

Manchester

Branch

Newsletter

August 2000

Editorial

We have to start this month with some hard earned congratulations to two of our branch members. First, our secretary Geoff Bailey, in conjunction with John Miller and David Rushforth as co-authors of the Ariocarpus, Living Rocks of Mexico, Internet site. They have become the first people to be awarded the Cactus Mall Four Star award for an educationally and technically superb Internet site detailing a huge amount of information about this genus. Second, to Peter Bint, for his success at the National Show. Peter obtained a "commended" with his *Gasteria batesiana*, "highly commended" with an *Aloe polyphylla*, two third places with a *Pediocactus* and an *Astrophytum capricorne*, a second with a *Rebutia heliosa* and a first prize and silver spoon with his *Copiapoa haseltoniana*.

Two other branch members deserve special mention this month. Philip Barker for his single handed efforts in promoting the branch and the society at the display at Worsley Hall Garden Centre and Brendon Burke for manning the society stand at the Southport Flower Show on the same week-end as the National Show.

Front Cover.

Astrophytum myriostigma columnaris
Photo from the Editors greenhouse

Rear Cover.

Picture supplied by John Foley.

Editor.

Ivor Crook
Telephone/fax
E-mail

Technical assistance.

Geoff Bailey

Diary

Sunday 27th August.

Oak Dene Cactus Nursery Open Day
Royston, Nr Barnsley.
Details and Map: Geoff Bailey.

Sunday September 3rd.

MSG Open Day
Vincent Formosa's Lithops Collection
10 Parkways Avenue, Leeds.
Directions see Ivor or Peter.

Sunday 8th October

Joint Birmingham BCSS and Haworthia Society Show. 11am to 4pm
Lecture 2pm Haworthia revisited with slides by Derek Tribble.
Birmingham Botanical Gardens.

Saturday 14th October

12 noon to 4pm
Mid Cheshire Annual Mesemb Show
Methodist Church Hall
Beach Road, Hartford, Northwich.
Show, Car-boot and talk.

Brian Bates August Tour 2000.

Sat. 26 Manchester Brazil 1999

Sun. 27 Melton Mowbry. Chileans Travels in South America.

Mon. 28 Crawley -1999 the drive home (a.k.a. Brazil, Paraguay and Bolivia).

Rebutia - By Doug Snell

The genus *Rebutia* was established in 1895 by Karl M. Schumann (1851-1904). Schumann was a German botanist at the Botanical Museum of Berlin. The name *Rebutia* honours P. Rebut, a 19th century French cactus expert and dealer. As with many South American cacti genera, there is much discussion and dispute about the makeup of the genus *Rebutia*. It really depends on your position as either a splitter or a lumper. The CITES Checklist recognises 29 accepted species and 9 provisional ones (it appears that there might be a couple more which were left out by mistake). In reaching these figures, five previously recognised genera—*Aylostera*, *Digitorebutia* (sometimes called *Mediolobivia*), *Rebutia*, *Sulcorebutia*, and *Weingartia* have been merged to form the presently recognised genus of *Rebutia*. I am sure that the battle of names will continue but as a Society we have accepted the CITES classifications so for our purposes, all of the aforementioned genera will be regarded as *Rebutia*. From a collector's point of view, they are all very similar and originate from the same general geographic area and have similar cultivation requirements. The plants come from Bolivia and Northern Argentina, growing in mountainous country on the eastern side of the Andes Mountains at altitudes of between 1500-4000m AMSL, a situation which subjects plants to a wide diurnal temperature range and fierce sunlight high in ultra-violet rays. Plants are described as small globular cacti, many of which form large clusters. It would appear that in cultivation they grow larger and cluster more vigorously than in habitat. There is a variety of body forms and spination. Plant body characteristics can be from densely spined to the less densely spined and warty tubercled. The crowns tend to be devoid of spines and wool. The spines are usually soft to the touch—not your classical vicious cactus. The sap is never milky. Most of my *Rebutias* show a tendency towards being short columnar plants. This may be due to a reduction in light intensity with the aging of my plant roof material. As with many other genera, subdivisions have been established within the main classification but even here there are disagreements between various authors. Those who are interested in this aspect should refer to the appropriate texts. *Rebutias* across the board have flowers which are relatively large in relation to their bodies. Flowers are borne low down on the body and are in the brilliant red, orange, or yellow range. However, there are some which are white or near-white (*R.leucahema* and *R.heloisa* var *narvaecensis* Isvn *espinosae*). Flower width is in

