desired meeting proved to be a little difficult, for a variety of reasons, but it was finally held on 27th November and the results exceeded my expectations.

What I had in mind was a free exchange of opinions between the two sets of Officers on matters of mutual importance. After some initial hesitation this certainly developed and the fact that all but one of the Branches sent representatives made for a good discussion. The topics considered included the provision of Society Officers, including a new Treasurer, recruiting, a wider circle of contributors for the Journal, the two annual London Shows, and the annual display at the Chelsea Flower Show. No immediate and obvious answers were forthcoming but I had not expected this; I was satisfied that the various representatives promised to bring these matters to the attention of their Branch Committees.

Perhaps the most unbiased measure of the success of this meeting was the fact that there was general agreement that others should be arranged, on a regular basis. In 1974 they have been fixed for 26th March, 25th June and 26th November, at 7 p.m. in the R.H.S. New Hall. Anyone who has relevant ideas should contact me or his Branch Secretary. These meetings are informal and flexible and we shall be happy to welcome an extra member from a particular Branch if they feel they can contribute usefully, also, of course, any members from Branches outside the London area who happen to be in London at the time.

W.F.M.

Cultivation of Succulents

by Mrs. M. Stillwell

Conophytums in flower (photo: B. Maddams)

We had an early taste of winter this year, with the cold spell in November, including a light fall of snow in many places. With the fuel shortage one has felt a bit guilty about keeping up the heat in the greenhouse, but one cannot be expected to lose a large collection of valuable plants by letting the temperature get down to danger levels. Winter growing succulents, although needing water during this period, will not really suffer if kept dry during the very cold weather. It is better to be safe than sorry. I am writing this article at the beginning of December and still have a number of plants in flower, mainly mesembryanthemums including lithops, argyrodermas, glottiphyllums, conophytums, gibbaeums, trichodiademas etc. A number of gibbaeums are in bud, and should be out during the next few weeks. Practically all of my argyrodermas flowered this year including *A. villetii* which had always eluded me. It is a clustering plant with numbers of heads and deep rich pink flowers. At the I.O.S. show I was informed that this plant is to be re-named *A. sub-album*, I am now wondering what to call the other plant I have had under this name for many years. It is better not to try to remove the dead skins at the base of the argyrodermas, as they are usually very tough, and in trying to remove them, heads can often be broken off. If this accident does happen, you will find that they root up quite easily. I had two flower buds appear side by side on *A. leucantha* which is quite unusual. The flowers opened one after the other. Another unusual growth has appeared for two years running on one or two heads of a fenestraria that bears bright yellow flowers (not the orange shade of *F. aurantiaca*). From the centre of the bodies comes what appears to be a pointed protuberance, brownish in colour and standing up about a quarter of an inch. Nothing develops from this and eventually when the body gets old and dies to make way for new growth this disappears too, but a few more appear the following year. The plant flowers freely in the usual way, between the bodies. I repotted it this year into a five inch pot, but together with the new bodies came one or two of the unusual growths.

I gathered quite a lot of seed from my two plants of *Gasteria armstrongii*. They were flowering side by side, and as I believe they are true species and unrelated, I hope the offspring will come true. Seed collected from our own plants such as raworthias and gasterias when many different species are flowering at once can never be relied on. The flower stems of *G. armstrongii* are branched and very strong and erect with almost red flowers.

I see there are a number of dwarf aloes still in bloom, including the lovely *A. albiflora*, *A. balatula* and *A.*

jucunda, the last flowering for the first time with three flower stems. These are all grown under the staging, but mainly because there is no room on top, and in any case they appreciate semi-shade. Aloes make a tremendous amount of roots and should be repotted every year, if you want plenty of new growth. It may be necessary to remove some of the old dead-looking roots to allow for more fresh soil in the pot.

I have always admired the plant *Berrisfordia khamiesbergensis* a low growing mesembryanthemum closely related to the conophytums. It is only recently that I was given two small unrooted heads. I planted these in a small pot of pure coarse sand, and stood it in a saucer of water among the other mesembryanthemums, always ensuring that the sand was kept just damp. They are now nicely rooted and firm in the pot. I shall probably leave them in the sand for about a year without disturbing, until they show active signs of growth.

My *Jacobsenia kolbei* is once more starting to branch and send out its flowering stems. I find this quite an interesting plant, with white flowers on tall stems which do not appear until the plant has reached adult size.

Keep a bottle of surgical spirit and a small paint brush handy during the winter, for touching the odd mealybug that may appear. This is much safer during the cold weather than drenching the whole plant with an insecticide. Surgical spirit is also safer to use for plants on the window sill, as it is non-poisonous and does not give off the harmful gases that are associated with stronger preparations.

Winter is the time for books, giving an opportunity to get to know all your plants by reading some of the excellent publications now readily available either from the Society library or your own public library. Send for current lists from your favourite nurseries and select the plants you hope to add to your collection and try and read up something about them, so that when you decide to place your order in the spring you will at least be more than half familiar with them. It is not wise to order plants by post during the winter, not only do some of them resent disturbing, but they may be exposed to frost in transit.

It is a good idea during the winter to spring clean the potting shed and to sort all the clean pots into their different grades, and to make little racks or shelves to accommodate all the potting tools and labels. Have two or three bins for the compost, sand and peat etc. preferably each with its own scoop. I often want a bit of sand in a hurry, and have mislaid the scoop, and this of course wastes time looking for it. One thing that always seems to get over-looked is a removable bin for the old soil, which enables one to take it outside and empty on to the garden without any difficulty. A rubbish bin is also very handy. Make it a rule after each potting session to tidy up and leave everything ready for the next time. Do not leave diseased plants and old soil that may be contaminated near your new potting compost. Always make it a rule to repot every new plant that you obtain, regardless of where it was purchased, not only is this for health reasons, but the plant should be introduced to your methods of cultivation as soon as possible.

Towards the end of February try and find time to look at each plant individually. It may look good from the front, but have a look round the back and underneath the pot, this is often where you see signs of root-bug which might otherwise go undetected. If a plant needs some attention place a cocktail stick in the pot to remind you, or a spare label. When I have got round this rather long job, I try to water each plant individually by dipping the whole pot in a bucket of water, ensuring that the ball of roots really is wet. The plant may need no more water for several weeks, depending on the weather.

Notes on the 1974 Seed Distribution

by Terry Smale

THE Society is pleased to be able to offer a wide range of cactus seeds once again this year, but it is still proving difficult to obtain adequate supplies of seed of species of the "other succulents". I hope that as many members as possible will avail themselves of this opportunity to obtain seed and perhaps even make their first attempt at seed sowing.

A propagator is not essential for seed raising, since if sowing is delayed until late April germination can accomplished in the open greenhouse. In fact I suspect that seedlings of some plants, such as the Mesembryanthemums are happier in the open greenhouse than in the close humid confines of a propagator.

A wide range of composts are used successfully by enthusiasts for the purpose of seed sowing but I have recently had good results with the minimum of personal effort by using a proprietary peat, sand mixture. Seed pans must be kept moist in the early stages and if a propagator is used, then a temperature in the 20–27°C range is normally maintained. However, work recently

reported by Mr. Brian Fearn at the I.O.S. conference, indicated that certain high altitude plants such as *Rebutia* have an optimum germination temperature at about 18°C and that germination is inhibited at higher temperatures.

The young seedlings of cacti should be kept shaded for the first six months of their life, otherwise they will become reddened and the rate of growth will become very much slower. Mesembryanthemums, on the other hand, can stand quite bright conditions from an early age.

I shall deal firstly with some of the South American Echinocactanae that appear on this year's list. *Gymnocalycium riograndense* is a single headed, flattened globular plant, which grows up to 200mm. diameter. It belongs to the Bolivian *G. pflanzii* group and has the typical short tubed flower, white with a bluish-red centre. The closely related genus *Weingartia* bears flowers which resemble those of *Gymnocalycium* in such characters as the complete lack of any hair or bristles on the flower tube. *W. sucrensis* is globular with numerous ribs and large white felted areoles, each carrying about 20 light-brown spines. The flowers are only about 30mm. wide, golden yellow, but are very freely produced from the shoulders of the plant even when it is fairly young. The name is derived from the department of Sucre in Bolivia.

There are three species of *Notocactus* on the list which have all been discovered in the last decade. *N. crassigibbus* was one of the earlier discoveries of Leopold Horst and created extensive interest when it was first introduced in the late '60s. It has a broad flattened body, reminiscent of a *Gymnocalycium* with light coloured adpressed spines. The flowers are yellow and typically *Notocactus*, but larger than usual. I have not traced the descriptions of the other two new *Notocactus* spp. on the list. *N. glaucinus* is a Friedrich Ritter discovery under the number FR 1376 and *N. vanvlietii* is a Walter Rausch introduction from Uruguay under the number R 376.

For collectors with a minimum amount of space available *Frailea*, which is closely related to *Notocactus*, must be the ideal genus to collect. The plants are small and fairly easily grown and some can be made to flower fairly freely. The flowers of *Frailea* are frequently cleistogamous and when this happens, the flower develops from an early stage as a seed pod with little or no sign of any petals. Flowers which develop with obvious petals at the bud stage will normally open eventually at around mid-day. *F. magnifica* is a fine new introduction in which the plant body is completely covered with golden yellow spines. *F. phaeodisca*, which is sometimes regarded as a variety of *F. pygmaea*, is a personal favourite within the genus. The globular dark green body tends to be purple tinted, with an absence of any obvious ribs or tubercles. It is covered with many tiny brown areoles which each carry a number of short whitish spines.

The smallest known cacti are contained within the genus *Blossfeldia* and plants of this genus are not particularly easy to raise from seed. It may be worthwhile trying to graft some of your crop of seedlings during their first summer. If this is attempted then it may be better to acclimatise the seedlings in a shady part of the open greenhouse before performing the operation. *B. atroviridis* is the most vigorous *Blossfeldia* and freely produces its small white flowers whether grafted or on its own roots. The small flattened clustering bodies are dark green with sunken spineless areoles. It was discovered by Ritter in the Cochabamba area of Bolivia and described in Succulenta in 1965.

There are, on the list, a number of interesting South American species that were grouped by Borg within the Echinocereanae. *Rebutia napina* is an unknown plant to me, but the supplier describes it as being covered with dense white spines. The specific name would suggest that it is tap rooted. The genus *Mediolobivia* which can be included in *Rebutia* for show purposes, is represented by *M. euanthema*. This is a clustering species with dull green elongated bodies up to 50mm. long, but the most attractive feature is the tricoloured flower which should be red in the centre, with a ring of orange surrounding this, and then carmine on the ends of the petals.

Lobivia culpinensis is a variable species from Southern Bolivia which in some forms must be amongst the most attractive species of the genus. The plants are fairly large, up to 150mm. diameter, and only sparingly clustering. The spines are straight and up to 50mm. even in cultivation, and variable in colour, although commonly pinkish-brown. Flowers are also variable in colour, those on my father's plant being pale orange. *Lobivia aurea* v. *quinesensis* is a variety of the well known long yellow flowered species, which was introduced by Rausch (R 112) from the province of San Luis in N.W. Argentina.

Pseudolobivia represents a transition between the genera *Lobivia* and *Echinopsis* and it is possible that all three genera may be united in the near future. *P. callichroma* is a very attractive plant which was described by Cardenas in 1965. It has a flattened globular grey-green body up to 150mm. diameter, which is deeply cut into large hatchet shaped tubercles. The long tubed flowers are about 80mm. across and pale magenta in colour. *P. frankii* is another uncommon plant, somewhat smaller than the preceding one, and having light violet-red flowers. *P. kratochviliana* is a narrow ribbed species with hooked central spines and rather short white flowers.

Finally among the lower growing South American species are two which do not belong to either of the previous two general groupings. *Melocactus bellavistensis* is a species from Northern Peru which can grow up to 400mm. diameter. The spination is weak and the cephalium, which can be up to 300mm. long, has red bristles.

Arequipa erectocylindrica is a member of the Borzicactanae and has the characteristically zygomorphic flowers which are produced at the apex, red, up to 70mm. long. The plant is quite columnar in age and is quite strongly spined.

The gems amongst the North American Echinocactanae that are being offered this year, must be the *Turbinicarpus* spp. These are true miniatures which come from Central Mexico and are usually seen offered as habitat collected plants. However, this is not necessary because they are easily grown from seed and will flower at about four years of age. *T. klinkerianus* has fairly pronounced tubercles, each carrying 3 short spines, and the flowers are white, 15mm. diameter. *T. schwarzii* has more flattened tubercles and larger flowers up to 40mm. diameter. *T. macrochele* carries four spines per areole and these are thin and long and twisted together. The flowers have a rosy tinge.

Astrophytums are great fun to grow from seed as they appear as dwarf versions of the adult plants from a very early age. *A. myriostigma* v. *tulensis* from Tamaulipas is a form that has very acute ribs which in the growing point are spirally arranged. The hybrids *A. asterias* x *capricorne* are of course somewhat variable but tend to be nearer the *A. asterias* parent. They have 8 ribs which are more pronounced than in *A. asterias* and spines tend to be absent or fairly weak. The large yellow flowers are freely produced and the plants are much easier to grow than *A. asterias*, presumably as a result of hybrid vigour.

Passing on to the larger growing Echinocactanae, *Ferocactus glaucescens* is one of the smaller growing members of the genus and can be flowered relatively easily in cultivation. The stem is glaucous grey-green up to 200mm. across and the spines are strong, straight and yellow. *F. rectispinus* from Baja is, on the other hand, one of the largest species. Spines are very strong up to 130mm. long in the wild, and bright red when young.

The finest *Mammillaria* on our list, if not of the whole genus, is *M. theresae*. The plants are very small, cylindrical, up to 40mm. high, sparingly offsetting. They are covered with tiny feathery white spines and the flowers are very large, about 40mm. diameter, deep pink in colour. *M. mainae* is a plant of the *M. microcarpa* group with yellowish-brown spines and hooked centrals. It is globular, clustering in age and prodcues 25mm. broad white flowers with a pink dorsal stripe. *M. fuauxiana* is an attractive "white" plant of the *M. elegans* complex. It is eventually columnar up to 300mm. high and has small dark red flowers.

Four unusual and attractive Echinocerei are available this year. *Echinocereus brandegeei* is a long known species from Baja which has been almost unobtainable until the recent expedition of Alfred Lau. It is a freely clustering species up to 350mm. high and the most distinguishing feature is the long flattened central spines. I don't know

Asterophytum asterias hybrid (photo: G. A. Burton)

whether it has been flowered yet in captivity, but it should be red in colour. *E. bristolii* is similar in its general habit but is covered in thin white spines. It comes from Sonora and has 90mm. long purple flowers. *E. tayopensis* is from the same area but has a much thicker cylindrical body up to 150mm. high. Spines are weak, black at first, and the flowers are bright yellow which is an uncommon colour for the genus. *E. floresii* is a small growing species with a turnip-like root. It is simple or slightly sprouting, 30mm. diameter and only 100mm. tall. The body is covered with interlacing white radial spines and it has large purple flowers.

Amongst the ceroid species *Eulychnia saint-pieana* is one of the most attractive. Young plants have a complete covering of dense white wool along each rib and the yellow spines appear through this. *Haageocereus platinospinus* has 13–15 ribbed stems which are about 50mm. in diameter. The spines are bright brown in colour; the radials are fairly short but the central spines are stout and up to 70mm. long in the original description. *H. cantaensis* may well be a species of *Loxanthocereus*. It is turnip-rooted with stems up to 600mm. long and 50mm. across. There are 18 ribs and numerous short brown spines. *Pilosocereus leucocephalus* is a Mexican plant related to *P. palmeri*.

Reverting now to the "other succulents" I shall firstly consider some of the mesembryanthemums. *Lithops* need little introduction but *L. brevis* is not one of the species that is frequently seen. It belongs to the yellow flowered group and has smallish bodies with light brownish-green windows at the top. *Delosperma taylori* v. *albanense* is a shrubby mesembryanthemum with thick grey-green variously shaped leaves and 30mm. diameter pale pink flowers. *Malephora crocea* is another shrubby species which can be grown outdoors during the summer and can produce its golden yellow flowers in the first year from seed. *Ruschia* is a big genus of large to dwarf shrubs which produce flowers in shades of pink, red, violet and white during the summer.

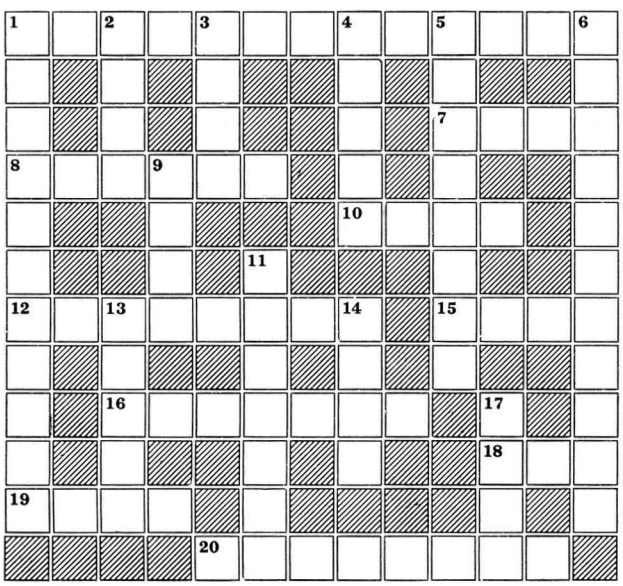
Aloe davyiana is one of the smaller growing Aloes which produces an inflorescence only about 700mm. high. The leaves are dark green to reddish, with brown spiny edges and transverse bands of bright spots on the upper surface. The rosettes are stemless and it does not normally offset.

Dyckia is a genus within the family Bromeliaceae and the plants come from Brazil. *D. altissima* is a stemless clustering species which produces large rosettes of thick leaves which carry spines along the edges. The flowers are carried in an aloe-like inflorescence and are bright yellow.

Finally we come to the Asclepiadaceae and to the plant which must have pride of place on the list as far as evil smelling flowers are concerned. *Caralluma pseudonebrownii* is a South West African species which forms mats of thick four angled stems up to 180mm. tall. The flowers are produced in clusters of 5 to 15 on a single stalk and are each about 100mm across, red-brown with yellow spots.

Neocrosswordermannia No. 5

by Arnold Rainbow



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Taxonomy of the Staplelieae

Mr. L. C. Leach continues his studies on the Stapelieae of Southern Africa with an account of *Caralluma caudata*, its sub-species and two putative intergeneric hybrids, in Bothalia, vol. 11, pp. 133-137 (1973). A reprint of this paper is in the Society's library.

Starting with Cacti by Arthur Boarder. Signed copy £1, post paid. Includes complete instructions from seed to flower, and exhibiting. From A. Boarder, 8 Mead Way, Ruislip, Middlesex, HA4 7QW.

Seasonal Cactus Care

by B. & W. F. Maddams

Mr. and Mrs. Maddams among their cacti (photo: Croydon Advertiser)

THIS, the first of a new series of articles, covers the months of February, March and April. It is a period of anticipation giving way to realisation. Although, at worst, the weather may be inclement for much of the time, the growing season is to hand in February, or is even under way in the case of some of the cacti, and is in full swing during April. This transition from the dormant season to the start of a new growth cycle is an inherently complex process if analysed in depth but, in practice, is effectively determined by four interrelated factors. These are worth considering in a little more detail.

The four essential factors are light, temperature, water and nutrients. We shall be dealing with them all in turn and, indeed, they cannot be discussed wholly in isolation, but for the present article we shall concentrate on watering, with particular regard to the resumption of watering after the winter rest. This is an area where we have learned by experience, which can occasionally be costly if over-enthusiasm with the watering can leads to the loss of plants.

The golden rule is that water should only be given in appreciable amounts, as opposed to an occasional light drink over winter, once signs of growth are really in evidence. These signs are very obvious to anyone who has grown cacti for a year or two. In some cases buds may be developing rapidly and this is particularly true of quite a number of the early flowering Mammillarias. It would be possible to give quite a list of these but a few will suffice. They include *M. lasiacantha*, *M. pennispinosa*, *M. aurielanata* and *M. cowperae*. The buds on these species may be apparent from the very early days of January but unless the weather is very favourable they will not develop rapidly until about the middle of February and only then should a moderate amount of water be given. This is even more true of a number of other cacti on which buds may be discernible even before Christmas. They include *Gymnocactus knuthianus* and *Mamillopsis senilis* but, in both cases, the development is very slow and flowers will probably not appear before the end of March. The temptation to give too much water should therefore be resisted.

Another group of cacti. of which some of the *Notocactus* species are very typical, show clear signs of body growth, prior to the development of buds. This new growth is easy to recognise and is also an indication for cautious watering. Another sound rule is, therefore, watch your plants carefully, at all times for preference, but in the early spring in particular. This advice is often given in the case of other groups of succulent plants such as the stemless mesembryanthemums and caudiciform plants but we have found it equally important for cacti.

Not only must one look for signs that the plant is in need of water, one must give it with due regard to the conditions, both within the greenhouse and externally. The minimum temperature being maintained must be taken into account, as must the general weather. A

bright day in mid-March can lead to the greenhouse temperature passing the 80°F mark and if this occurs for a few days in succession there will be an appreciable moisture loss by evaporation. A spell of fine warm weather at this time of the year may lead to enthusiasm with the watering can and then regret when a dull, cold spell follows. The English spring weather of recent years has been so uncertain, and there are some who maintain that this is the result of an overall change in the weather pattern, that caution is very advisable. It is almost as easy to rot a plant this way in March as it is in November.

We try to maintain a minimum temperature of about 50°F by the time that the spring equinox has arrived. This is a good general purpose temperature; a few plants would prefer more whereas others will be content with rather less. However, one of the great advantages of cacti is their tolerance and adaptability and the majority are as undemanding in this respect as they are in most other directions. Since we are writing primarily for the less experienced members we can safely ignore the few exceptions to our generalisation. Those readers who can cope with *Melocactus intortus* and other very tender plants are scarcely in need of advice. With a minimum temperature of 50°F one should aim to import a degree of moistness to the soil. It is impossible to say what this will mean in practice but it could amount to a moderate watering every second or third week. Much will depend not only on the weather and the minimum greenhouse temperature but also on the plants in question. One in a small clay pot will need more water than a caespitose specimen almost filling a plastic container. We can give general guide lines of this sort but experience is the real answer. Never be too disconsolate if a plant is lost through over-watering in the spring, providing that you let it happen only once. One should always try to find out what has gong wrong and why; it will not always be possible but this is no excuse for not trying.

We have found doubts and difficulties among beginners about how the first waterings of the new season should be given and this is particularly the case when one of the soil-less composts is being used. If these are allowed to become dust dry over winter they are very difficult to wet again because of their peat content. Water poured on to the surface may sit in a pool for several minutes. We have used this type of compost successfully for some years, and, as a result of experience, keep it just slightly damp over winter. Hence, the onset of more serious watering causes no problems.

However, members who are faced with the problem of wetting really dry composts have two courses open to them. The first is to use fairly hot water, say at 50°C, as this will aid penetration, and if the pots can be soaked from the base so much the better. The alternative is to add a wetting agent, in the form of a mild household detergent, to the water. There is no real evidence to suggest that these materials have the slightest adverse effect on the plants; indeed, some contact insecticides contain them. If a conventional type of John Innes compost is being used the water should penetrate readily, even if very little is given. Only if compacting of the surface has occurred may there be any problem and when there is doubt it is best to go around the collection first and loosen the surface with a suitable implement such as a piece of stick with a sharpened end. Aluminium labels may look to be ideal for the purpose but, in practice, they often bend.

One group of cacti which require a rather different approach with regard to watering in the early spring, and, indeed, throughout the winter months, are the epiphytic species. They are unjustly neglected by most collectors and this prompts us to write something about them in a more general vein. Most people are happy enough to find space for a few of the many Epiphyllum hybrids but they completely overlook the wealth of interesting material to be found in *Rhipsalis* and allied genera, which currently encompasses some one hundred and forty species, at least according to Backeberg. It is clearly out of the question to write a general survey but at least, for the present, a mention of some which flower in late winter or spring may give a good start.

Nowadays, with the increasing number of hybrids available of *Schlumbergera truncata* and the other so-called 'Christmas Cacti', it is possible to have some plant of this genus in flower right from early November almost until *Schlumbergera gaertneri* comes into its own around Easter. There is no doubt that these plants will be requiring water at this time and some liquid feed occasionally as well and this treatment should continue for a month or so after flowering and then watering can be gradually eased. This group certainly do better if kept at room temperature until early spring, at least, when they can be moved out to a heated greenhouse until all chance of frost is gone; then they are placed in mottled shade in the garden.

Rhipsalis and related genera are more inclined to flower in winter and early spring if grown where minimum temperatures are 50–55°F. They, too, will require watering at weekly or fortnightly intervals according to the weather. *Rhipsalis houlletiana* is one of the most reliable for flowers and the shiny green flattish stems may produce a mass of gay cream blossoms at almost any time of the year with red fruit to follow. *Acanthorhipsalis monacantha* has light orange flowers on thick angular stems while *Rhipsalis funalis* has a wealth of starry cream flowers on the thong-like stems which redden beautifully in sunlight. *Disocactus macranthus* generally has two batches of flowers with us, one in December and the other in March or April; these flowers are rather like dainty, small Epiphyllums with long yellow tubes and thin cream to white petals.

However, for us the real gems are the Chiapasias.

These, again, are inclined to have bursts of flowering at random but the main 'season' seems to be from late March to May. The most popular and easily obtainable is *Chiapasia nelsonii*; the growth is very similar to 'Deutsche Kaiserin' but the rose pink flowers have a beauty all their own with their soft petals delicately curved backwards. They generally stay open for several days. There are a number of other epiphytic species that we enjoy and we shall be mentioning those as their flowering time comes along. In the meantime, we hope we have whetted your appetites to try some for yourselves. Surely you have a shelf or place for a hanging basket where these plants can decoratively hang as they do in their natural habitats.

We hope that we may have helped you with ideas for better cultivation and other plants to grow. Good luck to you all as the new growing and flowering season starts.

'The Times they are a Changing'

by Arnold Rainbow, Levington Research Station

THUS wrote the American song-writer Bob Dylan and, although the song was intended primarily as an attack on present day political morals (or lack of them!), the title is nevertheless descriptive of the world of the modern cactophile.

Not so many years ago the ideal cactus compost was said to be a mixture of sand, gravel, crushed mortar, leaf mould, good loam (a rare commodity indeed!) plus a sprinkling of organic fertilizers such as hoof and horn and bonemeal. Leaf mould had to be sterilized unless one was prepared to risk admitting any number of 'bugs and beasties' into the collection. Loam was frequently of indifferent quality, containing too high a percentage of clay particles. Today good loam is at an even higher premium; indeed, it is nigh on unobtainable in Britain—galloping land prices have seen to that.

No wonder so much drainage material was needed in the compost; without it the compost often set like concrete and the root stock, almost devoid of aeration, would be choked to death. After juggling with the compost recipe for some time gratifying results were often obtained but, all too frequently, a new batch of loam would be found to have different characteristics to the last one and the juggling would begin again.

Clay minerals in the loam provided potash; the other two major nutrients, nitrogen and phosphate, were provided by the hoof and horn and the bonemeal respectively. Crushed mortar supplied lime, while leafmould provided numerous nutrients and a degree of water retention. The main drawbacks of organic fertilizers such as hoof and horn and bonemeal are that their nutritional value is somewhat variable. The rate of nutrient release from hoof and horn is yet another factor upon which one cannot depend. Bonemeal releases its nutrients very slowly and its value as a phosphate source is limited. Of course, once upon a time, a growth rate of more than two spine clusters a year was considered obscenely rapid and unnatural. In this rather more enlightened age we realise that just because cacti can survive appalling conditions it doesn't mean that they must be grown in such a spartan manner. The fact that cacti survived, or even grew, in the early composts is testimony of their tolerance. There is no reason why cacti should not be grown to their full potential in peat compost providing the plants are well illuminated—light usually being the limiting factor however one tries to grow them.

Cactophiles tend to misunderstand peat composts: contrary to what one might think, a good peat compost drains well and is well aerated—hardly the characteristics of a poor loam! There are various types of peat and, at Fisons, each type is carefully selected for the purpose for which it is best suited. It is comforting to know that the peat used in Levington Compost and Plantgrow is consistent in type and quality. The level of nutrients in these composts is also thoroughly consistent and is the end product of years of scientific experimentation in plant nutrition: a more satisfactory basis for growing plants than a handful of 'this' and a cupful of 'that'. Personally, I use Levington Potting Compost (LPC) for almost all my plants but Plantgrow (PG) is preferred for those species which appreciate the presence of sand in their compost, for example: mimicry plants.

One of the most impressive features of cacti grown in these composts is their magnificent root system. I have had to deal with a number of rootless, badly shrunken imports in the last few years and have found Levington Seedling Compost (LSC) to be unequalled for re-establishing these plants. My *Strombocactus disciformis*, for example, was obtained a year or so ago. I spent many fruitless months attempting to root the plant until, in May 1973, with the poor plant looking better equipped for a life in the next world than this, I tried using LSC with bottom watering. Some of my most sceptical friends have been amazed at the extent of the ensuing recovery: the plant has rooted well, plumped up, produced new growth and flowered! I obtained a specimen of *Encephalocarpus strobiliformis* at the same time as the Strombocactus and, like the Strombocactus,

it has flourished in LPC, producing no less than eight flowers during the past summer. Not only the cactus 'oddities' do well in these peat composts, Mammillarias, Rebutias, Parodias, Neochilenias, Echinocerei, Gymnocalyciums, Cerei, Opuntias and countless other genera flourish in it. At present I have some 260 species of cacti (representing 60 genera) and 80 species of other succulents (representing 25 genera) and I have not found a single species which dislikes LPC and PG.

Fisons are not the only company to realise the tremendous potential of peat based composts: PBI, ICI and J. A. Bowers all produce composts which, in the right hands, can give good results. It is only fair to add, however, that not only do Fisons have extensive experience of peat based composts, they obtain their peat at first hand.

One of the great advantages of these composts is their cleanliness towards the handler and the plant. Since changing over for seed raising I have noticed a large drop in seedling mortality and I have not even found it necessary to take preventive action against damping off. About three times a year I water my seedlings (and adult plants) with a systematic insecticide, Super Kil, through a fine rose. This not only keeps them free of the 'terrible trio' (mealy-bug, root mealy and red spider) but the voracious larvae of the Sciara fly. How lucky we are nowadays with these multiaction systemics—I never was really convinced regarding the so called effectiveness of the paintbrush dipped in methylated spirit. Systemic insecticides, including their aerosol forms kill a range of pests on contact and endow the treated plant with a good measure of resistance to subsequent attack.

Something else that I keep handy around the greenhouse is a bottle of Liquid Tomorite, a fertilizer with a relatively low nitrogen/phosphate ratio which is well suited to cacti when used at a dilution of 1/500, i.e. a capful in *two* gallons of water. It also contains potash which is essential to plant health (nitrogen promotes vegetative growth and phosphate encourages flowering and root growth). Every month or so during the spring and summer I add it to the watering can for the more vigorous species, species which can exhaust themselves in flowering (for example, Schlumbergeras) and plants which I really ought to have repotted!

As composts, pesticides and fertilizers have advanced, so too have pots and greenhouses. When I started growing cacti about fourteen years ago, plastic pots were considered to be almost indecent as a topic of conversation; only a few of the most revolutionary cactophiles actually dared use them! I find that plastic pots and trays are a boon, especially for small plants and seedlings which can dry out so quickly. Two-inch square plastic pots are ideal for seed raising—they are just the right size and they fit together neatly into a tray. At risk of provoking the now fashionable letter-bomb attack I would say that all but the most water-sensitive genera can be grown well in plastic pots (there's an exception to every rule!). Cactophiles tend to be better informed about plant hygiene nowadays and many appreciate plastic pots if only because they are so much easier to clean than clay pots (no, I haven't scrapped my clay pots—the cost would be prohibitive!).

Another case of a synthetic product gaining acceptance at the expense of the 'natural' is the increasing frequency of aluminium greenhouses complete with puttyless glazing and the gradual waning of the greenhouse that depends on increasingly expensive supplies of red cedar. At one time the aluminium greenhouse was considered to be an expensive luxury compared with its wooden predecessor. Soon the converse will be true and, before we know it, the cedar wood house will be part of history.

There can be few subjects which infuriate more cactophiles than taxonomy: the only people who seem to profit from the incessant name changes are those who manufacture plant labels and indian ink. Being a 'lumper' by nature I like to think that cactus taxonomy is like a pendulum about to come to rest: to begin with everything was simply a *Cactus* sp.; now we have specific names for plants which barely constitute varieties in some cases. As the pendulum swings back many of the present day names will probably be regarded as synonyms and many of the so called species will be reduced to varietal status.

Some cacti will, I am afraid, exist only in collections. The extinction of these species in the field will be attributed to over collection, land exploitation and government apathy but these factors are only various manifestations of one problem: Man's inherent selfishness. The times may be a changing but Man changes very little when it comes to matters of the wallet!

Northern Counties Colour Slide Competition

The results of the colour slide competition organised by the Northern Counties Branch, as announced in our February issue, are as follows:

1st R. B. Pearce, Romford—a Ceropegia flower in close-up.

2nd R. B. Pearace, Romford—*Thelocactus bicolor* in flower.

3rd Mrs. C. L. Ball, Wisbech St. Mary—a hover-fly on a Parodia flower.

H.C. R. D. Swann, Lavale, U.S.A.—*Neoporteria subgibbosa* in flower.

H.C. Mrs. J. Hobart, Newcastle upon Tyne—*Matucana aurantiaca* in flower.

The slides were judged by Mr. J. D. Stevenson, Newcastle upon Tyne.

Some Cacti and Succulent Plants of New Mexico
(Continued)

by James Daniel and Doug Rowland

Sclerocactus whipplei, Albuquerque, N.M. (photo: D. Rowland)

4. Sclerocactus whipplei *(Engelmann & Bigelow) Britton and Rose* 1922

First described by Engelmann and Bigelow in 1856 as *Echinocactus whipplei*, this species was later split and placed in the genus *Sclerocactus* by Britton and Rose in 1922. This later combination has been widely used for many years, 'Sclerocactus' meaning literally 'hard cactus'. In the Southwest it is affectionately known as "Whipple's Fish-hook" or the "Braided Arrow", and is a very variable species. Other authors have from time to time split the species up into varietal forms and to other species, some of which are *Sclerocactus franklini* Evans, *S. parviflorus* Clover and Jotter 1941, *S. whipplei* v. *pygmaeus* Peebles 1950, *S. whipplei* v. *roseus*, and *S. whipplei* v. *intermedius*. By and large, all these species and varieties can be encompassed within *S. whipplei* if we acknowledge that it is, in fact, a very variable species to begin with.

The plant bodies are reverse egg-shaped to short cylindrical and, on occasion, sphaerical too. They are usually solitary but very occasionally they form small clusters of 2, 3 or 4 stems, which are dark green, 4in. to 7in. high and 2½in. to 4in. diameter. Ribs usually number 13 to 15 in mature plants and are often slightly spiralled, the tubercules being very conspicuous on the plant bodies. The radial spines usually number 7 to 11, are whitish and radiate fairly evenly, being slender, straight and needle-like, ½in. to 1½in. long and slightly flattened. The lower two lateral spines are generally brownish or grey. Central spines are 1 to 4, one being strongly hooked, the others needle-like, light grey and not hooked.

Flowers are very variable in colour, 1in. to 2in. across, petals being green, pink, yellowish or purplish. Fruits are red, cylindrical ¼in. to ½in. long, pink at first, later ripening and splitting to release the large, black, shiny, almost circular and flattened seeds. The fruits are covered in fringed scales which bear tufts of short hair in the axils.

The habitat of this species is, by and large, the Four Corners area, north-west New Mexico to north-east Arizona, south-west Colorado and on into Utah. However, it does have a fairly large range and is usually to be found in the most arid parts; desolate parts of Indian Reservations are its preserve, where it survives cold, dry winters and hot, dry, dusty summers. This is a very specialised cactus; it has to be to survive in these areas. We found it growing close to *Coloradoa mesae-verde*, but on the desert floor, near Farmington N.M. on an Indian Reservation in a very dried and desiccated condition. Later, in a more favourable locality, under pines and junipers, at Cortez, Colorado, we found many plump plants to 10in. high and 4in. diameter, displaying rings of pink blooms around the tops of the plants, in late May.

Sclerocactus whipplei does not take kindly to cultiva-

tion in England, the damp air in winter making black blotches on the spines if not kept in a dry environment. With care, however, specimens can be rooted but it must be remembered that this plant is very sensitive to the damper environments of cultivation. Seeds are not too frequently available and raising of plants in this way is not too easy. On several occasions we have not been fortunate in rooting seedlings which arrive interlocked in the lower spines of mature plants. We have found the easiest and most reliable way of cultivating this plant is to graft 1in. diameter imported plants, or offsets of about that diameter from plants with damaged crowns on to Trichocereus stocks. The Sclerocactus bodies are quite succulent and will unite easily in early summer when the stock is growing well. The Sclerocacti are then as easy to grow as the Trichocerei stocks they sit upon. Sclerocactus will offset when grafted and further propagation is possible in this way.

A final word—we keep our *S. whipplei* at the rear of the shelf in the glasshouse, the hooked spines have an uncanny knack of fixing themselves to woollen pullovers when one isn't looking in their direction.

5. Opuntia spinosior *(Engelmann) Toumey*

This handsome cholla has but a small, southerly range in New Mexico. Engelmann described this plant as a variety of *Opuntia whipplei* in 1856, but later Toumey rightly gave this plant species status. "Spinosior" means "spinier" and in New Mexico it is affectionately known as the 'Cane Cholla', due to canes, lamp standards and many other tourist mementos being manufactured in the American Southwest from the dried, woody skeletons of this plant.

Superficially, our plant resembles the very common *Opuntia imbricata*, but upon closer inspection this will be seen to have fewer spines and far more conspicuous white spine-sheaths than *O. spinosior*.

A shrubby to tree-like cholla, *O. spinosior* is usually 3ft. to 12ft. high, with a definite black, scaly, woody trunk in older plants, some 2in. to 4in. diameter. The branches overlap in whorls, usually spreading at right angles, being cylindrical, dark green and covered with long, narrow tubercules, almost in rows. The young joints are 4in. to 12in. long and about ⅝in. to 1¼in. diameter, and in winter stems are often purplish during and after cold spells. On new growths spines usually number 6 to 12, increasing to sometimes 30 per areole when old, ¼in. to ½in. long only, and are often tinged with red or purple, covered by thin sheaths in their juvenile year. The sheaths later drop off and the spines later fade to grey. This species hybridises with *O. fulgida* where the ranges of the two species coincide.

The flowers are fairly large, being 1½in. to 2in. in diameter, white, whitish-yellow, red or purple. Fruits are yellow when ripe, fleshy and reverse egg-shaped, 1in. to 1½in. long, strongly tuberculed with slender white spines which are shed upon ripening. The fruits

Opuntia spinosior in habitat, south-west New Mexico (photo: D. Rowland)

often persist on the plants through the winter months. Seeds are whitish and a little over ⅛in. across.

O. spinosior occurs in the south-west corner of the State of New Mexico, and spilling over into adjacent south-east Arizona. It also grows a little further south into the Mexican States of Sonora and Chihuahua. It is common in desert grasslands and pinon juniper belts at about 2,000 to 6,000ft. elevation.

Quite a good looker for an Opuntia this one, the closer spination giving the plant some symmetry. As it has a much more southerly habitat than many of the other New Mexican chollas, it is sensitive to long cold spells when in cultivation in England, otherwise it presents little or no difficulty; perhaps the only difficulty lies in obtaining a piece of a plant to begin with. Cuttings will root easily, and plants may also be raised from seed, when available. Remember too that many New Mexican Opuntia seeds can stay in the ground for at least three years before they decide to germinate, so do not give up and use the soil for potting after one year, for more likely than not you will find Opuntia seedlings sprouting from all kinds of potted places. Best results in England are obtained when this plant is bedded out in a glasshouse and given a free root run. It will then grow quite rapidly to reach a flowering size.

(to be continued)

Correspondents

A Lady tells her Age

I read with interest the Correspondence Column and Succulents Snippets by Sally Cornioides. I wonder who she is! A challenge has been thrown out as to who is the oldest member. Being diffident I have waited to see what claimants there might be but we are all shy so I have plucked up courage to be the first. (As far as I know. There might be quite a number in this issue.) I shall be 84 next birthday. (I think that is the right way to put it.) I know that Mr. Collings and Mr. Boarder thought they could give me a few years but it is the other way about. Can any member better that? Birth certificates at the ready!