the 1.5-4cm range. According to most writers, cultivation is easy and the genus is recommended for beginners. This has not been my experience and I have found them difficult to keep going. This does not surprise me all that much though, when we consider their habitat conditions compared with those we have here in Brisbane. It would be interesting to hear from other members about how their *Rebutias* have fared in their particular conditions. A short article or perhaps a letter to the editor of *Dinteranthus* would be valuable. Recommended growing conditions call for a gritty, porous mix with a pH slightly on the acidic side. Strong light is essential. Plants will accept heavy watering during warm weather but do allow the pot to dry out between waterings. Remember that the most common cause of trouble with growing *Rebutia* is overwatering. In habitat they grow on steeply sloping ground where water rarely stands for any length of time. *Rebutia* will take low temperatures when dry and do require a winter rest period. Although *Rebutia* will survive infrequent repotting, it is better that they are repotted regularly (particularly when the plants are young). Repotting will increase the number and size of stems and will increase the number of flowers produced. Half pots (where the width is greater than the depth) are recommended, even for the thick-rooted species which rarely push their roots down more than 100mm or so. Repot yearly until reaching about 100mm in size, then every two or three years will suffice. Be guided by the size of the plant in relation to the pot. Repotting is best done at the end of winter but can be done at other times. Do not water for a couple of weeks after repotting to reduce risk of root rot via broken roots. Propagation is by seed or vegetative methods. Seeds germinate readily but be aware that viability drops rapidly when the seeds are more than 12 months old. *Rebutias* hybridise readily so it is possible that your treasured plant may not be true to the name on the label. This has been noted in wild populations and has given rise to a great many names for plants which are essentially the same species. *Rebutias* are subject to the same range of pests and diseases as other cacti; mealy-bug in particular and fungus and rot problems brought about by overwatering and high humidity. On this last point, I think we need to be particularly careful about watering during the period of high humidity which we experience here during mid-summer.

Reprinted with permission from 'Dinteranthus' -
The journal of the Queensland Cactus Society -
Australia.

Opuntia quipa

By Ivor Crook

One day in early July this year, whilst wandering through my greenhouse, my eye was taken by some new growth at the tip of one of my opuntia plants. Observing this over the next few days it became clear this was the start of a flower. Although flowering opuntias may not be exciting for many of you, to a relative novice to the hobby this was a great event for me, especially happening at latitude of over 53 degrees north here in Manchester. Over about a week a scarlet red flower 5mm high and barely 6mm across developed and opened for three consecutive days. The label in the plant read *Opuntia quipa*. The plant had happily sat on the greenhouse shelf for 12 months, having been purchased as a three-padded rooted cutting from Abbey Brook Cactus Nursery. However, its flowering sent me scurrying to the books to find out more about this particular plant.

Britton and Rose in their review of the cactaceae back in 1937 did not list *quipa* as a species of *Opuntia* but do give reference to the name as a native name for *O. inamoena*. John Borg, in the second edition of his treatise of the cactaceae published in 1951, quotes *O. quipa* as a separate species adding "quite different from *O. inamoena*, with which it was often confused". The latest reference, from Hunt's CITES checklist in 1999 quotes *O. quipa* as a natural hybrid between *O. inamoena* and *O. palmadora* but fails to give any references to back up this statement.

Examining Britton and Rose and Ritter's epic on the cacti of South America in more detail suggests *O. inamoena* has a wide distribution across Eastern Brazil covering some six states over 1800 kilometres from the northern state of Maranhao down to the questionable type locality at Rio de Janeiro. Much variation is to be expected over such a large area. To me, Borg's description of *quipa* and Britton and

Rose and Ritter's description of *inamoena* contains far more similarities than differences. Oval, somewhat flattened green joints, small areoles usually spineless with numerous yellow/brown glochids when young and small, vivid red flowers. This is in stark contrast to its close neighbour in Bahia, *O. palmadora*, as described by Rose and Russell in Britton and Rose, with their 1-4 spines in wool filled areoles. In the end I have to agree with Marlon Machado from the Brazilian Cactus Project who confirmed for me that *O. quipa* is synonymous with *O. inamoena*, being simply a smaller form. His fieldwork confirms "populations of this species whose cladodes are only 3cm in height and 2cm in width, and all the plants in the population are small. But the flowers and fruits are typical for *O. inamoena*".

As for cultivation, my plant now has 7 pads. It is growing well in a 2.5 inch square by 3 inch deep pot on the top shelf of the staging near to the glass. It is in my standard potting mix for South American cacti of equal parts of the loam based John Innes No2 potting compost and B&Q gravel and gets watered when I remember. This is more frequently in the summer than the winter, when it gets the odd teaspoon of water to stop the soil drying out completely. Winter temperatures in my greenhouse rarely fall below 8 centigrade due to a combination of the greenhouse heating (electrical fan heater) and the insulating effect of the Manchester cloud cover! It just remains now to see if I can repeat this feat next year.

Key to Pictures opposite:

Top left and third row left - Paul Klassen photographing *O. inamoena* and the plant itself at Morro do Chapéu.

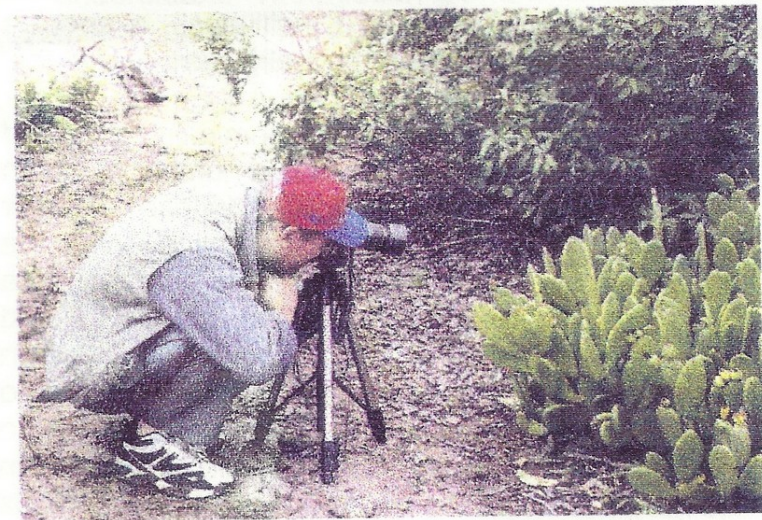
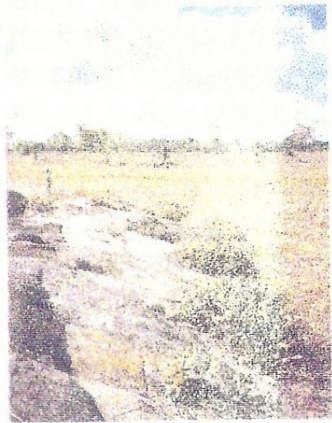
Top right - *O. palmadora*, spineless form at Morro do Chapéu.

Second row left - habitat of dwarf form of *O. inamoena* at Muritiba, Bahia.

Photos courtesy of Marlon Machado - Brazilian Cactus Project.

Second row centre and right - *O. inamoena* in the greenhouse of James Pickering, Arizona.

The rest - *O. 'quipa'* in the author's greenhouse.