At the recent Congress trip to Kew I was extremely grateful to Mr. David Hunt and his colleague Dr. Polhill who so kindly arranged that I should have transport over the route of the trip through the Orangery etc, as, owing to severe arthritis I could not have managed it otherwise. The usual idea is that I wait for the party and they return to me or I catch them up which would have been impossible in this case. I was enabled to see some of the results of my husband's foresight when in the early days he presented good specimens of live plants to be preserved in spirit in the Herbarium. That act of faith stimulated the authorities at the time to greater interest in Cactus. I also saw growing plants that had been presented to Kew by Mr. Shurly in 1955. I lived over again an epoch in our lives which I could not have done without the assistance so kindly afforded and I can only offer a very simple and sincere 'Thank you'.

Mrs. Dora Shurly,
6 Colindale Avenue,
St. Albans, Herts.

West Kent Branch—can you help?

I am trying to re-start the West Kent Branch and would appreciate hearing from any members living in the S.E. London/N. Kent areas who would like to join me in this venture.

At the time of writing (mid-December) I have the names of two interested members to hand and am awaiting replies from other members in the locality.

A preliminary meeting is to be planned, in the early part of the year, to discuss the future of the branch and I hope that this will pave the way to the re-establishment of the West Kent Branch in this area.

It is not yet known where the next meeting place will be as this could only be decided when the addresses of interested members are to hand.

So if you feel, as I do, that a Great Britain Society branch in this area would be of benefit to you why not contact me at the undermentioned address.

After all it is in member's own interest to do all they can to make it a flourishing and go-ahead Society and this can only be achieved by doing something positive about it ourselves.

Let's try to do all we can in 1974 to expand the Society to this and perhaps other areas of the country.

Margaret Dennard,
53 Christchurch Avenue,
Erith, Kent DA8 3AP.

Malathion

November's Notes and News snippet regarding Malathion spraying prompts me to remind members to take special care when using any horticultural chemical of this type.

When one considers that Paraquat has been in use for only about twelve years, and that there is no known antidote for it when taken internally, we can surely appreciate how little is known about the long term effects of apparently less dangerous substances such as Malathion.

Whenever I have to use Malathion in spray form I wear an industrial-type respirator or dust guard and wear rubber gloves to avoid any leakage making contact with my hands. When spraying pot plants I work out of doors carefully checking wind direction. However I do not believe I am being over-cautious; safety procedure is largely based on common sense, and the instructions supplied with Malathion are very clear and should be followed carefully.

The Ministry of Agriculture publishes a booklet every year which deals with the safe use of horticultural chemicals. This booklet, entitled "Approved Products for Farmers and Growers", gives useful information on possible hazards to users, and is available free of charge from M.A.F.F. Divisional Offices.

B. Stokoe,
1 Ely Street,
Gateshead.
Co. Durham NE8 1NR.

Rejoice, O young man in thy youth; . . .

I have just become a member of the C.S.S.G.B. and have received my first magazine. I have read Valerie Hawke's letter saying that she is the youngest member, but I am! My birthday is on 27th April and I am nine years old.

I have always been interested in plants but started collecting cacti seriously about six months ago. I have about thirty-six cacti and I am still learning to identify them.

Oliver Keenes,
66 Langham Road,
Teddington, Middlesex.

Hybrid Echeverias

by Margaret J. Martin

Echeveria cv 'Doris Taylor' (photo: M. J. Martin)

In America, where succulent plants are not exotic inhabitants of greenhouses but native wild plants, they have always had a more tolerant attitude towards hybrid plants than we have in this country. So it is not surprising that a number of American growers have produced hybrid echeverias to decorate the gardens of California and similarly favoured places.

Of course hybrid echeverias are not new. I have been growing the very attractive 'Doris Taylor' for years. There is another clone of the same cross, *Echeveria* cv 'Bombycina'. These two are hybrids between *E. setosa* and *E. pulvinata*. Both are branching plants, the rosettes consisting of pale green leaves covered in short white hairs. The flowers are quite large for this genus and are orange-yellow.

Not all hybrids are as attractive as the species echeverias. I feel that the *Echeveria* cv 'Derosa hybrids' have no advantage over their parents *E. derenbergerii* and *E. setosa*, though they have been around for a long time under such names as 'Worfield Wonder' and 'Hertzblut'. A more recent hybrid is *Echeveria* cv 'Black Prince', a cross between *E. affinis* and *E. shaviana*. It resembles closely the first named parent, with the leaves being a dark brownish green rather than the black-green of *E. affinis*. Like both parents it is very easily propagated from leaves, and mealy bugs find it just as attractive as they do *E. affinis*.

During the last few years a large number of hybrids have arrived in this country from the U.S.A. They are beautiful but large. Planted out in rockeries they must look superb, but for my small greenhouse I prefer the neat, short-stemmed rosettes of 'Black Prince'. Others that I have grown are 'Gypsy', 'Mary Butterfield', 'Silver on Red', 'Berkeley Wright', 'Candy Wright' and 'Curly Locks'.

I would hazard a guess that the first three of these hybrids have a common ancestor in *E. gibbiflora* var *metallica*. They are tall plants with large, basically reddish leaves that are attractively crinkled at the edges. 'Gypsy' and 'Silver on Red' were bred by D. Wright

in California. Without looking at the labels I would have to think very carefully before naming any of these three.

'Berkeley Wright' appears to be a shorter stemmed plant than the three already named, with longer, slender leaves bluish flushed with deep pink at the edges. 'Candy Wright' is my favourite among these Californian hybrids, being a short-stemmed plant with the young leaves a pretty apple green, changing to deep pink with age. The broadly spatulate leaves have wavy edges. 'Curly Locks' has bluish green leaves with wavy edges flushed pink. It forms offsets. It reminds me of a large version of *E. shaviana.*

With the exception of 'Curly Locks', these American introductions have not formed offsets. I have had some success in rooting flower stems, particularly with 'Gypsy'. When plants have become straggly, I have beheaded them and young plantlets soon formed from the leaf scars on the old stem.

Note—Readers will recall Mr. Brewerton's article on this topic in the Journal for August, 1972. Further information is available in the N.C.S.S. handbook (1968) 'Echeverias' by R. Ginns, and a book recently published by John Bartholomew, Edinburgh, entitled 'Echeverias, a Guide to Cultivation and Identification' by Carruthers and Ginns. *Editor*

Book Reviews

The Subgenus Tephrocactus, by Gilbert Leighton-Boyce and James Illiff: Succulent Plant Trust, 72 Church Lane Avenue, Hooley, Coulsdon, Surrey, 1973. £2.50 (post free £2.62).

In judging this book it is of the utmost importance to be quite clear as to its aim and purpose. It is not a detailed monograph on the Tephrocacti in the general sense but a review of the present standing of this group of plants in the light of a thorough re-appraisal of the earlier literature on the subject. The authors are rightly convinced that much of the present confusion is due to a tendency on the part of more recent authors to dismiss the work of their 19th century predecessors as "out of date" and not worthy of serious study. This has led, in many cases, to the rediscovery, re-naming and re-classification of already described material thereby adding to the mounting rubbish-dump of synonymy.

The difficulty often is to be quite sure of the exact identity of the plants that these older workers were describing, and, owing to the laxity of taxonomic rules in those days, the position is further complicated by the non-deposition or subsequent loss of type specimens. Now it is generally accepted that, in the absence of authentic type material, no rational treatment of later discoveries is possible and no acceptable classification can be made. The authors have therefore attempted, by an analytical and critical study of the earliest descriptions of the few dozen plants of this affinity then known, *to reconstruct the missing types* to which later additions can be related and with which our own plants can be compared. This has entailed a prodigious amount of sifting and correlation (not to mention translation) of early descriptions from which has emerged a pretty clear picture of a number of basic taxonomic entities which can serve as a foundation for further research. This historical approach is quite unusual and in the authors' hands has, in my judgement, proved eminently successful. Although we may be little nearer the point when we can stick new labels on the dubious specimens in our collections, we can at least say "This is probably fairly near the plant that Schumann or Lemaire described as *Opuntia* so-and-so."

An introductory section traces the attempts to establish Tephrocactus as a true sub-genus and provides a revised definition which, though reasonably satisfactory, shows up the somewhat slender grounds on which the separation has been made. While it is convenient to have a name which covers a group of plants morphologically intermediate between the Cylindropuntiae and the Platyopuntiae, the great polymorphic tendency of plants within this group makes it doubtful, in my view, whether the elevation to sub-generic status is justified. For once I am inclined to agree with Buxbaum in his laconic statement "Separation from Opuntia seems superfluous".

Thereafter the material is considered under four main groupings typified by *O. pentlandii, O. glomerata, O. diademata* and *O. sphaerica* with *O. floccosa* as a doubtful fifth. Although, as treated here, one might think that these groups are reasonably distinct, it is amazing to find from the more recent literature what a game of musical chairs they have been made to engage in, particularly under the baton of friend Backeberg. It is impossible, in a short review, to do anything like justice to the main body of the work which merits a prolonged and serious study, but I wish to stress what I consider to be the most important feature of the book, viz. that even though the main thesis and conclusions may not be accepted by everybody this will in no way detract from the value of the work because the authors have been at pains to preserve for us an extensive corpus of early descriptive literature not otherwise easily available upon which we can form our own judgements and reach our own conclusions. Herein lies the real *permanent* value of this excellent publication.

The reviewer is entitled to some criticisms but the only one I would dare to make is that I regret that, possibly for technical reasons, the illustrations have been collected together in a central section rather than distributed to their relevant positions in the text and further, that there is nowhere any specific reference to any figure. This is, in some measure, overcome by self-explanatory captions (often refreshingly non-commital)

but I found the necessity for continually turning back very distracting.

Altogether a most scholarly little book of considerable importance, but I must add in all fairness, *not* not for the beginner.

W. E. S. Merrett

Biological Nomenclature, by Charles Jeffrey; Edward Arnold, London, 1973, pp. 69. Boards £2.00, paper £1.00.

FOR the limited number of our readers who are seriously interested in problems of nomenclature, this book by Charles Jeffrey of Kew will prove an invaluable work of reference. It explains clearly and with numerous examples the implications of the three International Codes of Nomenclature—Botany, Bacteriology and Zoology. Of particular interest is the section dealing with cultivated plants and the rules governing the use of such terms as sub-species, variety and cultivar. The glossary is detailed and, what is more important, the explanations are in plain English. Mr. Jeffrey's earlier book, "An Introduction to Plant Taxonomy" provides a simpler approach to this subject for the beginner. Those who wish to proceed further will welcome his more serious exposition.

Plant names must be unambiguous and universal if we are to exchange ideas with any degree of precision. Those who are apt to revile the "name changers" would do well to borrow this book, at least, and study the rules which govern the names of plants. As there are no similar rules governing human behaviour, much of the confusion which irritates the amateur arises from disinclination to follow the rules of nomenclature, or ignorance of them.

The Systematic Association is to be complimented on sponsoring this efficient little book, and the author on his lucid and practical approach.

W.V.H.

The Garden Book of Europe, by D. G. & J. P. Hessayon; Elm Tree Books–Hamish Hamilton Limited, 1973, £2.25.

THIS is an interesting and unusual book, one which can be read with profit by members although it contains comparatively little about succulent plants. It consists, in essence, of ten sections dealing, respectively, with the garden scene in Britain, France, Germany, Italy, Holland, Spain, Scandinavia, Belgium, Switzerland and the rest of Europe. Each of these contains a plethora of information on gardens of all types, the grand formal gardens, botanical gardens and the home garden. There is scope for much interesting comparison: for example, 82% of British gardens have lawns, and the Germans with 80% runs us close. On the other hand, the figure for France is only 45%. We are also told that 28% of the Fellows of the Royal Horticultural Society grow some cacti, a figure which will surprise many cactophiles. The information on formal and botanical gardens in Europe should be of considerable value to the horticulturally minded when they holiday in these parts and it is interesting to note that a significant proportion of the botanical gardens are listed as having collections of succulent plants. Some of them will be well known to members but others cannot be and merit investigation.

The ten sections are separated by a series of picture guides, covering the main groups of plants of general horticultural interest. Not surprisingly, roses, bulbs, chrysanthemums, dahlias, pelargoniums, begonias and conifers are covered, as are cacti, in the space of four pages. The authors manage to give a useful bird's eye view of these latter without committing any cardinal errors. The easy flowering genera are discussed and the brief cultural information is very much to the point. There is also a brief section, entitled the Eurocactus, which lists important collections and nurseries in Britain, France, Spain and Germany, the Benelux countries and Switzerland. Presumably limitations of space preclude mention of succulents other than cacti but this is a pity because it leads to a lack of balance and could give a wrong impression to the novice.

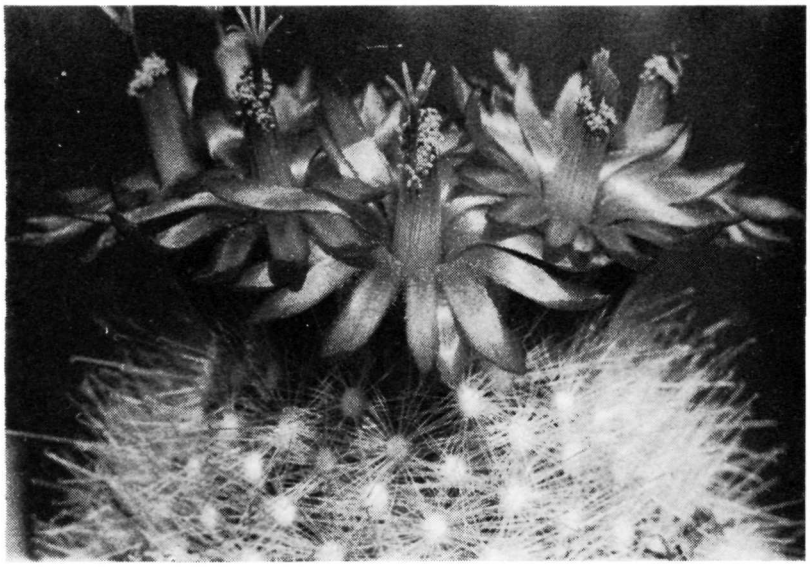
W.F.M.

Connoisseur's Corner

Mamillopsis senilis

THE name *Mamillopsis*, which means resembling a mammillaria, dates back to 1874 when Morren established it as a sub-genus and it was not raised to generic rank until 1923, by Britton and Rose. Most writers have accepted it but there have been exceptions, the most recent being D. R. Hunt who, in his thorough study under the title "Schumann and Buxbaum Reconciled", published in this Journal in 1971, placed it as a sub-genus of *Mammillaria* for reasons which need not concern us here. *M. senilis*, the subject of this note, dates back to 1849, when Loddiges described it as a *Mammillaria* sp. and, in this sense, the wheel has turned a full circle.

Setting taxonomic considerations on one side, the plant in question is one of considerable beauty at all times of the year and when in flower it has few equals. It owes its attraction to the many glassy white spines. Most of these are radials which interlace and cover the body. Among them, and not easily differentiated, are the central spines, five or six per areole, somewhat longer and stronger and often very pale yellow in colour. The lowest of these central spines is very strongly hooked. The flowers which appear in April are striking on two counts, their size and colour. They are about 6cm. long, of which much is accounted for by a



Mamillopsis senilis (photo: B. Maddams)

long tube which takes them well clear of the body, some 5cm. in diameter, with the petals opening flat. The stamens protrude well beyond the petals, in a tight bundle, and add to the overall impression of size. The flower colour is somewhat variable, between carmine and vermilion orange on different plants. This species is normally solitary in youth, but clusters with age and large clumps are to be found in habitat in Durango and southern Chihuahua.

There has been disagreement as to cultural advice on this species. Marshall and Bock comment that it is extremely difficult on its own roots and should be grafted. On the other hand, Borg remarks that cultivation is not difficult in a porous sandy and stony soil, in full sunshine. In fact, it is probably comparable in this respect to the group of mammillarias with hooked spines and large flowers, the Ancistracanthae, which are found a little further north in the Arizona-Sonora desert and Baja California. All have a rather sparse root system and do best when grown in half pots and watered with a certain amount of caution, except in the height of summer. Imported specimens need to be treated with care until well-established and plants raised from seed are probably preferable.

Mamillopsis senilis is found in habitat at an altitude of about 9,000 feet and it undoubtedly tolerates cold and some snow. This had led to a fairly widespread opinion that in cultivation it must be kept rather cold during the resting period to produce flowers. This is not the case; the plant shown has been kept on the range 45–50°F for several winters and has consistently flowered well. Maturity seems to be the important criterion in this respect as it is unusual for plants less than about four inches in diameter to flower.

Succulent Snippets

by Sally Cornioides

I AM writing this on a cold winter's afternoon with the first light flurries of snow falling; by the time you read it signs of spring should be in evidence. At least the days will be getting lighter and, you hope warmer! At present it is the 'wise virgins' who are not so troubled about winter heating problems. After the last few years I should think few now rely on electricity alone for their greenhouses, but now paraffin is likely to be in short supply will natural gas come into its own? Already some members are trying it and it is to be hoped that before long we shall hear their views. At least, by the start of it this winter looks as if it will be a better test than the last one!

I was interested to read Mr. Appleby's letter in the last Journal regarding more hybridising, to grow mammillarias for the house for example. This was just after I had a comment passed on to me that succulent plant growers probably had more true species in their collections than any other specialist growers. No doubt the Alpine Garden Society might rise up in arms, but

certainly the Rose Society and many others could not have greater claims. On the other hand, what is a true species? The purists would no doubt say a plant collected in habitat or grown from habitat collected seed and here, I am afraid many European collections would fall down. More collected plants have been imported over recent years but with conservation policies coming in these may well diminish. Furthermore these have been mainly for those with fat wallets and many collectors prefer to purchase seedlings grown in this country instead. These rarely have any indication of parentage or from where the seed was obtained. The further problem is that many nurserymen buy in their seedlings and although the better ones do check up on the nomenclature there are many who do not.

Some even go farther and rear up seedlings from seed collected from their own plants. This is not quite so bad if they keep the seedlings long enough to make sure of their identity, but anyone who has grown from seed knows only too well it may take up to three years before the seedlings resemble the mature plant and some people are impatient! Well, I have rather rambled from my original point but I wonder how other members feel about having true species rather than hybrids in your greenhouse. If the former, keep to the newer South American discoveries coming in, if the latter, Epiphyllums and Echinopsis give a good start!

We can hardly go further without reference to the Society's Annual Dinner, particularly as in many estimations it was the best one for many years. The venue was a good one and members had come from all parts to join the gaiety. Nearly all Branches were represented and Alan from Northern Counties certainly got a warm welcome en route back from chilly Russia. Among those present were two founder members and two members who joined at the October Show—a better cross-section would be hard to find!

Needless to say, there were a few 'happenings'. For instance, I understand that when Stan Russell, Guest of Honour, remarked that he had a cactus on his window-ledge that had only grown an inch and a half in ten years the Publicity Officer had to be restrained from presenting him with one of our cultivation booklets on the spot! Later Bob, our noble Secretary who organises these events so admirably, brought a laugh when he unwittingly said 'When the tables have been cleared we will have Mr. MacDonald'—fancy resorting to cannibalism!

However, as might have been expected by anyone who knows him, 'Mac' was the top laughter-maker of the evening. His reminiscences of his years at Kew do not look so funny on paper; perhaps, his unique way of putting comments across cannot be transferred. However, a few quotes will not be amiss to show how the evening went:

"Where are the erotic plants?"

"O look dear these are nearly as good as the plastic ones!"

Lady, after looking along at the places of origin on the labels:

"Where is Hybrid?"

Seeing 'Mac' busy with his records: "Hush dear, don't disturb the keeper".

If you missed all this, make a determined effort to reach the 1974 Dinner.

Finally, a warning to anyone about to draw up Show Schedules. What happened in one Show Schedule (not G.B. thank goodness!) in 1973:

"... three plants—pots not exceeding 33½in."

"16 plants in similar pots not exceeding 21in."

(Hope they have plenty of space at that Show!)

Notes and News

North Surrey Branch

North Surrey look forward to another year of interesting programmes on the first Tuesday of each month at Sutton Adult School. Among visiting speakers will be those well-known to all succulent plant growers in the country including Mrs. Stillwell, Bill Putnam, John Donald and David Brewerton. On other occasions Branch members such as Terry Smale and Peter Bent will be talking and a Restricted Branch Competition will be held in June. The Branch Show will again be held at Carshalton Park in conjunction with the Carshalton Show, this year on Saturday September 7th. It is hoped that other Branches will also support this Show so make a note of the date now.

5th March	Frailea and related Genera by E. W. Putnam.
2nd April	Favourite Succulents by Mrs. Stillwell.
7th May	Lobivias by J. D. Donald.

Berks. and Bucks. Branch

This branch will in future meet at the Allotment Holders' New Hall, St. Leonards Road, Windsor on the second Tuesday of each month at 7.30 p.m.

February 12th	Annual General Meeting.
March 12th	Mr. W. Noble, 'Mexican Cacti'.

Note from the Publicity Officer

At the beginning of a new year can I just ask everyone to keep up the good work and try and get new members wherever you can. Make sure your local libraries, schools and horticultural societies know about our Society and the advantages of membership; give them copies of Branch Fixtures if you have a local Branch and those in the London area who would like copies of the Westminster fixtures to pass over in this way, please contact me, also where membership forms are required.

Needless to say, if you have any good publicity schemes I shall be pleased to hear of them.

Betty Maddams

Results of the Westminster Show, October 1973

Judges
Cacti: Mr. W. T. Betts. Succulents: Mr. K. H. Grantham.

Class 1 Three Cacti. 3 entries
1st Mr. and Mrs. W. H. Maddams. Mammillaria candida rosea, Machaerocereus eruca, Ferocactus acanthodes.
2nd Mrs. D. Finch. Discocactus sp., Melocactus sp. Oreocereus celsianus.
3rd R. H. I. Read. Melocactus obtusipetalus, Mammillaria plumosa, Parodia sp.

Class 2 Three Plants in Coryphanthanae. 4 entries
1st Mr. and Mrs. W. F. Maddams. Mamillopsis senilis, Mammillaria melanocentra, Cochemiea setispina.
2nd R. H. I. Read. Neobesseya missouriensis, Mammillaria collinsii, Coryphantha sp.
3rd Mrs. D. Finch. Escobaria bella, Coryphantha sp., Neolloydia ceratites.
VHC Dr. and Mrs. G. C. W. Randall.

Class 3 One Plant in Cereanae. 6 entries
1st E. G. Canham. Trichocereus pascana.
2nd Mr. and Mrs. W. F. Maddams. Espostoa huanucensis.
3rd Mrs. M. Dennard. Cleistocactus wendlandiorum.

Class 4 Three Plants in Echinocactanae. 4 entries
1st E. G. Canham. Ferocactus glaucescens, F. acanthodes, Echinocactus grusonii.
2nd Mr. and Mrs. W. F. Maddams. Notocactus schumannianus, Stenocactus ochoterrenaus, Ariocarpus retusus.
3rd D. T. Best. Parodia chrysacanthion, Wigginsia erinaceus, Astrophytum asterias.

Class 5 Three Plants in Echinocactanae, in pots not exceeding 3½in. dia. 6 entries
1st Mr. and Mrs. W. F. Maddams. Encephalocarpus strobiliformis, Aztekiium ritteri, Pilocanthus paradinei.
2nd Dr. and Mrs. G. C. W. Randall. Encephalocarpus strobiliformis, Obregonia denegrii, Turbinicarpus schmiedickeanus.
3rd Mrs. D. Finch. Ariocarpus agavoides, Obregonia denegrii, Turbinicarpus lophophoroides.
VHC Mrs. M. Dennard.

Class 6 One Cristate Cactus. 3 entries
1st Mrs. D. Finch. Mammillaria wildii.
2nd Mrs. D. Boswell. Opuntia vestita.
3rd Mr. and Mrs. W. F. Maddams. Mammillaria wildii.

Class 7 Six Cacti, in pots not exceeding 6in. dia. 6 entries
1st Mr. and Mrs. W. F. Maddams. Weingartia hediniana, Epithelantha micromeris, Copiopoa humilis, Mammillaria lenta, Horridocactus setosiflorus, Cochemiea maritima.
2nd Dr. and Mrs. G. C. W. Randall. Echinocereus melanocentrus, Mammillaria baumii, Gymnocalycium saglionis, Parodia chrysacanthion, Trichocereus randallii, Astrophytum ornatum.
3rd Mrs. D. Finch. Notocactus herteri, Leuchtenbergia principis, Melocactus unguispinus, Thelocactus conothelos, Astrophytum ornatum, Echinocereus viekeckii.

Class 8 Three Cacti, in pots not exceeding 5in. dia. (for juniors and members who have not won a first prize in any cactus class). 6 entries
1st N. Randall (junior). Mammillaria zeilmanniana alba, Lobivia huascha, Cephalocleistocactus ritteri.
2nd Mrs. M. Dennard. Gymnocalycium cardenasianum, Mammillaria bravoae, Thelocactus bicolor tricolor.
3rd A. Sidaway. Mammillaria hahniana, Parodia aureiceps, Astrophytum asterias.
VHC J. T. Meldrum.

Class 9 Three Euphorbias. 3 entries
1st Mr. and Mrs. W. F. Maddams. E. obesa, E. valida, E. stellata.
2nd R. H. I. Read. E. obesa, E. horrida, E. squarosa.
3rd Mrs. I. Horan. E. bubalina, E. valida, E. woodii.

Class 10 Three Crassulas, in pots not exceeding 4½in. dia. 4 entries
1st Mrs. D. Finch. C. susannae, C. cornuta minor, C. deceptrix.
2nd J. C. Hughes. C. terres, C. cooperi, C. intermedia.
3rd R. H. I. Read. C. tecta, C. hemispherica, C. Morgan's Pink.

Class 11 Three plants in Asclepiadiaceae. 2 entries
1st Mr. and Mrs. W. F. Maddams. Huernia pillansii, Hoodia gordonii, Fokea crispa.
2nd J. C. Hughes. Caralluma europaea, Huernia keniensis, Stapelia sp.

Class 12 Three plants in Liliaceae. 2 entries
1st Mr. and Mrs. W. F. Maddams. Aloe bakeri, A. jucunda, Haworthia limifolia.
2nd R. H. I. Read. Aloe haworthioides, Gasteria armstrongii, Haworthia viscosa.

Class 13 Three Conophytums and/or Ophthalmophyllums. 3 entries
1st Mrs. H. Hodgson, C. blandum, C. palidum, C. piluliforme.
2nd Mr. and Mrs. W. F. Maddams. C. elishae, C. pearsonii, C. truncatellum.
3rd Mrs. D. Finch. C. pearsonii, C. sp., O. praesectum.

Class 14 Three Lithops. 5 entries
1st Mr. and Mrs. W. F. Maddams. L. marmorata, M. terricolor, M. schwantesii.
2nd E. G. Canham. L. triebneri, L. aucampiae, L. pseudotruncatella.
3rd J. C. Hughes. L. bella, L. herrei, L. pseudotruncatella.

Class 15 One Gasteria. 2 entries
1st Mr. and Mrs. W. F. Maddams. G. armstrongii.
2nd R. H. I. Read. Gasteria sp.

Class 16 One Kedrostis, Jatropha or Cissus. 2 entries
1st Mr. and Mrs. W. F. Maddams. Cissus hypoleuca.
2nd R. H. I. Read. Jatropha podagrica.

Class 17. Six Stemless Mesembryanthemums. 2 entries
1st Mr. and Mrs. W. F. Maddams. Aloinopsis schoonesii, Conophytum robustum, Fenestraria aurantiaca, Lithops bella, Psammophora longifolia, Titanopsis schwantesii.
2nd Mrs. D. Finch. Argyroderma octophyllum, Berrisfordia khamiesbergensis, Fenestraria aurantiaca, Frithia pulchra, Gibbaeum dispar, Stomatium patulum.

Class 18 Three Succulents. 2 entries
1st Mr. and Mrs. W. F. Maddams. Idria columnarist Pachypodium saundersii, Testudinaria paniculata.
2nd R. H. I. Read. Crassula suzannae, Graptopetalum filiferum, Haworthia bolusii.

Class 19 Six South Africa Succulents, in pots not exceeding 4½in. dia. 3 entries
1st Mr. and Mrs. W. F. Maddams. Anacampseros buderiana, Brachystelma barberiae, Ceraria pygmaea Conophyllum compactum, Euphorbia tuberosa, Haworthia bolusii.
2nd Mrs. D. Finch. Cheirodopsis peculiaris, Dactylopsis digitata, Faucaria tuberculosa, Mitrophyllum pillansii, Odontophorus angustipetalum, Sarcocaulon multifidum.

3rd J. C. Hughes. Adromischus schoenlandii, Crassula nealiana, Cheiridopsis candidissima, Faucaria hooleae Huernia primulina.

Class 20 Succulents raised from Seed. 2 entries

1st Mrs. D. Finch.

2nd Mr. and Mrs. W. F. Maddams.

Class 21 Three Succulents, in pots not exceeding 6in. dia. (for members who have not won a first in classes 9-19). 2 entries

1st Mrs. N. K. Daniel. Cotyledon undulata, Euphorbia decidua, Sedum sieboldii.

2nd Mrs. I. Horan. Aloe bellatula, Huernia sp., Monadenium sp.

Class 22 Three Succulents, in pots not exceeding 5in. dia. (for members who have not won a first in any succulent class). 2 entries

1st A. Sidaway. Euphorbia aggregata, Monilaria moniliformis, Pleiospilos optatus.

2nd J. T. Meldrum. Euphorbia flanaganii, Huernia schneideriana, Senecio articulatus.

Class 23 One Cactus and One Succulent, in pots not exceeding 6in. dia. 5 entries

1st Mr. and Mrs. W. F. Maddams. Mammillaria pennis pinosa, Euphorbia pentops.

2nd R. H. I. Read. Aztekium ritteri, Anacampseros ustulata.

3rd Mrs. G. Boswell. Notocactus leninghausii, Echeveria pulidonis.

Class 24 Miniature Garden. 6 entries

1st J. C. Hughes.

2nd Mrs. B. A. Baldry.

3rd Dr. and Mrs. G. C. W. Randall.

Class 25 Group of Cacti and/or Succulents. 4 entries

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

2nd Mrs. D. Finch.

3rd Mrs. B. A. Baldry.

Awards

Banksian Medal: Mrs. D. Finch.

Hedges Cup: Mrs. D. Finch.

J. S. Pullen Cup: Dr. J. C. Hughes.

Sir William Lawrence Cup, Evelyn Theobald Cup, P. V. Collings Cup, Pryke Howard Cup, Joan Farrow Cup: Mr. and Mrs. W. F. Maddams.

Denton Medal: Mr. and Mrs. W. F. Maddams.

Best Cactus in Show: Mr. and Mrs. W. F. Maddams. Mammillaria candia-rosea.

Best Succulent in Show: Mr. and Mrs. W. F. Maddams. Euphorbia stellata.

Autumn Show Report

by John Hughes

My first impression of the Autumn Show was of an immensity of space broken only fleetingly by groups of plants huddled together in classes for safety. Could it be that news of the show had not extended beyond the North Surrey Branch? Or were those members in darkest Essex troubled by the long distances and shortage of pack animals.

Starting logically, and almost seriously, with Class 25 for groups of cacti and/or succulents I was at once attracted by the riot of colour in the first prize-winning box. The striking red and yellow zygomorphic flower of *Matucana aurantiaca* made an apt centre-piece, flanked by flowering lithops and conophytums in variety. The salmon-copper flowers of *Conophytum velutinum*, an unusual shade for a mesembryanthemum, caught my eye, and the pale lemon flowers of *Copiapoa barquitensis* were strikingly displayed against the deep brown body.

The bowl gardens provided another splash of colour, and although specialist growers are heard to make adverse comment on this class, there is no doubt about its popularity with the general public. Many questions about cultivation resulted from the inclusion of such old war-horses as *Crassula portulacea* in the exhibits.

Class 23, for one cactus and one succulent in pots up to six inches in diameter, was a disappointing mixture of smallish plants of large growing species or of specimen plants more suited to a class with a three and a half inch pot restriction. The red berries on a *Mammillaria pennispinosa* were the only redeeming feature.

A *Monilaria moniliformis* in a five inch pot (class 22) was a plant seldom seen at this size in open classes let alone in a novice class. Resting as it does in the summer, when it resembles a pile of worm casts, it bursts into life in the autumn with long, slender green leaves with an attractive silvery sheen. It seldom flowers in this country.

That the class for six South African succulents produced only three entries did not surprise me at all, as one who has waded through the three volumes of 'Jacobsen' in order to find which species were truly South African. I pity the judge who is not equipped with 'Jacobsen', especially when genera such as Aloe are exhibited. Though there were only three entries they provided a pleasing variety of interesting plants; *Anacampseros buderiana* in particular took my eye as a large, cleanly grown specimen which was flowering well. *Euphorbia tuberosa* was an interesting rarity with a neat rosette of leaves growing from a short caudex, but the flowers are rather insignificant. Among the plants which were awarded the second prize was *Sarcocaulon multifidum* in bud; a delightful miniature lavender-like bush. A clump of *Dactilopsis digitata* was notable for the presence of a flower bud. This distinctive and little known mesembryanthemum is now more readily available in this icountry. A two-headed *Cheiridopsis peculiaris* in immaculate condition was also attractive.

Having commented favourably on two mesembryanthemums shown in the class for six South African

Succulents, it is odd that I should find the adjoining class for six stemless mesembryanthemums so disappointing. The plants on show were of good size and condition but were surprisingly lacking in colour. The mauve flower of *Conophytum robustum* displayed against largish bodies was attractive, but that was about all.

In Class 16, the *Cissus hypoleuca* on view almost converted me to TCPs, with its perfectly shaped caudex and the short branches expertly woven round unobtrusive canes to produce a forest of foliage. The crop of green berries was there to remind us of the affinity of this plant to other members of the Vitaceae.

I was interested to observe how many of the Lithops in Class 14 had already finished flowering. In my own collection white flowered species such as *L. bella* which I generally expect to follow after the yellow ones had already finished. No doubt the presence of blooms on the first three entries had settled the result.

There were some magnificent conophytums exhibited in Class 13. *C. piluliforme* was particularly notable as a study in miniaturisation, a truly 'transistorised cono'. The pale pink flowers of *C. blandum*, another miniature bilobe, caught the eye of many visitors.

In Class 12, the trio of *Aloe jucunda*, *A. bakeri* and *Haworthia limifolia* was a clear winner, despite the fact that the *A. bakeri* was a veritable mass overflowing its nine inch pan, no longer a charming miniature and to my view no more attractive than an overgrown bird's nest. The *Euphorbia stellata* in Class 9 received the accolade of 'best succulent in show', with procumbent arms covering an eight inch pot. However my own choice would have been the smaller *E. valida*, a plant in very good condition.

The judge must have had a hard task choosing the winners in Class 7 for six cacti amongst several well balanced groups. I was greatly interested in the *Epithelantha micromeris*, which I had always thought of as a slow growing miniature, and which I now saw with a central body over four inches across, covered in offsets and dead flowers. A *Wigginsia horstii* on show served to remind taxonomists of the nomenclature problems that would result from an amalgamation of this genus with the Notocacti.

When reading show results I have often wondered just how large a particular plant must have been to win in such illustrious company. In the *Stenocactus ochoterrenaus* entered in Class 4 we have a good illustration of this point as a *Stenocactus* in a nine inch pan is seldom seen, and this one was covered in offsets while the main head was still in active growth, and the radial spines were white enough for a soap powder advertisement.

Six entries in a class for Cereanae is very good by G.B. standards, and so were the plants on show. Particularly attractive were *Espostoa huanensis* and a *Cleistocactus wenderlandiorum* with a lateral branch some six inches up the main stem—rather unusual, I think, for this genus.

Westminster Meetings

The Society meets at the Royal Horticultural Society's New Hall, Greycoat Street, Westminster on Wednesdays at 6.30 p.m. as follows:

February 20th	Dr. W. C. Noble, 'Some aspects of basic Botany in relation to Succulent Plants.
March 20th	Annual General Meeting.
April 17th	Mrs. P. Read, 'National Parks of the U.S.A.'.
May 1st	Bring and Buy Plant Auction.

Members participating in the plant auction are asked to note:

(i) each member may bring a maximum of 15 plants to be sold, of which not more than 3 are of any one species;

(ii) a list giving the reserve price of each plant, together with the member's name must be handed in before the commencement of the auction.

Twenty per cent will be deducted from each sale as a contribution to the Society's funds, but members may add to this if they so wish. It is hoped that plants of good quality will be brought along, and that there will be a good attendance of members to bid for them.

Gardeners' Sunday

Once again we are reminded that private gardens will be open this year in aid of the Gardeners Royal Benevolent Society and the Royal Gardeners Orphan Fund. A list is given in "Gardens to Visit", on sale at W. H. Smith and Son's bookshops price 10p or by post direct from Gardeners Sunday, White Witches, Claygate Road, Dorking, Surrey price 13p. In these days of rising costs both charities are finding themselves faced with increasing calls on their funds.

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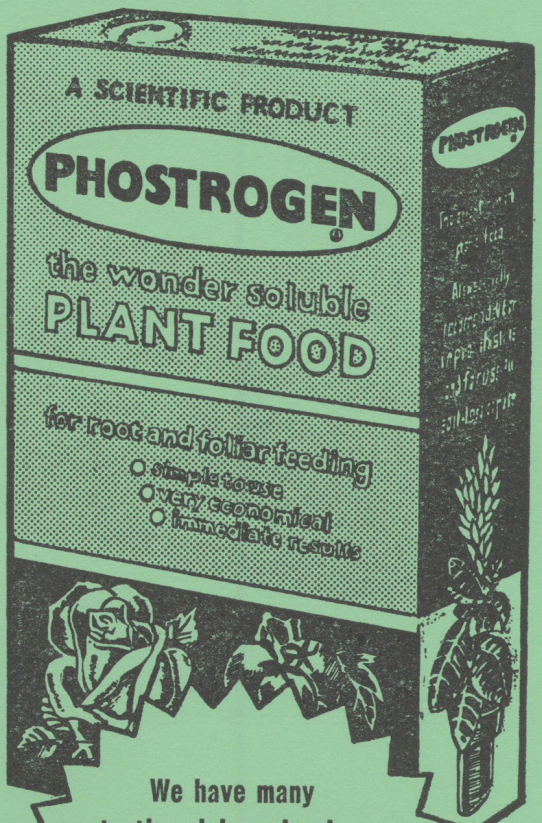

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The Cactus and Succulent Journal of Great Britain

Established 1931

Vol. 36 *MAY 1974* *No. 2*

Published Quarterly by The Cactus and Succulent Society of Great Britain

25p

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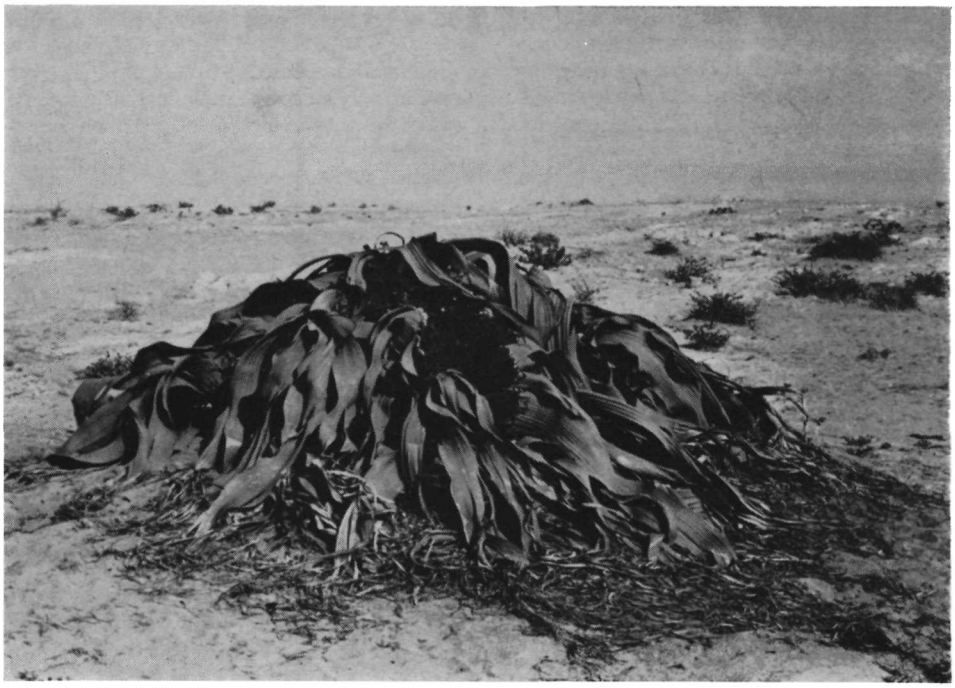
Vol. 20–22	15p per number
Vol. 23 onwards	25p per number

Postage extra overseas.
Each volume is made up of 4 numbers.