Book Reviews

Whilst recently at a nursery that will remain nameless I happened upon a neglected piece of *Trichocereus bridgesii*. I was instantly asked by the nurseryman did I want to grow it or eat it! For those of you, unlike me I quickly add, who would wish to answer the latter then you may find this of interest. Ed

Narcotic and Hallucinogenic Cacti of the New World.

By M.S. Smith

Reviewed by the author.

Introduction

This list primarily regards the recorded genera and species of cacti considered forms of "peyote" (i.e. "hi'koli," "hi'kori," "hi'kuli," "hi'kura," "hi'kuri") among a small number of tribes and people of Mexico. Though many cactus species are known as peyote not all have a history of recorded usage as narcotics or hallucinogens. Some seem to be called peyote in name only while others may have purely medicinal uses. It should be noted that peyote and hikuri can not automatically be assumed to be the same thing. Also listed are a number of non-peyote Cactaceae species that are ethnobotanically relevant and a listing of non-Cactaceae peyote species.

Though *Lophophora williamsii* is the cactus most associated with the name peyote many others carry this or similar titles. This may be due to use in their own right, or use in combination with, or as replacements for, *L. williamsii*. The name may also simply be the result of their having some superficial resemblance to *L. williamsii*, such as *Astrophytum asterias*, *Strombocactus disciformis*, and *Turbincarpus pseudomacrolele*. In some cases the resemblance is not so apparent, as in the

many *Ariocarpus* and *Mammillaria* species known as peyote. It has been conjectured that resemblance to *L. williamsii* alone dictates many being called peyote. But seeing that many peyote species lack resemblance to *L. williamsii* it can also be conjectured that these others have common effects, whether that be narcotic, hallucinogenic, or medicinal. The fact that some of these cacti have physical features similar to *L. williamsii* makes it all the more probable the Native Americans either through accident or intention experimented with a number of them, and quite likely with a larger number of cacti than we are presently aware of. *L. williamsii* is commonly known as a medicinal panacea and it is likely that many of these other peyote species, known and unknown, have been used not for their effectiveness as hallucinogens, but rather for their effectiveness as medicinal agents. Many of these species are carriers of powerful tetrahydroisoquinoline and phenethylamine alkaloids, as well as the possibility of other non-alkaloidal chemicals, but it would be wrong to assume that the psychological effects would mimic those of *L. williamsii*, a species with upwards of 60 distinct alkaloids.

L. williamsii is the only chemically analyzed Cactaceae species, besides a number of South American *Trichocereus*, whose major psychoactive alkaloid is mescaline. With the exception of *Aztekium ritterii*, *Lophophora diffusa*, *Pelecypora aselliformis*, and *Turbincarpus pseudomacrolele*, all which contain very minimal amounts of mescaline, no other peyote species have been found to contain mescaline. What must be considered in regards to the possible psychological effects of these various alkaloids is the religio-magical use of these cacti in traditional North American shamanism. Practitioners of shamanism have been known to employ numerous methods to alter their state of awareness and these would likely be employed in conjunction with the ingestion of these cacti, thereby altering the overall psychological experience. But it may be possible that such cacti were also used in combination with

other plants with the intention of producing altered states of consciousness that relied purely on chemical action. Such an example might be the use of certain cacti with the b-carboline containing *Scirpus* species known as "bak\341na," possibly creating a combined drug synergy similar to that of the South American hallucinogenic brew known as "ayahuasca." Though *L. williamsii* continues to be used by the Cora, Huichol, and Tarahumara cultures it is likely that many of the following descriptions of the application of other peyotes does not continue today. Unfortunately the people most associated with the use of the majority of these species, the Tarahumara of Mexico, are rapidly disappearing through assimilation into Mexican culture before further ethnological and ethnobotanical studies can be completed. Left largely undocumented is how these species were selected, prepared, or what quantity was used. This makes any contemporary application of these cacti a hazardous affair, one that should not be understated. The hidden powers of many of these plants will go unknown till modern experimenters begin the search again, this time without the help of numerous centuries.

Haworthia Revisited - A Revision of the Genus - by M.B.Bayer

Reviewed by Harry Chi-King Mak.