Published by the Society at COURTLANDS LODGE, PARK ROAD, BANSTEAD, SURREY, SM7 3EF.

THE CACTUS AND SUCCULENT JOURNAL OF GREAT BRITAIN

Vol. 36 May 1974 No. 2



Welwitschia mirabilis at Husab Mine, Swakopmund, South-West Africa (photo: A. Smith)

CONTENTS

A Message from the Chairman

TWELVE months ago I wrote a brief message, soon after succeeding Mr. Boarder as Chairman. The renewal of my mandate for a further year provides a good opportunity to take stock of the present position. Elsewhere in this issue will be found the detailed reports prepared by the Secretary and the Treasurer and it is not my intention to compete with them; I will simply express the hope that all members will read these reports carefully. What I wish to do is to take a more detached look at Society activities.

Needless to say 1973 provided its problems, financial and otherwise, and although it would be foolish to be complacent we can be satisfied with the way we surmounted them. Two fundamental problems face us, to ensure financial viability, and a sufficiency of willing helpers to meet all our commitments. The latter is the more intangible of the two but if there is a spirit of enthusiasm both in the parent organisation and the Branches the effort will be forthcoming.

I am much encouraged by two things. The first is the prompt way in which the great majority of members have paid their 1974 subscriptions. Although this has compelled our Membership Secretary to work overtime it augurs well. Secondly, the enthusiasm shown at the first of the meetings of Society and Branch Officers will benefit all concerned in several directions.

There are, of course, a substantial number of members who, for geographical or other reasons, are not able to participate in Society or Branch activities. For them the Journal is their prime link with the Society and it is important that it should meet their requirements. Dr. Harris is always happy to receive comments and suggestions and, in a wider sense, I should like to hear from members who have comments to make on any aspect of Society activities. I received some constructive suggestions during 1973 and I hope that there will be more of them during the coming months. The Society belongs to its members; my task, and that of other Officers of the Society and the Council, is to act as stewards on their behalf. In this task we do like to know how we are discharging our duties.

Seasonal Cactus Care

by W. F. & B. Maddams

WE devoted much of our first article, in the previous issue, to the resumption of watering after the winter rest. It will therefore not be out of place to continne briefly in this vein, to cover the months of May, June and July. In a typical British summer, if there is such a thing, the month of May can bring a variety of weather, temperature-wise, and night frosts are by no means out of the question. However, the length of day is fast approaching its maximum value and even on the colder duller days the temperature under glass is ample to maintain plant growth. In June and July, of course, we expect an appreciable number of really hot days and the problem then will be to prevent the temperature in the greenhouse soaring to uncomfortably high levels.

In general, therefore, cacti should be watered freely during the three months in question as they will be in an active state of growth. This simply entails giving each one a generous drink, sufficient to wet the compost until water runs through the drainage holes at the base. It will then require no more water until it has almost dried out. If the surface of the compost is about half an inch below the rim of the pot and water is poured in until it reaches the rim the quantity involved is usually sufficient to meet the above criterion.

The length of time that will elapse before the next watering is required will vary. It will depend on the size of the pot, the material from which it is made and how fully the plant fills it. In the case of a small plant in a two and a half inch clay pot in a greenhouse at 90°F. for several hours, most of the water applied will be lost by evaporation. Indeed, it is unlikely that the poor plant will thrive under these conditions; it will fare better in a plastic pot but, for preference, it should be set with other plants of similar size in a larger container. On the other hand, with a plant almost filling a plastic pot there will be very little evaporation loss and most of the water will remain in the compost until used by the plant. When one has a large collection it is tempting to turn a hosepipe over all the plants in hot weather, to save time, but we have always followed the precept of individual watering, time consuming though it is, so that we give water only to those plants in need of it. This

may well make the difference between success and failure in the case of the more difficult species.

Some cactophiles are inclined to worry about the onset of a cool dull spell immediately after a generous watering. This is unlikely to lead to trouble during the summer months unless the drainage is thoroughly bad or the plant is in poor condition. If the former is the caset here can be no better advice than that given by Mr. Boarder and quoted in the Editorial of the previous issue; the plant should be repotted without delay. So far as ailing plants are concerned they should always be watered carefully and it is unwise to water them as liberally as plants in an active state of growth. Here again, the value of individual watering is evident as each plant can be quickly inspected before water is given.

Although the major part of the plant's water requirements will be obtained via the watering can there is much to be said for an occasional overhead spray in the early morning or late afternoon. This is particularly benefiicial in the case of epiphytic cacti and can be done on a daily basis if time permits. With cacti in general spraying freshens up the plant and washes away dust, which does tend to accumulate even in a greenhouse. Some plants, including *Hamatocactus setispinus,* many Coryphantha species and most Ferocacti exude asticky sugary fluid and if this accumulates on the plant body it encourages the growth of a black mould which is difficult to remove. Regular spraying washes away this sugary liquid and this, therefore, is a sound preventative measure to avoid the unsightly black mould.

Our principal topic on this occasion, one which is particularly important during the summer months, is ventilation. Unfortunately, this is usually not given the attention it deserves either by those who manufacture glasshouses or by those who use them. Ventilation has two primary purposes, to regulate the temperature and to ensure a regular change in the atmosphere in the greenhouse. So far as the latter is concerned it is necessary that the carbon dioxide content of the atmosphere is replenished as it is taken up by plants in the course of photosynthesis. This is particularly important for plants which grow rapidly and it is now a standard commercial practice for example, to increase artificially the carbon dioxide content of a greenhouse in which tomato plants are grown. Whether the carbon dioxide content of a greenhouse with a limited air change is sufficient to maintain optimum growth in the case of cacti is a question which cannot be answered conclusively. However, it is wise to have a good safety margin.

The primary reason for good ventilation, so far as the cactophile is concerned, is to prevent an excessive temperature rise. Contrary to what some beginners may believe it is simply not a case of the hotter the better. Cacti are found in a wide range of habitats and altitudes and it is not at all surprising that the summer (and winter) temperatures vary considerably. It is said that the temperature at the type locality of *Aztekium ritteri* reaches 130°F. at times. Conversely, many cacti are to be found in areas where the maximum temperature does not exceed 90°F. and possibly not 80°F. Clearly, if a large collection of cultivated plants is involved some compromise is necessary. This is usually set by the extent to which the temperature can be kept down on hot summer days. It is highly desirable to limit it to 100°F. and if it can be restricted to about 90°F., so much the better. Even at this latter temperature the growth of many plants, Mammillaria and Rebutia species for example, will slow down or come to a halt.

However, it is not merely a question of keeping the temperature down but also of having air moving through the greenhouse. This point was brought home very clearly to us during the few days we spent in Sonora during May, 1969. For several hours in the middle of each day the shade temperature was around 95°F. but there was a wind which, although distinctly hot, produced a movement of air decidedly more marked than anything that can be achieved in a greenhouse. As the smaller plants that we saw, such as *M. microcarpa* and *M. mainae* grow partly or wholly in the shade of xerophytic shrubs it is evident that they were in less risk of being scorched than a small plant in a greenhouse on a hot summers day. Scorching, in our experience, is far more frequently the result of inadequate air movement than of the focussing effect of a flaw in the glass or a drop of water. When a plant is badly scorched it is damaged over quite an area facing the sun and not just on one part of the body.

The provision of adequate ventilation is, therefore, a necessity and the steps to be taken will depend upon the particular circumstances. To define a norm we would say that our larger greenhouse, which is eighteen feet in length and eight feet three inches in width, and has nine ventilators of average size, four in the roof, four at the sides just above staging level and one at the end opposite the door, should be regarded as the minimum acceptable. Indeed, smaller greenhouses, which heat up more rapidly, should have a rather greater proportion of ventilators. Those members about to purchase greenhouses should bear this point very much in mind. It is usually possible to have extra ventilators fitted, at a modest additional cost, and it is money well spent. Those greenhouse owners who are not happy about their ventilation have two courses open to them. It may be possible to fit additional ventilators although standing structures are not usually easy to modify. Alternatively, an effective and temporary expedient for the summer months, particularly if the panes of glass are not too large, is to take several of them out. If this is done at strategic points a steady circulation of air will ensue. This course of action is now fascilitated by the move towards puttyless glazing.

The month of May can be particularly difficult in terms of ventilation, for the cactophile, if he or she has to be away from home for a few days. There is a reluctance to leave the ventilators fully open if the

weather is chilly, as is often the case; on the other hand, a few hours of sunshine will send the temperatures rocking, with dire results if the ventilators are closed. Friendly, reliable neighbours are a great asset but of recent years, we have been wholly converted to the use of automatic ventilators. These first came on to the market about a year ago and, seemingly, were not wholly reliable at the outset. These teething troubles are now a thing of the past and members may purchase with confidence and regard them as a sound investment. The older models had a moving arm which was fastened to one side of the ventilator and, over a period of time, there is the possibility that this will somewhat twist the ventilator on its hinges. More recently, a model which attaches to the centre of the ventilator and applies the upward thrust symmetrically has become available and we find it eminently satisfactory. The only problem we now have is with the conservatory; this has louvres and no enterprising manufacturer has yet come up with a system to open and close these.

Those members who are not yet in the fortunate position of owning a greenhouse do not, in general, have a ventilation problem. However, they can with advantage give their plants an airing during the summer months, largely for the purpose of having them in a better light, unless they are particularly favourably placed with a large south facing window. The plants, with the exception of epiphytic species, should be placed in a sunny spot and unless the weather is consistently bad over a long period of time, no overhead protection will be required. We can both testify from our early experiences, when our collections were limited and grown indoors, that this summer airing produces beneficial results and may well result in some species flowering. The hybrid epiphyllums and related plants such as Zygocactus should be housed out of doors in a partially shaded position. The stems will darken during the course of the summer, and may look somewhat discoloured, but they will flower all the better the following year. Epiphyllum hybrids dislike the high temperatures of a greenhouse in unbroken sunshine and, although our plants are wintered beneath the staging in a glass-to-the-ground structure during the colder months, they are put outside once the danger of frosts has passed. The taller ones (too large for room decoration) are set out in their pots in a trough outside when in bud and the flowers open and last a much longer time treated thus. As with the other epiphytic species the Epiphyllums hybrids are not brought into the greenhouse again until late September.

We intend to finish each of these articles with mention of some plants which are of particular interest at the time but, needless to say, in summer it is difficult to pick out a few from the great selection in flower. For this reason this time we will mention one topic, the times that some flowers open wide, as we often hear complaints from members that they never see plants of some genera with their flowers fully open. One of the best known cases is Frailea; some, admittedly, do not open wide and can set seed without doing so, but many tend to open between three and four o'clock in the afternoon, particularly with sudden bursts of sunshine. Coryphanthas and Gymnocacti are different as they generally have their flowers wide open around mid-day and they gradually close again around mid-afternoon unless it is exceptionally bright; Gymnocalyciums are often earlier than this. If you want to photograph your plants at their best you certainly have to watch them all through the day.

Some Cacti and Succulent Plants of New Mexico
(Continued)

by James Daniel and Doug Rowland

6. Opuntia clavata, *Engelmann* 1848

This is one of the few cacti confined almost entirely to New Mexico, occurring as it does in the centre regions of the State. 'Clavata' means literally 'club-shaped', referring of course to the joints. The New Mexicans refer to the strong central spine also when they call it the 'Dagger Cholla'.

Opuntia clavata is a choice, low-growing species, growing between 2in. to 6in. tall. The joints are ovoid to club-shaped and branch from the base of the plant, spreading and forming large mats, often 3ft. to 6ft. across, usually in meadows, dry grassland and gravelly washes. The clavate joints are about 1in.to 2½in. long and about 1in. at their largest diameter, turgid and ascending. As the mats spread across the ground the joints take root, often helping to prevent soil erosion in lands that are daily blown dry by the continual winds. The areoles are large and fairly closely spaced, the tubercules being hidden pretty well by the spines.

Most plants have a spine count of between 10 and 20. The 4 to 7 main inner spines are strongly flattened and are ½in. to 1¼in. long. The main central spine is deflexed, flat and very thick, 1¼in. long and at least ⅛in. broad at its base, evenly tapering to a sharp point and dagger-like. There are also 6 to 13 outer spines evenly radiating, $\frac{3}{16}$in. to ⅜in. long only, which are slender and not flattened. Spines are reddish when young, then grey and white in age. Glochids are numerous and yellowish.

Opuntia clavata with bright yellow seed pod bristling with glochids; Placitas, N.M. (photo: D. Rowland)

Flowers are few, yellow and small, mostly only reaching 2in. in diameter. The fruits are 1¼in. to 2in. long and up to 1in. diameter and yellow when ripe, numerous glochids making it impossible to touch with bare hands. It is necessary to hold the pod with tongs and clip it off with cutters of some sort in order to remove it. The seeds are white, flat, up to $\frac{3}{16}$in. across and quite smooth.

The habitat of this gem amongst the North American Opuntias is central and north-west New Mexico. It is also found near the Arizona border where it just occurs in that state on the Hopi and Navajo Reservations. The type locality of this species is given as Albuquerque which is where we hunted it down. We collected seed pods with tongs and cutters, but found them rather scarce, even on some of the large 6ft. mats we discovered in gravelly washes. We also found it plentiful in sparse grassland and gravelly flats near Santa Fe as well as at Placitas, near Albuquerque. Cuttings had to be taken from the large mats with great care, as the dagger-like spines, and the glochids too, can inflict painful injuries. Again at Santa Fe we observed few fruits on the plants and had to invoke a considerable search to find sufficient for our needs.

This plant is not common in English collections, due to the fact that few importations of seeds and plants take place. It is a fairly slow grower, but imported joints will root and grow fairly readily with a little care and patience. Often, newly acquired plants from New Mexico will produce a flower or two. Seeds, as with many other Opuntias, are erratic in germination, often taking up to 3 years or more. Again, patience is the keynote to success here.

Other attractive Southwest Opuntias of the same group as *O. clavata* are, *O. stanlyi*, *O. grahami* and *O. schotti*.

7. Opuntia erinacea, *Engelmann and Bigelow* 1856

In New Mexico this Opuntia only occurs in Socorro County and is perhaps better known to us in cultivation by its varietal form which appears further westward and popularly known as the 'Grizzly Bear cactus', *O. erinacea* v. *ursinia*, which possesses a mass of long, white, flexible hairs from the lower pads.

O. erinacea closely resembles *O. polyacantha* and some difficulty is sometimes experienced in separating the two species. Some intergradation does occur, but *O. erinacea* has its spines basally flattened whilst those of *O. polyacantha* are not.

Our species is a low-growing prickly pear, forming low clumps to 3ft. or more in diameter, and usually only 6in. to 12in. high. Stems are usually a bluish-green, and sprawl along the ground being 4in. to 6in. long, 2½in. to 3½in. broad, and up to ½in. thick. The areoles are fairly closely set, all bear spines 4 to 9 in number, up to 4in. long, and fairly stiff. They are white or light grey in colour and somewhat flattened at the basal part.

Flowers are 2in. to 3½in. in diameter and very variable in colour, ranging from reds to rose, pink, yellow or even white. Fruits are tan to brownish and dry when ripe, cylindrical and spiny, to 1½in. long and ½in. to ¾in. in diameter. Seeds are fairly large to ¼in. across and whitish.

This cactus is to be found in northern Arizona, California, Nevada, Utah, Colorado and New Mexico and is an inhabitant of the desolate 'Four Corners' country.

We found this species near Cortez, Colorado, just over the New Mexico State Line, growing in juniper woodland amongst pine needles on a gentle slope in association with *Sclerocactus whipplei*, which were very plump and plentiful at this location, and an odd plant

Opuntia erinacea in habitat (photo: D. Rowland)

or two of *Opuntia whipplei* which looked rather sick on that early day in May when we were there.

In cultivation this plant presents no cultural problems, and imported pads will root easily. Seeds of many of the more common Opuntias are not usually available as dealers have little or no call for them. Most Opuntia seeds are very erratic in germination and will often sprout quite without warning several years later, often when the original seed sowing compost is used for potting or tipped away into a sunny bed in the glasshouse. To flower this species, bed it out in a bright spot in the glasshouse and give it a good root run. This way one can enjoy them to the full, they grow and flower quickly and an Opuntia flower in springtime is a beautiful sight to see.

8. **Echinocereus triglochidiatus v. melanacanthus** *(Engelmann) L. Benson*

ONE of the 'claret cup' types, this plant is often referred to as *Echinocereus coccineus,* Engelmann, by some authors. We found the varietal name of *melanacanthus* in common use in New Mexico amongst collectors, so we have used this name in our series. It is regrettable however, that a white spined plant bears the name 'melanacanthus' which literally means 'black spined'. This combination of species and varietal name becomes quite a large mouthful to say, or to keep referring to, and often the name is shortened merely to *E. melanacanthus.*

The stems of this clustering cactus are usually 3 to 6 in. high and 1 to 2 in. diameter and can number one, two, several or many, and form large mounds of several hundred heads in favourable localities. Ribs, which are slightly tuberculed, usually number 8 to 11 and are not completely hidden from view by the spines. Central spines number 1 to 4 and usually grow at about right-angles to the stem, are $\frac{1}{2}$ to $1\frac{1}{2}$ in. long, and stiff and needle-like, white, grey-white or light yellow. Radial spines are 8 to 12 in number, $\frac{1}{4}$ to $1\frac{1}{8}$ in. long, are smaller, but again, needle-like.

Flowers are typical of the 'claret cup' type Echinocerei, and are 1 to 2 in. diameter and scarlet, crimson or deep orange-red. The spiny fruits are red and juicy when ripe and proceed to shed the spines and bristles on the berry at this time.

The habitat of this cactus is the pine forested regions at 4,000 to 6,000 ft. elevation, from Colorado and Utah south to New Mexico around Santa Fe and Albuquerque, and westwards into Arizona.

In 1937, Carol Davidson and Dr. Elzada Clover found a form of this Echinocereus without spines, though similar in every other respect, at a location on the Colorado and Utah border between Gateway and Stack Rock Canyon. This spineless variety does not usually grow with normal populations and only appears in scattered localities in Colorado, and is often listed as *E. coccinneus v. inermis* (Engelmann) J. A. Purpus. However, occasional specimens often sport rudimentary spines. Recently, Gerald Arp has combined this varietal name with the species name and we now have at last a modern combination in *Echinocereus triglochidiatus* (Engelmann) *v. inermis* (Schumann) Arp, 1973, for this variety recently published in the C. & S.S. of America Journal.

We have found this species high up in the mountains, on rocky pine forested floors above Santa Fe in New Mexico, the bodies resting in little pockets of humus, lodged precipitously between fissures in the limestone rocks, at about 6,000 ft. elevation. In grasslands further north in western Colorado, this species, if left undisturbed, will eventually form huge mounds to 3 ft. or so in diameter. We observed the scarlet blossoms of many plants in flower in May in gardens of members of the New Mexican Cactus Club in Albuquerque, this local species being very popular amongst members

Echinocereus triglochidiatus v. melanacanthus at Albuquerque, New Mexico (photo: D. Rowland)

there.

Cultivation of this Echinocereus in England presents little or no difficulty, this being a mountain species used to cooler winter habitat conditions anyway. Imported stems and clumps are fairly quick to root and grow on, and will often flower, given a sunny spot. Propagation can be from cobs removed from near the base of clumps with a sharp knife, dried, and then rooted, or from seeds which are fairly easily available and usually germinate well. The spination varies a little from plant to plant, the areoles being wider spaced on some plants. Other main slight differences in plant populations are the spine lengths and flower colours.

This plant is popular with collectors due to its easy cultivation and production of red flowers in the springtime and is fairly common in collections here in England.

Cultivation of Succulents

by Mrs. M. Stillwell

THE winter seemed to pass very quickly this year, due to the comparatively mild weather. The early spring-flowering trees and bulbs made us aware of all the work awaiting in the greenhouse. I do not start repotting until I have inspected all the plants individually and given the first watering to those that need it. If there are any pests on the plants, there is no sense in introducing newly potted plants into the collection until this has been dealt with. All old soil should be kept outside of the greenhouse, and not re-used for the sake of saving expense. I cannot talk about no-soil composts, as I am afraid I have never really taken to them for adult plants. I still prefer a good John Innes with one third sharp coarse sand, plus any other ingredients that particular plant requires. Many of the succulents that have been kept on the dry side require cleaning up. Dead leaves are removed and any old dry skins that come away easily and make a breeding ground for mealy bugs, etc. should always be cleared away. It all helps to give the collection a well looked after appearance. With the summer shows in the not too distant future this is a good time to look ahead and to start getting the plants in show condition, and good presentation is always half the battle. So many times I have seen really good plants downpointed for not being shown in tip top condition. Fresh, clean labels, clearly written, clean pots, healthy looking top soil and where possible a light spraying to remove any dust or fine spider webs, that can often appear overnight. If plants are shown in marquees, and especially if left overnight, do check them thoroughly for earwigs before returning them to the greenhouse. One year we had quite a plague of earwigs at the Windsor show, and they seemed to be attracted to our plants, and hid themselves in the holes at the base of the pots and in any foliage. They are mainly active at night, and will often bite right into a choice succulent and cause a lot of damage. They can usually be detected if the pot is completely immersed in a bucket of water, when they will float up to the surface.

When repotting, the big problem usually arising is

how to accommodate the larger pot. I think a lot of us are guilty of keeping old plants that have got past their prime, when they could be replaced with either a fresh cutting, or a young plant which will be far more pleasing to the eye. There are so many so called new plants becoming available these days that one is only too anxious to obtain, that some of the commoner ones can always be passed on to new members or juniors. It is a good thing after experimenting with most of the well known succulents if you can make up your mind to specialise in your favourite genera, and to devote more time and study to these, instead of dabbling in so many varieties as most of us do. You may even find the time, as I did once, to keep a detailed index showing where the plant was obtained, the date, cost, when it was repotted, and of course a record of its flowering, with description of flowers, and treatment, etc. This can either be done on the filing card system, or in an alphabetically indexed book. A book can be taken when you visit a nursery to ensure that no duplicate plants are purchased, and it also helps one to become very familiar with the names, when they are constantly before the eyes. Labels that become very faded in the strong sunlight can be renewed with the aid of the index, and the correct spelling assured.

In the summer we are all very tempted to extend our greenhouses, but do bear in mind that they must be adequately heated in the winter, and with the price of fuel rapidly rising this becomes more and more difficult. I still personally prefer an electric fan heater for distributing the warmth evenly, but these days one must always be prepared for power cuts and have an alternative form of heating. I believe there are some very good gas heaters on the market but as yet have not met anyone who has really tried them. It is advisable even in winter to allow some ventilation in the house, and I always keep one of the top lights slightly open. By the time you read this article, the weather should be greatly improved, and the early morning sunshine can give rise to quite high temperatures, so do not be caught out. Always open doors and windows even on a dull summer morning, for conditions change so quickly, and the new fresh growth early in the year can scorch very easily. The ideal method is, of course, automatically opening windows, or a reliable neighbour.

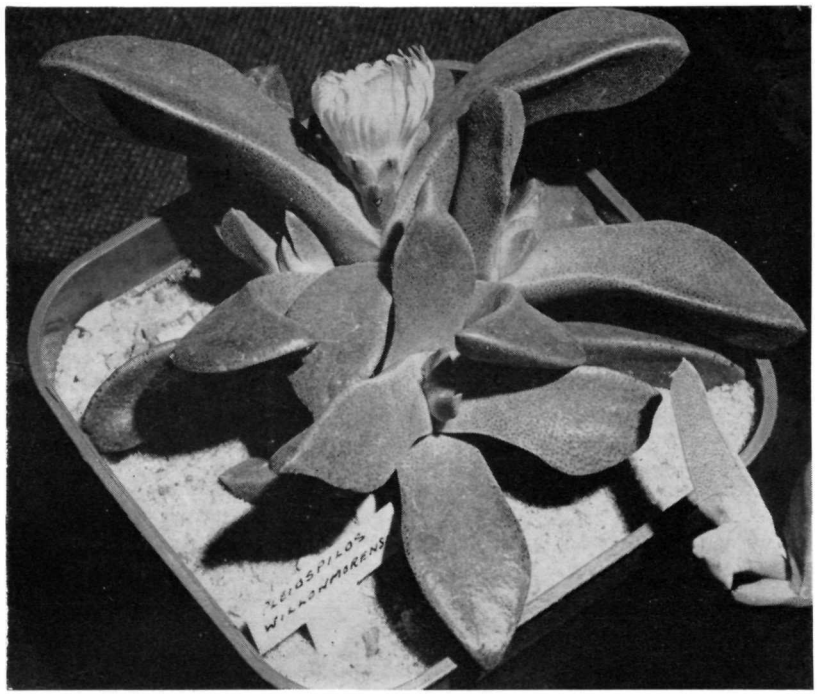
Pleiospilos nelii flowered well in March with two flowers to a head. This plant must be allowed its proper resting period after flowering. Most of the mesembryanthemums flowered extremely well last season, and many will remember the colourful show of conophytums at the I.O.S. show at Westminster. I have never before seen so many flowers on the argyrodermas. Almost every head produced a flower, and some two blooms on one head. Even the rather shy flowering *Argyroderma villetti* produced its beautiful almost purple flowers. I am told that this plant is to be called *A. subalbum* in the near future, perhaps someone will be kind enough to tell me what I must now rename my *A. subalbum*? Most of the gibbaeums will have finished flowering by the late spring, and like to be slightly rested during the summer when, although they will probably be looking at their best, growth will have slowed up. They should only be watered just enough to prevent slight shrivelling of the skin. Repot these plants about the end of July, which is near enough the commencement of their growing season. Lithops should be repotted in May when most of the old bodies have died down, water carefully to ensure that they keep true to type and do not make another head from the centre. *Lithops rubra* flowers very early in the year, with a rather small yellowish flower unlike most of the others which should be in full bloom around October, many having a fine scent, particularly the white ones. I always feel it is advisable to give the conophytums one good watering towards the end of March, to ensure they have enough nourishment to produce the new little bodies, which should break through from the old ones towards the end of July, when normal watering can be resumed. All mesembryanthemums prefer to be repotted just at the commencement of their growing season, and with experience it is not difficult to determine when this is. Limestone grit or sifted cornish grit, added to the compost, makes a really open soil, and there is no danger of the plants rotting off through a waterlogged soil. Aquarium gravel on top of the pots also helps the soil from caking hard, and also presents a pleasing appearance.

Gasterias are apt to make numbers of offsets which take a lot of the strength from the main bodies, these should be thinned out, and just enough left to form a well balanced plant. With these and aloes and agaves, always remove most of the old roots when repotting, and just leave the new fresh looking ones. When repotting haworthias select a few large nicely marked rosettes, if they are the commoner types, and discard all the little new shoots that form around the edges of the pot, or you tend to end up with a potful of rather uninteresting looking plants, which take up valuable space on the staging.

Our plants appreciate a fine mist spraying on a hot summer night when the sun has gone down, but do not mark the echeverias, etc. with a fierce garden spray, but use a pressure spray that can be controlled with a fine nozzle. Close the house down for the night to ensure a good steamy atmosphere but be sure to open up before the strong sunlight gets through in the morning.

Lithops for Sale

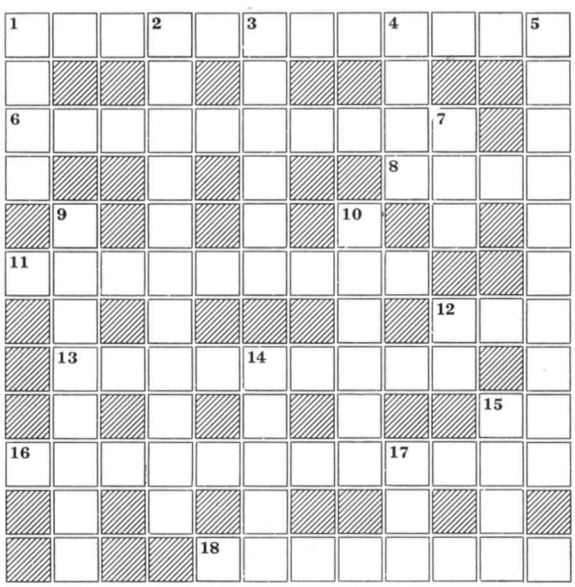
Write to Kenneth Albert-Richards,
67 Norbury Gardens, Chadwell Heath, Essex
for details.



Pleiospilos willowmorensis (photo: M. J. Martin)

Neocrosswordermannia No. 6

by Arnold Rainbow



Across

1. Mesemb' genus shaped like bishops hat (12)
6. Mam' with soft yellow spines and extensive flowering period (10)
8. Layer shed in sadness? (4)
11. I've a cheer for this greyish leaf succulent (9)
12. Feathery garment could constrict you! (3)
13. Protuberant modified leaf base, characteristic of the Coryphanthanae (Mam's, Coryphanthas, etc.) (9)
15. Exclamation of mine (2)
16. Genus commonly used as grafting stock (12)
18. Variants of chemical elements (for example, Carbon 14, Uranium 235) (8)

Down

1. Type of plant grouped with Liverworts (4)
2. Waterfall after which an Echinocereus is named (11)
3. Should be close at hand when canoeing (6)
4. Borrowed time in Church calendar? (4)
5. Day I'm cross with an Opuntia of variously coloured glochids (10)
7. Help that may be first or foreign (3)
9. At liberty as no Sassenach can be? (4, 4)
10. Tiny measure of time? (6)
12. Exist insect! (2)
14. What imported cacti seldom have! (5)
15. Quiet kind of swan? (4)
17. Abbreviation for large Brazilian coastal town (3)

(solution on page 46).

Report of the Council for the Year Ended 31st December, 1973

IN BRIEF, 1973 will probably best be remembered as the year in which Arthur Boarder retired from the Society's Chair and was succeeded by Mr. W. F. Maddams, and the occasion of the I.O.S. Congress at Reading. During this event all the societies associated with the cultivation of cacti and succulent plants staged separate exhibits at the fortnightly show of the R.H.S. on September 5th and 6th and two societies distinguished themselves by winning Gold Medals namely the National and the Mammillaria Society. Council offers these two societies their congratulations and also to all those who helped in our own display of mesembryanthema for which we were awarded a silver Lindley Medal.

Dr. Arnold Rainbow and his supporting cast (his wife and Ray Pearce) made quite an impact in their first talk at the R.H.S. in January. Mr. F. Braun also spoke at Westminster for the first time in September and other speakers during the year were Dr. Mace, Messrs. Boarder, Brewerton, Keen, Maddams, Grantham and Mrs. Hodgson. To all of them we offer our thanks.

Chelsea Show 1973 was one of the best we have had as regards recruiting new members but our display could have been better if more plants had been made available to Messrs. Clare and Hurley who again devoted a week of their holiday to the organisation and stewarding of this event and to whom the society offers its grateful thanks. We were awarded a Flora Medal for the effort.

The Treasurer, Mr. Best, is approaching the end of his term of office, having notified Council that he will not be seeking re-election at the forthcoming A.G.M. He has handled our funds quietly and efficiently during the past four years that he has had control of them and has also had the additional burden of not only housing but also transporting the society's publicity material and sales goods to and from Westminster and other major events.

Council offers him their warmest thanks and hopes that 1974 will see him able to spend more time with his plants. There being no other nominations we welcome Mr. R. D. Burton of the Bucks and Berks Branch as our new Treasurer.

The entries for the June and October Shows were again down after last year's improvement and Council have this matter under close observation. Council thanks Mrs. Hodgson and the Show sub-committee for their work during the year. We were pleased that many of the plants in the June Show were featured in "Nationwide" (B.B.C. T.V.).

The seed distribution continues to run smoothly and the three people most closely involved deserve the warm thanks which the Council accords them, namely Mr. Maddams (Purchaser), Dr. T. Smale (Joint Purchaser with Mr. Maddams and organiser of the packeting together with his band of helpers mostly from the N. Surrey Branch) and Miss Brown who attends to the despatch of the seeds to members. Just over £100 of seed was sold this year to members which gave a further boost to funds of some £30, which is allowing for the cost of envelopes not all of which were used this year.

The Journal has maintained the high standard that we have come to expect of it and has been read and enjoyed by members and others both in this country and abroad. Our warm thanks are extended to its Editor—Dr. W. V. Harris, the distributors—Mrs. Horan and Mr. Tyrrell (Overseas members), Dr. Randall (Advertisement Manager) and also to the various contributors of whom we should like to see an increase in numbers.

The Annual Dinner was again voted a great success and was probably the first occasion of which the after-Dinner entertainment did not consist of films or slides; however the keen wit and humour of Mr. Stan Russell and Mr. E. W. Macdonald more than made up for any lack of visual entertainment. The organiser of this event—Mr. R. H. I. Read—is offered Council's warm thanks for his work on this event and for his general duties as Secretary of the Society.

The Council would like to make a specific note of their appreciation and extend their thanks to all Branches, their Officers, and Members who have done so much for the general good of the Society.

The Council would like to thank the President for the splendid example she sets in the many facets of Society activities, and also the Chairman and his wife (Publicity Officer) for their combined efforts towards the well-being of the Society and for their regular contributions to the Journal. The various publicity sales items have been a further source of steady income and more recently the Society's tie has been added to the already impressive list of goods.

Finally the Council wishes to express its thanks and appreciation to all the Society's Officers and Branch Officials not specifically mentioned and to all members who assist in any way with the organisation of the Society or the stewarding of its shows.

R. H. I. READ
(Honorary Secretary)

Treasurer's Report

STATEMENT OF RECEIPTS AND EXPENDITURE
YEAR ENDED 31st DECEMBER, 1973

RECEIPTS

	£	£	£	£
Balance brought forward from 1972: ..	(455·07)			509.81
Subscriptions:				
1973	(983·59)	1,168·87		
1974	(19·25)	14·55		
			1,183·42	
Less refund of subscriptions ..	(7·00)		3·38	
				1,180·04
Raffles and Plant Sales	(78·02)			47·10
Donations	(7·70)			1·50
Other postage refunds	(2·80)			9·42
Sale of special publications ..	(2·74)			7·04
Seeds: Sold ..	(76·08)	101·22		
Purchased ..	(108·64)	61·89		39·33
Annual Dinner:				
Income	(187·50)	220·50		
Expenditure ..	(181·49)	209·38		11·12
Refund of bank charges				3·00
				£1,808·36

(Last year's figures are those shown in brackets)

EXPENDITURE

Journal: Printing ..	(933·74)	999·04		
Postages ..	(146·54)	149·15	1,148·19	
Less:				
Sales	(18·15)	28·80		
Advertisements ..	(118·56)	142·88		
Overseas subs. ..	(81·02)	87·62	259·30	
				888·89
Booklets: Bought		200·00		
Sold ..	(208·86)	107·84	92·16	
Less: Post refunds	(1·31)		2·50	89·66
RHS Affiliation Fee	(Nil—Paid in 1971)			5·00
RHS Hall Hire ..	(32·02)			52·53
Lecturers' Fees— Expenses	(5·20)			13·54
Printing & Stationery	(96·40)			149·09
Sundries:				
Purchases—Badges		45·64		
General		95·16	140·80	
Less Sales to date	(130·37)		127·40	13·40
Shows, Cup Engraving, etc.	(60·11)			90·48
Postages: General	(65·07)			106·91
Library	(13·46)			12·70
Balance carried forward to 1974:	(509·81)			386·16
				£1,808·36

SIGNED:
D. T. BEST *(Honorary Treasurer)*
P. J. RENSHAW and
B. A. BALDRY *(Honorary Auditors)*

I DO NOT consider that a detailed explanation of the Accounts is necessary, since the Statement of Receipts and Expenditure is clearly defined and of a similar construction to the previous one.

Commencing with items under 'Receipts', one will notice that the subscription level is well maintained. 'Raffles and Plant Sales' is down and this can be explained by the 1972 figure having been boosted by large takings from an outside show, the success of which has not been repeated in 1973. Those monies that were involved unfortunately missed the closing balance. Seeds have to be costed over a period of two years or more to arrive at a profit or loss figure and even then this can be misleading when each new purchase is made. It is certainly becoming a successful entity, however, and we show a profit which wipes out last year's deficit. The Annual Dinner also shows a slight profit, which is deemed as being well within the margin for such an event, especially when the Secretary aims to balance. An overspill of £7.50 on Dinner income for 1972 accounts for most of this.

When examining 'Expenditure' one will see that we have almost reached four figures on Journal printing costs—a sign of the times! Journal postages, however, have remained comparable and reflect that economy measures are working. Advertisements continue to supply a vital input and at £142.88 are as high as I can remember. Overseas subscriptions at £87.62 further assists in offsetting costs. This item, although closely allied to the general subscriptions, is treated more as a direct sale of Journals. We still have to find a further £200.00 for 5,000 new booklets, as yet not fully delivered. I now believe that this slow delivery has been to our advantage in the avoidance of a cumbersome stowage problem, coupled with the added benefit of its acting as an outlay spreader at a 10,000 copies rate. Booklets have not sold as well, due to some large purchases made hitherto not being evident this year. The effects of rising

prices has not helped under 'Printing and Stationery' but when it is considered that we have reprinted the Rules this year at an outgoing of £30.00, one can take heart. From time to time we have to renew stocks of something and this year it was some badges at £45.64, which caused a small overall deficit of £13.40. A substantial increase under 'Shows, Cup Engraving, etc.' of some £30.00 can be largely explained by expenses incurred in consequence of the highly successful I.O.S. Congress. 'General Postages' are as I would expect to see them. The only encouraging aspect is that most, if not all of the individual accounts have been met for 1973. This I have endeavoured to do in the interests of achieving a position which bears comparison from year to year; so necessary at present.

In the final assessment, what really counts is the balance we are carrying forward to 1974. This figure stands at £123.65 less than that carried forward previously and although one might attribute this to many factors, of prominence must be the £200.00 paid for booklets. We are proceeding into 1974 with our subscription rate unchanged and I am sure all members are appreciative of this, especially when so many other organisations have been forced to increase theirs. Our sums will have to be carefully done in the coming year in view of the difficulties caused by constantly rising prices. I do not, however, consider that we shall be unable to meet our commitments and remain certain that the Society's finances will be maintained in a healthy condition, with no drop in standards to its membership. I once more request Members to amend their Bankers' Orders to the correct rate.

I must conclude by asking you all to extend a warm welcome to my successor, Mr. R. Burton of the Berks & Bucks Branch, to whom I wish every success in his undertakings in pursuit of the Society's business. May I also appeal to those who will pay in monies to him in the near future to do so in a concise manner, defining a clear purpose, as this will prove of immense benefit in his first term of office.

With many thanks for your encouragement and support,

D. T. BEST,
Honorary Treasurer.

Letter from South-West Africa

by Andrew Smith

(Mr. Andrew Smith is a member of the Society who was active in the North London Branch until he moved to Windhoek, South-West Africa towards the end of 1972).

First Impressions

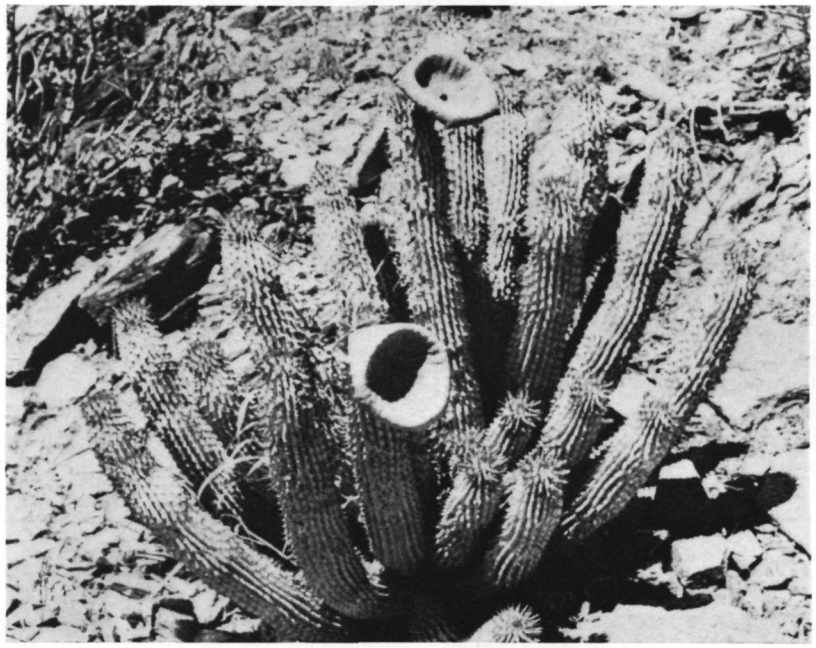
In the short time I have been here I have noticed lots of succulents, particularly caudiciforms which have not yet surfaced in Britain. For example there is a relatively common *Ipomoea sp.* with beautiful bell-like purple flowers. I have seen quite a few stapeliads, none in flower yet though some large clumps of Hoodia about 120 Km from Windhoek were budding up nicely. *Cyphostemma seitziana* in habitat makes superb plants with their huge caudices and grape-like pink fruits. A thing I noticed was the more or less complete absence of young plants. I put this down to cattle which must relish these juicy morsels when everything else is bone dry. Not far from *C. seitziana* I found *C. currori,* again an impressive plant with huge thick bodies covered with peeling vale yellowish skin.

At the moment my main interest lies in the Asclepiadaceae and I am trying to find their habitats. I have been lucky so far as, apart from Stapelias, I have seen Raphonarias which are relatively numerous, *Sarcostemma viminale* making a rather miserable, sprawling plant, and what I think is a *Duvalia sp.* though according to the literature it does not grow near Windhoek.

The rains should have started by now and there is a serious drought in parts of SWA. The temperatures are nearly always over 100°F in November, December and January, but as the atmosphere is so dry the heat is not unpleasant.

In March I went down to Swakopmund and at a place about 30 Km from Walvis Bay found hundreds of *Acanthosicyos horrida* growing in a dry river bed. Among them I observed two fasciated branches. On the return journey past the Spitzkoppje I saw my first *Adenia pechuelli,* with huge caudices up to 5 feet across. In the same area was a *Sarcocaulon sp.* with very attractive pink flowers. Now in April the rainy period has got under way and all the stapeliads have blossomed forth. They really do look attractive flowering away in their natural habitat and I have noted *Stepelia schinzii, Caralluma lugardii, C. nebrownii, Duvalia polita* and a *Decabelone sp.* When I arrived in December there had been no rain at all since the previous March and all the stapeliads were completely dessicated. When it rains here it certainly pours, and it is surprising how quickly these plants recover and flower. Perhaps the SWA species, at least, like to be completely dry for six months or so and then to be thoroughly soaked.

On the way to Luderitz Bay for the Easter holidays I visted the 'Kotterboom Forest' about 15 Km from Keetmanshoop. It is really quite fascinating to see



Hoodia sp. in habitat, South-West Africa (photo: A. Smith)

hundreds of *Aloe dichotoma,* twenty to thirty feet high, growing in a confined area. Unfortunately the aloes were not in flower but there was compensation in the numerous *Stapelia kwebensis v. longipedicilliata.* Further on I had to pass through a diamond area where one is not allowed to stop, let alone get out of the car, and all along the roadside were hundreds of *Sarcocaulon sp.* some of which were in flower.

Around Luderitz there are some weird and wonderful succulents. Apart from Sarcocaulons there are Pelagoniums, various Mesembryanthemums and a small tree about two foot in height with a very thick, branched caudex. How plants survive here I do not know; I can only presume it is because of heavy dew and spray from the sea.

Returning to Windhoek along the edge of the Namib Desert, by way of Bethanie and Mattahöhe, I found a rather interesting *Trichocaulon sp.* as well as numerous *Hoodia sp.,* many of which were in full flower. These Hoodias were really attractive covered with masses of flowers; some plants must have had over a hundred blooms.

At the end of May I was able to visit Swakopmund and out to the Husab Mine where *Welwitschia mirabilis* grows (see p. 25).

Welwitschia

Welwitschia mirabilis was first seen by a medical doctor from Austria, on 3rd September, 1859 near Cape Negro in South-West Angolia. It is said that he was so overwhelmed at this unusual plant that he was hesitant to touch it in case it was an illusion and would disappear. Just two years later on 6th May, 1861 an artist-adventurer named Thomas Baines came across a Welwitschia some 800 km. to the south of the Swakop River in South West Africa.

Since these two localities were discovered a good picture of the distribution of the Welwitschia has been built up. The southernmost population of the plant is a small rocky tributary of the lower Kuiseb River near Homeb. Nearby is another large population on sandy flats south of Hope Mine. Between this population and the next occurrence there is a gap until south of the Swakop River at Haigaimkab, followed by a large break in distribution until south of Cape Cross and further north in the Messum Mountains, where due to the relative abundance of moisture from the fogs large, luxuriant specimens grow. Further populations grow north of the Ugab River at Twyfelfontein and west of Welwitschia village where there is a fairly large population. Here the plants occur across several farms and grow in higher rainfall areas amongst Mopane bushes and grass. To date the most northern record of Welwitschia in South West Africa is in the Kaokoland near Sanitatis. However it reappears further north at Mossamedes in Angola.

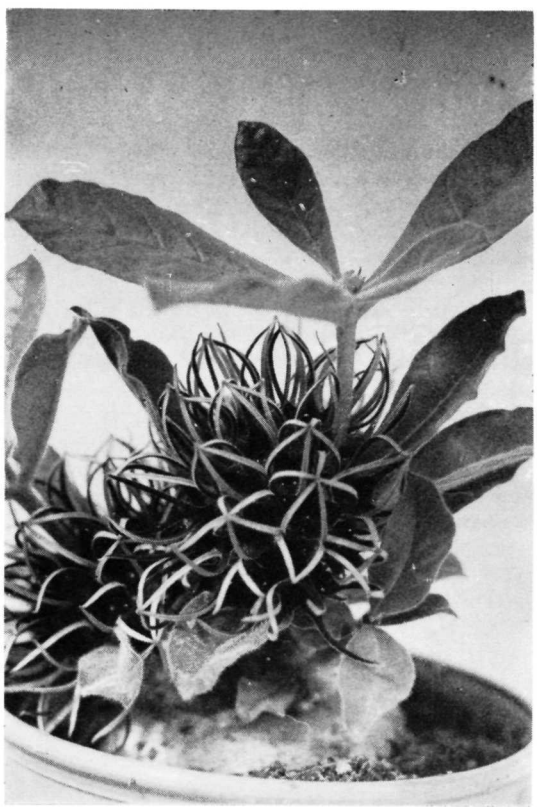
Young plants develop a wedge-shaped woody stem which merges into a tap root some 80-90 cm long. This tap root on a mature plant will grow to some 1.5 m. in length too short to reach the permanent water table

From the tip of the tap root and higher up on the stem two distinct root systems develop, a shallow lateral network to absorb rainfall and moisture from sea fogs, and a deeper root system which takes up soil moisture. Two leaves develop from opposite sides of the stem and continue to grow for the rest of the plant's life estimated at some 2,000 years. The leaves are hard and leathery and can attain a length of 3 m. However during particularly dry years the leaves are quite often browsed back to the stem by animals. As the plant gets older the aerial part of the stem grows loosing its original oval shape and develops into a gnarled almost fasciated structure. Some of the larger plants attain a height of almost 2 m. with a width of twice this (one mature plant near the Husab mine 50 Km. from Swakopmund comfortably seated my two young sons and I). While the stem is attaining these weird shapes the leaves are torn into long strips which become intertwined with one another and grow around the stem. It is when this has happened that it becomes difficult to believe that there are in fact only two leaves.

In January each year inflorescences appear from the crown of the stem. As the Welwitschia is dioecious the oblong female cones borne on a slightly branched stem, and the smaller male cones borne on a much branched stem occur on different plants. After the cones have ripened, the sticky pollen is dispersed by insects and the female cones mature in May and June. The cones soon dry and fall apart and the seed enclosed in a winged membrane are dispersed by the wind. A lot of seed is damaged each year by a fungus *Aspergillus welwitschiae* which destroys the seeds viability.

In the Husab Mine area there are many young plants, but no seedlings were found despite a fairly rigorous search. It is likely that seed only germinates during good rainy seasons which occur once in every ten to twenty years.

Connoisseur's Corner



Brachystelma barbariae

Many members of the Asclepiadaceae (Milkweed) family are noted for their strange flowers and the obnoxious smells these emit; *Brachystelma barbariae* is no exception. This 'swollen stem' succulent from Cape Province and the Transvaal has become increasingly available in the last few years and has proved a good subject for glasshouse cultivation, particularly when the minimum winter temperature is not allowed to go below 50°F.

The pale brown to cream stem base tends to be roundish and flat on the upper surface and has quite a woody appearance as the plant matures. The new shoots emerge from this in late February or March and flower buds grow immediately along the fleshy stems in clusters of about ten to twelve. The leaves are bright green, elongated and covered with a soft down at first but they enlarge and become shinier later in the season.

The strange spider-like flowers are a dark maroon brown and velvety in texture but the thin petals twist to show the pale green backing. The carrion smell is extremely strong when the flowers first open but decreases (fortunately) after a few days. The group of flowers may remain open for one to two weeks and other groups may appear soon afterwards or sometimes there is a second flowering spell in the autumn.

It is advisable to pot up in good porous compost in a shallow container until the specimen is established and particularly so if a plastic pot is used. Excess moisture under the base at the end of the growing season can cause its rotting while dormant. It is best to repot as soon as new growth appears in spring and plenty of water will be required, particularly when the plant is in flower. Watering should be eased in the autumn as the top growth gradually dies down; the plant should then be kept quite dry until spring. Sometimes in a good year growth can become very straggly—this excessive stem can be cut down and, apparently, under good conditions, after drying of the sap it can be rooted.

Succulents from Madagascar

Report of a talk given by Keith Grantham, October 9th 1973

MR. Grantham began with a few comments on the geography of the island, mentioning that plateau land on the west sloped down to coastal alluvial plains on the east. This area had a high rainfall but the south of the island was dry. Temperatures where most succulent plants are found do not go below 70°F, but this does not preclude growing them with lower minimums.

He then went on to mention the various genera of succulent plants growing on the island. Aloes were predominant in most areas and amongst these were some of the most sought-after for collectors today such as *A. haworthioides* and *parvula* which flower easily and other attractive dwarf kinds such as *A. bellatula* with salmon pink flowers, *A. albiflora* with open-type white flowers, *A. rauhii* and *A. descoignsii*. The largest Aloe on the island was *A. susannae;* there are reputed to be only nine specimens remaining there and they have heights of from 20-30 feet. The flower is nocturnal and is pollinated by bats.

Alluadias are 'border-line' succulents and could be considered as xerophytic shrubs with their long shiny stems with small green leaves. Two species are found, *A. humbertii* and *A. procera*. Alluaudiopsis are also in evidence but they are more difficult to grow in this country.

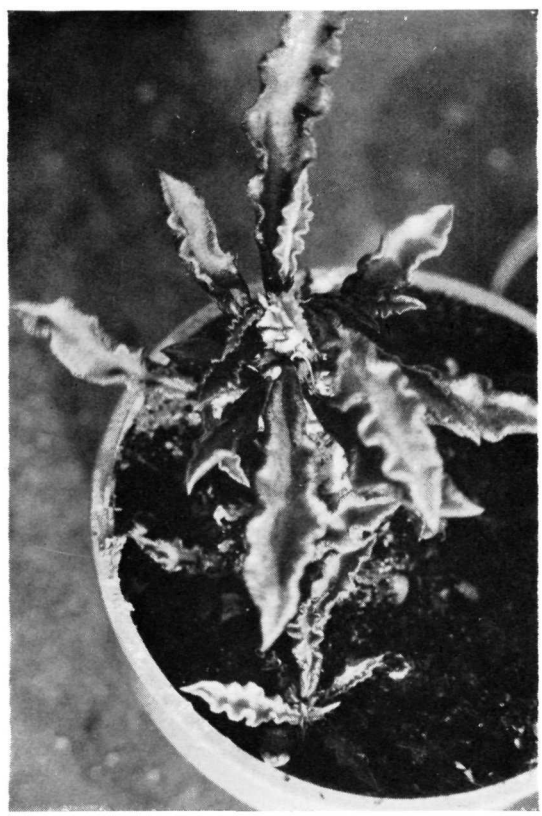
Amongst the Asclepiads there are two Ceropegias, *C. armandii* which has lizard-like growth and the greyish-green stem can be propagated easily—and dies easily! The large flower develops from a long stem. *C. dimorpha* is more difficult to obtain and grow and possibly it is best grafted on *C. woodii*. *Stapelianthus pilosus* is difficult to grow but *S. decaryii* and *S. insignis* should not give any problems, and generally produce their spotted bell-shaped flowers readily.

Cynanchum marnieranum is easy to grow with its thin trailing green stems and yellow-green spidery flowers which are produced in large numbers in later summer. This propagates readily from stem cuttings. *Cynanchum perrieri* is less well known; this species has worty stems.

There are thirty to forty species of Adenia on Madagascar but not all these of this genus from the Passion Flower family can be considered as succulents. *A. elegans* and *A. densiflor* have small perfumed flowers and attrac-seed pods.

Decaryia madagascariensis is more of a xerophytic shrub. It is often called the 'Zig Zag Plant' because the succulent stems are jointed at short intervals and then branch off in another direction. There is a pair of long, thin leaves at each joint. At Heidelberg this species grafted on a Pereskia flowered at 18 in. high. Didiereas are also strange sprawling plants and *D. madagascariensis* and *D. trolii* have their habitat in the south and south west of the island. They have thick thorny stems and can reach tree-like proportions.

Euphorbias grow in great abundance and range of species (many of these were shown in the colour slides following the talk). Some of the popular dwarf types include *E. decaryii* which has woody, angular stems with bunches of curly-edged leaves at their tips and a greenish inflorescence, and *E. cylindrifolia* which also has woody stems but the leaves are long, dark green and fleshy in thick rosettes at the ends of stems. The 'flower' is like a greyish hood. Other Euphorbias by their names show their resemblance to other genera found on Madagascar; for example, *E. didiereoides* where the spiny stems are like those of Didierias but most of the leaf growth is at the top of the stem, and *E. pachypodioides* which has a thick rough stem with leaves at the tip.



Euphorbia decaryi (photo: B. Maddams)

Other Euphorbias found include *E. neohumbertii, E. lophogona* and the ever popular *E. milii* and its many varieties which seems to grow and produce inflorescences easily under most conditions.

There are a selection of Pachypodiums to be found on Madagascar. The dwarfer growing types include *P. decaryii* and *P. baronii v. windsori* with pink flowers and *P. brevicaule, P. horombense, P. rosulatum* and *P. densiflorum* which again have a number of thick spiny branches with light green leaves and yellow flowers. There are also the tree-like species, *P. lameri* and *P. geayi* with single thick spiny stems which can reach to about 20 feet, and have white flowers; it is best to water these all the year round, given warm enough temperatures in 20 feet, and have white flowers; it is best to water the winter, and then a good growth of leaves is obtained. A rarer species to be found in the north and west of the island is *P. rutenbergianum*.

Another member of the Liliaceae, Lomatophyllum is also found. This genus is very close to Aloe but the plants produce berries instead of seed pods. Many of them are rather large growing but *L. prostratum* is fairly dwarf with white markings on the shaded green leaves. There are also Kalanchoes in plenty which probably need no introduction except perhaps the neater growing *K. rhombopilosa* which can have a variety of two-leaf colours and makes an attractive plant if grown carefully.

Another unusual genus which grows on Madagascar is the 'penny plant'—*Xerosicyos danguyi* is the most well-known but other species such as *X. decaryi* and *X. perrieri* are found mostly to the west and south west of the island. *X. danguyi* has the round fleshy leaves from which its common name derives and they appear alternatively on long trailing stems. In mid-winter the small flowers appear in clusters near the tips of the stems; they are yellowish and show they are members of the cucumber family by the funnel shape of each flower.

Mr. Grantham concluded with a few remarks about cultivation. He emphasised that although *E. milii* was very tolerant of temperature, most other Euphorbias and Pachypodiums needed a winter temperature over 50°F. to grow well. Most of the Aloes came from the cooler regions so did not require higher winter temperatures. None of the plants seemed particular about the type of compost used but the no-soil composts with their good drainage seemed to suit them very well. They also grow happily in plastic pots and prefer some mottled shade in summer—not full sun. At this time they will need plenty of water and even in winter an occasional spray or watering from the base is beneficial. The speaker finally commented that he found plants from Madagascar interesting and not too difficult to grow and he hoped that his talk and slides would encourage other members to try them.

W.F.M.

Correspondents

Result of a Good Summer?

I have a collection of about 400 cacti and other succulents, most of which are very young plants, in an 8 ft. 6 in. greenhouse. In October I think of the cacti as having finished flowering. However, this year I was delighted when in mid October two buds were spotted on a small plant of *Ariocarpus fissuratus*, only 2 in. across, with less than 10 tubercles. Pessimistically I doubted whether they would open in our dull climate at that time of year. However, within a fortnight the first bud opened into an attractive pink bloom, followed by a second.

Another plant surprised me this autumn, a *Mammillaria plumosa* in a 3½ in. square pot produced a ring of pale yellow flowers on each of its three small heads. I cannot recall ever having seen this species in flower before, and I wonder if other members' *M. plumosa* have bloomed without being noticed, since the flowers blend in well with the white spination.

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A Lady tells her Age

To those of us who were at Reading University for the I.O.S. Congress last year it seems scarcely believable that Mrs. Dora Shurly is 84 years old. Many a young girl would have envied her success in surrounding herself with attentive young men during that memorable week and we older chaps were by no means immune to her charms.

It is considered quite an achievement to survive to such an age, even if one is then no more than a feeble and senile shadow of one's former self To remain young in spirit and lively in the mind, to retain a delicious sense of humour and, if Mrs. Shurly will permit me to say so (I'm sure she will!) to still *look* young and gay, that, sir, is little short of a miracle.

As one of her young admirers (I'm only fifty), I salute Mrs. Shurly most affectionately and wish her many, many more years.

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Forthcoming Meetings at Westminster

On Tuesday, June 11th a talk will be given by one of the judges at the Summer Show. On Wednesday, July 10th, Mr. T. Jenkins has as his topic "Continental Nurseries", and on August 7th Mr. R. Dale will speak on "Grafting".

Introducing Cacti

by Arnold Rainbow, Levington Research Station

INTRODUCTORY articles aimed at new members crop up from time to time and, quite properly, they advise the potential cactophile how to set up and maintain a collection of cacti. Quite often, however, members express interest in other aspects of cacti: where they come from, what they are used for and how they differ from 'normal' plants. The present introduction can only begin to explain why cacti are such fascinating plants, but I hope it will serve to broaden the interest that the beginner derives from his plants.

The fascination of cacti is largely attributable to their peculiar appearance. Some cacti are, almost unarguably, beautiful. Others can only be described as grotesque, but the uglies of the cactus world frequently surprise us with their delicate, vibrantly coloured flowers.

To understand the strange form of a cactus we must consider the evolution of the family *(Cactaceae)* and, indeed, of life in general. Life is usually regarded as having started in water; only after millions of years did life successfully colonise land. The main problem faced by would-be land plants (and would-be land animals) was, and is, how to maintain a good supply of life's most previous fluid—water. Once they were surrounded by it, now they have to seek it out and conserve it. To this end, would-be land dwellers developed vascular (plumbing) systems, skins, water storage tissues and a number of other devices—these all lowered water loss (due to evaporation, etc.) and made better use of what water the organisms had. Cacti are land dwellers 'par excellence': they have a waxy watertight skin and they are often covered with hair and/or spines which reflect away much of the intense light which may fall upon them. The surface area of a cactus is usually small compared with its volume. It achieves this by adopting a spherical or cylindrical shape and by reducing its leaves to spines and/or hairs. The net result is less surface area to lose water and more volume to store it (compared with a leafy plant). In plants, most water is lost through the 'breathing pores' (stomata) in the skin. 'Normal' plants open these pores during daylight hours and close them during the night. Cacti close them during the heat of the day and open them during the cool of the night. In this way they conserve water even further. The cactus stem is often 'fluted' so that, under extreme drought the plant can 'concertina' into an even more compact mass. Many cacti contain certain (hydrophilic) substances which retain water in a tenacious manner. Even if, as in the most prolonged drought, they lose more than half their water, they still usually suffer no harm. Some cacti show an incredible resistance to heat: a temperature of 60°C (140°F) has been recorded at the stem surface of a Prickly Pear and the plant suffered no damage, despite its experience. Not only is the stem well suited to water storage, the root is too: often the main root is a swollen, parsnip-like structure but other thinner roots may spread sideways over a considerable range, ready to mop up every possible drop of water from a shower of rain, or, as is more likely, from a fall of dew.

Cacti are entirely New World in origin but they have strayed to other parts of the world, for example, parts of Australia, Africa, the Mediterranean and Asia. Sometimes cacti are dispersed to new lands by birds who find the fleshy fruits palatable. More frequently Man has been responsible for increasing the cactus family's circle of influence, travelling, as he has done, from land to land looking for novelties to take home.

In their natural homeland, the Americas (including the Caribbean and other local islands), cacti occupy a variety of habitats. In South America they are found in the Andes mountains, the pampas (grassland) of Argentina and the coastal desert of Chile. In the tropical basin of the Amazon (epiphytic) cacti are found growing on the rotting leaves which accumulate in niches about tree trunks and branches. Some cacti are found in regions which one would never normally associate with such plants, for example, the frozen wastes of southern South America and the Canadian Shield. In North America they are found in the Appalachians in the east and the Rockies in the west. Cacti are found at a variety of altitudes from sea level to seventeen thousand feet. Some species show great tolerance of habitat, one type growing in, say, arid scrubland and moist woodland.

The 'real' cactus country, of course, is the region which comprises Central America and the southern States of the United States of America. Given a free choice, most cactus collectors would probably choose Mexico/California for an expedition. The deserts of the area can be extremely fierce and, in places, the conditions are too extreme even for cacti. Contrary to popular myth, cacti do not and cannot grow in real deserts (for example—the Sahara): they do *not* grow in pure sand, just try it and see what happens! The arid land of Central America/Southern U.S.A. is the home of a great number of cactus species, many of which are far happier in the partial shade of boulders, thorn bushes and grass, than in the direct heat of the sun ('mad dogs and Englishmen . . . '). Rainfall is infrequent (sometimes less than once a year) but, when it comes, it is often torrential. After months of slow desiccation the cacti are literally flooded with water and they rapidly replenish their parched tissues. Saturation of the soil brings forth a wave of plant growth and seed germination and, very

often, flowering. Some cacti barely see the light of day until a desert storm arrives, but remain half buried until disinterred by rainfall, sometimes to the point of being washed away!

Among the cacti of the semi-deserts are a number which contain mescalin (a close relative of LSD) but, for obvious reasons, I will not give their names. Long before the 'hippy' era, the Indians of Central America dried these plants like beads on a string. The 'peyote buttons', as they are known, were believed to have religious, magical properties and were chewed during tribal ceremonies to enable communication with the gods (or whatever!). In recent years the 'LSD plants' have been ravaged by anyone unscrupulous enough to deal with American drug traffickers. Many species are in danger of extinction, not only because of the demand for hallucinatory drugs, but due to the demand for adult plants by European cactus fanciers. The damage caused by over-collection of cacti, however, is slight compared with the effects of land shortage. The ever expanding population of The Americas demands more and more land for providing homes and food; the plough and the bulldozer are continually reducing the world's flora: the cacti that can now only be seen on a greenhouse bench are a living indictment of man's determination to desecrate his environment.

In contrast to 'civilised' man, the Mexicans revered cacti—possibly because many of them owed their existence to cacti (and may still do—if they haven't been enlightened by the 'chewing-gum culture' of the U.S.A.) Cactus fruits were peeled and either eaten, or used for brewing colonche (a potent alcoholic drink). The woody skeletons of the larger cacti (for example the candlestick-like 'Giant Saguaro') were used for building material and firewood and the fibres from the skeletons were made into cloth and rope. Even the spines were used: curved or straight ones as sewing needles, hooked ones as fish hooks, long spines as knitting needles and short ones for combs. The hair from certain types of cactus is used for making lace. Several cacti have been used as a source of medicine by the Mexicans and today some important drugs are isolated from these same plants; plants which have been used for treating broken limbs, heart disease and snake bite!

Cacti have not always been regarded as being so beneficial: in the late nineteenth century man introduced the Prickly Pear to Australia. The plant is ideal feeding material for the cochineal insect, a creature which was in great demand when lipstick first became fashionable. In Australia however, the Prickly Pear was so successful that by 1925 it had smothered an area six times the area of Switzerland. The Australians searched for methods—chemical, animal and mechanical—to eradicate the weed which had once seemed such a valuable asset, but all efforts failed until they introduced a moth which rejoices under the singularly apt name of *Cactoblastis cactorum*. The moth lays its eggs in the cactus and the caterpillars literally eat the plant to death. The story is a good lesson in 'environmental manners': try and 'muck' Nature about too much and She'll 'muck' you about!

Man has been 'mucking' cacti about ever since they were first discovered in the sixteenth century: one day, when cacti have been exterminated, man will probably find that he badly needs them—when will we ever learn!

On with the Show

YOUR Branch Secretary should have a copy of the schedule for the Summer Show on June 11th/12th by now or if you do not belong to a Branch please write to the Show Secretary, Mrs. H. Hodgson, 18 The Braid, Chesham, Bucks. enclosing a stamped addressed envelope and she will send you a schedule. Please help her further by sending your money and entry form in as soon as possible. The Show Committee would like to see more entries this year. The standard of entries has been high of recent years but we do need quantity as well as quality for the general public to really appreciate the plants. Remember, staging can be carried on until 9.30 p.m. on Monday evening and until 10 a.m. on Tuesday morning.

The schedule has little change in classes from 1973. This year the Luty Wells Cup will be awarded to the first prize winner in the class for three Rebutias or Lobivias. The Sarah Cutler Cup will be awarded in class 9 for a specimen Mammillaria; this means a fine, mature plant, either caespitose in a large pan or columnar and reaching a fair size. If you have smaller growing Mammillarias then class 4 is for six of those; this is where you show such species as *M. shurliana, M. solisioides, M. humboldtii* and others of these small growing types and NOT immature specimens of plants such as *M. bombycina, M. zeilmanniana,* etc. The same applies to the three Notocactus class; those that flower easily in a four inch pot are suitable, such as *N. herteri* and *N. horstii*. The class for six cacti is a popular one and surely any member can find six cacti in six pots to add to the selection here. A greater number of packets of seed goes out in the distribution every year so it is disturbing when there are few entries in the seedling class; please show Miss Brown her efforts are not wasted by exhibiting some of your results. To help you along this year you can show seedlings grown from

1971, 1972 or 1973 sowings. Please mark clearly the date of sowing and, if possible the source of the seed. Obviously the judges will take into consideration the age of the seedlings if it is clearly marked. An intermediate class is again included for those who have not won a First Prize in any open class, and also the beginner's class for those who have not won a First prize in a cactus class at all. Come along, all you new members, have a try at these classes at least.

There are no changes in the classes for succulents other than cacti but the change the Show Committee would like to see is more entries in these classes. Surely it would not be difficult for anyone to bring along a couple of Aloes and a Haworthia for three Liliaceae or an Echeveria and a Crassula for two Crassulaceae just to quote two examples. However, if you do not think you can manage that there is still the class for three succulents, which gives you a wide range of choice. If you grow smaller types there is also the class with a 4 in. pot size—an ideal opportunity for showing some of the dwarf Aloes, Anacampseros and the smaller Euphorbia species to mention only a few. The classes in Section C are generally well-supported to keep up the good work and bring along one cactus and one succulent and a miniature garden. June is an excellent time to produce some colourful groups with plenty of flowers, too; this is a popular class for visitors so bring along your group to help its decorative effect.

We hope all within striking distance of the R.H.S. Hall will help make this a successful show and if you are just beginning, at least try to get along to have a look. Your Membership Card will give you free entrance to the show.

In Search of De Herdt

by Nigel Taylor

THIS winter I was offered the chance of spending a weekend in Belgium, staying in Brussels. I was about to decline when it occured to me that the cactus nursery of Mr. C. De Herdt might be in the running for a visit.

Having arrived in Brussels with two feet of snow on the ground and very cold feet, the thought of setting off early on the Saturday morning, December 1st, with the intention of finding the nursery in some remote country district called Rykevorsel, was not a pleasant one. The journey had to be by public transport, the first stage being to catch the tram into the centre of Brussels. After a 15 minute wait on the platform of the Gare Centraal I boarded a train to Antwerp. In Antwerp enquiries at the Tourist Information Office directed me to a square five minutes walk away. I ascertained that a no. 60 autobus passed through Rykevorsel, but there were no indications as to whether or not they ran a service on Saturdays, or how frequent this was.

I sat in the bus shelter for thirty minutes watching nos. 61 to 65 arrive and depart in freezing conditions. After a further 30 minutes I was beginning to lose heart and the feel of my fingers and toes. However, 10 minutes later a bus without a number drew up to the kerb. I managed to make the driver understand that I was trying to get to Rykevorsel and he nodded, so I boarded the bus, paying a fare of about 50 pence.

We drove on for about 35 minutes without seeing any roadsigns directing to Rykevorsel and I began to think that we had passed there already, when, with relief, I spotted a sign which said "Rykevorsel 6 Kilometres".

We had arrived, or so I thought as I stepped out of the bus into deep snow, but where was the nursery? Before leaving I had been instructed to ask for 'Cactusserre' (cactus greenhouse), and after receiving a few funny looks from local Belgians, somebody pointed and mumbled "Three kilometres". So I embarked on the final stage of this four hour journey, trudging through the snow, until I came to a cluster of greenhouses with numerous cacti visible through the glass.

Mr. De Herdt was the only person present who spoke English, and he invited me to look around the nursery. There was a tremendous variety of cacti, both imports and seedlings, all in perfect condition. The seedlings are sold according to size of pot, so that 2 in. plants of *Astrophytum myriostigma v. nudum* and *Mammillaria guelzowiana* are the same price as *Echinopsis* and *Rebutia* of the same size—all 25p. Though I do not care very much for the majority of imported plants, I could not resist purchasing a very healthy *Ariocarpus fissuratus* with dark green tubercles and fibrous roots coming through the holes in the pot.

Though he was very busy seeing to other customers, Mr. De Herdt found time to talk at length about grafting plants. He said that many British collectors have got the impression wrongly that continental growers graft everything, but he for one dislikes grafted plants in his collection, and he tries to grow a plant on its own roots first before resorting to grafting. I was about to leave when, to my delight, Mr. De Herdt suggested my having a look at his private collection, which is housed in another large glasshouse next to the nursery. There were no end of large, impressive, interesting plants, particularly Matucanas and Gymnocalyciums. Two 5 in. diameter bright green, mushroom-like plants of *Lophophora echinata v. diffusa* caught my attention. They were like footballs in comparison with the more usual *L. williamsii*.

Endless hours could have been spent in that glasshouse, but as darkness was approaching I had to leave.

Succulent Snippets

by Sally Cornioides

I HOPE your plants have survived the winter well and you managed to keep them cosy despite fuel shortages and high prices. I also trust you did not get to the extreme quoted somewhere, that a family were cooking their meals over the greenhouse heater to save fuel! It was not mentioned how succulent the dishes were.

As I write this it is the season of Annual General Meetings and hence, Annual Reports. It would be interesting to see the Annual Reports of all the Branches; in fact, I am sure the Editor would be grateful for them for end-of-page fillers from quotations therein. One did come my way not long ago, that of the North Surrey Branch and what a high class Committee they have, no less than four doctors for a start and not one a Doctor of Medicine. Actually, the Editor (being one of them) tells me that they are all scientists and there are two more like-minded folks on the Committee as well. I wonder what it is that makes those with scientific minds interested in succulent plants? Is it that the perverseness and strange shapes and behaviour of such plants is so different from their normally well-ordered line of study? Or is it that there are so many problems and theories to be explored by the enquiring mind? Perhaps any scientifically minded members will be kind enough to supply their own personal answer.

Does your blood ever boil when you hear the gardening experts on television or radio answering problems about succulent plants? Many a time I have felt like writing a rude letter or even sending a Society Booklet but I doubt if it would do much good. They will, no doubt, continue to tell people not to repot their plants, to let the roots trail out the bottom of the pots and never on any account to use a nutritious compost, and, of course, that the plants are much better if neglected and left dry out over long spells. Perhaps one day someone who really *grows* plants of this kind will be allowed a word on one of these programmes, but then there will be a great outcry and I suppose the general public after years of brainwashing will not believe their more helpful advice! Of course, all members can help by offering useful advice whenever asked; if those who ask find their plants really grow for them afterwards, who knows we may have a new Society member coming along.

By the time you read this it will be coming along to Chelsea time and Show time and I hope all your plants will be repotted and titivated ready for one occasion or the other and you will not be one of those who say 'Oh, I don't see why I should make the effort, there will be plenty of plants without mine"—if everyone said that any Show would be a disaster. Much better to say "Well my plants may not win but they will be something more to keep the judges busy". I hope a few more will consider this their motto for Westminster this year.

Cacti in the South-West

by B. E. Hall

BEFORE anyone jumps to conclusions, let me hasten to explain that the title of this article does not refer to the American South-West but to that part of England better known as Cornwall, and in particular Penzance. Having read with interest various members' accounts in this Journal of their growing experiences, it occurred to me that there must be vast differences in the cultivation of our plants depending on local climates.

We are fortunate in having a winter climate that is usually very mild compared with many parts of the country, but we do have a lot of rain and this is not ideal for our plants. I often wonder if our winter temperatures are as low as some of the plants would like, though ours flower well. The biggest advantage of our mild winters is, of course, the money saved on heating costs. I am writing this in January and so far this winter the oil heater has been lit on 13 occasions and never during the day. The three or four frosts that we have had this winter have all dispersed within a couple of hours of the sun rising, and there have been no zero temperatures by day.

My first contact with growing succulent plants was some five years ago when an uncle gave me a few before we moved here from Essex. I was not really 'hooked' until the day my wife returned from shopping with a nice plant of *Mammillaria zeilmanniana* in bud. At this time we were living in a basement flat with only a couple of windows which got any sun, and there I duly placed the newcomer to our small collection. When in due course the flowers opened we were delighted and I rushed off to the public library to see what books I could borrow on the growing of these plants. I was for-

tunate in finding a copy of "Starting with Cacti" by our own Arthur Boarder, and had this very informative book on loan for months. I can recommend it to anyone who has not had a lot of growing experience. I do not know if it was through reading this book or not that I have become interested in the genus *Mammillaria* than in other cacti and succulents, although I now have a varied collection.

I have a greenhouse 8 ft. by 8 ft., glass to ground, and some 180 plants, many of which are small and neither unusual nor rare. During my first year of serious collecting my wife often returned from a shopping trip with a plant purchased at the local Woolworth store, while friends gave us various cuttings and plants. As a result I have a very mixed collection but I am reluctant to dispose of any of them, as I get great satisfaction from them, and that is the important thing about any hobby.

Seed raising has given mixed results, but I can claim some 50 plants in my collection grown from seed. Some of these have flowered, and this gives me a sense of achievement. For the past two years I have used a seed tray holding 15 individual square pots and covered by a clear plastic cover. This year I intend to make a heated propagator to see if I can improve on previous results.

Last year we made our annual trip to Essex visiting relations and arranged it to coincide with the Society's Bring and Buy meeting at Westminster. The auction was most ably conducted by Bill Maddams and we found it great fun. Petrol and other troubles permitting, we hope to be there again this year. We were also fortunate in being able to spend a fascinating hour looking over the collection of Bill and Betty Maddams at Banstead. It would take two days at least to examine this collection in detail, and if you are ever invited to have a look do not miss it. I had never realised that mammillarias could grow so large.

I have planted out several surplus plants in the garden *Carpobrotus* (? *edulis*) grown from a packet of mixed seed four years ago is spreading out in all directions, although it has not yet flowered. *Sedum* (? *dendroideum*) is looking well in spite of the rain which has caused a lot of spotting on the leaves, and also flourishing is an Agave about two feet across which I brought down from London. The Sedum is in bud at the time of writing.

Some plants due to bloom later this year were already in bud last November, and we had a single flower on *Rebutia chrysacantha* a week before Christmas. Given continued mild weather I expect a number of flowers to appear rather earlier than the books say.

It is surprising to see how many cacti and other succulents can be seen growing on window sills, in porches and in conservatories in these parts. Some are nice specimens, others obviously need care and attention, and often they are mixed up with all manner of other plants but growing well in spite of it.

My only regret is that I did not start growing cacti at a much earlier age, and of course it would be nice if our climate permitted us to grow more of them out in the garden.

Notes and News

East Surrey Branch

The branch A.G.M. was held in February and all officers were re-elected for the coming year. A full programme has been arranged for the monthly meetings and members are looking forward to many interesting lectures. On the 21st May Mr. Bill Stevens is visiting us to give a talk entitled "My Favourite Genus" and on the 15th June we are all very much looking forward to visiting Mr. Stevens' Nursery. Our June monthly meeting, on the 18th, takes the form of a general discussion with a visit to the Collection of Mr. David Knight. On the 16th July Mrs. A. Wicher is giving us a talk on "Haworthias".

North Surrey Branch

Mr. J. D. Donald is to talk on Lobivias at the meeting on May 7th and a restricted Branch Competition will be held on June 4th. An evening of short talks by members is scheduled for July 2nd.

Wirral Branch

The Chairman and Mrs. Maddams will be giving an illustrated talk on "Colour in our Collection" at Wallasey on Wednesday, May 15th.

Hatfield Branch

The Hatfield Branch meets on the 4th Monday in the month and not on the first Monday as printed on the membership card for 1974. Meetings begin at 7.30 p.m. in the Hatfield Congregational Church Hall.

Succulent Stamps

In September, 1973 the Government of South Africa issued a new definitive series of postage stamps for South-West Africa. There are sixteen stamps ranging in value from 1c to R1 (the rand is equivalent to 60p at current exchange rates), and each one features an indigenous succulent plant in flower. The interesting and informative selection of subjects will appeal to all with a particular interest in the flora of southern Africa, ranging as it does from *Sarcocaulon rigidum* to *Pachypodium namaquanum* and from *Lithops karasmontana* to *Welwitschia barnesii*.

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1 M	I	T	2 R	O	3 P	H	Y	4 L	L	U	5 M
O			E		A			E			I
6 S	C	H	I	E	D	E	A	N	7 A		C
S			C		D			8 T	I	E	R
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11 E	C	H	E	V	E	R	I	A			D
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Printed by W. H. Houldershaw Ltd., 49-55 London Road, Southend-on-Sea, SS1 1PF.

The Cactus and Succulent Journal of Great Britain

Established 1931

Vol. 36 *AUGUST 1974* *No. 3*

Published Quarterly by The Cactus and Succulent Society of Great Britain

25p

SUBSCRIPTION RATES

Full Membership	£1.50
Joint Membership	£2.25
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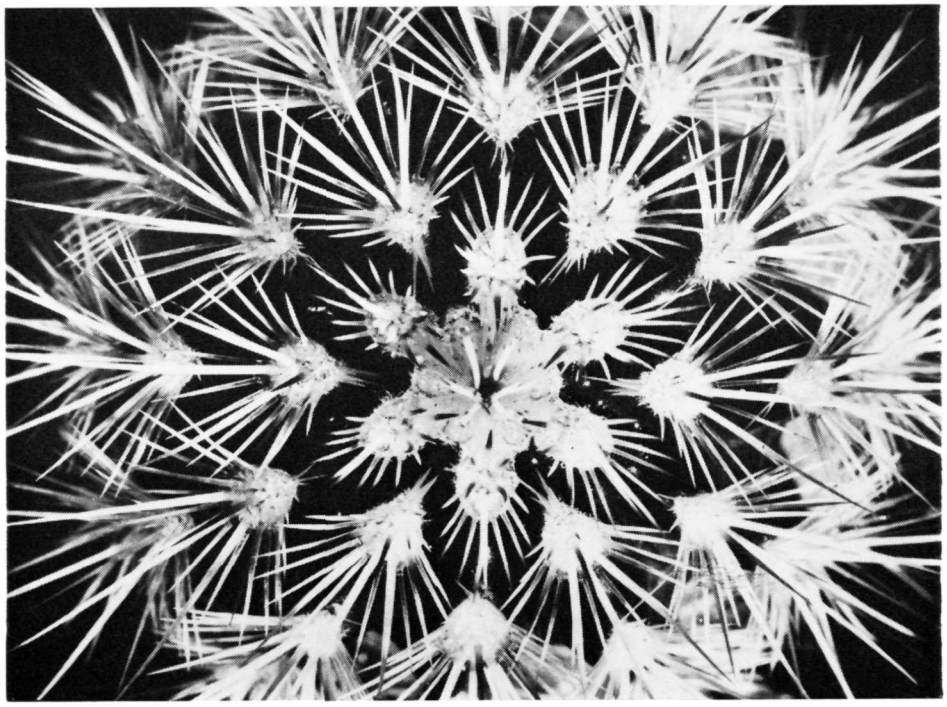
Vol. 20–22	15p per number
Vol. 23 onwards	25p per number

Postage extra overseas.
Each volume is made up of 4 numbers.