250pp, 210 x 260mm, 477 color photos, 61 distribution maps, ISBN 1-919766-08-1(Hardbound). Published by Umdaus Press(1999), P.O.Box 11059, Hatfield, 0028 Pretoria, South Africa. Available direct from the publisher, the Haworthia Society, Whitestone Gardens and other book dealers. Price about £34.

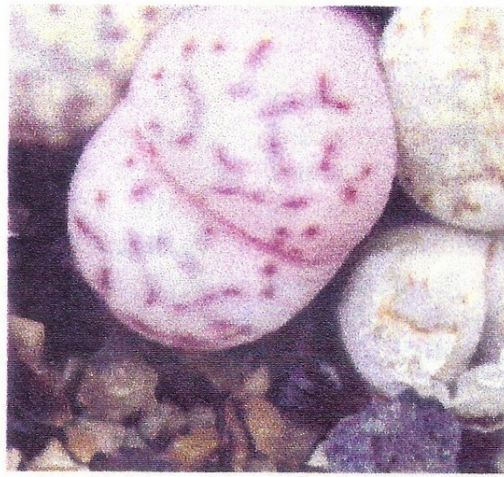
A long been waiting revision on this name-confusing genus has finally been born last year. However due to some problems involved the actual publication date was delayed until August. Bayer is generally accepted as the most experienced student in the field relating to Haworthias. He has made uncountable number of trips to study Haworthias for over 30 years. Before his first book "The Haworthia Handbook" appeared in 1976, he has contributed many articles to various journals on Haworthia. Due to more field researches he revised his handbook in 1982. 17 years of more field studies gave rise to the present work - *Haworthia Revisited*. The title has been changed to "Revision" as it is now closer to a formal treatment. This book has been reviewed in various journals - some by more technical writers:

1. Paul I. Forster:
Haworthiad 13-4(October 1999): 119-123
2. Derek Tribble:
BCSJ 17,4(1999): 198-199
3. Robert Kent:
CSJ(U.S.) 72,2(2000): 80-81

Here I only express an amateur point of view. Upon receiving the book I read from cover to backcover quickly and then chapter by chapter quickly.

Then I read the text in details. Finally I check my existing collection against the accepted names in the book. The book opens with a map of South Africa and a list of contents - Forward; Preface; Acknowledgments; Introduction to 1976 version; Introduction to 1982 version; Introduction to 1999 version; Historical sketch; Collectors & Contributions; Cultivation; The genus & species concept; Synopsis of taxonomic changes; Commentary on all species base on 3 subgenera; Excluded names; Landscape & Habitats; Bibliography; Index to Botanical names; Subscribers.

Continued on rear cover.



Growing Lithops

Key to Pictures Opposite:

Top left - Lithops jullii cv hot lips. A cultivar from seed specially selected by Steven Hammer.

Top centre - L. jullii cv. Bubblegum. A new cultivar.

Top right - SH2003. A new plant discovered by Steven Hammer in the gesinea group.

Second row, left - L. salicola 'bacchus' . Another recent cultivar from Japan.

Second row, centre - L. coleorum green form. From a batch of SH1500 seed. The only other known plant is in the collection of Kevin Mason in Wales.

The above pictures are taken by and from plant in the collection of Vincent Formosa in Leeds.

Third row, left - L. dorotheae. C300. Plant, Ivor Crook. Photo Geoff Bailey.

Third row, centre - L. steineckeana Plant, Vincent Formosa. Photo, Harry Mak.

Third row, right - L. terricolor C134. Note the unusual indentations in the centre of the face. Plant, Ivor Crook. Photo, Geoff Bailey.

Bottom left - L. bella C285 Plant, Ivor Crook from seed germinated by Jim Porter of Doncaster. Photo, Geoff Bailey.

Bottom right - L. coleorum. From Steven Hammer seed in the collection of Vincent Formosa. Photo, Harry Mak.

By Peter Bint.