Published by the Society at COURTLANDS LODGE, PARK ROAD, BANSTEAD, SURREY, SM7 3EF.

THE CACTUS AND SUCCULENT JOURNAL OF GREAT BRITAIN

Vol. 36 August 1974 No. 3



Echinocereus parbellus from above (photo: P. R. Chapman)

CONTENTS

Editorial

THE I.O.S. Congress in September last year, as reported in our November issue, was much concerned with the topic of 'conservation'. Like the equally fashionable 'pollution', conservation gives rise to much earnest discussion at conferences and in the media, and the usual outcome appears to be general agreement that somebody should 'do something about it'. If not 'somebody', then the equally vague 'they' should do it, or perhaps 'the other fellow'. However the I.O.S. Conservation Committee is taking action and readers should take notice of Mr. Rowley's note on page 56 and, if possible, fill in the questionnaire as he requests. As species of plants and animals become threatened with extinction, either through the cupidity of the professional hunter or by the destruction or unsurpation of their habitat by man, their survival in zoological and botanical collections becomes increasingly important.

To say that a plant is rare may mean no more than that its major habitat is as yet undetected. For example take the case of the famous plant of *Fockea crispa* in the gardens of the Imperial Palace of Schoenbrun near Vienna. It was planted there in 1799 along with other succulents collected by Georg Scholl in South Africa. It flowered the following year and was described by Jacquin. As was not unusual in those days the precise locality of origin had not been recorded and since the unique Schoenbrun specimen neither produced viable seeds nor submitted to vegetative reproduction the story got around that here was the sole surviving relic of an otherwise extinct species. It was one hundred and seven years later that Professor Marloth, after searching for nineteen years, found it to be quite common in parts of the Little Karoo, where its infrequent flowering had kept it unnoticed.

On the other hand, a plant considered as being not at all rare simply because it is easy to propagate, may be in danger of extinction in the wild because its habitat is being radically altered by irrigation schemes, large scale agriculture, or because of overgrazing by animals, especially goats. Doubtless the current cycle of drought years which is affecting a wide band of tropical Africa south of the Sahara Desert and across to the Indian Ocean will have accentuated the dangers of overgrazing as whole tribes with their countless flocks move into already populated areas in their search for survival.

In Latin America we are told that the threat to cacti in such countries as Mexico and Chile comes not from agricultural development but from the commercial collector. Here the individual cactus grower in this country can do something to help, for without the demand for imported specimens the commercial collector has no incentive. The I.O.S. Conservation Committee has expressed grave concern over the number of advertisements by commercial nurseries proudly offering imported succulents, and they point out that it is quite incorrect to assume that only a good fat imported plant is fit for the show bench. Indiscriminate collectormania is a threat to the survival of many plants and one raised from seed could well be better, given patience.

This is the season of the year when secretaries of societies are busy chewing their ball-point pens in fear and frustration as they endeavour to finalize their 1975 lecture programmes. Travelling expenses are no longer a minor consideration in inviting speakers from afar, while popular figures seem to delight in 'playing hard to get'. So the home-grown article is increasingly in demand, to be cajoled into agreeing a date—perhaps not without some misgivings on both sides.

The past thirty years has seen a quiet revolution in lectures and lecturers, and the resultant changes in both of these is not yet ended. This has been brought about by the development of colour transparencies, the relative cheapness of 35 mm. cameras and the ubiquitous projector. Time was when talks were illustrated by prepared diagrams, blackboard drawings and, of course, lantern and slides. Lantern slides were large and heavy, being composed of two pieces of glass, $3\frac{1}{4}$ inches square, bound together. One piece of glass was a positive transparancy made from an ordinary photographic negative, a process demanding no little skill; the other glass served to protect the emulsion side. Not only was a box of fifty slides a weighty thing to carry about, but also an expense to produce. As a result, such slides were almost invariably of a high quality, both photographically and as illustrations of the subject under consideration, and lecturers employed them economically to support their themes.

Since the early fifties, however, miniature cameras have flooded the market, colour film has improved out of all recognition, and the general public has taken to its heart the old Kodak slogan—'You press the button, we do the rest'. One result of this is that for many people giving talks the projection of slides has taken the place of a carefully prepared script. Allowing the pictures to tell the story can be dangerous unless they are of high quality, and all too often an unnecessarily high number of slides are used to hide gaps in the narrative. Colour transparencies are invaluable for travel talks and, if taken with the necessary care, for talks about plants. In addition, and just as important, they can help the 'amateur' to get on his feet before his local branch and exescise his latent talents at a minimum cost to himself in the matter of equipment.

To the non-professional speaker we would offer a few suggestions, beginning with the words of a Texan who, in another context, remarked "If you haven't struck oil in twenty minutes, stop boring".When slides are not being shown purely to demonstrate their photographic quality, they should be restricted in number to the minimum required to illustrate the subject matter of your talk. A maximum of two slides a minute is suggested. Avoid showing any slide which requires an apology for technical inadequacy as this distracts the audience Remember that most meetings are held in halls where seats lack the comfort of a cinema and restrict the actual lecture to an hour or less. Finally, shed any false modesty about your ability to pass on your enthusiasm for succulents to others and gladden your Secretary's heart by volunteering to talk. Having given your talk write it down and send it to the Journal for publication. Why not?

Seasonal Cactus Care

by W. F. & B. Maddams

ALTHOUGH these notes are being written during a pleasantly warm spell early in June and the Journal will be in the hands of members in August when high summer is still with us, it is by no means too early to think about heating arrangements for the coming winter. The idea may not appeal for psychological reasons but, be that as it may, prudence should prevail. It would probably require the compass of two articles to deal satisfactorily with all aspects of greenhouse heating as they affect the cactus and succulent enthusiast and for the present we shall deal primarily with heating systems and the necessity to think carefully about the various aspects of the subject, particularly the economics of greenhouse heating in view of the ever rising costs of all types of fuel.

It is by no means easy to arrive at sound figures for the cost of heating a greenhouse by various fuels and it is therefore equally difficult to make an accurate comparison and decide which is the most economical. Nevertheless, we have been able to obtain information which is sufficiently realistic to be of real value. Although solid fuel boilers with hot water pipes are still to be found in a few greenhouses, the great majority of cactophiles will use either paraffin, gas or electricity or, perhaps a combination of two of these. Our comments will therefore be restricted to those three fuels.

Unfortunately, the calorific values of the three are normally expressed in different units; kilowatt hours or units for electricity, British Thermal Units for paraffin and therms for gas. It is convenient to make the intercomparison in terms of the cost per kilowatt hour and, initially, we shall take the prices of the white meter (off peak) tariff for electricity and the gold star tariff for natural gas. This is a reasonable basis because those who use electricity or natural gas for domestic heating will clearly tend to opt for them for greenhouse heating.

By the time these notes appear the price of the white meter electrical tariff will be about 0.75p per unit, if reports in the press are to be believed. The current gold star rate for natural gas is approximately 7.5p per therm and as one of them equals some thirty electrical units the cost in terms of the latter is 0.15p. Finally, the calorific value of one gallon of paraffin is about 170,000 B.Th.U. or some fifty electrical units giving a value per unit of 0.56p with paraffin at 28p per gallon. Hence, two facts emerge very clearly; not only has paraffin lost its position as being the cheapest fuel but it has done so in no uncertain way and has been well and truly supplanted by natural gas. This is not surprising as its price has doubled over a period of about two years. However, it is not the time to suggest, as is now being done by one or two writers, that electricity is a better proposition than paraffin. There is clearly little to choose between them on the basis of the above figures and those who do not buy on the white tariff system will still find paraffin significantly cheaper.

All three figures will prove somewhat too low in practice. In the case of gas and paraffin this is because the heating efficiency is not 100 per cent; that is to say that the heat obtained is not equal to the calorific value of the fuel. One very obvious reason for this is the fact that cold air has to be drawn in continuously to provide the oxygen required for combustion.. In the case of cheap tariff electricity the complicating factor arises from quite a different source, namely that it is available only between the hours of 10.30 p.m. and 7.30 a.m. and at other times the cost is two and a half times the cheap rate. In the autumn and spring this will be of comparatively little consequence but in mid-winter it could be a different story. The daytime usage will clearly depend on the minimum temperature being maintained and the severity of the weather. During recent mild winters those who have used electricity on the cheap tariff for greenhouse heating will have had to pay relatively little at the higher rate but in a more normal winter the figure will undoubtedly be significantly greater. It is very difficult to put firm figures

on these increased costs, both for gas and paraffin on the one hand and electricity on the other, but an addition of 20 per cent to the figures given above does not seem unreasonable. The important fact is that it does not significantly alter the relative costs.

Running costs are clearly very important but they are by no means the only factor which must be taken into consideration, either by those who have recently acquired a greenhouse and are about to install a heating system, or by others who have used a particular system for some time and are mooting a change. There are considerable differences in capital outlay between installing paraffin, electricity and gas heating systems and for purposes of making a comparison it is convenient to take a typical case, the provision of three kilowatts of heat. In the case of blue flame paraffin burners the cost will be around £20, with no installation overheads. With electrical heating, either in the form of tubes or a fan unit the current price is in the region of £25, in addition to which a cable must be taken to the greenhouse. This overhead is also an important factor in the case of gas heating and will add significantly to the £30 or so required to purchase the heater. In either case if the greenhouse is situated some distance from the dwelling quite appreciable installation costs will be incurred.

It is also necessary to consider depreciation. Electrical tubular heaters should have an indefinite life and, in our experience, there is still little to go wrong with blue flame heaters. On the other hand the life of electrical fan heaters is limited, usually by failure of the fan system rather than the heating element, and the design changes sufficiently rapidly that a model may be obsolete after five or six years. As yet it is too soon to comment meaningfully on the life of natural gas heaters. Thus, in terms of capital outlay and maintainance, paraffin heaters have a definite advantage and it is clear that natural gas heating should be considered on a relatively long term basis if economic factors rather than convenience are the primary consideration. Of course, there are those who will say that is is futile to attempt a longer term assessment of heating economics at a time when inflation is rampant but this is by no means the case as there are straws in the wind which provide a good guide. Over a period of time, on a national basis, it is clearly untenable that one primary fuel should be considerably cheaper or more expensive than the others; it is therefore unlikely that there will be large changes in relative costs during the coming years. Furthermore, with the advent of North Sea oil it is being predicted that prices will fall in real terms, whatever the effects of inflation. Consequently, users of paraffin heaters should think carefully before they change to another system; if they can obtain natural gas at the cheapest rate, on account of domestic heating appliances, and are prepared to take a longish term view of the capital investment involved, a gas heater is an alternative.

This is precisely the view we took last autumn and, after what may have appeared to have developed into a discussion on fuel policy more suitable for the pages of The Economist, we will come down to earth and make a few comments on our experiences with the Shilton gas heater. The mild weather did not provide a stern test of its capabilities but, nevertheless, we have been able to assess its performance reasonably accurately. It was installed early in November 1973 and the cost of the heater, some fifty feet of plastic-covered metal piping and installation labour charges amounted to £48. Shortly after it came into use a small blockage occurred in the pilot light, which ignites the main gas flow when it is turned on by the thermostat control, and ignition was delayed for as much as twenty seconds. The fault was soon rectified but the only unsatisfactory feature was that both the manufacturers and the local gas board refused responsibility for the fault and we were faced with a bill for £1.60.

The sharpness of the thermostatic control is comparable with that of the average electrical heater. However, some difference in behaviour is apparent and this arises from the fact that the control unit is situated close to the base of the heater and near to ground level. Consequently on brighter winter days, when the air temperature in the greenhouse rises significantly but the floor does not warm up greatly, the heater continues to operate, although the temperature may be several degrees above that at which it normally cuts in. However, this does not add significantly to the running cost. We rapidly realised that the column of hot gases from the heater, which seems to rise almost vertically before spreading out at roof level, can actuate the automatic ventilators to some degree, which is hardly necessary or desirable on a cold winter night. This problem may be overcome by moving the heater to a position away from such ventilators or, as we did, by fastening a sheet of asbestos above it to act as a deflector plate. It has proved difficult to arrive at an accurate figure for running costs, simply because they were comparatively small and difficult to separate from what was spent on domestic gas heating. However, for the heavy quarter, December, January and February, it was in the range £8 to £10 and for this a greenhouse 19ft. by 8ft. was kept at a minimum of about 48 F. This is very economical, despite the mild weather, and as we regard the installation both as a long-term investment and one of convenience, to avoid handling substantial amounts of paraffin, we are well satisfied.

Although the peak of the flowering season will have passed by the time that these notes appear in print, the months of August, September and October see a continuation of the flowering of a considerable anumber of cacti and bring blooms on a number of late season plants. Foremost among these latter are the Ariocarpus species including the plant commonly known as *Neogomesia agavoides* which many writers now accept as Ariocarpus. This species often used to flower for us around

Ariocarpus retusus (photo: B. & W. F. Maddams)

the end of August or early September but now according to our recent flowering records we find it is early October; but the large, deep pink flowers are welcome whenever they appear. This is also the case with another reliable flowerer, *Ariocarpus kotschoubeyanus;* for many years one or the other of our two plants of this species would open its flowers around the middle of September but they are later now, too. *A. retusus* is not so lavish with its flowers and these white blooms with a pinkish tinge have been on display at the October Show at Westminster from time to time as have the two previously mentioned. One year *A. trigonus* joined them with its yellow flowers but this species seems rather shy of flowering. As we have mentioned in other articles all Ariocarpus species require as much water as other cacti in summer when they are properly established and our smaller ones are quite happy in plastic pots, too. They certainly need the optimum light you can give them.

Buds may well be showing on some Schlumbergera hybrids by mid-September and this is the time to take all those and the Epiphyllum hybrids back into the greenhouse before the cooler nights come along. Before doing so we always check to see if any repotting or trimming is needed and those not repotted are placed in a deep zinc tray which we have filled with water and appropriate amounts of systemic insecticide and fungicide and a small dose of high potash liquid fertilizer. This is all taken up by the roots and prevents any unwanted insects or disease from thriving as it is introduced to greenhouse conditions; a careful look for slugs and snails is also recommended as these can be a real nuisance under glass. The plants already budding up, usually *S. bicolor* and others such as *S.* 'Lilac Bender', are brought straight to a light situation indoors as they do not like too many changes in environment at this stage and it is best to set them straight away where the flowers can be enjoyed.

Taxonomy of the Stapelieae

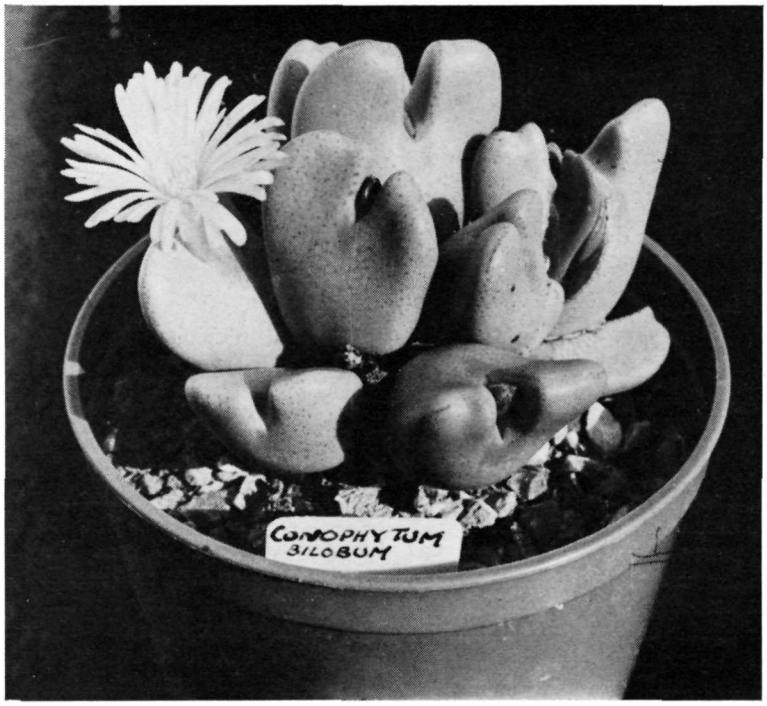
Mr. L. C. Leach continues his study of 'the Stapelieae from South Tropical Africa' with No. 8 in his series of papers in the Journal of South African Botany (**40,** (1), 15-25, 1974). Here he describes a new *Trichocaulon* from Angola under the name *T. mossamedense*. It is larger and more robust than the related *T. pedicellatum* from SW Africa. At present it is only known from the vicinity of Mossamedes.

A new variety of *Huernia verekeri* is described from Angola, thus extending the range of the species from the shores of the Indian Ocean almost to the Atlantic. *H. verekeri v. angolensis* was discovered in a damp situation on rock ledges on the western escarpment of the Serra da Chela. The corrolla tube is strikingly bright red.

Finally, the distinctions between the genera *Duvalia* and *Huernia* are discussed, with special reference to three species, *Huernia tanganyikensis, H. procumbens* and *H. andreana* which Dr. Dyer has suggested (in Bothalia, 1971) should revert to *Duvalia*. Mr. Leach supports his argument for their retention in *Huernia* with some interesting photographs.

Cultivation of Succulents

by Mrs. M. Stillwell



Conophytum bilobum in flower
(photo: W. V. Harris)

AUGUST can be a busy month in the succulent world. This is the time when many of the stemless Mesembryanthemums really start to come into their own. The Conophytums will look better for having their dead skins removed. This is a tedious operation and must be done very carefully, as the heads of the smaller groups detach very easily from the body of the plant. Place a finger over each head as the skins are removed from the base. Many people use tweezers for this job, but I have always found a long thumb nail more efficient. Conophytums should be repotted at this time if necessary, and any cuttings taken. There is no need to repot every year once the clump has reached a good size; they are much better left undisturbed. Since Conophytums scorch easily, it is not recommended that they be grown too near the glass, and I have found that they do very well on the staging with a shelf above, providing this is a reasonable height from the plants and allows ample light. Plastic pots have proved very suitable for Conophytums, and a fair amount of water is acceptable during the growing season. Watering should be started as soon as growth starts after the long rest, when the outer skin will split and the new bodies emerge. The bilobes are usually the first to need water, and they increase rapidly from one head. Frequently a young plant will have as many as three bodies inside each head and in a few years a nice plant will mature. If a Conophytum has not increased itself it should be repotted. Examination of the root of an old plant may show this to be very woody and in the case it is better to cut off the heads and re-root them.

Argyrodermas start to grow about May, and this is the time to repot them if necessary. Old skins are very difficult to remove and are best left alone. The same applies to Dinteranthus. Opthalmophyllums require watering in June, and repotting may be done then. The papery old skins can be removed with care when they are quite dry. Water sparingly and only when the plant looks a little soft and flabby, as they split very easily. Opthalmophyllums do very well when several kinds are planted together in a large clay pan. Plastic tends to force growth rather too much for them and they are less likely to remain as single bodies. The flowers usually have a strong scent.

If you have time, make up a special mesembryanthemum compost by sifting all the dust out of a good

John Innes compost and then adding one third of very coarse sand or fine aquarium gravel and limestone grit mixed. Chicken grit or cornish grit can be used instead but the latter has to be sifted, as sometimes it is very powdery. With this mixture it is almost impossible to overwater, thus avoiding the main reason for loss of plants.

Gibbaeums do not start to grow as a rule until late summer or early autumn, and this is the time for repotting. Species such as *G. dispar, G. cryptopodium* and *G. pilosum* should be in bloom by Christmas. The last two of these must be given a long summer rest to let the outer bodies dry off; watering too early leads to splitting of the plant bodies and an unattractive appearance. Clay pots and full sun are essential to the maintenance of these small Gibbaeums in full beauty.

Pachyphytum filiferum is a most attractive, though not so well known, succulent that produces large heads of reddish flowers. The flat rosettes have a bunch of dark hairs coming from the centres which give an unusual appearance to the plants. It offsets fairly freely but a plant looks better if some of the offsets are thinned out, encouraging it to grow into a large head, thus showing its characteristics to advantage.

Many common succulents such as Faucarias, shrubby Mesembryanthemums, large Aloes and Agaves, certain Echeverias and others do very well outside during the summer where they can get plenty of fresh air, sunshine and what rain there is going. Usually they colour up well and develop a good firm texture, and flower better the following season. A large frame is ideal for this purpose, but failing this a section of garden on fairly high ground can be adapted by building a wall of bricks about one foot high around it and filling up with a sandy compost and a top dressing of peat to keep down the weeds. The plants are bedded down still in their pots and can make a pleasing display. Leaving them in their pots makes for easy removal in autumn and restricts the root growth. A generous amount of slug pellets provides necessary protection against these pests. If birds are a nuisance, it may be desirable to cover with a large fruit net, supported on poles. This arrangement can be left to look after itself for several months. About the middle of October, the plants are taken up, the pots cleaned, surplus growth removed and returned to the greenhouse. Plants likely to flower during the winter should be given a prominent position so that they may be seen to give colour during the dark days.

Stapeliads flower well during the autumn if they have plenty of new growth, as this is where most of the flowers appear. When repotting earlier in the year, most of the old stems should be removed and the new growth around the edge of the pot allowed to grow on. Some of the choicer species do not require such drastic treatment; for instance, certain Carallumas will continue to flower on the same stem. While Stapeliads do not like to be baked up in the sun, they are not at their best pushed away under the staging where they will make a lot of growth but few flowers. Free flowering depends on adequate light. Seed may be collected by leaving the horn-like pods on the plant and then covering them with a plastic bag just before they split.

Try and classify all the plants in the greenhouse by collecting the members of each genus together. This makes it easier to locate a particular plant, and enables comparisons to be made one with another, thus helping in getting to know one's plants better. Try and arrange the larger plants at the back of the staging so that the smaller ones are in the front and so avoiding being overshadowed.

Boarder on Cactus Seed Germination

I have been growing cacti for the past 43 years and raising from seed for at least 25 years, during which time I have tried many new methods with varied results. Every now and again someone has recommended a fresh method and all those who have not been very successful have rushed in to try the new system, but not always with improved results. Let there be no mistake on this point, one is either a cactus grower or one is not. There are no half measures, it is similar to the proverbial green-fingers successful gardeners are said to possess, as those without have little success. I have germinated seeds in all kinds of mixtures from sand to John Innes Compost and have had fair results from all. Seeds should germinate if they are provided with sufficient moisture, warmth and air. No nutriment is necessary at first, as each seed contains enough nourishment to give the embryo a start. It is when the plantlet is developing that some food is necessary and therefore the actual soil does not matter very much at first. It has been stated that it is very easy to transplant seedlings from this new substance (Vermiculite) and I can quite believe this to be so, but I do not always move my seedlings very early. I sometimes leave the seedlings in the seed pan until they are crowded together without any harm coming to them. The Mammillarias which I mentioned as being in flower were kept in the pan until they touched each other and I took 150 plants from a four-inch half-pot. They usually make rapid growth when they are eventually transplanted. Whichever method you adopt for your seed raising be very careful to see that the soil is not allowed to dry right out while the seeds are germinating, nor should the soil be kept too wet. I do not like to see seed pans standing in water as is sometimes done. All my watering is done by spraying with water which has been standing in the propagating frame to keep it near the same temperature as the soil. The use of a little permanganate of potash in the water will help to keep it pure and will kill algae in the water, thus going a long way towards keeping the surface of the soil from caking over.

(from this Journal, January, 1949)

SUCCULENTS IN CULTIVATION—

A Survey of Specialist Collections in Britain

by G. D. Rowley (I.O.S. Conservation Subcommittee)

FOLLOWING decisions of the Reading Congress of the I.O.S. relating to conservation, I have been asked by the British Section to undertake a survey of what is already available in cultivation in the British Isles in private collections. It is well known that many of the finest plants lie hidden in little publicised glasshouses unknown to those botanists and monographers who could gain most from seeing them. Obviously one cannot hope to catalogue every plant in even one collection, and to make the scheme workable at all it must be highly selective. For a start the survey is limited to the more serious-minded specialists who concentrate on one particular family (Cactaceae, Didiereaceae, etc.), genus or other group (epiphytes, dwarf S. American cacti, etc.). But equally eligible are specialised collections built up purely for exhibition, provided that the plants are labelled—do not be put off replying because you have no botanical training or aspirations.

To simplify recording, the questions that follow are numbered, and you need only write the numbers (on a postcard, if you wish) along with *brief* answers. By all means add general notes on special rarities, aspects of cultivation, or anything relevant to the concept of reserve collections, but please don't expect a personal answer to every letter! However, progress on the scheme will be reported, as well as any plans for publishing the results of the survey. If the results of the questionnaire merit it, the replies will be transferred to punched cards as the ideal means of storage, and can then be added to and updated indefinitely. A good response could be of great help in discussing the whole problem of reserve collections, and in deciding how best to use available funds to ensure that all endangered species are being maintained in sufficient numbers and places. Further, the collectors who supply data stand to gain by being put in touch with others of similar interests.

QUESTIONNAIRE

1. In which Families/Genera of succulent plants do you specialise?
   (Rough estimate of size of collection would help: pot number, area occupied, etc., or put "Just starting" if appropriate)
2. Do you regard your collection as
   (a) for personal enjoyment only,
   (b) for exhibition,
   (c) potentially useful to botanists,
   (d) a conservation reserve?
3. Do you keep written records of your plants?
   (a) accession numbers,
   (b) origin and date of arrival,
   (c) identification,
   (d) growth, flowers, seeds, etc.
4. Do you attach special value to plants of known wild origin?
5. Do you make any effort to check labels, correct misnomers, reject unnamable specimens?
   (a) via personal inquiries to experts,
   (b) via private or public libraries.
6. Are you satisfied with one specimen of each species, or can you accommodate many to show range of variation?
7. Do you keep a photographic record or make drawings of your plants?
8. Do you attempt to obtain and distribute pure seed from your plants?
9. Would you be interested in contacting others with similar specialities, and in exchanging material?
10. If field collectors were prepared to send you live material or seed of your own speciality, could you
    (a) offer it a reasonably good and secure home,
    (b) report back on its progress and possible identity?
11. How lasting is your collection? If you died tomorrow, has any provision been made for the future survival of your plants?
12. Have you any other relevant interests not covered above, e.g.
    (a) books and journals on succulents,
    (b) cultivation techniques, grafting, seed-raising, etc.
    (c) hybrids and cultivars,
    (d) hybridisation,
    (e) cristates,
    (f) variegated plants,
    (g) research in fields other than taxonomy?

Be sure to add legibly your name and full postal address.

Please mail your answers to:—

G. D. Rowley,
"Cactusville",
1 Ramsbury Drive,
READING RG6 2RT.

Is the Baobab Tree Succulent?

by Len Newton

Fig. 1. A carpenter at work beneath a fine old baobab at Bolgatanga, northern Ghana; a dry-season view when the leaves have fallen; height 36 feet, girth 41 feet. (photo: L. Newton)

IN HIS ACCOUNT of the 12th I.O.S. Congress, R. B. Pearce (1973) makes a statement which some readers may dispute. His paragraph referring to my slide lecture on West African succulents ends with: "Although not commonly thought of as such, the great baobab tree is, in fact, a succulent". The position of this statement in the text suggests that it represents my opinion, though I did not express such an opinion during my lecture. I should like to make some comments on this.

Although my lecture was entitled "West African Succulents" I included several plants which I do not really regard as succulents, and so the term was used rather loosely. All the plants which were illustrated or referred to in my lecture were included on the sole criterion that they are found in succulent plant literature. For example, the *Ceropegia* species which were shown (*C. campanulata, C. deightonii, C. porphyrotricha* and a possibly new taxon) are all geophytes, with underground tubers from which arise annual shoots having no succulent tissues at all. In cultivation these plants would be grown with the tubers at ground level, and they would be called 'caudiciform' plants. In a recent article published elsewhere I have written on my opinion that caudiciform plants are not succulent (Newton, 1974). What about the baobab then—is it succulent? The answer seems to be: "it depends on what you mean by succulent".

Succulent plants are characterised by the possession of water-storage parenchyma, sometimes called aqueous tissue. Parenchyma is a tissue consisting of living, thin-walled cells with air spaces between them. In water-storage parenchyma the cells are large and contain a lot of mucilage, and water is stored by being held in the mucilage. In leaf succulents the storage tissue normally occupies the central mesophyll region, below the green photosynthetic layer. In stem succulents it is usually the cortex, and often also the central pith region, which is succulent. Other structural features include such things as thick cuticle and sunken stomata, which are also found on other xerophytes. A biochemical feature associated with succulent plants is 'Crassulacean acid metabolism' (so called because it was first observed in members of the Crassulaceae), involving the accumulation of certain organic acids in darkness, followed by breakdown of the acids with the release of carbon dioxide in daylight.

Several growers who have raised *Adansonia digitata* from seed have commented that the seedlings show no sign of succulence (e.g. Ginns, 1972; Powell, 1972). Young plants have no succulent cortex, or any other succulent tissue, and the enlarged trunk of older plants is composed almost entirely of wood. In the natural habitat the trunk of young plants develops a conical shape after some years (fig. 1), but only very old trees have the grotesque shape often featured in succulent plant literature (fig. 2). Some years ago I heard a lecturer at a branch meeting in England say that if you punch the trunk of a baobab tree your fist will sink into the spongy wood. He was not speaking from personal experience, and the statement was challenged by a member of the audience who told us that he had climbed a

baobab tree in Africa. I can now add my support to this refutation. Punching the trunk of a baobab tree would probably feel just like punching the trunk of an oak tree, and I found that it needed a hefty blow with a cutlass to cut out a small piece of wood for examination. As far as I am aware, Crassulacean acid metabolism has not been found to occur in the Bombacaceae, though I do not know if any members of the genus *Adansonia* have been investigated. Clearly *Adansonia digitata* is not a stem succulent in the same way that a *Cereus* or a *Stapelia* is. What, then, is its claim to succulence? To answer this we must examine the wood of which the huge trunk is composed.

The baobab is a member of the family Bombacaceae, most of whose members have very light and soft wood (Metcalfe & Chalk, 1950). Probably most readers are familiar with the extraordinary balsa wood, which is from another member of this family, *Ochroma lagopus*. Almost all wood contains a certain amount of parenchyma, but in members of the Bombacaceae the wood parenchyma is especially abundant. Most African timbers have densities ranging from about 25 lb., cu. ft. for light timber, to over 60 lb., cu. ft. for heavy timber, in air-dry condition. When a tree is felled the wood contains some water, and so there is a difference between the weight of freshly cut wood and that of wood allowed to dry for some time. As an example, African Mahogany *(Khaya ivorensis)* is a medium weight timber whose wood has a density of 44 lb./cu. ft. when freshly cut, and 35 lb./cu. ft. when air-dry. The density of baobab wood is 53 lb./cu. ft. when cut fresh from the tree, but only 13 lb./cu. ft. when air-dry; the rest of the weight is water (Pardy, 1953). Thus although it has no distinct region consisting entirely of water-storage parenchyma, the baobab is able to store large quantities of water in its wood.

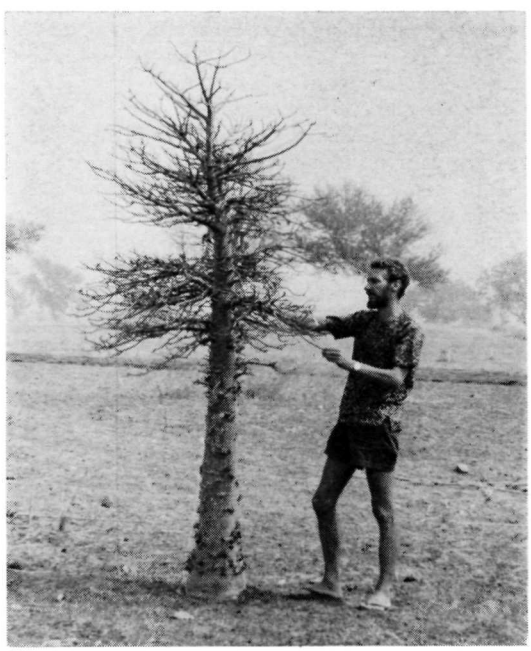


Fig. 2. The author examines a young baobab in the dry season in northern Ghana; height 9½ feet. (photo: Chris Kwashie)

So, is the baobab a succulent plant? As I said, it depends on what you mean by succulent! If we define a succulent plant as one which stores water internally in any way at all, then *A. digitata* is certainly succulent. If we restrict the term to those plants which have distinct expanses of water-storage parenchyma, so that the stems or leaves have a fleshy or juicy consistency (which is what the word 'succulent' means etymologically), then *A. digitata* is not succulent. I am inclined to favour the second view, regarding the baobab and its relatives as representing an odd kind of water-storage, along with the 'tank-plants' of the Bromeliaceae. This is a personal view and is not intended as an authoritative edict; a specialist in plant morphology might have a different opinion. In spite of my conclusion I shall continue to include the baobab in my lecture on West African succulents, and must confess that I am guilty of having used the term succulent in this loose way in a recent letter to another journal, concerning the appearance of the baobab in a Ghanaian bank-note design.

Perhaps I could end by mentioning another term used by some botanists, and which would be applied here. The term is 'pachycaul' (pachy=thick; caulis=stem) and it is used to describe any plant with an abnormally thick stem, whatever the cause of the thickness. As stem succulents are pachycaulous other pachycaul plants attract the attention of succulent plant enthusiasts because of their similar outward appearance. Consequently a number of non-succulent or doubtfully succulent pachycaul plants have found their way into succulent plant literature. Examples are species of *Dracaena, Cavanillesia, Chorisia, Phytolacca* and *Plumeria*. (Note that this list includes some other members of the Bombacaceae). If, therefore, you are not sure whether or not a particular thick-stemmed oddity is really succulent, you may like to play safe by calling it pachycaul—but don't ask me how thick a stem has to be to qualify for this term!

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Some Impressions of the June Show

by Mrs. M. Stillwell

UNFORTUNATELY I was unable to attend the show on the first day when one gets the real atmosphere, and when most of the regulars are also present. However I had a good look round on the Wednesday and it was then that I was asked to write my comments for the Journal.

On the whole I thought the plants were up to the standard that one expects at Westminster. Class 1 for six cacti is a class for large plants and for the experienced grower, and was won by Mr. and Mrs. Maddams of Banstead, and for this they received the Ibbotson Cup. The predominant plant was a fine *Macherocereus eruca,* and this was supported by a beautiful *Ferocactus acanthodes* which had flowered well. In the group was a very large *Echinopsis decaisneana* which had bloomed profusely, showing that a common plant if well grown can be among the winners. Mr. R. H. I. Read of Cheam was a close second, but lacked variety in his choice of plants, having two Mammillarias and two Cereus in his group. The third prize went to Mr. J. Taylor from Essex for a group that was good but smaller. *Rhipsalis cereuscula* can be magnificent when in full bloom, but here with the flowers dead it looked a little nondescipt.

Class 2 for three Rebutias and Lobivias, which carries the Luty Wells Cup, also went to Mr. and Mrs. Maddams. Their plants were very large but all fairly common. Mr. Taylor's second prize exhibit included a very delightful orange flowered *Rebutia minuscula.* In Class 3 for three Mammillarias Mr. and Mrs. Maddams took yet another first with three fine plants, among them a *M. melanocentra* to be proud of. Mr. Taylor's second prize exhibit included a fine, large *M. zeilmanniana* in full bloom. Mr. Read's attractive pink form of *M. bocasana* in a black pan not unlike a cake tin had the appearance of a pink and white birthday cake. The class for six Mammillarias in pots not exceeding 4½ in.—the Maddams' immaculate plants came first—included a *M. theresae* in full bloom among Dr. and Mrs. Randall's second prize exhibit. Mr. Read also showed a *M. theresae* in bloom and a fine *M. boolii* with several heads.

Mr. E. G. Canham provided three perfect plants of the newer Notocacti to take first prize in class 5. In class 6 for three Echinocactanae, Mr. and Mrs. Maddams showed a particularly handsome *Sulcorebutia steinbachii* v. *gracilis,* Mr. Taylor in second place had a beautiful *Stenocactus vaulpelianus,* and Dr. and Mrs. Randall's *Lophophora williamsii* attracted attention with its numerous flowers. Among the three Gymnocalyciums with which Mr. Taylor came first in class 7 was a lovely *G. lafaldense* forming a large clump with very deep pink flowers. Another outstanding plant was the *Echinocereus subinermis* which the Maddams exhibited in class 8. In class 10 Mr. Read's *Neobessayana missouriensis* in full flower was outstanding.

Turning to the 'other succulents', in class 15 Mrs. M. Dennard of Erith took first prize for a specimen succulent with a very fine *Pachypodium namaquanum.* I am told that this species is now practically unknown in habitat. Included in Mr. and Mrs. Maddams' prize winning exhibit of three Euphorbiaceae was a choice *Euphorbia stellata,* while in class 18 for two Asclepiadaceae their *Raphionacme hirsuta* in full bloom was adjuged 'best succulent in show'.

In class 23 for one cactus and one other succulent, Mr. Read took first prize with a magnificent, large *Ferocactus acanthodes* which was awarded 'best cactus in show' and *Euphorbia horrida.* The S. J. Pullen Cup for miniature gardens—class 24—was won by Mrs. I. M. Horan with a pleasing arrangement of colourful plants. Similarly eye-catching was Mr. and Mrs. Maddams' winning arrangement of cacti and succulents for decorative effect.

Special Westminster Meeting

Owing to family bereavement Mr. Cyriel de Herdt is unable to visit England this summer and the talk announced for September 18th at the R.H.S Westminster is regretfully cancelled. We offer Mr. de Herdt our condolences and trust he will be able to visit us at a later date.

ANNUAL DINNER 1974

Date—Saturday, November 16th.
Time—6.30 for 7.00 p.m.
Place—Mecca Ltd., Colonial House, Mincing Lane, EC3 (William & Henry Suite).
Please book early; tickets £3 per head. See separate inset.

Results of the June Show, 1974

Judges

Cacti: Mr. B. C. Oliver. Succulents: Mr. D. V. Brewerton.

Class 1 Six Cacti. 4 entries

1st Mr. and Mrs. W. F. Maddams. Espostoa huanucensis, Mammillaria magnimamma v. hysterix, Haageocereus multiangularis, Ferocactus acanthodes, Echinopsis decaisneana, Machaerocereus eruca.

2nd R. H. I. Read. Mammillaria gemispina, Espostoa melanostele, Echinocactus grusonii, Mammillaria gigantea, Oreocereus trollii, Ariocarpus fissuratus.

3rd J. E. Taylor. Rhipsalis cereuscula, Mammillaria elegans, Parodia catarmarcensis, Echinopsis kermesina, Malococarpus erinaceus, Coryphantha elephantidens.

Class 2 Three Rebutias and or Lobivias. 5 entries

1st Mr. and Mrs. W. F. Maddams. Rebutia marsoneri, R. pseudodeminuta, Lobivia jajoina.

2nd J. E. Taylor. Rebutia muscula, R. deminuta v. grandiflora, Lobivia wrightiana.

3rd Mr. and Mrs. P. Whicher. Rebutia albiflora, R. senilis v. aurea, R. sp. nov.

Class 3 Three Mammillarias. 6 entries

1st Mr. and Mrs. W. F. Maddams. M. melanocentra, M. kuentzii, M. nejapensis v. longispina.

2nd J. E. Taylor. M. spinosissima, M. plumosa, M. zeilmanniana.

3rd R. H. I. Read. M. bocasana, M. shiedeana v. plumosa, M. collinsii v. chiapas.

Class 4 Six Mammillarias in pots up to 4½ in. diam. 4 entries

1st Mr. and Mrs. W. F. Maddams. M. microcarpa, M. solisoides, M. graesneriana, M. herrerae, M. magallanii, M. blossfeldiana.

2nd Dr. and Mrs. G. C. W. Randall. M. humboldtii, M. magallanii, M. eriacantha, M. perbella, M. pseudoperbella, M. theresae.

3rd R. H. I. Read, M. humboldtii, M. theresae, M. boolii, M. schwartzii, M. guelzowiana, M. potsii.

Class 5 Three Notocacti in pots up to 4½ in. diam. 6 entries

1st E. G. Canham. N. magnificus, N. claviceps, N. muegelianus.

2nd Mr. and Mrs. W. F. Maddams. N. crassigibus, N. fuscus, N. claviceps.

3rd Dr. and Mrs. G. C. W. Randall. N. magnificus, N. buiningiii, N. crassigibus.

Class 6 Three Echinocactaneae. 7 entries

1st Mr. and Mrs. W. F. Maddams. Sulcorebutia steinbachii v. gracilis, Notocactus schumannianus, Stenocactus ochoterenaus.

2nd J. E. Taylor. Astrophytum myriostigma, Stenocactus vaupelianus, Leuchtenbergia principis.

3rd Dr. and Mrs. G. C. W. Randall. Obregonia denegrii, Lophophora williamsii, Thelocactus zipacanthus.

Class 7 Three Gymnocalyciums and or Weingartias. 6 entries

1st J. E. Taylor. Gynnocalycium sp., G. lafaldense, G. mostii.

2nd Mr. and Mrs. W. F. Maddams. G. hossei, G. curvispinum, Weingartia hediniana.

3rd F. W. Fuschillo. G. gibbosum v. nigrum, G. hybopleurum, G. moserianum.

Class 8 Two Echinocereus. 5 entries

1st Mr. and Mrs. W. F. Maddams. Echinocereus engelmanii E. subinermis.

2nd J. E. Taylor. E. fitchii, E. knipellianus.

3rd Dr. and Mrs. G. C. W. Randall. E. melanocentrus, E. websterianus.

Class 9 One specimen Mammillaria. 4 entries

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

2nd R. H. I. Read. M. plumosa.

3rd L. G. Hurley. M. geminispina.

Class 10 One Cactus. 5 entries

1st R. H. I. Read. Neobessya missouriensis.

2nd Mr. and Mrs. W. F. Maddams. Mammillaria candida v. rosea

3rd. Mrs. M. Dennard. Homocephala texensis.

H.C. E. J. Canham. Trichocereus pasacana.

Class 11 Six Cacti in pots up to 6 in. diam. 8 entries

1st Mr. and Mrs. W. F. Maddams. Copiapoa humilis, Cochemia maritima, Epithelantha micromeris, Horridocactus setosiflorus, Neolloydia horripila, Mammillaria pennispinosa.

2nd J. E. Taylor. Homocephala texensis, Stenocactus sp., Rebutia krainziana, Mamillopsis senilis, Ferocactus acanthodes, Parodia maasii.

3rd E. G. Canham. Mammillaria spinosissima, Notocactus schumannianus, Stenocactus ochoterenius, Parodia comosa, Oreocereus oreo, O. trollii.

H.C. Dr. and Mrs. G. C. W. Randall.

Class 12 Cacti raised from seed by the Exhibitor. 1 entry

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

Class 13 Three Cacti in pots up to 6 in. diam. (for members who have not won a first prize in classes 1-11) 6 entries

1st J. P. McKeogh. Thelocactus conothelos, Mammillaria rhodantha, M. ritteriana.

2nd Mrs. G. Boswell. Notocactus leninghausii, Trichocereus fulvilanata, Pseudolobivia kermesina.

3rd Mrs. M. Dennard. Mammillaria hahniana, Coryphantha wendmanniana, Copiapoa haseltonia.

H.C. L. G. Hurley.

Class 14 Three Cacti in pots up to 5 in. diam. (for juniors and members who have not won a first prize in any cactus class). 5 entries

1st J. P. McKeogh. Parodia sanagasta, Mammillaria heeriana Wigginsia sp.

2nd Master N. Randall. Cochemia poselgeri, Cephalocleistocactus ritteri, Helianthocereus huascaa.

3rd Mrs. M. Dennard. Ariocarpus trigonus, Mammillaria bravoae, Thelocactus bicolor v. tricolor.
H.C. A. Sidaway: Master F. W. J. Fuschillo.

Class 15 One Succulent. 6 entries
1st Mrs. M. Dennard. Pachypodium namaquanum.
2nd D. T. Best. Euphorbia bupleurifolia.
3rd Mr. and Mrs. W. F. Maddams. Cissus hypoleuca.

Class 16 Three Euphorbiaceae. 3 entries
1st Mr. and Mrs. W. F. Maddams. Euphorbia stellata, E. pentops, E. obesa.
2nd L. G. Hurley. E. meloformis, E. obesa, Jatropha berlanderi.
3rd Mrs. B. A. Baldry. E. meloformis, E. excelsa, E. mammillaris.

Class 17 Three Liliaceae. 5 entries
1st R. H. I. Read. Aloe haworthioides, Haworthia maughannii. H. bolusii.
2nd Mr. & Mrs. P. Whicher. Haworthia blackbeardiana, H. truncata, Aloe juvenna.
3rd Mr. and Mrs. W. F. Maddams. Aloe jucunda, Haworthia bolussii, H. limifolia.

Class 18 Two Asclepiadaceae. 4 entries
1st Mr. and Mrs. W. F. Maddams. Raphionacme hirsuta, Fockea crispa.
2nd Mr. & Mrs. P. Whicher. Brachystelma barberiae, Stapelia asterias.
3rd Dr. J. C. Hughes. Caralluma europea, Huernia keniensis.

Class 19 Two Crassulaceae. 5 entries
1st Mr. and Mrs. P. Whicher. Adromischus marianae, Crassula tecta.
2nd Dr. J. C. Hughes. Crassula plegmatoides, Dudleya farinosa.
3rd Mr. and Mrs. W. F. Maddams. Dudleya attenuata, Echeveria rubella.

Class 20 Three Succulents. 3 entries
1st Mr. and Mrs. W. F. Maddams. Pachypodium saundersii, Idria columnaris.
2nd Mrs. G. Boswell. Echeveria minnima, Kalanchoe pumilla, Pachyphytum oviferum.

Class 21 Three Succulents in pots up to 4½ in. diam. 6 entries
1st Mr. and Mrs. W. F. Maddams. Pterodiscus speciosus, Lithops leslei, Anacampseros buderiana.
2nd Mr. and Mrs. P. Whicher. Anacampseros alstonii, Euphorbia meloformis, Haworthia tortuosa v. auria.
3rd Dr. J. C. Hughes. Lithops peersii, Aloe bakeri, Euphorbia bupleurifolia.

Class 22 Three Succulents in pots up to 5 in. diam. (for juniors and members who have not won a first prize in any succulent class) 1 entry
1st Mrs. M. Dennard. Pachypodium brevicaule, Euphorbia squarrosa, Hoodia gordonii.

Class 23 One Cactus and one Succulent. 5 entries
1st R. H. I. Read. Ferocactus acanthodes, Euphorbia horrida.
2nd Mr. and Mrs. W. F. Maddams. Mammillaria guelzowiana, Euphorbia valida.
3rd D. T. Best. Astrophytum asterias, Pachypodium succulentum.

Class 24 Miniature Garden
1st Mrs. I. M. Horan.
2nd Dr. & Mrs. G. C. W. Randall.
3rd Mrs. B. A. Baldry.

Class 25 Group of Cacti and/or Succulents
1st Mr. and Mrs. W. F. Maddams.
2nd Mrs. M. Dennard.

Awards

Best Cactus in Show: R. H. I. Read. Ferocactus acanthodes.
Best Succulent in Show: Mr. and Mrs. W. F. Maddams. Raphionacme hirsuta.
Ibbotson, Luty-Wells, Sarah Cutler and Shurly Cups and William Denton Trophy were won by Mr. & Mrs. W. F. Maddams.

Book Review

ASCLEPIADACEAE; quarterly publication to promote the study of this plant family; editor, A. Woodward, West Park Hospital, Epsom, Surrey; mimeographed; price 30p (by post 40p) per issue.

In the succulent plant world, several specialist societies have grown gradually from small beginnings—an exchange of information between a group of enthusiasts, a round-robin or newsletter, a few meetings, and eventually a new society is born. It is possible that we are about to witness the birth of yet another such venture.

Some time ago, the formation of a Stapeliad Study Group was proposed, and since then the first tentative steps have been taken. The first meeting of the Group produced the suggestion that a Newsletter should be started, and that the scope should be enlarged to embrace other genera of the family, and in May 1974 the first issue of "Asclepiadaceae" dropped through our letterboxes.

The first issue is edited (and written) by Mr. Alf Woodward of Epsom, and runs to eighteen pages of text. Some idea of the coverage can be gleaned by mention of an article on *Stapelia longii* (illustrated by a colour photograph); short articles on *Caralluma frerei, Ceropegia ampliata* and *Huernia zebrina,* all illustrated by clear drawings, and a longer article on the genus *Hoya;* an article on the Asclepiadaceae and another on the literature relating to the family. Two or three pages of "chat" are cunningly designed to encourage others to contribute to far-ranging discussions on their favourite plants.

This is a promising beginning, and without in any way belittling Mr. Woodward's "one-man-band" performance. I can only echo his own words, "Let us hope it leads to better things". I look forward eagerly to the next issue.

Bill Keen

Will they ever flower?

by John Hughes

WHEN cactophiles meet to discuss their plants their conversation invariably turns to those problem plants that never flower. In our early collecting days our attention was focussed, as a rule, on a Cereus which failed to flower while much smaller plants of Rebutia did so profusely. With time our experience taught us not to expect certain plants to flower until they were much larger, but exceptions are always around us. It is only necessary for an expert to comment that a particular plant does not flower until it has reached a certain height for letters to come pouring in to the Journal with instances of early flowering.

The explanation usually given to account for this variation is simple, either maintainance of higher temperatures in winter, the application of fertiliser or differences in the amount of light received. Few people consider natural variation within a species as a possible major contributory factor. With space at a premium in the greenhouse it is unusual for any of us to be able to grow on a large number of seedlings, under identical conditions, in order to study natural variation. The present generation of taxonomists has reduced many species to synonomy following their extensive studies of the natural variation of plants in habitat. Variation in terms of spine colour is instantly recognisable as a rule, and the more attractive of these usually achieve varietal status. Similarly a distinct colour form may be noted in the flowers of cacti, as for example that of *Mammillaria zeilmanniana* v. *alba,* but this takes longer to become apparent.

Cactus cultivation must be one of the few areas in horticulture in which man endeavours to avoid interfering with natural selection. In nurseries growing chrysanthemums, dahlias and roses thousands of seedlings are raised each year but only a handful of varieties are selected for sale, though the hybridist will use some of the rejected plants with promising characters for further breeding. While cactophiles' attempts to avoid hybridisation are to be applauded, it is the generosity of these same people which, in some cases, results in extremely unnatural selection.

In habitat, cacti and other succulents propagate mainly by seed. This seed is distributed by wind or by animals and birds and new communities are established at a distance. Variations among the seedlings in these communities will react differently by growing conditions and only the strongest will survive. With a few exceptions, such as the opountias, vegetative reproduction is unlikely to result in communities being spread over vast distances. An increase in the area of distribution of a species is thus more likely to result from the production of large quantities of seed rather than from vigorous growth. Hence the importance of flowering as a means of survival, since a variety that did not readily produce flowers would have a bleak outlook in the face of natural selection.

Under cultivation weak plants, particularly those lacking in chlorophyll, are not left to die but are provided with a lifeline by grafting. Similarly a non-flowering crest can be perpetuated by grafting. Such methods of propagation and cultivation are unnatural, as all would accept, but few people consider the dangers inherent in the non-selective passing on of offsets. For example, many people have commented on the fact that their Echinopsis just produces offsets and never flowers. The usual advice is to remove these offsets and channel the energies of the plant into flower production, but these offsets are then passed on to other people and a poor clone is perpetuated. I possess an Echinopsis of the Eyriesii group which, at four inches in diameter, has not yet produced an offset but has flowered regularly for the past few summers. Would seed from this plant be more valuable than offsets from a poor flowering one?

With Opuntia it is possible to obtain offsets formed on the fruit itself, and the question arises whether or not the propagation of such offsets would ensure a free-flowering strain.

Plants which appear to have non-flowering clones include *Stapelia variegata, Chamacereus silvestrii* and *Echinocereus* of the *pentalophus* type. I imagine there are few people who have *C. silvestrii* in their collection which they have raised from seed.

However, poor flowering habit may not be the result of vegetative propagation alone but a product of hybridisation. Here the raisers of epiphyllum hybrids are the chief offenders. Whereas the producers of many garden plants have only one or two years to wait to see the results of a particular cross, it may take five years for an ephyllum seedling to flower. In addition such desirable features as habit of growth, robust constitution and free flowering may be overlooked in the haste to recoup expenses in marketing an attractive bloom. How many of the present day epiphyllums are as floriferous as that old favourite 'Ackermannii'?

In Nature there are various barriers in the way of hybridisation of related species. It is unusual to find two closely related species growing in a particularly locality that do not have different times for flowering, either one by day and the other by night or at different

seasons of the year. Again, one species may have a particular insect pollinator which cannot cope with structural differences in the flower of the related species. The main barrier to cross fertilisation, however, is geographical either in the way of habitats within a wider area or by separation by long distances over unfavourable country.

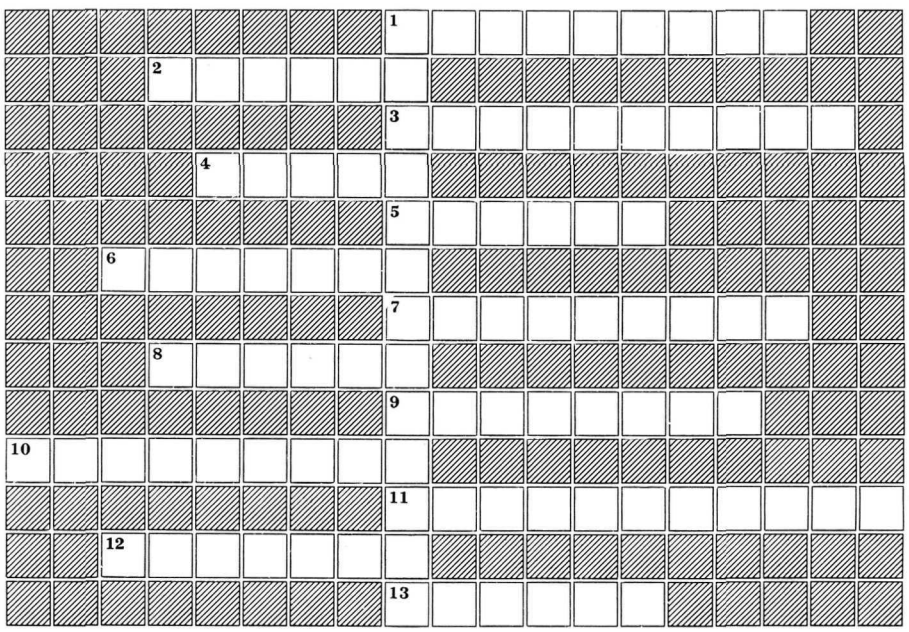
In our collections we bring together all kinds of plants and the chances of crossing are correspondingly increased. Even so more natural barriers survive, as for example the proposed Echinolobivia hybrid which has so far eluded the hybridist because the Echinopsis flower fades at dawn before the Lobivia opens its petals. Interspecific hybrids are commonly to be found, especially in genera such as *Echinopsis* and *Notocactus* which have been in cultivation for many years.

Turning to the 'other succulents', there are two plants circulating in southern collections which suggest that Nature has provided another barrier in that some hybrids are unable to produce flowers. In the wild such plants would die out, but in collections they are kept going by vegetative propagation. One plant I have in mind is that found under the name *Adromischus hemisphaericus* and I am yet to meet anyone with a plant similar in appearance to my own that has flowered, or even seen a flower stem being produced. The genus is one that flowers freely in cultivation and this particular plant has the expected characters of freely branching and growing readily from detached leaves. The second plant is that to be found under the name of *Echeveria agavoides* v. *corderoyii;* it has fleshy, pale green leaves with a red tip and it branches freely from the base, I have seen one that measured nine inches across the clump but as yet without flowers.

Finally there is that plant known as *Stapelia* 'Lake Ngami', or should it be *Huernia*? Is it going to bloom one day?

Neocrosswordermannia Mk.2, No.1

by Arnold Rainbow



In this new series of simplified puzzles the clues are for the horizontal words. When completed, the one vertical word will be found to be 'a genus of cacti with distinctive flowers.'

1. What some cacti must produce before they can flower (9).
2. Mammillarias may have numerous spines of this type at each areole (6).
3. South American genus of cactus with hairy buds and large trumpet-like flowers (10).
4. Thorny species of Euphorbia (5).
5. Male flower part (6).
6. Simplest type of chemical substance (7).
7. Monotypic genus of cactus likened by some to the Jerusalem artichoke! (9).
8. This describes many of our collections, notably that of the Lamb brothers (6).
9. Monotypic genus of cactus named after a race of Indians (8).
10. Having identical halves, as in most flowers (9).
11. Genus of cacti with large showy flowers, closely related to Coryphanthanea (11).
12. American reindeer (7).
13. Pollen-receiving surface of female flower part (6).

(solution on page 66)

Succulent Snippets

by Sally Corniodes

PERHAPS Chelsea Show seems a long while ago but I am sure that all those who were able to go along would agree that this year's Society stand was a most colourful one thanks to the efforts of Alan Clare and his team (mostly from North Surrey I understand). The abundance of flowers was proved by the ever-recurring question, 'Why don't mine bloom like that?' Stewards soon learnt that it was best to enquire what the questioner's plants resembled amongst those on the stand before starting the usual set of 'Have you repotted them recently?' 'Are they in full sunshine?' 'Do you give good watering in the summer?'. It was most frustrating to go through all that rigmarole then find they only possessed large-padded Opuntias or mini-columnar Cerei!

Needless to say, I was able as usual to collect some random remarks:

"That one looks just like my best 'at".

"It needs a good haircut".

"It's a gonk!" "No, it's a Womble!"

"It's clever when they only flower once in seven years that all these are out now—I bet they fed them on something special".

"OO-er, I don't like that one with all the red worms crawling out". (referring to a caespitose Mammillaria with curling fruit).

"They look like creatures from outer space—I hope they don't stretch out and grab me!".

I suppose a few more people learn the truth about succulents in the way they grow and flower at every Show, Chelsea, Westminster or local, but there are still plenty to be educated. Are you helping in your area?

Still on the Chelsea theme, we cactus growers can now really feel part of the horticultural scene—someone carrying a cactus was depicted on the official R.H.S. Chelsea Show poster. The only pity was that the plant in question was an Opuntia and not a nice flowering Echinopsis or suchlike; still we must be thankful for any recognition!

I am glad to see that claims to be the youngest member are still coming through. It would be even more gratifying if we not only heard about their plants but saw them at the Westminster Shows—what about it youngsters within range of London?

In view of the trivial and inaccurate nature of much of the comparatively small amount of information relating to succulent plants that finds its way into the newspapers it is pleasing to be able to give a hearty commendation to a recent press report. I am referring to a feature, under the heading of Crime, entitled "Cactus Smugglers" from the pen of Celia Haddon, which appeared in the Sunday Times of 28th April. After describing the wholesale uprooting and export of plants from Mexico it goes on to stress the need for conservation and features some comments from David Hunt. I subsequently noticed that a gardening weekly, which has received brickbats from me on more than one occasion for inaccurate comments about succulent plants, featured the substance of the Sunday Times article without acknowledging it. Although this is somewhat deplorable it does at least provide additional publicity for conservationists and they badly need it. It seems to me, at this juncture, that the problem has been rather clearly defined but the solution is far from obvious. We could and should discourage cactophiles from purchasing large numbers of imported plants but this does not overcome the problem of the loss of large numbers of succulent plants when virgin land is cleared for agriculture or for building purposes. Neverless, we must not be too pessimistic, because at least there is a rapidly growing awareness of the problem and this is the first step towards a solution.

Regular readers will know that one of my predilections is the derivation of plant names and that, a few issues ago, I pointed a gentle finger of scorn at the name *Stapelia portae-taurinae,* where the specific name is the Latinised version of Bull's Port, in South West Africa, the type locality of the plant. It seemed to me that this smacked somewhat of pedantry. However, the recent ISI Plant List provides a more ingenious and justifiable example of the transfer of a name from English to Latin, namely *Aloe tauri.* This species was named for its discoverer, J. Bullock, but as *A. bullockii* is already named in his honour the describer of *A. tauri,* L. Leach, hit upon the idea of using the Latin version of Bullock's name.

I hear that some of the plants at our June Show were again featured on 'Nationwide' but, as before, when the happy owners were mainly just leaving the Hall for the evening meeting. Perhaps our resourceful Secretary should approach the B.B.C. and ask for a special Society showing some time!

Grow your own Welwitschia

Close on the heels of Mr. Andrew Smith's note on Welwitschia in our May issue comes the news in the Annual Report of the Paignton Zoological and Botanical Gardens for 1973 that they have successfully germinated seeds there. Of four seeds received two proved to be fertile and the seedlings were planted out, one in the cactus house at the Zoo and the other in a three foot long, glazed drain-pipe at the Nursery. At the time of transplanting, the seedlings were about one inch high, but the tap roots were already one foot in length. In May this year, we learnt from the Head Gardener, Mr. Gross, that the plants have continued to make progress, if somewhat slowly, the root-stocks having thickened slightly and become a little corrugated on top.

Notes and News

North London Branch

In brilliant sunshine the Annual Show was held at Capel Manor Horticultural Centre on the weekend of 18th/19th May 1974. As last year, we were able to stage our exhibits in a mobile glasshouse lent to us by Capel Manor, which provided an ideal setting for the very good total of 220 entries. The judges were Mr. & Mrs. W. F. Maddams.

The Champion Cup was won by Mrs. H. Guirl, with Mr. D. N. Hughes providing very keen competition. Class 4, for three Echinopsis, Lobivia or Rebutia, produced a large number of entries of a very high and even standard and was won by Mr. P. & Mrs. J. Pearson, with some fine specimens of *Echinopsis rhodotricha, Lobivia densispina* and *Rebutia krainziana*. Another group of very competitive entries was Class 9 for two Neoporteria, Parodia, won by Mr. C. Fox with a *Neoporteria mirosperma* and a *Parodia gracilis* FR 740.

In class 11 was a very fine plant of a *Thelocactus bicolor* with some very large flowers open, while the class for Mesembryanthemaceae, differing genera, gave to Mrs. H. Guirl, the Ivory Cup. A new cup in this year's show was the P. V. Collings Cup for Euphorbias. Three fine specimens, a *Euphorbia bupleurfolia, Euphorbia caput medusae* and *Euphorbia horrid* won this award for Mrs. R. J. Dyson. A very fine plant of *Euphorbia hermentiana* won for Mr. R. Steed, the class for any succulent in a pot exceeding $3\frac{1}{2}$ in. A class that always produces a very high standard and this year was no exception was 6 cacti and/or succulents in $2\frac{1}{2}$-$2\frac{3}{4}$ in. pots or in a seed tray, won by Mr J. Worrell.

For the third year running, Mrs. J. Pearson's *Mammillaria multidigitata* took the award for the best cactus in the show, while the best succulent went to a very good unmarked specimen of *Echeveria agavoides* belonging to Mr. N. P. Taylor.

As last year, we had a very good entry and a good even standard in the beginners' section. The Worrell Cup in this section for 6 cacti or succulents in pots not exceeding $4\frac{1}{2}$ in. went to Mr. C. Fox who, with Mr. Harrow, Mr. M. Hall and Mr. H. P. Jones, won prizes for some very promising plants.

East Surrey Branch

Meetings have continued according to programme. The visit to Mr. Bill Stevens' nursery at Westfield on June 15th. was most enjoyable, thanks to the perfect weather and the warm welcome we received. Mr. W. F. Maddams is to give a talk on 'Coryphantha and Allied Genera' at our August meeting. On September 17th. an informal discussion is scheduled on the theme 'the Plants that I Grow'. On October 15th. Dr. G. C. W. Randall will speak on 'Plants for Beginners, Indoors and Greenhouses'.

North Surrey Branch

There will be 30 open classes for cacti and other succulents as well as classes for novices and juniors at the Carshalton Show on September 7th. This annual event organised by the London Borough of Sutton is held in Carshalton Park. The cactus section is organised by the North Surrey Branch and entry forms are available from Dr. T. C. Smale, 28 St. Leonards Road, Epsom Downs.

At the ordinary meeting on October 1st the talk on 'Gas and the Garden' will be of particular interest to those considering installing gas heating in their greenhouse.

October Show

It was gratifying to see some new names amongst the prizewinners in June but there is still room for more, particularly juniors and beginners. If you think you can manage even one or two classes send a stamped addressed envelope to Mrs. Hodgson for your schedule, straight away, as entries must be in by the end of September for our October Show.

There have been very few changes made in the classes since last October. The classes for three cacti, three Coryphanthanae (which includes Mammillaria, Gymnocactius, Thelocactius and related genera) one Cereanae and the Echinocactanae remain the same. The next class, however, has been extended and is now one grafted cactus; this, therefore, includes the cristate plants required before and any monstrose or unusual plants on a graft. The class for six cacti in 6 in. pots remains as this is one of the most popular and attractive classes where a wide selection of genera can be shown. Please remember, though, that suitable plants should be used and not those that really require still larger pots; the judge will immediately eliminate those from his assessment as was done in the June Show!

There is plenty of room for new entrants in the classes for succulents other than cacti, and although it may be difficult to find three show-worthy Euphorbias, most members should be able to find a selection of three dwarf Crassulas, three Aloes, Haworthias and/or Gasterias for three Liliaceae and a selection from Stapelias, Huernias, Duvalias and Ceropegias for example for three Asclepiads. Three Lithops and three Conphytums usually produce a fine entry but there is always room for more, as with the Kedrostris, Cissus Jatropha or Testudinaria. Six stemless Mesembryanthemums give a wide range if you check with our 'List of Genera' and so do six South African succulents and three Succulents. A class for an Agave in a 6 in. maximum pot has been introduced for this year and there are the normal classes for three other succulents for beginners and intermediate.

SOCIETY SALES

Binding Cases—green cloth binding cases with gilt lettering on the spine, taking 12 issues (3 volumes) of the Journal ... ... £1 post free

Labels—triangular white ivorine plant labels in packets of 100 ... 30p post free

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Booklet for Beginners—'How to grow Cacti and Succulents' by E. Shurly with an appendix on 'Seed raising and Window Culture' by A. Boarder; eleventh edition ... ... 19p post free

The above are available to members from Mr. D. T. Best, 16 Ashleigh Gardens, Sutton, Surrey. Postal orders and cheques should be made payable to the Cactus and Succulent Society of Great Britain.

Pens—ball-point pens in yellow and blue with the Society name in bundles of 25 ... ... £1.20 post free

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The above are obtainable from the Publicity Officer, Mrs. B. Maddams, 26 Glenfield Road, Banstead, Surrey. Branch Secretaries are invited to obtain these in bulk for resale at Branch meetings.

Solution to Crossword

1. Cephalium
2. Radial
3. Echinopsis
4. Milii
5. Stamen
6. Element
7. Obregonia
8. Exotic
9. Aztekium
10. Symmetric
11. Thelocactus
12. Caribou
13. Stigma

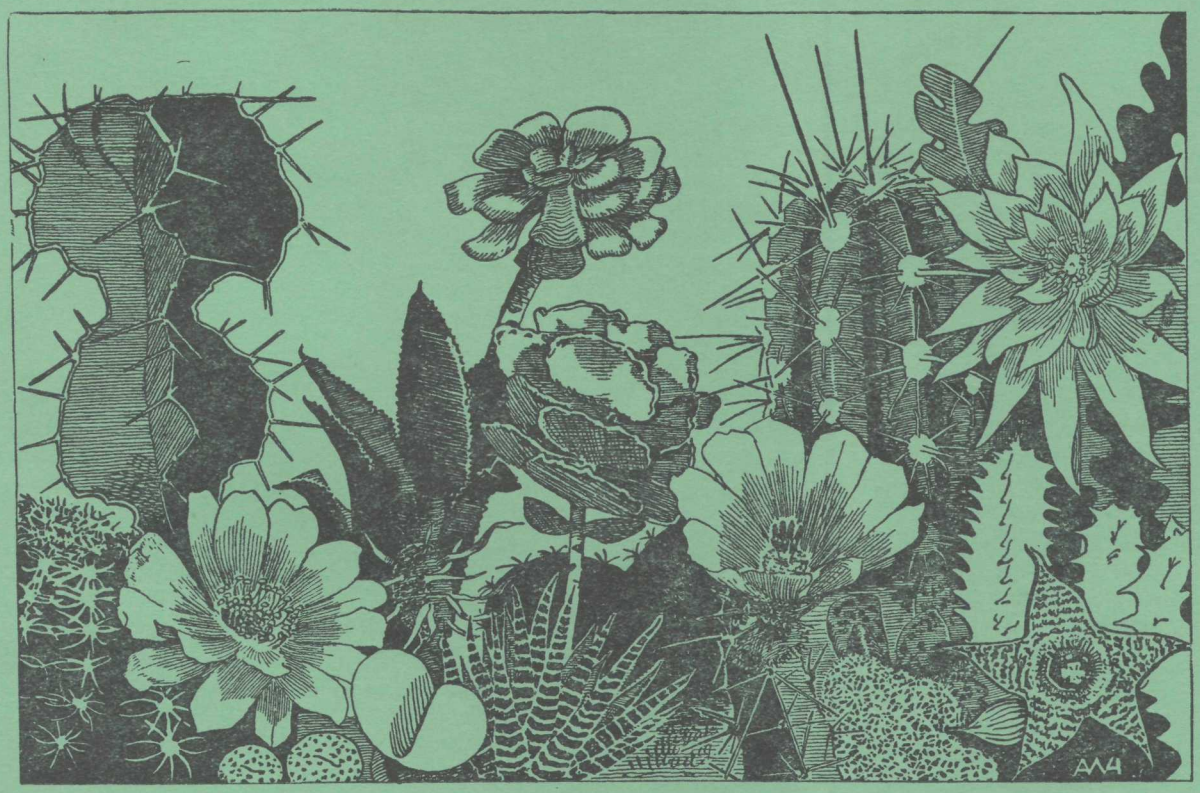
Vertical Word CLEISTOCACTUS

Printed in Great Britain by W. H. Houldershaw Ltd., Southend-on-Sea, SS1 1PF.

The Cactus and Succulent Journal of Great Britain

Established 1931

Vol. 36 *NOVEMBER 1974* *No. 4*



Published Quarterly by The Cactus and Succulent Society of Great Britain

25p

SUBSCRIPTION RATES

Full Membership	£1.50
Joint Membership	£2.25
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A Booklet on the Classification of Cacti and Succulents is now available from the Show Secretary. The price is 5p each plus postage. Branch Secretaries can obtain them at 12 for 50p plus postage. Postage is 1–8 copies 3½p, 9–11 copies 5½p. Postal Order or cheque, NOT stamps, please.

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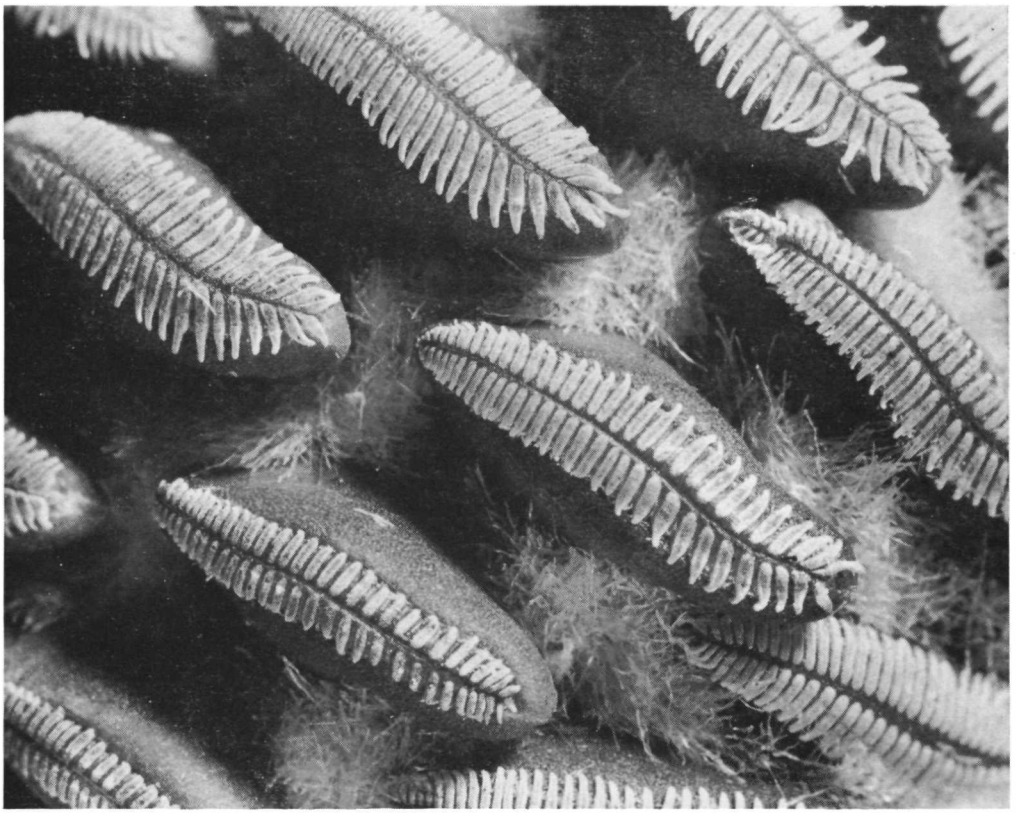
Vol. 20–22	15p per number
Vol. 23 onwards	25p per number

Postage extra overseas.
Each volume is made up of 4 numbers.

Published by the Society at COURTLANDS LODGE, PARK ROAD, BANSTEAD, SURREY, SM7 3EF.

THE CACTUS AND SUCCULENT JOURNAL OF GREAT BRITAIN

Vol. 36 November 1974 No. 4



Pelecyphora asseliformis, close-up (photo: P. R. Chapman)

CONTENTS

Annual General Meeting

In accordance with Rule 6 I hereby give notice that an Annual General Meeting of the Cactus and Succulent Society of Great Britain will be held on Wednesday, March 26th 1975 in the New Hall Lecture Room of the Royal Horticultural Society, Greycoat Street, London, S.W.1. commencing at 6.30 p.m.

The attention of members is drawn to Rule 5 sections (d) and (e) which define the procedure to be followed in the election of Officers and Council. The Rule requires that the President and the several Vice-Presidents be elected annually by a show of hands at the Annual General Meeting. The Chairman, Honorary Secretary, Honorary Treasurer and Members of Council to fill the vacancies resulting from the retirement of members who have completed their three-year term of office will be elected by postal ballot in the event of the number of nominations exceeding the number of vacancies.

Nominations are therefore invited for the offices of Chairman, Honorary Secretary, Honorary Treasurer and three members of Council. These nominations must be in writing and must bear the signature of a proposer and seconder and be accompanied by the written and signed consent of the person nominated. Such nominations must be in the hands of the Honorary Secretary not less than nine weeks prior to the Annual General Meeting that is not later than Tuesday, January 21st 1975.

The following are due to retire and are eligible for re-nomination:—

Chairman Mr. W. F. Maddams
Honorary Secretary Mr. R. H. I. Read
Honorary Treasurer Mr. R. D. Burton
Members of Council Mrs B. Maddams and
Messrs. H. A. Auger and L. Hurley

In the event of the number of nominations exceeding the number of vacancies a Ballot Paper will be circulated to paid-up members not less than six weeks prior to the Annual General Meeting.

R. H. I. Read
Honorary Secretary

Editorial

WE WOULD DRAW ATTENTION to an article under the title "Forum" in which Mr. R. B. Pearce explains his ideas for a new series which we hope to commence in the February number. Briefly, we feel that there is a great reserve of expert knowledge among our readers which does not get into print for a variety of reasons, such as lack of time or disinclination to commit thoughts to paper. The printed page is a forbidding consumer of words, as any beginner knows who sees several pages of laborious handwriting compressed into a single column. The attraction of the 'fringe publications' employing reproduced typewriting are obvious to the writer of short notes. "Forum" will provide an opportunity for short notes on a specified topic to be collected together and placed on record in a readable form without laborious effort on the part of any individual, other than Mr. Pearce.

This is the season of the year when books about succulent plants become considered as suitable presents, to be given or to be received. It is a time when we are inclinded to spend our money with a little more abandon, forgoing the purely utilitarian for something a little less useful. With the great advances in colour printing they enjoy, books on cacti generally have become a source of pleasure to look at as well as to read. Two such books are reviewed below, but there are many others available, some of which while not specifically concerned with our hobby include them as part of a more general description of tropical vegetation. Interest in the natural conditions under which succulent plants live is increasing steadily, and for those of us who cannot journey to tropical countries the next best thing is a good book.

An editorial in the Canadian Cactus and Succulent Exchange written last year by Mrs. Grace Rollerson contains the following paragraph—"There is more to success than having ideal conditions; it is also learning to make the best of conditions you have, growing suitable plants for those conditions, adjusting your treatment accordingly with more or less frequent watering, additional reflected light, artificial light, additional heating or a fan to cool a hot corner or circulate stagnant air. It is also the factor of love and frequent attention which results in being sensitive to your plants' needs—much more possible when you have few and live with them." This seems to summarise much of the valuable cultural advice our contributors have provided over the years. The concluding sentence makes a point which many of us, in our enthusiasm, tend to ignore. The temptation to obtain more and more plants and fill to the limit the space available is irresistible, and unwittingly our capacity to care for each individual plant is overstretched.

Seasonal Cactus Care

by W. F. & B. Maddams

THE MONTHS OF November, December and January should not be regarded by cactophiles as a season of inactivity and gloom, relieved only by Christmas festivities. Neither is the greenhouse a place to be visited primarily to check that the heating system is functioning satisfactorily. Most collections have something of interest to the discerning eye during the winter months and if a little care is exercised in the selection of plants it is possible to ensure a real touch of colour.

Winter flowering plants are by no means the rarity that is often supposed. They really come into two categories; those that flower over a long period of time in the late summer and autumn and those that really bloom in the depths of winter. So far as the former are concerned, their performance is, to a large extent, dictated by the weather conditions. If there are sunny days in November, and this is by no means out of the question, then flowers will usually continue to appear freely on quite a number of *Mammillaria* species. These are mostly of the group comprising *M. kewensis, M. polythele, M. tetracantha* and allied species and although the blooms are not particularly large there are always sufficient of them to look attractive. On occasions we have found that these plants will flower into early December. *M. schiedeana,* which is particularly attractive in any case because of its fine yellow spines, will also frequently oblige as late as this and the equally attractive *Winteria auriespina* may continue to produce its tangerine coloured flowers well into November.

It is debatable whether the *Neoporteria* species should be classed as flowering in the winter. From our rather limited experience, taken in conjunction with comments from others who have larger collections of the various species, it appears that blooms can be obtained at any time from the autumn to the spring. The distinctive pink to carmine flowers are certainly a welcome sight and, in our opinion, have more character and beauty than the larger creamish flowers of the related *Neochilenia* species which appear during the summer months. We also have the occasional flower on our *Notocactus haselbergii* around the festive season. This species is noted for its long lasting blooms and, off season, their life is still further prolonged. On one occasion a flower opened late in November, continued to charm throughout December, and died off early in January.

Two *Mammillaria* species which have proved to be winter flowering with us over a period of years are *M. plumosa* and *M. picta.* The former does not flower as a young plant but certainly ought to do so once it reaches four or five inches in diameter. It needs to be grown in the best possible light, preferably on a shelf close to the glass and there is some evidence to suggest that a minimum temperature of 45°F. is beneficial. The small yellowish flowers cannot be called exciting but they appear several at a time on multi-headed plants over a period of several weeks around the turn of the year. The whitish blooms of *M. picta* are distinctly larger, being of average size for the genus, and they open readily at the mere stimulation of a few minutes of winter sunshine. Plants three or four years of age should oblige although, obviously, more mature specimens will do so more freely. The whitish flowers stand out clearly against the chocolate brown central spines and the specific epithet, picta, which means painted, is well deserved. It is interesting to note that this plant seems to have no well defined resting period. With us it flowers from November to May and makes vegetative growth during the summer months. In these circumstances some watering during the winter months is in order, although care should be taken to see that the compost is never really wet for any length of time.

Although we made some mention of Schlumbergeras last time, as their flowering season is now starting it will not be amiss to say a little more. If, as we do, you keep them under glass until buds are beginning to open and then bring them indoors to gain full benefit from the delightful flowers. It is best to do this transfer around the middle of the day. Any exposure to low temperatures, even for a short spell, can lead to bud drop so a sunny day is ideal, They can then be set in a position away from draughts and not subject to too much temperature change. Remember, too, in these warmer conditions the Schlumbergeras will need watering more often and a little liquid feed from time to time will keep the plants going well.