Lithops are an enthralling group of plants to grow in my view. They have such diversity of colour, pattern and facial shape. A definite plus, if space is a premium, is a collection of these mesemb gems. They are rugged in withstanding the extremes of our weather though they do enjoy plenty of moving fresh air. I can remember an occasion many years ago when the temperature fell well below freezing externally and a few degrees below within the greenhouse. All the Lithops froze for a while but came through unscathed the following summer. Now I do not advocate this as a method of growth on a regular basis but it does show what they can withstand. In the South African winter the daytime temperatures reach quite appreciable levels and at night regularly drop below freezing, so this does show their adaptability.

To grow them well you have to understand their dormant and growth periods. When I first came across them I was ignorant of their needs and tried to treat them as I treated all the other succulent plants I was then growing. They did not flourish in this regime and I was fortunate to keep them for more than two seasons. Eventually I discovered the very rigid pattern that ruled their lives. As seedlings they need constant care but more of that later. In their second season they have reached a certain amount of maturity and can be started on the true routine. The previous year's bodies must be allowed to dry right back to a papery sheath. The goodness from these dried up bodies has been absorbed by the new bodies. This should have happened by the beginning of June, though a few species are somewhat reluctant to conform to pattern. I now begin watering and the plants quickly regenerate root growth. This growth is not only fast but will grow deep into the ground. Consequently I

avoid shallow pots where possible. That is not to say they will not grow in shallow pots because I do have them in 2", 2.75" and 4.25" pots. "It is important to emphasize that the roots of Lithops plants are normally 75mm (3") long, so they need pots at least 100mm (4") deep, preferably 150mm (6"). To grow them in shallow thimble pots, as we have seen in Europe and the USA, is asking for trouble of one sort or another. For healthy Lithops, please provide root space."*

Watering.

Watering is a much discussed subject. I like to think the advice given to me by Des Cole as the most sensible. Lithops enjoy regular sprayings which simulate the events in habitat and occasional thorough waterings which completely soak the soil and reach the roots. Lithops are capable of absorbing moisture through the plant surface as well as the roots. As my plants are all in trays, water automatically reaches the roots through capillary action. Unfortunately work patterns do not allow me to follow a good spraying routine but I have seen plants treated this way and they are very healthy. If plants are in need of a thorough soaking they will quickly announce the fact by shriveling. They do not suffer lasting harm because of this and rapidly respond to a good drink. Watering is very much based on weather conditions. Just as we are far thirstier in hot dry weather, so are they. Withhold undue moisture in overcast conditions. Under my conditions, I stop watering at the end of September, except for *L. optica* "rubra" which is a considerably later grower and flowerer than the rest. Undoubtedly they would all enjoy an occasional sprinkling to "wash their faces" in suitably sunny conditions through the resting period from November to May. Clean rainwater is the ideal medium with which to water, but the environs of Manchester do not provide the best conditions for that so tap water may well be the preferable alternative.

Soil.

Although Lithops occur naturally in very acid to very alkaline soil (pH 4.5 to 10.5) it is preferable to grow them in a mixture that is slightly on the acid side of neutral. Lithops do not grow naturally in soft sandy soils (there are no habitats found in the Kálahari Desert which separates the Namibian genera from those in the Transvaal). Your mix should contain a generous amount of granite. Mineral soils are better than those made up of organic materials. That makes it difficult for us since most soils offered at Garden Centres are potting composts for plant pot culture. What I tend to use is John Innes no. 3 plus granite chippings. Decomposed granite would be the ideal but is unobtainable. Occasional additional fertilizer, where the nitrogen value is extremely low and the potassium high is ideal (NPK 6:20:30). Tomorite and its equivalents are excellent.