Fruits are another valuable source if colour in the greenhouse during the winter months and many of the *Mammillaria* species are useful in this respect. The time interval between flowering and fruiting varies very considerably; *M. pennispinosa* sends out its long red fruits six to eight weeks after the flowers have dried off so that they appear at the end of May or the beginning of June, whereas with some others the interval is about a year. Thus, in the case of *M. confusa, M. karwinskiana, M. nejapensis* and *M. neomystax* the flowers of a particular year are accompanied by the fruits of the previous year. There is also a considerable variation in the length of time the fruits stay plump and colourful. Those of *M. pennispinosa* may or may not last throughout the winter but the majority do so and a few, of which *M. multiceps* is the best known example, seem to survive almost indefinitely. In the case of the genus *Mammillaria* flowers which have not fertilised generally detach

Mammillaria schiedeanna (photo: Maddams)

readily once they have died off and when the show season is over they should be removed. This is an occupation for a winter's afternoon when the weather conditions discourage outdoor horticultural activities, and is a worthwhile one because it improves the appearance of the plant considerably. Similarly, seed pods which have dried off should be removed, not only for aesthetic reasons but also because they may become mouldy and lead to serious trouble. The dead flowers on plants of some South American genera do not detach readily. If they do not come away with the pressure that can be exerted using a small pair of tweezers they should be left for a time; they will become detachable sooner or later.

In our previous article we dealt at some length with the relative merits, particularly on an economic basis of the three fuels commonly used for greenhouse heating. On this occasion we propose to discuss one or two specific and complementary matters. The problem that often worries the beginner is the minimum winter temperature he ought to try to maintain and, unfortunately for him, it is difficult to give a simple direct answer to this question. Even a small collection will probably contain plants with perceptibly differing degrees of cold tolerance. Most *Lobivia, Notocactus* and *Rebutia* species will come to no harm at 35°F. for extended periods of time if the soil around the roots is dry. On the other hand, the majority of the *Lemaireocereus* species, and these are frequently found in novice collections, really need a minimum of 45°F. There is no doubt that many good plants can be and are grown at minimum temperatures around 40°F. but we would suggest that a figure nearer to 45°F. is preferable, if possible. The more hardy plants will certainly not object to it and the more tender ones will benefit considerably.

It is unfortunate that the term minimum winter temperature has come into such widespread use because it is such an imprecise quantity in practice. The reason for this is that there is always a marked temperature gradient between the floor and the apex of a greenhouse. The fact is not generally appreciated and it is a revealing experience to move a thermometer around. Very frequently the floor is 10°F. colder than the apex particularly during long wintery spells when the floor temperature tends to equilibrate with the outside ground temperature. The use of a circulating fan, conveniently in the form of an electrical fan heater, lessens the temperature gradient and those of us who rely on gas or paraffin as the main source of heat, but keep a continuously running thermostatically controlled electrical fan heater operational, do benefit from a better overall distribution of the available heat.

There are one or two lessons to be drawn from the existence of this temperature gradient. Those plants which benefit from somewhat higher temperatures should be placed on overhead shelves if these can be fitted. This is a policy we have followed extensively, partly for the above reason and also because it gives us a maximum of space for our ever growing collection. Visitors of more than average height tend to emerge from our larger greenhouse with bruised heads or cricks in their necks! Greenhouses with glass to the ground are now relatively commonplace and the floor space beneath the staging is a convenient place on which to grow many plants. For example, pans of seedlings do well in this position during the summer months as

they receive some protection from strong sunlight. On the other hand the floor is the coldest area during the winter and, of the various plants in the greenhouse, seedlings are most likely to benefit from any extra warmth that is available. If circumstances dictate that they must remain at floor level a thermometer should be positioned there and every effort should be made to prevent the temperature falling below 40°F.

In these days of steadily rising fuel costs there is much to be said for having small section of the greenhouse held at a higher temperature for the benefit of those plants that really need it. This is easily and conveniently done by the use of a plastic cover over a portion of the staging on which an electrical heating cable has been laid. Clear strong plastic sheeting is readily available and it is not a particularly difficult task to construct a wooden frame onto which this sheeting can be fastened. For preference the front should be detachable or should be hinged, thus permitting easy access to the plants inside and avoiding the need to lift off the whole structure. The cover will require wiping over from time to time to keep it clean but this presents no difficulty and the loss of light as the result of this miniature greenhouse will not be significant.

The length of heating cable required will clearly depend upon the minimum temperature to be maintained and the size of the structure. So far as the former is concerned it is unlikely that temperatures much in excess of 60°F. will be required, even for tender species. For a staging width of, say, two feet six inches a length of three feet and a height of eighteen inches will provide ample space for the average cactophile. In these circumstances a cable heater delivering two or three hundred watts will prove quite satisfactory. It should be laid in a regular pattern across the staging and covered with a thin layer of shingle, so that the bases of the pots do not come into direct contact with the warm cable. Shingle is preferable to fine sand because the heat dissipates more readily through it. The desired temperature is maintained with a modestly priced aquarium thermostat and no difficulty should be experienced in finding one to cope with the relatively small electrical load involved. As a safety precaution it is advisable to have a thermometer within the warm enclosure and to check occasionally that the desired temperature is being maintained.

The clear plastic sheet suitable for a warm enclosure is of a different type and thickness to the material commonly used to line greenhouses for heat conservation. This latter is more translucent, which is a disadvantage, and more flexible, which is a decided asset. When a lining of this type is properly constructed it can be almost as efficient as domestic double glazing. Generally, however, it is difficult to achieve this degree of efficiency, not least because of obstacles such as ventilators. Some types of greenhouses are easier to deal with than others and those with internal bracing wires call for considerable ingenuity. The increase in the heat retention of the greenhouse is achieved at the expense of some light loss; just how much is difficult to say. For example, sheeting which has been recently erected will be cleaner than material which has been in position for two years and whereas the cleaning of the glass roof on the inside is no difficult matter plastic sheeting presents more problems. In our estimation there is no compelling evidence for or against the lining of greenhouses; we do not follow the practice but, equally, we do not attempt to dissuade anyone who feels inclined to follow the practice. In closing, while not wishing to appear pessimists, we offer a gentle word of advice to those whose experience of heating a greenhouse goes back a year or two only. Recent winters have been unusually mild and this can lead to complacency. One should always be prepared for the worst, particularly in terms of having an additional heater to hand in case of emergency and, if paraffin is being used, a modest quantity should be kept in hand. If sensible precautions are taken, a cold spell will present no problems other than the unavoidable one of additional expense.

New Cacti

The following new species of cacti are described in the first six issues of 'Kakteen und andere Sukkulenten' for 1974:

Lobivia aguilari Vasquez, from Bolivia; flowers magenta, spines grey. (January)

Micranthocereus flaviflorus Buining & Brederoo, from Brazil, Bahia; flowers red and yellow. (February)

Sulcorebutia losenickyana Rausch, from Bolivia; flowers red, spines yellow to brown. (March)

Ferocactus reppenhagenii Unger, from Mexico; flowers yellow, spines yellow to straw colour. (March)

Coleocephalocereus aureispinus Buining & Brederoo, from Brazil, Bahia; flowers pale to deep rose, fruit dull blue, spines golden yellow. (April)

Austrocephalocereus dolichospermaticus Buining & Brederoo, from Brazil, Bahia; flowers dull white, spines grey. (April)

Sulcorebutia pampagrandis Rauch, from Bolivia; flowers rose-coloured, spines orange with darker tips. (May)

Melocactus griseleoviridis Buining & Brederoo, from Brazil, Minas Gerais; flowers reddish-violet, spines pale to dark brown. (May)

Frailea melitae Buining & Brederoo, from Brazil, Matto Grosso; flowers shining golder yellow, spines glassy yellow to brown. (June)

The colour illustrations of these and other plants are an attractive feature of this Journal.

A Field Trip to North West Mexico

by E. and B. Gay

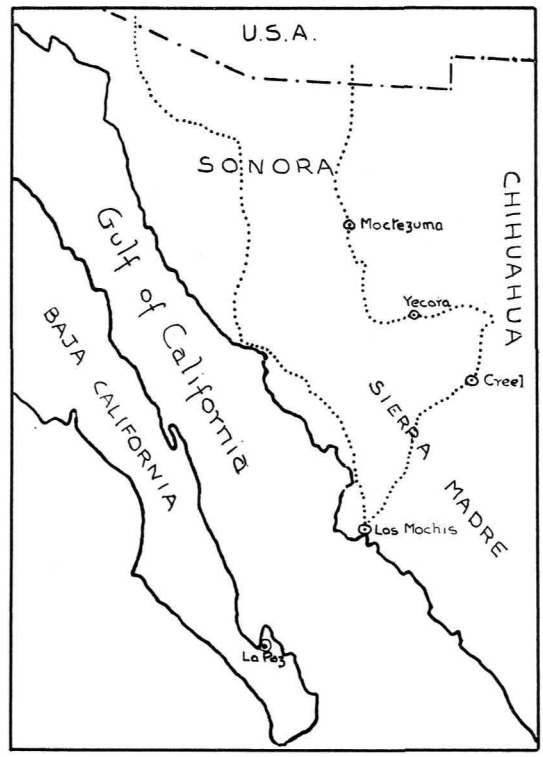
CHIHUAHUA, Sonora, Sinaloa and Baja California; that's where we were on this year's field trip; three weeks of exploration and discovery. Rivers, pine forests, Copper Canyon, new places, new faces, new cactus areas. Those are a few of the things we saw. With our friends Ted Taylor and Virginia Martin we wound through mountains and valleys, up to nearly nine thousand feet, down to one thousand. Our two campers shared campsites, bulged over the ends of a country-style ferry crossing the Rio Yaqui, fitted cosily aboard a flatcar for a ride on the Ferrocarril del Pacifico from Creel to Los Mochis.

A tantalising question to many of us for some years has been that of the possible links between the miniature mammillarias of the Sierra Madre Occidental—*M. saboae, M. goldii, M. theresae*. Especially since Lau's discovery of his "number 777" near Yecora last year, there has been the exciting potential of additional locations still to be found. This search was the chief aim of our trip, though of course any new area is always a temptation, and we were curious as to whether it was true that only a four-wheel drive vehicle could get through the mountain passes from Sonora to Chihuahua.

Regarding that last thought, we can report that it's rougher going than the old Highway No. 1 of Baja California used to be, especially for a good part of the way from Yecora to Matachic, when we had low gears but no brakes, and Ted had brakes but no low range on his automatic transmission. Six days to cover 300 miles means that we still have of lot of the planned trip to do in the future; but it also means that we didn't hurry over any of that 300!

"Road" is a dubious word for the trail we followed. Even with a briefing from Archie and Lois Deutschmann, experienced travellers of all the roads in Sonora, and with the help of maps which they supplied, it wasn't easy to know which fork of the road to follow, and we turned around more than once when a cattle corral marked the end of the track. Luckily we often had passengers, people travelling between ranches and small settlements, who were the best of guides. Friendliness and helpfulness were the rule here, as in most remote places, though our quest for cactus plants and other "weeds" must have given the people we met many a quiet chuckle.

Because of the generally higher altitudes, we were in oak and pine forests much of the way. Not too many cacti; *Echinocereus polyacanthus* and *E. gentryi, Coryphantha compacta, Mammillaria olivae, wrightii, meigiana, craigii, tesopacensis, goldii, saboae,* and several new locations of intermediate forms of these. We begin by visiting the *M. goldii* region , to refresh our memory as



Sketch map of north-west Mexico showing the Gays' route.

to the sort of site the little morsels prefer, and Ed. had a high proportion of success in stopping at the right sort of locations thereafter. Each of us had the thrill of finding the "first" at a different spot. We're sure now that there must be an infinite number of sites between *M. goldii* to the north and *M. theresae* to the south. We can hardly wait until the next chance to go back and look for more of them.

Besides searching for cacti, we were also on the alert for palms and miniature agaves, especially *A. polianthiflora,* for Huntington Gardens. The weather was record-breakingly dry as we came through northern Sonora, causing *Agave vilmoriniana* to droop on canyon walls, all its long leaves hanging downward.

Near Moctezuma cattle were dying of thirst—twenty or thirty lying in one row. All the tropical-deciduous trees were leafless—a grey landscape, with few easily identified shrubs. *Ipomoea arborescens* trees displayed a few white morning-glory flowers, and the *Ceiba acuminatas* had not only orchid-like white blossoms but

seed pods bursting with kapok. In a few of the deeper and more tropical canyons there were giant figs of at least two species. For a time there were many large cerei, but we left these behind as we started to climb. When clouds massed over the mountains ahead, we forgot the potential of personal inconvenience and welcomed the relief that rain would bring to the countryside. One night it drummed on our camper roofs; another night it pattered, but by the time there was a real gully-washer we had reached Matachic and were cosy in its small motel.

Roads are being paved at a frantic pace all over Mexico, and one is under construction from La Junta south to Creel, at the edge of Copper Canyon. Actually we should say near the edge of part of Copper Canyons —the massive, sprawling stream-bed of the Rio Urique and its tributaries. For most of the way, though, we had the privilege of travelling the dirt, one-track road created for the logging trucks. Not so much of a privilege when we were part of a group of three trucks going in each direction, all trying to get past each other without dropping off into the canyon; but very much a privilege because of the intimate nearness of the plant-laden boulders and the magnificent pines and oaks. Thanks to Dale Morrical, we had recent up-to-date information on this section of our journey.

At Creel we found that two or three days were required to arrange for shipment of our campers on a flatcar. Good news. Just time enough to go to La Bufa and see something of the canyon. What a fantastic two days! The construction of the new paved road continues south of Creel, so that we sped past Lake Arareco and an extensive agricultural experimental station on pavement. Soon, though, we were on gravel, interspersing spectacular canyon views with stops to make way for construction equipment and once for a dynamite blast. The last half of the trip was over the now familiar type of single-track, winding mountain road. There were any number of smoke-stained caves laid open by the road construction or visible in valleys as we travelled along, many of them still occupied as homes by the Tarahumara Indians of the regions.

Although they are smaller and more sinewy-appearing people than the Navajos of our own southwest, the Tarahumaras reminded us of them in some ways. Some were to be seen in the villages in spotless tribal dress of loincloth and toga (men) or layer upon layer of full skirts (women), welcoming five pesos for a photo. Others were going about their daily business of hauling pine poles, driving heavily-laden burros, or tending herds of goats, in complete dignity, ignoring the strangers. Many have abandoned their caves in favour of log cabins, and are adopting the other ways of life of the twentieth century. Reserved people, but friendly toward us. Their beautifully musical language was a pleasure to the ears.

Descending into Batopilas Canyon at La Bufa, we dropped 4,000 feet or more in 8 miles or less. There was a kaleidoscopic view of one plant zone after another, from the pines at the top of the canyon to massive figs on the riverbanks so far below. On the way down we were again among cacti, lots of them—*Pachycereus pecten-aboriginum, Lemaireocereus thurberi, Mammillaria craigii, Ferocactus pottsii.* An absolutely breath-taking side trip.

Back to Creel—Sunday and a carnival in town. The flatcar was finally located, but not the crew and materials needed to secure the campers on the car. By sundown Monday everything was done and we were on our way —feeling like long-time residents of Creel by then, waving good-bye to all our new-found friends, preparing to eat our 'take-out' meals of chili rellenos and taquitos from the El Manzano cafe. Then, such a train ride as the regular passengers never see. Our own observation cars—the camper front seats—from which to view Copper Canyon by moonlight. Our own pullman cars—again the campers. And best of all, next morning at dawn, the open platform between, from which we again saw the swiftly changing plant zones as the train zoomed down through canyon after canyon and tunnel after tunnel, past little villages and spectacular views, to the Rio Fuerte plain. A twenty-hour trip, what with the shunting back and forth at freight yards along the way; then another hour or three to get unloaded; but a night and day that we'll always remember with delight. A disappointment—the ferry from Topolobampo to La Paz was full. Reservations must now be made at least a week or two in advance. So we couldn't come back through all of Baja California as we planned. Instead, back by Highway 15 and Highway 2, and gorgeous camping nights at San Carlos Bay and at Sonoita. A quick trip south to El Rosario to visit Anita Espinosa and wind down a bit before the border crossing—and so home, full of both happy memories and even happier plans for next time.

Cultivation of Succulents

by Mrs. M. Stillwell

AFTER WHAT SEEMS to have been a generally disappointing summer, now in September as I write these notes I am greeted with the first of the mesembryanthemum flowers. At the moment I have a fine show of the Pleiospilos and Faucarias. The latter have been out of doors all the summer and have developed that nice, hard, well coloured texture. I like to put out some of these hardier types that can take all the extra rain which we get so often, not only does it make for more room in the greenhouse during the summer but enables one to have a good clean around in the spaces where they have been ready for their return for the winter. Also I removed most of the Haworthias, Gasterias and Aloes from the main house for the summer to an older house where they get more shade. My main house gets very hot in summer and while cacti delight in these conditions many of the succulents are liable to scorching.Here again it gives me a chance to examine the plants as they are moved, since they usually are crowded together during the winter months, mainly to economise in heating.

I consider autumn a good time to repot a lot of the plants before returning them to their winter quarters, as it saves a lot of time in spring when there are so many other things to do. It is also a good time to move the plants section by section and to make sure that the staging beneath is clean and free from pests. Often I treat the shingle of the staging to a good dose of insecticide as a precaution, while I wash the woodwork with lots of water to which Jeyes Fluid has been added. I have a look under the pots for any stray mealybugs. Any cobwebs are brushed away, as these can make quite a mess if allowed to remain above the plants, storing dead flies which disintegrate gradually and drop down on the pots below.

Conophytums are always very colourful in the autumn and they will continue flowering well into December. I hope you remove all the dead skins when they are ready, although it is a long, tedious job it is worth it when the plants start flowering. Group them all together, not too close to the glass as they scorch easily, and you will have a real splash of colour. Try and obtain a few white flowered ones; three that come to mind are *C. pellucidum, C. fraternum* and *C. parviflorum;* but they are usually somewhat scarce. Most of the scented Conophytums open in the evening, with numbers of dainty fairy-like flowers. Any heads accidentally broken off during the cleaning up process will usually reroot within a few weeks, if the old woody stem is removed back to the base of the body. Cut it off with a sharp knife, or better still a razor blade. Keep all labels clearly written, as so many Conophytums look alike when not in bloom that identification is very difficult. Many of the bilobe types are very similar with their yellow flowers, but there are some attractive orange ones including that rapid grower *C. frutescens*. I have also some very attractive orange hybrids, one of which has developed fifteen heads in very few years and has one of the largest Conophytum flowers that I have seen.

The Monillarias start to grow again in early September after their long summer rest, and usually dry off again in January. Mitrophyllums should also start growing again in autumn, breaking through the old papery skins that covered them during the resting period. They are rather shy of flowering in this country, and have a very short growing season. You may be lucky enough to see a newly imported plant in flower. Cuttings are difficult to root, but plants are fairly easily raised from seed. A collection of well grown Glottiphyllums will brighten the dark days of autumn with their very large bright yellow flowers that open out whatever the weather. Providing they have been really baked in the sun during the summer and kept rather on the dry side during the autumn, Glottiphyllums can be some of the most attractive plants in the greenhouse. Many of them are in various shades from mauve to a deep, rich purple. They set seed very freely and are strongly recommended as plants for beginners.

Many people find the genus *Senecio* very rewarding. One species, formerly known as *Notonia grandiflora,* has large orange flowers and broadly spatulate leaves. I feel it could do with a little extra heat in the winter to prevent the leaves from dropping, which usually happens with my plant. The family Compositae is vast and is said to contain at least two thousand species. Now included under *Senecio* are the Kleinias, with which many beginners are familiar, especially *K. repans* (now *Senecio serpens*) and *K. articulatus* (the 'candle plant'). There is a form of the latter plant with globose stems which is much more compact and more attractive than the usual leggy variety. Many of the white felted Senecios make nice plants in collections, particularly *S. haworthii* formerly *Kleinia tormentosa.* Any old stems that drop their bottom leaves during the winter should be cut out at ground level in order to encourage new growth to develop and so keep the plant in good condition. These old stems can be used as cuttings which root fairly readily. Many of the leafy succulents look better in collections if started again from cuttings every few years. There is no point in keeping a large old plant that has seen better days and lost its beauty. Two other attractively marked Senecios are *S. stapeliaeformis* and its variety *minor* which

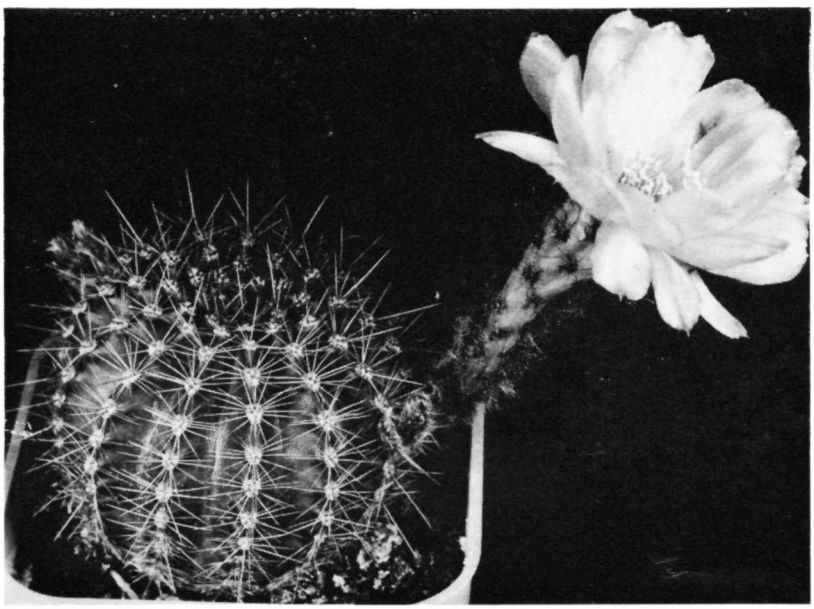
grow quite tall and produce their red flowers freely. They benefit by being kept in check and not allowed to become straggly.

I have been told that polystyrene containers are very good for rooting cuttings and for growing-on seedlings after about the first year when there is no fear of them damping off. These containers hold the water, and providing a good open gritty soil is used they should give results, besides being light to handle and fairly cheap to buy.

Leave one ventilator slightly open all through the winter to ensure that the air does not get stagnant. An ideal temperature is about 45°F. High temperatures mean unnatural growth except, of course for the more delicate succulents from tropical areas that do require anything up to 60°F. These latter plants can be accommodated in a small polythene tent or stood on top of an open propagator with gentle bottom heat.

Echinopsis Hybrids

by Margaret J. Martin



Echinopsis Paramount hybrid 'Tangerine' (photo: M. J. Martin)

THE FIRST Echinopsis hybrids that I owned were two plants developed by Howard Gates, 'Golden Dream' and 'Green Gold'. These are free flowering plants with long tubed, medium sized flowers, buttercup yellow in colour. 'Green Gold' is a very short-spined plant similar to *E. eyriesii,* which I would guess is one of its ancestors. It offsets very freely. 'Golden Dream' is a larger, longer-spined plant which produces fewer offsets.

Later, I imported from California some of Johnson's Paramount hybrids. These came in a variety of flower colours: orange ('Tangerine' and 'Orange Glory'), red ('Red Meteor' and 'Red Paramount'), rose-pink ('Mary Patricia') and a peach-pink ('Aurora', 'Peach Monarch' and 'Terracotta'). Unfortunately Johnson's nursery closed before I could buy more of their beautiful hybrids.

My experience with these hybrids indicates that some are more Echinopsis-like than others. Some plants have large, long-tubed flowers, while others have flowers that are smaller in all dimensions. They look like large flowered Lobivias rather than coloured Echinopsis. All of the hybrids which I own have Echinopsis-like bodies, many reaching a considerable size and some closely resembling *E. eyriesii.* As this last named species has large flowers it seems possible that it has been included in the ancestry of the hybrids to bring in this character

Since I could not obtain any more plants from Johnson's, I decided that there was nothing for it but to start

producing my own hybrids. As I grow very few Lobivias, my crosses had to be between my existing Echinopsis hybrids or between a hybrid and a species Echninopsis. My attempts at hybridisation rather depend on whatever plants happen to be in flower together.

The hybridiser in California has a great advantage over his counterpart in this country in that he can plant out a whole field with Echinopsis if he wishes. Each cross produces hundreds of seeds and, since the feed is fresh, it nearly all germinates. In a small greenhouse it is only possible to keep a tiny fraction of the seedlings, and one has only to hope that the best ones may have been retained for growing on.

There is a further problem in that young Echinopsis produce dozens of offsets but large, mature specimens have very few. Thus if offsets are removed in order to produce a flowering sized plant quickly you may find, as I did, that you have a very attractive new hybrid but no offsets! So now I never remove offsets until the parent plant has flowered. If a plant has given up producing offsets, the situation can always be remedied by beheading the plant, re-rooting the head and allowing the base to sprout again.

My first, and most successful, cross was between 'Peach Monarch' and 'Terracotta'. This produced large seed pods stuffed full of seeds that germinated one hundred per cent. This year for the first time my *Echinopsis kermesina* has set seed, but it remains to be seen if this is viable. I have had no success at all using small Echinopsis such as *E. hamatacanthus* as parents.

I have a number of seedlings coming on but so far my only flowering sized plants are the 'Peach Monarch' x 'Terracotta' hybrids. Some six of these have already flowered and only one was inferior to its parents. That one I gave to a friend who 'wanted a cactus'—one certain way of removing it from circulation. Of the others, I considered that at least three were worth naming. 'Coral' is a short-spined plant which flowers when about two inches across. The flowers have rose pink outer petals and pale pink inner ones with a deep peach mid stripe; rather like 'Terracotta' with a pink outer frill. 'Pink Pearl' is a large, short-spined plant with deep peach flowers with a darker peach mid stripe; a deeper coloured version of 'Terracotta'. This is the plant of which I have no offsets. The third, which I have called 'Rose Quartz', is another large specimen with short spines. The flowers are very large, rose pink with a carmine mid stripe. This is one of the best Echinopsis that I have seen.

Hybridising Echinopsis has added a great interest to my hobby. There is always the next batch of hybrids budding up and a really superb flower may be opening tomorrow—or not, as the case may be. Either way, there is another batch of seedlings coming along, and all those plump pods ripening on the old plants.

Forum

THERE MUST BE a vast wealth of knowledge amongst the members of the Society that is never given an opportunity for publication and dissemination. In an attempt to make some of this information available, a new series of articles, entitled "Forum", will commence in the next issue of the Journal. Each "Forum" will concentrate on a single genus, or, perhaps, a group of closely related plants; the topic to be announced in the preceding issue of the Journal.

Readers are invited to write to me with any information or ideas concerning the chosen topic. Letters on any relevant aspect will be welcomed, whether they contain information based on personal experience in the cultivation of the plants, problems or pests that have been encountered, the taxonomic affinities of the genus, or of plants within the genus, or information about interesting or unusual plants, including plants distributed under collectors' numbers, or newly introduced and little known species. In fact anything about the genus that will be of interest to other readers is welcome.

From your letters I shall compile an article incorporating as much as possible of the information supplied, which will hopefully include a range of useful and interesting facts and ideas about the plants, including information both at a purely cultural and at a more scientific level. I hope I shall be able to include something of interest to everyone, and that the article may serve to stimulate further discussion about the plants.

To begin the series, the first "Forum" will be about the genus *Lobivia*. Despite the fact that in general these plants are not at all difficult to grow and flower, and have amongst the most attractive and colourful flowers in the cactus family, they seem to be a rather neglected genus. Most people, however, must have representatives of this genus in their greenhouses, and therefore should be able to contribute something to the article.

To enable me to compile the first "Forum" in time for the February issue of the Journal, I should greatly appreciate receiving your letters by the end of this month (November), at the following address:—

R. B. Pearce,
Department of Botany & Microbiology,
University College London,
Gower Street,
London, WC1E 6BT.

To ensure the success of this venture I must have sufficient information from which to compile the article, so if anyone has any information that they think would be of interest to others growing these plants, please write to me with it. Remember the success of "Forum" depends on your response, so let's have as many letters as possible, in order to provide a comprehensive survey of the genus *Lobivia*.

Eric Jennison—A Tribute

ERIC JENNISON, as its first secretary, founded the "Northern Counties Branch" of the Society in the early sixties with the aid of his wife, Alice and a few enthusiasts. At first meetings were held in his house, but after a few months the meeting place was moved to its present place in the Social Service Centre, Whitley Bay.

Eric is known to C.S.S.G.B. and N.C.S.S. members all over the north, for his flair, imagination, energy, business know-how and sheer hard work in bringing cacti, and the society to the public eye. He has spoken to C.S.S.G.B. and N.C.S.S. branches and judged shows on many occasions. He organised and did much of the work on the "C.S.S.G.B. Northern Counties Special Cancellation" postal cover, which raised much money for the branch.

Perhaps the most noteworthy efforts which Eric and his family made for the society were the hundreds of society publicity and sales stands, staged up and down the country over the years. I have known Eric to stage at one show after another, weekend after weekend, bringing choice plants and thousands of society booklets to hundreds of thousands of people. At times he has had stands at two or three shows at once, often tens or even hundreds of miles apart.

Eric and Alice were a great loss to the Northern Counties Branch when they returned to their native Yorkshire, which put them beyond travelling distance to branch meetings, but they did visit us to help make a success of the C.S.S.G.B. section of the "Great Rosecarpe Show" last summer.

However our loss must be someone's gain! Some very fortunate branch will have acquired a new very able and active member, so we wish Eric all the best in his new job and new home.

Alan E. Appleby

Book Reviews

THE BOOJUM AND ITS HOME. By Robert R. Humphrey. The University of Arizona Press, Tucson, Arizona, U.S.A., 1974. $6.95.

Although most cactophiles are reasonably acquainted with *Carnegiea gigantea,* the Saguaro of Arizona, by reputation if not from personal knowledge, few are aware of the equally interesting and striking *Idria columnaris,* commonly known as the Boojum tree, in Baja California. Although immature specimens are not particularly rare in cultivation now they do not seem to arouse general interest and mature specimens in habitat have no publicity medium comparable to Arizona Highways to reveal their glories, far and wide. The appearance of the book by Robert Humphrey will go some way towards redressing the balance as it will prove a mine of information for those seriously interested in the many facets of this species and will simultaneously provide an eminently readable account for those whose interests are more general. The author, whose enthusiasm for and fascination with the Boojum comes through so clearly, first saw it in habitat as long ago as 1930 and the detailed studies on which his text is based were made at all seasons of the year, mostly during the period 1967 to 1971.

The subject of this monograph barely receives a mention until page 29 is reached. The reason for this is that the earlier pages are given over to a very useful introduction to the main topic, in the form of detailed and helpful information on the physical and vegetational characteristics of Baja California. The climatic data to be found here could well be of real value to those whose interests are geographical rather than botanical and this

is true also of the discussion of the desert regions of central Baja California.

The author then turns to the names which have become attached to this species over the years and his account of the common epithets is particularly fascinating. The followers of Lewis Carrol will need no reminder that the word Boojum is a creation of his and the cognoscenti will know that it is now one hundred years since it appeared in his celebrated work 'The Hunting of the Snark'. The reason for its attachment to *Idria columnaris,* however, is not widely appreciated. It occurred in 1922 when Godfrey Sykes, born and educated in England but then working at the Desert Botanical Laboratory Tucson, first saw *Idria columnaris* growing in the restricted area in which it occurs on the Sonoran mainlaind, near Puerto Libertad. Suddenly perceiving the unusual form of this species he exclaimed "Ho, ho, a Boojum, definitely a Boojum!" For better or worse the name stuck and appears destined to persist. For those not acquainted with the singularly unusual and variable appearance of the Boojum tree the numerous illustrations in this book will show them why Sykes was so astonished when he first came across it although, of course, it has been known for many years prior to 1922 having first been described by Kellogg in 1860.

It is quite impossible to do justice, in the space of a few hundred words, to the wealth of information in this book. There are a multitude of facts on every conceivable aspect of *Idria columnaris.* Its geographical distribution is carefully tabulated and considered in relation to climatic factors. The seeker of records is well served as there are data on the tallest specimens and their girths and, of more importance to the botanists, the rate of growth and the way in which it is affected by climatic conditions. Those interested in conservation will welcome the chapter on germination and establishment, which includes some very useful results of plants raised from seed in Tucson. This is followed by a chapter on local habitat requirements which include such diverse but important factors as the type of soil, its pH value, the presence of soluble salts and the slope of the land. For example, the author's meticulous studies have shown that the total number of plants with a northerly exposure is five times that of those with a southerly exposure. A chapter entitled herbivores, parasites, man, epiphytes and pollinators provides an excellent account of foes and friends and includes illustrations of cacti such as *Opuntia* and *Ferocactus* species growing as epiphytes on the Boojum. The final chapters of the book are concerned with community relationships, that is to say, the way in which *Idria columnaris* is associated with other perennial plants and this also makes interesting reading.

In this particular matter, as in the case of the extensive data presented in the earlier chapters, the author is concerned with much more than mere results for the sake of collecting information. He makes a conscious attempt to place interpretations upon the multitude of facts. sometimes these hypothese can be regarded as speculative and despite his careful studies problems still remain. Nevertheless, this book is a landmark in its particular area and is certain to be the reference work for many years. It deserves to be read widely.

W.F.M.

COLOURFUL CACTI AND OTHER SUCCULENTS OF THE DESERTS. By Edgar & Brian Lamb. London: Blandford Press, 1974. Pp. 236, 140 colour plates, 4 maps. £1.75.

This is the latest book in Blandford's attractive Colour Series and is, in fact, a sequel to Edgar and Brian Lamb's 'Pocket Encyclopaedia of Cacti in Colour' which was issued a short time ago in the same series. Its stated intention is to provide cacti enthusiasts with an insight into how these plants grow in the wild state. In scope, however, the book is restricted to fifteen localities in the south-west United States, and 'desert' is used in its popular sense of arid country since, as the author's comment, only one of these localities comes 'nearest to a true desert location'.

In the first section of the book each of the fifteen localities is pin-pointed on a map, briefly described and the cacti and other succulents to be found there listed. The second section is made up of 140 colour plates depicting the terrain in each locality with close-ups of the plants there. These illustrations are of that high standard to which the Lambs have accustomed us in their previous books. Only the inclusion of two photographs of bowl gardens, plates 139 and 140, provide something of an anti-climax.

The final section is made up of simplified botanical descriptions of the plants listed earlier, arranged in alphabetical order of genera. Synonyms in common use are listed and habitats detailed. Perhaps the inclusion of phonetic equivalents of the Latin names is superfluous in a book of this nature. Altogether this is an entertaining book well worth its place on the bookshelf of the succulent plant enthusiast, especially one whose interests lie in the cacti of south-west U.S.A. It will be invaluable to anyone fortunate enough in planning a visit to that part of the world to meet these plants on their home ground.

W.V.H.

PRELIMINARY SHOW NOTICE

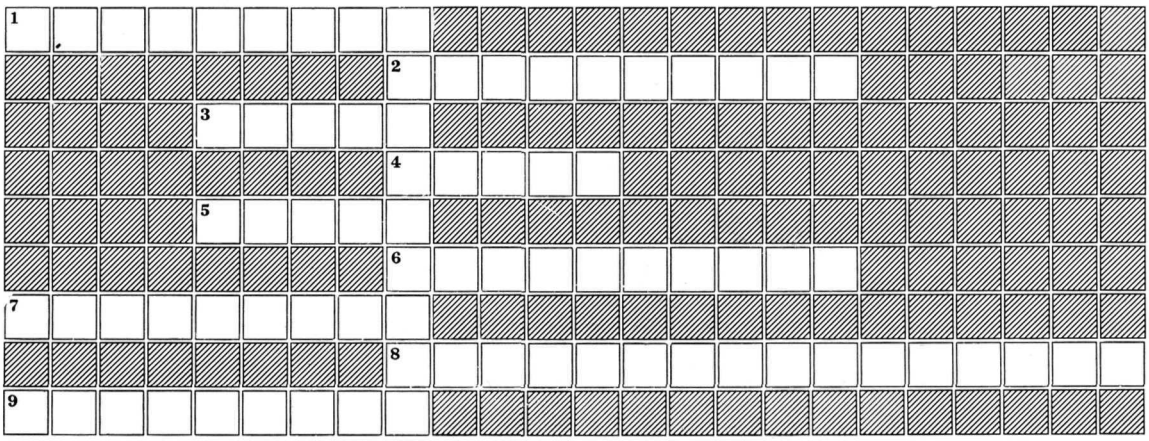
The Society is staging a one-day show in London on June 14th, 1975. Book the date now; further details in the February Journal.

MR. ARTHUR BOARDER

Mr. Boarder informs us that he has moved from Ruislip and that his present address is—30 Sunstar Lane, Polegate, Sussex.

Neocrosswordermannia Mk.2, No.2

by Arnold Rainbow



Solve the clues across to find a genus of leaf succulent or the first formed leaf. Solution on page 90.

1. A continent where cacti are most likely to be found (9)
2. Genus of columnar cacti bearing hair and strong spines (10)
3. Stem form resulting from abnormal behaviour of the growing point (5)
4. Succulent genus in the Liliaceae which has rosettes of wiry pointed leaves often borne on tall stems (5)
5. Outer flower part; often very petal-like in appearance (5)
6. Genus of attractively spined cacti now generally regarded as Notocacti (10)
7. General term for member of Asclepiadaceae (e.g. Ceropegia) (9)
8. Genus in the Mesembryanthemums resembling an elongated Lithops (16)
9. Common garden flower related to Dianthus (9)

(solution on p. 90).

Does It Show?

by A. E. Appleby

AS ANOTHER SEASON of growing and showing gradually fades into winter, we can reflect on the 1974 shows and plan for 1975. At the Northern Counties Branch our major show was held in conjunction with the North of England Rose Carnation and Sweet Pea Society, at Gosforth Park Racecourse on Friday 16th and Saturday 17th August.

The "Jennison Shield" was again won by G. A. Charleton of Bedlington, for a display not exceeding 3ft. x 3ft. in the premier class. This class carried prize money of £2, £1, 50p and 25p, which produced a very good return of entries. Should any other branch consider such a class at a show I can recommend it for the following reasons:—

(a) It makes a large and excellent centre of attraction.
(b) The prize money is not great in relation to the number of plants entered.
(c) 3ft. x 3ft. is large enough for plants in pots to be arranged attractively to form a display.
(d) It provides an outlet for all those good plants which somehow don't fit the other classes.

It becomes more and more difficult to make shows pay their way in these troubled times, so by way of an economy measure we abolished the members' classes and two of the novice classes, giving a great reduction in prize money to be found by the branch. This left us with 26 open amateur classes and two novice classes, compared with 74 classes in 1972 and 1973. The entries however, were only about 10% down and this can, I feel, be attributed to the loss of two key workers and exhibitors —Messrs. Jennison and Miller, who have both left the district.

As usual we made no charge on the door and took no part of the gate money. (The latter is an arrangement by which we get free schedules and publicity). On a rough estimate we made a small profit on the show—about £10—perhaps all we can expect in the present economic climate.

For some years now we have made no charge on the door at our shows; the rent and prize money being raised by a tombola stand and a levy of 10% commission on

plants sold by members. A gaming licence is needed for the tombola, but this can be obtained at the town hall/council offices, at the bargain price of £1.50 and with careful wholesale buying or prizes, (£30 to £50 worth on our shows) each valued at £2 or less (wholesale) a very attractive and profitable stand can be arranged. Surplus prizes can be auctioned, sold or kept for branch raffles.

At our shows the sale of plants is the sole responsibility of those members wishing to sell plants, and the show secretary is not involved in any work other than designating a site for the tables. The sellers arrange the layout and manning of the sales and supervise the show area near them. Several people can work from each stand, by grouping plants and marking each group, with the price and the owner's name. A takings bowl is places beside each group, marked with the owner's name and out of sight under the back of the counter, where it can be watched. At the end of the show members total their takings and give the treasurer 10%.

We find this works very well because:—

The public get some very good cheap seedlings.

The members get some payment for their plants and work—and some space in their greenhouses.

The branch gets plenty of people to man the sales/publicity stands and 10% of the sales money.

Membership application forms and notice of meetings are given freely to anyone who shows knowledge or interest.

New members are enrolled!—Who could ask for more?

The work? Oh yes! I nearly forgot! Everyone has to work very hard to make the show a success—but they'll recover before next year!

The Open Day

by Penny Jones

IT SEEMED such a brave and noble gesture to offer to have an Open Day, three months ago that was. The euphoria remained until—horrors, it's NEXT WEEK!

What to do first? The plants of course. A rush to the greenhouse.

"You, stand up straight in your pot, we're having visitors next week".

"You, I know that you need repotting, but tuck your roots in for just another week then I promise I'll do it, we're having visitors."

"Cannot you grow a few more hairs over that black scar? You must look your best for visitors!"

"Come on seedlings, you look a poor lot for twelve months old, the visitors will think I never feed you."

Such a potting and re-potting, tidying and sorting. Into the bin with the corpses which failed to miraculously come to life. The floor needs sweeping, and, gracious, the windows! The scrubbing and hosing let in so much light that there was a need for sun glasses all round; at the same time a foolish move, the cracked pane finally fell in! The Better Half, where is that man? Please fix it, and the one in the door, and the window catch is loose and the staging is sagging and while you're at it you might put the guttering up and clean the heater and you did promise to fill up the holes in the path, the visitors will break their necks! Better Half has gone right off the idea of an Open Day—he isn't even an Enthusiast.

Now the garden—despair! Weeds a foot high, the nettles thrive, the beans ail, the aphis abound. There is a colony of slugs in the cold frame agog with open jaws for the next batch of lettuce seedlings. The man in the Garden Shop sees me coming, his eyes gleam as he hands over systemic, lindane, slug pellets, Jeyes, canes and string, leaf shine and chlorate.

"The pests will migrate when they see you coming," he jokes. He doesn't know the resilience of my pests!

There's a'weeding and a'hoeing, a'staking and a'pruning, a'spraying and a'fumigating. Malathion for outer cleanliness and Compure for inner cleanliness; the plants have also gone off the idea of an Open Day.

Now the house. We Lady Gardeners lose out all along the way. Not only the plants, greenhouse and garden must be spotless but also the house! Bathroom, they're bound to ask for it. Lounge, in case it rains, they must sit somewhere. Dining room for teas. Kitchen—can't get people out of a kitchen. Suppose they look in the cupboards for cups, better tidy them up I suppose? Bedrooms. Suppose they ask to see the house? Well, they can't. Forget albout the bedrooms. Defrost the fridge, not a good impression if the ice falls out of the door. Clean the stove—no need to bother with the oven. Vim on the sink, scrub the floor, better bake some scones and things I suppose. The house and I are now very much off the idea of an Open Day!

The Day draws near. Will Ian sell plants and Ken sell rafflle tickets, will Ann make teas? They will, relief! Will it be fine, will no-one come, will too many come? Will they be bored and go, will they enjoy themselves too much and never go?

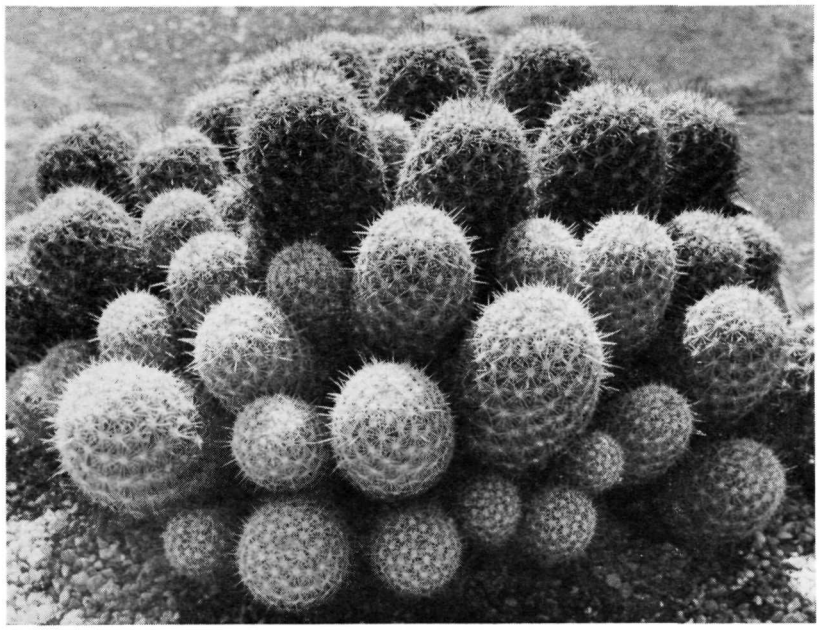
I work all morning, difficult on one's knees while praying for a nice day. Afternoon. They come, and come, and stay. The sun shines, the scones and cakes go. We have enough milk, sugar and tea.

The people ask questions and chat and buy things. Ann copes. The plants preen themselves, I preen myself.

"Oh, I love having Open Days. Yes I so try to keep the place tidy. I can't do with things getting out of hand. Oh, it's no trouble at all!"

Better Half wisely says nothing.

Connoisseur's Corner



Mammillaria multidigitata (photo: R. A. Robertson)

Mammillaria multidigitata

The genus Mammillaria contains a number of little known but, nevertheless, deserving species and *M. multidigitata* is one such. It was described as recently as 1947, by Dr. Lindsay, and it habitat is restricted to San Pedro Nolasco Island, in the Gulf of California. The name multidigitata means having many fingers and this epithet aptly describes the overall appearance of this interesting species. Older plants form clumps with short cylindrical heads; specimens with as many as one hundred have been noted in habitat and the cultivated specimen in the illustration has sixty-eight.

The clustering habit gives it an appearance not unlike that of *M. elongata* and its allies. Indeed, Backeberg included it in this group the *Series Leptocladodae,* in Volume 5 of 'Die Cactaceae'. This taxonomic placement is unlikely on geographical grounds and other considerations and Hunt correctly assigned it to the Series *Ancistracanthae* in his article "Schumann and Buxbaum Reconciled" which appeared in the August 1971 issue of this Journal. That earlier workers had not done so is almost certainly due to the fact that it has only recently been appreciated that species with straight spines occur among this group of plants; *M. neopalmeri* and *M. cerralboa* are good examples. Even those species which are traditionally regarded as having wholly hooked central spines, such as *M. dioica* and *M. fraileana,* have forms with some or predominantly straight central spines. Likewise, specimens of *M. multidigitata, M, cerralboa* and *M. neopalmeri* with a proportion of hooked central spines are by no means uncommon.

Those species such as *M. multidigitata* with predominantly straight centrals have somewhat smaller flowers than the hooked spine members of the Series, typified by *M. swinglei.* Nevertheless, they are attractive and in the case of the species under consideration are about 15 mm. in diameter. Although the inner petals are whitish the overall visual appearance is greenish, because of the olive-green stripe on the outer petals. The blooms appear during the summer months and the flowering period may be quite extended if there is a long hot spell. This species should be grown in a good light, when it may be watered freely during the summer months, to encourage flowering and to promote the growth of stout stems, such as are seen in the illustration. The plant depicted gained the prize for the Best Cactus in the North London Branch Shows of 1972, 1973 and 1974 and is a splendid specimen.

W.F.M.

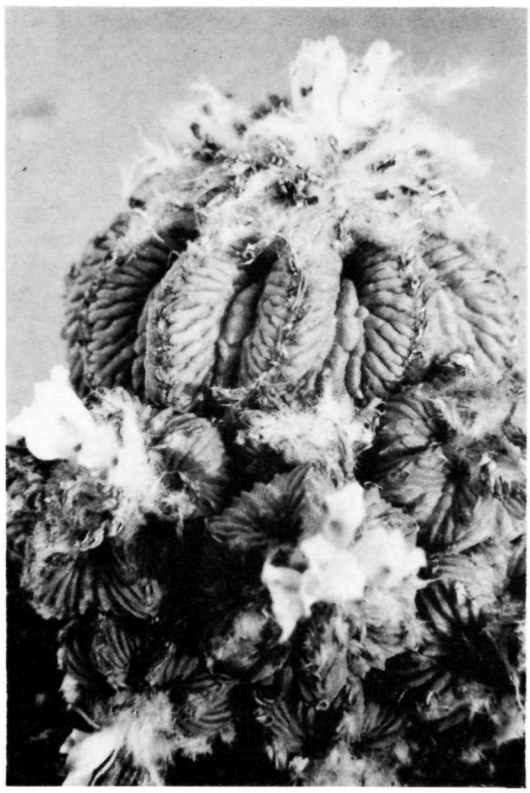
Aztekium ritteri

Although *Aztekium ritteri* is tolerably well-known it certainly deserves a place in this series as it is a singularly interesting plant which, although not exactly handsome, undoubtedly has character. It may come as a surprise to some more knowledgeable cactophiles that it was described as recently as 1928 by Boedeker. The generic name was coined because the furrows and serrations on the almost spineless ribs, which are clearly visible in the illustration, are reminiscent of Aztec sculptures. The genus is monotypic that is to say *A. ritteri* is the sole species.

Its habitat is on dry stony slopes in the Mexican state of Nuevo Leon. The precise localities are not well-known, fortunately, as this has undoubtedly restricted its collection and lessened the possibility of its becoming extinct in the field. Although it comes from a hot, arid area it is by no means difficult in cultivation, once established. Imported specimens are often slow to root and it is best to place the pot in a saucer and give water cautiously from the base. When new growth appears watering may be reasonably liberal during the summer months. There is no justification for grafting and this is undesirable because it leads to atypical growth and a bright green body colouration very different from the characteristic dull green hue of plants on their own roots.

Although growth is slow, and individual heads are unlikely to exceed two inches in diameter, plants do offset freely and, over a period of years a plant of reasonable size results. The plant illustrated completely fills a three and a half inch pot and this indicates that the comment of E. V. Bloom, in his book "Collectors Cacti", that a good clump can never be expected to develop in cultivation, is unduly pessimistic. The offsets produce flowers two or three years after their formation and multi-headed specimens produce many of the small but very attractive pale pink blooms throughout the summer months when grown in full sunshine. Little information is available on cultivation from seed; growth is undoubtedly very slow for some years and the age at which flowers will appear is a matter for speculation.

W.F.M.



Aztekium ritteri (photo: Maddams)

Dudleya farinosa (Lindl.) Br. R.

Amongst succulent genera few have received as little attention as *Dudleya*. Even collections with large numbers of Echeverias seldom have more than a handful of Dudleyas. After much searching during the last five years I have got together five species, and three of these are doubtfully named. *Dudleya farinosa* illustrated here is the most readily available species in this country. Jacobsen lists 43 species and a number of varieties, Willis says 60.

Originally described by Lindley as an *Echeveria* and later transferred by Britton and Rose to their newly erected genus *Dudleya, D. farinosa* is easy to cultivate. Plants in my collection have survived winter conditions at 40°F. with no ill effects ecxept for a reduction of the farina as time passed by. In winter, watering is restricted to warm days, just sufficient being given to prevent loss of the fibrous root structure. In summer, growth is rapid and a handsome plant can be obtained in two or three years from a cutting. Branching is dichotomous.

Individual rosettes are seldom more than 8 to 10 cm. in diameter and hold no more than twenty-five leaves at one time, but the overall effect due to the brilliance of the floury coating on the leaves is most attractive. Since the old leaves are persistent, and the leaf itself is attached along its broad base—a characteristic of the genus—regular checks for mealybug are advisable. Moderate amounts of water are required during the growing season, but care is essential to avoid leaving water on the rosette that would lead to marking. It is not one of the freest of flowering plants, but flowers are normally produced in July and are similar to those of *Echeveria*.

J.H.

Dudleya farinosa (photo: J. C. Hughes)

Succulent Snippets

by Sally Cornioides

BY THE TIME you read this the show season will be well and truly over but, judging from comments and reports, there have been fine entries at most of the Branches. It is to be hoped that some of these will be seen at the one-day Show in London next June, make sure you are there with your plants if you are within reach of the Metropolis.

The June Show at Westminster had some new names among the winners and let us hope for more in October. Incidentally, we did well publicity-wise at the former Show; there were colourful flashes of the plants on the Nationwide (South East) programme that night and three gardening journals gave reports. Of these latter, that of Practical Gardening was carefully written and accurately captioned photographs accompanied it; the other two, alas, made rather horrible mistakes. However, as politicians are fond of saying, "Any publicity is good publicity"! and general gardening journals have not the time nor opportunity always to check before rushing their news items into print.

There is a continuing tendency at shows nowadays to include classes with pot size restrictions. These seem to fulfil two functions, first to give a better chance for those with less mature collections and secondly, to enable some of the choice dwarfer plants to be seen. When the second is the case the point arises what is a dwarf plant? Often when plants are first introduced to cultivation they are billed as 'dwarf species' or 'compact and miniature' but at that point no one really knows their potentialities under greenhouse conditions and some cannot be regarded as miniature in later years. Take, for example, *Aloe bakeri,* which was advertised as a choice dwarf aloe only five or six years ago. Those who read a report on one of last year's shows will remember the note about this aloe resembling a bird's nest and a plant in a large pan with its span nearly a foot can hardly be termed dwarf in my estimation. Similarly, much was made of neat plants of *Crassula suzannae* and *C. mesembryanthemopsis* in three and a half or four inch pans and they were termed difficult and slow and decidedly miniature but now great clumps can be seen in large pans. I hear that if you get the right clone they just grow and grow.

The cacti need not be omitted either. A few years ago the newer Copiapoas were becoming popular; no doubt because they flowered when they were about two to three inches in diameter it was thought that they would not grow much more. However, now fairly large clumps of *C. hypogaea* and related species can be seen and many of them only six or seven years from seed. Other instances are the so-called dwarf Mammillarias; *M. goldii* is generally quite small but, again, some clones tend to grow large and *M. saboae* can achieve a great batch of heads in the right conditions and even *M. boolii* is showing a tendency to become larger in cultivation than it ever would in habitat. What is the answer to it all? I think the only thing is to accept a plant as small growing until it is found to be otherwise. Fortunately, at

present at least, there are others coming along which seem to comply even better with 'dwarf standards'; for example, in the aloes, *A. descoingsii* and *A. calcairophylla.*

Have you had a great many flowers this year? Better or worse than average or about the same? There are varying reports from the specialists coming in. Mammillarias of the *M. hahniana* type do not seem to have done too well for many people this year but Rebutias seem to have been producing batches of flowers well into the autumn. Coryphanthas and related genera have put on a good display, according to most growers, and appear to be flowering well right into the autumn, too. Mesembryanthemum enthusiasts are saying that, on the whole, their plants are flowering better and earlier than usual, and there is no doubt that the Liliaceae go ahead regardless of weather conditions. What is the reason for it all and why do some flower buds abort or even appear to shrink back into the axils and others open whether the sun is shining or the rain is pouring down? I shall be pleased to hear some of our botanical members' comments on these points and also from members on whether they have had a successful flowering year or not.

Ave atque vale—it is always sad to see a Journal disappear from the scene and *Epiphytes* has been of great interest to its specialist supporters throughout the years, without a doubt, but with no new editor coming forward what can be done? However, at almost the same time *Asclepiadaceae* appeared for the first time so where one specialist left off another follows on. But are they really necessary? Would not those words of wisdom be better published in, for instance, this Journal where far more people would have a chance to read them and more enthusiasts might be brought into that particular specialist fold. Looking through the last few volumes of our Journal there have been precious few articles about either epiphytes or Asclepiads and I am sure many members would welcome them.

As this goes to press it is becoming increasingly difficult to buy plastic labels of any kind, plastic pots of popular sizes are getting low in stocks and high in price, and to add final confusion to the modern growers' scene, peat is, and hence, no soil composts, are likely to be in short supply. This is where the old die-hards score as they see us all trying to resurrect our clay pots from dumps at the bottom of the garden, paint up wood strips for labels and revert to JI or the old brick dust-plus mixture. The question is whether the plants will enjoy the switch!

Well, the time for our Annual Dinner is rolling round again. Make sure you get there if you can. Apart from the good company and the good food you are better on the spot to enjoy whatever turns up as the biggest laugh of the evening this year.

Finally, as it will be into 1975 before you hear from me again, Happy Christmas and may all your Schlumgergeras bloom at the right time for you.

Correspondents

Electric Greenhouse Heaters

There were some very interesting comments made by Mr. and Mrs. Maddams in the August number of this Journal under the title 'Seasonal Cactus Care', and I was particularly interested in their observations on the reliability of electric fan heaters.

For several years I have used a 2.5 Kw. "Autoheat" fitted with manually adjustable thermostat control. I found this very reliable until last year when the thermostat contact became pitted through the inevitable sparking. I overhauled these but this remedy did not last long and I purchased a new thermostat from the makers of the heater (Messrs. Findley-Irvine, Bog Road, Penicuik, Midlothian). I fitted this with some misgiving because I could not visualise a simple method of spark suppression with alternating current of the order of 10 amps. However a week or so later I was surprised to receive in the post from my suppliers a leaflet which provided the answer to my problem. It described in detail a spark suppressor, the "Zerac, Model A", which can deal effectively with this or any similar greenhouse or domestic thermostat. It is simple to fit, compact and immune to climatic variation. I would guess that it is a form of silicon controlled rectifier as employed in electronic car ignition systems.

After fitting this spark compressor I have experienced no further trouble and I am sure many members would profit from reading the pamphlet which doubtless is available on request from the makers. In conclusion I would strongly recommend that as a prelude to fitting this unit a careful check is made of the thermostat contacts and replacing these if in doubt about their condition. I need hardly add that in the absence of competence in such matters the fitting procedure be entrusted to a suitably qualified person.

E. E. Avery,
19 Grandison Road,
Worcester Park,
Surrey.

Taking a Cool Look at Succulent Cultivation

My first succulent plants occupied only a small corner of an eight by six greenhouse. I was in charge of the heating of it during the winter but I lost interest in my plants and the greenhouse remained unheated for two consecutive winters. When I became interested once more, I found that my plants were hardly affected by this harsh treatment. This I surmised was due to low turgidity in the plants since during those two years they had received little water. Now I grow my plants in an unheated greenhouse and give them their final watering about the middle of October, except for Lithops which receive water until the end of the month. In order to

keep the air as dry as possible I do not have any winter-growing plants, and I take out all water until spring comes and watering starts again.

The early onset of winter in 1973 caught me out as some of my plants were still highly turgid, and I lost two Neoporterias and a prized Borgicactus which I had grown from seed and was expected to flower soon.

I find that most epiphytic cacti, especially Epiphyllums and Rhipsalis, do not survive under these conditions and certain Opuntias and Cerei (especially *Myrtilocactus* spp.) become rather scarred. The textbooks that I have read do not give much information on cold winter treatment, so I proceed by trial and error. Some of the more difficult plants such as Melocacti and the delicate skinned Ophthalmophyllums need extra protection and these I winter on a lower shelf, standing on layers of newspapers and with the shelf enclosed completely with polythene. This extra protection is given to seedlings in their first winter, and although they shrivel somewhat they soon pick up when watering is resumed in spring. The summer growing Mesembryanthemums do very well under these conditions.

I would not encourage anyone to change over from a heated greenhouse to an unheated one with their existing plants because there would surely be some disappointments. However the idea is worth considering by anyone starting from scratch, or extending their activities with a new greenhouse. Perhaps I may be regarded as a glutton for punishment in growing my plants this way, but it is a way, nevertheless, that I have found rewarding.

B. Phipps,
10 Kings Road,
Leytonstone,
London E11 1AT.

West Kent Branch—Progress so far

Members may recall that in the February 1974 journal my letter was published regarding the re-formation of the West Kent Branch and requesting any members who resided in the Kent area to contact me if they wished to participate. Unfortunately this letter aroused very little enthusiasm with only two replies.

However, still undaunted by the general lack of interest a small group of members have recently been meeting approximately once a month on a Sunday afternoon.

The first of these meetings was held at a member's house in Tunbridge Wells and although the attendance was small we spent a very enjoyable afternoon looking over the collection and chatting.

It was decided during the meeting to plan a visit to the nurseries of Bill Stevens and also Derek Sherwood on Sunday 15th September. This outing proved to be very successful and as a result of which it was decided that our next trip should be to the Holly Gate Reference Collection to take place on Sunday 13th October.

It has proved rather difficult to arrange a permanent meeting place to suit all concerned as these members reside in such widespread areas. The areas involved are Beckenham, Swanley, Dartford, Orpington, Erith, Tunbridge Wells and Maidstone.

As Kent is such a large county one can only hope that in the not too distant future it may be possible, if interest can be aroused, for the GB Society to form at least two Kent branches so that meetings can be held on a more permanent basis and without members having to travel too far afield to attend.

Although our meetings cannot possibly have the same scope as an established branch they are very friendly and any members who reside in or near the above-mentioned areas would be very welcome should they wish to join us on any future activities.

Margaret Dennard
53 Christchurch Avenue
Erith, Kent

Branch Meetings

Berks and Bucks. Allotment Holders' New Hall, St. Leonards Road, Windsor. 2nd Tuesday in month at 7.30 p.m.

East Surrey. Community Centre, High Street, Caterham. 3rd Tuesday in month, 7.45 p.m.

Essex. Cranbrook Methodist Church Hall, The Drive Ilford, 1st Saturday in month, 7.30 p.m.

Hatfield & District. Hatfield Congregational Church Hall, St. Albans Road East, Hatfield. 4th Monday in month, 7.30 p.m.

Herts. Friends Meeting House, Upper Latimore Road, St. Albans. 2nd Monday in month, 7.30 p.m.

Northern Counties. Social Service Centre, Park Road, Whitley Bay. 3rd Monday in month, 7.30 p.m.

North London. Capel Manor, Waltham Cross. 3rd Friday in month, 7.30 p.m.

North Staffs. Contact Mr. J. Wilson, 5 Monkton Close, Dresden, Longton, Stoke-on-Trent, ST3 4BG.

North Surrey. Adult School, Benhill Avenue, Sutton. 1st Tuesday in month, 7.45 p.m.

Wirral. "The Grange," Grove Road, Wallasey. 3rd Thursday in month, 8 p.m.

Westminster Meetings, 1975

A fine selection of well known speakers, including John Donald, Bill Keen, John Pilbeam and Bill Stevens, have been booked and it is hoped that members in the London area will give their full support.

January 29th. Dr. P. Brandham (Kew). Collecting Aloinae.

February 19th. D. R. Hunt (Kew). Mammillarias in Habitat.

Meetings are held at the Royal Horticultural Society's New Hall, Greycoat Street, Westminster at 6 p.m. for 6.30 p.m. on Wednesdays.

Notes and News

Wirral Branch

The annual table show of the Wirral Branch was held in June and, since the majority of members are relatively inexperienced, the emphasis was on classes with a restricted pot size. The plants on show were generally small and immature, but what they lost in years they gained in condition. The judge, Mr. Jeff Williams of Merseyside, commented that his time had certainly not been wasted. Messrs. J. B. Lewis and K.W. Marley were among the leading prize winners. The class for three cacti in pots 3½ in. or under was won by Mrs. I. Boote, among a total of fifteen entries. Mr. Lewis won the class for one Mammillaria with a lovely clump of *M. baumii* in full bloom. The classes for other succulents were almost as well supported as the cacti. Mrs. P. Jones took first prize in the class for one other succulent, unlimited pot size, with a fine *Pachypodium gaeyii*. The judge was particularly complimentary about the class for two Euphorbias, won by Mrs. Boote with *E. millii* and *E. bupleurifolia,* the latter being awarded 'best plant in show'.

Hatfield Branch Notes

The Hatfield Branch was four years old in September last. We are a small but thriving branch and would welcome new members. We have had a full programme of visits during the summer, several of our trips being made in conjunction with the North London Branch. We have arranged for many good speakers at our meetings. A Christmas Party is being arranged for December 16th. The Branch sends greetings and good wishes to all our friends in the 'cactus world'.

North Surrey Braves the Rain and Wind

When Terry Smale and his band of helpers arrived at Carshalton Park on a Friday evening in September to set up North Surrey Branch Show the wind was howling and the rain lashing down and there were no sides to the marquee! Even the next morning with the sides on the rain still came in and the benches had to be removed from the edges as members were arriving with their plants. However the two hundred and fifteen entries were staged all right in the end and a crowd of people flocked through all the afternoon, not forgetting to visit the sales and publicity tables en route.

This year the Banksian medal for the highest total prize money was won by Len Jeffries who also won awards for the best cactus (*Mammillaria elegans*) and best other succulent (*Euphorbia obesa*). Mrs. Nancy Daniel won the Chuter Memorial Award for the highest points in the Novice classes and also the awards for best Cactus and best other Succulent in those classes. Joint members figured high in the rest of the prize list—Mr. & Mrs. Paul Whicher gained the second highest total prize money, third were Mr. & Mrs. Maddams and then Dr. & Mrs. Randall.

East Surrey Branch

At the time of the issue of this Journal the Summer Holiday period will have passed and it is to be hoped that our members will be back in full force at the monthly meetings. On November 19th we have a lecture on Stapeliads by Mr. A. Woodward to which we are all looking forward. On December 11th our annual Christmas Social will be held and on January 21st members will be showing their colour slides and a general discussion on same will follow. We would like to extend an invitation to any Member reading these notes to join us at our monthly meetings at the Caterham Community Centre, High Street, Caterham-on-the-Hill. The meetings commence at 8.0 p.m.

Boarder on Repotting

There is another very good reason for repotting and that is the prevention of root pests. The root bug is a pest which resembles the mealybug but which only attacks the roots of a plant. Unless a plant is removed from its pot it is often impossible to know whether a plant is attacked or not. I have found from experience that root bug thrives in root-bound pots that have been left undisturbed for a few years. I am quite sure that many readers will remember turning a plant from a pot after it has been there for say three years and then finding that all the roots appear dead and the soil, if there is any left, is in a very poor condition and does not contain any nourishment. I have given in previous articles, the mixture which I recommend and so shall not repeat it here. I would like to emphasise though that the quality of the loam is of the umost importance. From the loam the plant will receive many of the necessary elements and so it is important that the loam should be from a good source. A quantity of soil from your garden is not likely to be of much value.

The time for repotting will depend a great deal on your own particular circumstances. If you have a few plants or have no greenhouse, then you can leave the repotting until March. If, on the other hand, you have a fairly large collection you will find that repotting must commence much earlier so as to enable all the plants to be moved before the late spring. I usually start my repotting in January and carry on as fast as I can through the month. As long as the potting medium is just moist at the time of potting there is no need to water any plants for perhaps a month. I find it a good plan to deal with the larger plants first as then the pots can be cleaned ready for other plants which perhaps require larger pots. Never repot a plant into a pot until the pot has been washed. Whether you give a plant a larger pot than the

one which it has come from will depend not only the size and health of the plant, but also on the genus and sometimes species. Some plants never grow very large and so it is unwise to put such a plant in a large pot. Nothing looks worse in a collection than a plant such as a half-inch diameter *Epithelantha micromeris* in a four-inch pot. Not only will it look odd but it is not likely to thrive as if it was in a pot of two inch diameter. On the other hand, a large specimen plant of, say, *Echinocactus grusoni* as large as a football will have a considerable amount of root and it is wrong to pack such a plant only just a trifle larger than the plant. The amount of root which a large Cactus plant can make cannot be realised until one tries to move such a plant after it has been planted out in a warm garden for a season. Whilst repotting remember the tip I have given before and that is, if a plant does not appear to have healthy roots do not repot right away in the usual repotting medium but re-root the plant first in some vermiculite.

(from this Journal, January, 1951)

The World's First Aloe Congress

Aloes are the outstanding flowering succulent on the African Continent, and Rhodesia has species found only in this country.

The emphasis of 'Aloe 75' will therefore be on the genus *Aloe,* and members of the Rhodesian Aloe, Cactus and Succulent Society will be taking great pains to show their visitors, from all parts of the world, Rhodesian flora in habitat.

Invitations to Rhodesia's 'First International Succulent Congress' have already gone out to gardeners and collectors of rare species, as well as to professional botanists and horticulturists, and the response so far has been encouraging.

A number of Americans will be attending, as well as a group of British naturalists; delegates from Spain, Monaco, Malawi and a splendid contingent from South Africa have also registered for the Congress. "It is early yet," says Mr. R. W. S. Turner the Covener of 'Aloe 75', "but so far, most encouraging."

To those from overseas who will be able to attend, there is no doubt that the Congress will be a memorable one.

The Postmaster General will be issuing a Commemorative Stamp issue, with six new stamps on a botanical theme; the 'Aloe 75' Photographic competition will be held; there will be an exhibition of 200 works of South Africa's top botanical artist Cythna Letty; and the National Archives of Rhodesia will exhibit historical paintings and books of a botanical nature.

The Philatelic Society of Rhodesia is staging an exhibition of stamps with a botanical theme.

Delegates ot the Congress should start arriving in Salisbury on the evening of July 7, 1975.

The first activity on the calendar is the 'Grand Tour' of the Eastern Highlands when delegates will visit the famed Umtali Aloe Gardens, and the Chimanimani Mountains. The Chimanimani area is rich in leptoaloes, that is aloes with thin strap-like leaves, of which of the 11 known tropical species, 8 are found in Rhodesia.

The party will also observe colonies of plants in lowveld conditions in the Birchenough Bridge area, which offers tremendous interest to botanists. In addition to visiting the Vumba National Park, the party will attend a Civic Reception given by the Mayor of Umtali, on the Friday evening.

The delegates will also be taken to the Van Niekerk ruins, where masses of two magnificent species, i.e. *Euphorbia ingens,* and *E. cooperi,* are sure to delight them.

Of the Euphorbias, widely distributed through Africa, some species again, are found only in Rhodesia. One particular species for instance, is found only in the Moodie's Pass area, this being *Euphorbia confinalis,* subspecies and *rhodesiaca.*

At the world-famous Victoria Falls, delegates who visit there, will see the interesting pendulous form of *Aloe chabaudii.* which, having adapted itself to the constant spray from the falls, hangs in the gorges.

Mr. Turner stresses that the 'Aloe 75' is not for scientists only. "It is not exclusive scientific botany," he said, "but a wide spectrum of subjects, combining science with sound horticulture and ordinary gardening."

During the formal Congress week, outings are planned to take delegates to places of interest around and about Salisbury. The Great Dyke of Rhodesia, itself unique, has a unique species, *Aloe ortholopa,* found only in this area. There will naturally, be a visit to the Ewanrigg Gardens, as well as to private farms and gardens.

The last week of the Congress will be spent in Matabeleland, where the highly enthusiastic Bulawayo Branch of the Society will show their guests Matabeleland generally, and the Matopos specifically.

In every case the Society is making every effort to see that the delegates pursue their botanical interests against an essentially Rhodesian scenic or historical backdrop.

"What makes an aloe fanatic?"—Mr. Turner answers the question—"We make a small scratch on a person's arm, take a piece of aloe and vaccinate him with the sap," he jests, and then gives the true explanation. "Aloes, cacti, and succulents are hardy plants'—they need little or no water, and in fact probably benefit from the houseowner's absence on holiday. They are really beautiful and are incredibly hardy."

He pauses, temporarily at a loss for words. "There is the form of the aloe too—it is sculptural and architectural, in its beauty. Have a good look at the next one you see," he urged.

I did, he is quite correct.

'Aloe 75' is being organised by the Aloe, Cactus and Succulent Society of Rhodesia, P.O. Box 8515, Causeway, Salisbury, Rhodesia, from whom any further information may be obtained.

SOCIETY SALES

Binding Cases—green cloth binding cases with gilt lettering on the spine, taking 12 issues (3 volumes) of the Journal ... ... £1 post free

Labels—triangular white ivorine plant labels in packets of 100 ... 30p post free

Badges—identify yourself with the Society's attractive lapel badge ... 30p post free

Booklet for Beginners—'How to grow Cacti and Succulents' by E. Shurly with an appendix on 'Seed raising and Window Culture' by A. Boarder; eleventh edition ... ... 19p post free

The above are available to members from Mr. D. T. Best, 16 Ashleigh Gardens, Sutton, Surrey. Postal orders and cheques should be made payable to the Cactus and Succulent Society of Great Britain.

Pens—ball-point pens in yellow and blue with the Society name in bundles of 25 ... ... £1.20 post free

Car Stickers—useful publicity for the Society, per packet of 10 ... £1.60 post free

Ties—in navy, maroon or green ... ... £1.05 post free

The above are obtainable from the Publicity Officer, Mrs. B. Maddams, 26 Glenfield Road, Banstead, Surrey. Branch Secretaries are invited to obtain these in bulk for resale at Branch meetings.

Solution to Neocrosswordermannia No. 2

1. Antarctic
2. Oreocereus
3. Crest
4. Yucca
5. Sepal
6. Eriocactus
7. Stapeliad
8. Ophthalmophyllum
9. Carnation

Vertical Word COTYLEDON

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THE CACTUS AND SUCCULENT SOCIETY OF GREAT BRITAIN

RULES

1. NAME

The Society shall be called The Cactus and Succulent Society of Great Britain.

2. OBJECTS

To collect information on and encourage the study and cultivation of cacti and other succulents, organise exhibitions and issue publications.

3. MEMBERSHIP

Any person who is interested in the objects of the Society is eligible for membership, subject to the approval of the Council (the Executive body of the Society), upon application in writing and payment of the subscription required by the Council. There will be no discrimination between amateur and professional members.

Membership shall fall into six categories: Honorary Membership, Ordinary Membership, Junior Membership, Joint Membership, Associate Membership and Affiliate Membership.

Honorary Members may be elected at an Annual General Meeting and they shall have full rights to participate in Society business and activities but shall not be called upon to pay subscriptions.

Ordinary Members shall have the right of voting at all general meetings of the Society and shall receive the Journal and notices issued by the Society. Other publications, as may be available from time to time, will be offered at a price to be decided by the Council.

Junior Members shall be admitted up to the age of eighteen years and shall have the same rights and privileges as Ordinary Members.

Joint Membership shall provide for two members of a family resident at the same address to participate in Society business, activities and benefits and to receive one copy of the Journal.

Associate Membership is confined to members of a family of which one person is already an Ordinary Member. Associate Members shall not have voting rights and shall not receive the Journal but may attend any meeting of the Society and shall receive notices issued by the Society.

Societies, Associations and Corporations may become Affiliate Members; they shall not have voting rights.

4. SUBSCRIPTIONS

The subscriptions of the various grades of membership, other than Honorary Membership, shall be such amounts as shall be fixed each year by Council. Subcriptions are payable on approval of the application for membership and on the first day of January thereafter All new applicants for membership after 30th June in any one year shall pay one half of the annual subscription.

5. MANAGEMENT

a) The management and property of the Society shall be vested in a Council consisting of President, Vice-Presidents, Chairman, Honorary Secretary, Honorary Treasurer, nine ordinary members and such ex-officio members as may be determined by the Council from time to time. These ex-officio members shall include Editor, Show Secretary, Meetings Secretary, Branch Organiser, Librarian and Publicity Officer; any such post may be held by any member of the Council.

b) The President shall preside at Annual and Extraordinary General Meetings. The Chairman shall preside at Ordinary Council Meetings, and at Annual and Extraordinary General Meetings in the absence of the President. In the absence of both the President and the Chairman any member may be nominated for the Chair.

c) The Honorary Secretary shall conduct the correspondence of the Society and shall carry out the instructions of the Council and Meetings of members. The Honorary Treasurer shall receive and expend the moneys of the Society in accordance with the instructions of Council and Meetings of members, and maintain appropriate accounts.

d) The President shall be elected by a show of hands at each Annual General Meeting. Vice-Presidents, limited to a number to be determined by Council, shall be elected annually by a show of hands at each Annual General Meeting. The Chairman, Honorary Secretary, and Honorary Treasurer shall be elected annually by postal ballot. Ordinary members of Council shall be elected for a period of three years, also by postal ballot. Three shall retire annually in rotation and retiring members shall be eligible for re-election. Less than 50% attendance at Council Meetings during a year without reasonable excuse shall render retiring members ineligible for re-election. Ex-officio members shall be elected by a show of hands at each Annual General Meeting.

e) The election of the Chairman, Honorary Secretary, Honorarv Treasurer and nine ordinary members of Council, by postal ballot, shall be conducted in accordance with the following procedure. Nominations in writing bearing the signature of a proposer and seconder and accompanied by the written and signed consent of the nominated person to serve in the office to which he or she has been nominated shall be submitted to the Honorary Secretary not less than nine weeks prior to the Annual General Meeting. When the number of nominations exceeds the number of vacancies the Honorary Secretary shall send a list of the names and addresses of members so nominated for office to every member of the Society entitled to vote, six weeks prior to the Annual General Meeting. Council shall have power to fill the place of any Officer or Council Member who shall have resigned, died, or for any reason whatsoever is incapable of holding office.

f) Council shall meet not less than three times yearly at such places, times and dates as it may decide. A quorum shall consist of one half of the number of Officers, Council members and ex-officio members in toto. Each member of Council shall have one vote and the Chairman shall have a second casting vote in the event of a tie. Branch Secretaries shall be invited to attend

Council meetings and participate in relevant discussions but shall not have voting rights.

g) Council, at its discretion, shall appoint sub-Committees to whom it may delegate such duties as are thought desirable. The findings of these sub-Committees shall be subject to ratification by Council.

h) Council is empowered to reimburse Officers, ordinary members of Council, ex-officio members and members of sub-Committees for second class travelling expenses incurred in attending Council meetings, meetings of its sub-Committees and other journeys necessary for the transaction of Society business.

i) Any motion at any Council or General Meeting entailing expenditure of any amount exeeding £25 shall not be carried unless supported by at least two thirds of the members with voting rights who are present.

j) Council shall have power to decide on any matter not covered by these Rules and its decision in such matters shall be binding on all members of the Society, but if any alteration, addition to or amendment of the Rules is involved it must be ratified at an Annual or Extraordinary General Meeting.

Proper minutes shall be kept of all Council, Annual General and Extraordinary General Meetings.

6. ANNUAL AND EXTRAORDINARY GENERAL AND ORDINARY MEETINGS

The Annual General Meeting of the Society shall be held not later than the end of March each year, when the following business shall be transacted:

a) To receive the Minutes of the previous Annual General Meeting.
b) To receive the Honorary Secretary's Annual Report.
c) To receive the Honorary Treasurer's Annual Report and proper accounts for the preceding year.
d) To receive reports from the ancillary Officers.
e) To elect a President and Vice-Presidents.
f) To receive the result of any postal ballot.
g) To elect ex-officio members of the Council.
h) To elect Honorary Auditors for the ensuing year.
i) To deal with any other business relating to the Society.

Ten weeks notice of the Annual General Meeting shall be given and Notice of the Agenda for the meeting shall be sent to each member of the Society not less than fourteen days prior to the meeting.

Extraordinary General Meetings shall be called at the discretion of Council or upon the requisition in writing to the Honorary Secretary of not less than thirty ordinary members of the Society. A quorum for Annual and Extraordinary General Meetings shall consist of thirty members; attendance at such meetings shall only be open to members of the Society. Ordinary meetings shall be held monthly or at such other times as Council may decide.

7. EXPULSION

The Council may, at their discretion, expel any member for breach of these rules or for any other matter which they consider justifies expulsion. The member must first have had the opportunity of putting his or her case to Council and there must be a three to one majority in favour of expulsion.

8. EXHIBITIONS

Council shall have power to organise exhibitions and all Exhibitors shall conform to the rules and regulations laid down by Council or its Show Committee.

9. AFFILIATIONS

The Council shall have power, at their discretion, to affiliate with any other Society or to co-operate with such organisations as they consider will benefit the Society's work.

10. LIBRARY

Council shall have power to acquire books, obtain photographs of plants and other types of information of value to members.

11. BRANCHES

Council shall have power to sanction the formation of local Branches upon written application from twelve members, or such less number as may be considered reasonable by Council, in a given locality or area. The name of the Branch shall be determined by Council, having regard to the wishes of the members of the Branch. It shall, as far as possible, indicate the geographical centre of the Branch activities. Members of local Branches shall be members of the Society and pay their dues to the Society Treasurer. The local Secretary (or Treasurer if one be appointed) may apply to the Honorary Treasurer of the Society for an amount to cover the initial local expenses; this amount shall depend on the number of members belonging to the Branch and shall not be more than 25% of each subscription.

Every Member shall be entitled to attend the meetings of any and every Branch whether or not he or she be a Branch member. No member shall be eligible for election as an Official or member of the Committee of any Branch except the one of which he or she is a member. Branch officials and members of the Committee shall serve for a period of one year but may be re-elected.

A Branch may be dissolved only by a majority vote of Council and cannot be dissolved by its own Branch Committee.

12. DISSOLUTION

If at any meeting a resolution for the dissolution of the Society shall be passed by a majority of the members present the resolution must subsequently be ratified by a majority of at least two thirds of the Members by a postal ballot of Members. Such a ballot shall be held not more than six weeks after the date of the resolution. Ballot papers shall be sent by the Secretary to all Members having voting rights not less than four weeks before the date for determining the result of the ballot.

Council shall, upon ratification of such a resolution, or at such future date as may be specified in such a resolution, proceed to realise the property of the Society including the property of its Branches other than any which they have acquired from their own resources, and after the discharge of all liabilities shall divide the same equally among all the Ordinary and Junior Members. Upon the completion of such a division the Society shall be dissolved.

13. ALTERATIONS TO AND INTERPRETATION OF RULES

Alterations to or amendments of the Rules, or additions thereto, shall not be made except at an Annual or Extraordinary General Meeting. Notice of such change of Rules must be sent to the Honorary Secretary twenty eight days prior to the Meeting and such alterations shall be included in the agenda sent to members fourteen days before the meeting.

Council shall be the sole authority for the interpretation of these Rules and its decision shall be final. These Rules shall be accepted in lieu of, and abrogate, all former Rules of the Society.