Pests and Diseases

The main pest to attack Lithops is the ubiquitous mealy. They hide under the dried out sheaths of the previous years' growths and are often at the scale of a major infestation when discovered. If time can be spent carefully removing these skins it helps to prevent infestation. They may also be found in the cleft opened by flowering where they will cause a deal of scarring to the new growth. A good drenching with an appropriate insecticide twice a year will usually keep the plants clean, early and late in the season. Birds have been known to attack trays of the seedlings thinking the tiny coloured blobs to be a tasty meal. They quickly learn that the plants are unpalatable and leave the rest alone. Those that have been unearthed usually replant successfully. The family cat can be a nuisance. A large tray of Lithops provide a soft bed upon which to sleep in the sun as I have discovered through personal experience. She was quickly discouraged but never gave up trying to gain admittance if I had the doorway unprotected. Rodents have been known to take a nibble at

the choicest specimens but this is a rare occurrence.

Fungal and bacterial disease are frequent visitors to the Lithops collection, usually in the autumn. No definite cure is known as yet but it helps to have excellent ventilation. Trapped moisture, soggy soil, especially in dull, humid weather are at least partially responsible. Death is rapid. One day a plant may look in pristine condition, the next day it has disintegrated into a soggy mush. REMOVE THE PLANT IMMEDIATELY.

Growing from seed

I enjoy growing Lithops from seed. They are easy if you follow these simple instructions.

1. The best time of year is either March or September, though they will germinate at any time in between. The catalyst for the aforesaid months is the equal day/night hours.
2. Use a soil that has equal amounts of John Innes, perlite and granite chippings which I sterilize in the microwave for at least three minutes at maximum temperature before sowing and protect from the air by cling film.
3. 24 hours later sow the seed and keep moist by;
 - a) sealing in plastic bags (these can be left for a year)
 - b) covering with cling film (it is advisable to remove this after 4-6 weeks).
 - c) Standing on a tray of water to be replaced once it dries out.
4. Moisture is the secret to healthy growth. Any period without moisture at their feet in the first 12 months can be rapidly fatal. I prefer the bag method as it keeps out sciara fly. The seedlings will go through two to three growing seasons in the first 12 months.

5. Transplant into trays or pots in the second season where they will enjoy very regular sprayings and thorough soakings at less regular intervals. Allow to go dormant at the end of this season and treat as normal from then on.
6. Most plants do not achieve flowering maturity for at least 5 years.
7. Although I do have plants close to the glass they are well shaded from direct sunlight as scorching will occur in periods of high sunlight intensity. Luckily such disfigurement only lasts a single season.

Flowers

The first to flower in any season are the various *L. pseudotruncatella* species. They are yellow flowered as the greater majority of Lithops. This happens in July/August according to weather conditions. Various other yellow flowered species follow soon after. White flowered plants produce their blooms much later, often into September. There is also a group which have yellow flowers with a white throat. These are more reluctant to perform in the north west. Plenty of good sunlight is a must for successful blooms so 2000 will not be more of the more productive years. The latest flowerer is *L. optica* cv. *Rubra*. *L. verruculosa* has a variety of flower colours from white, through pink to straw yellow.

Further detailed reading is to be found in:

- 1) *Lithops, Flowering Stones* by Desmond Cole.
- 2) *Lithops, Treasures of the Veld* by Steven Hammer.

* Taken from *Lithops, Flowering Stones* by DT Cole.

This is a very pleasing book for collectors as there are many high-quality photos (by Kobus Venter). We can rely on them for identification purposes. More often different forms are included. Of course I expect more!

The front cover is particularly attractive - a nice portrait of *Haworthia bayeri* by Gerhard Marx. This painting as front page is better than any photo. I am pleased that Steve Hammer is also contributed to this work. His point of view on cultivation is very inspiring. I particularly like his mentioning on watering - "I have avoided the difficult question: how often to water; it is too individual. However for plants in full growth, a cycle of: 1-2 days of saturation 3-4 days of even moisture 1-2 days of near dryness gives a rhythm which is effective in arid climates...."

In the commentary section a discussion on name changes for each taxa is included. This is particularly welcome and it helps the reader to attempt to understand his underlying principles. A very special feature of this book is the inclusion of "Landscape & Habitat". Navigating through these pages we have a more realistic views of the plants associated with their habitats.

After checking my labels against the accepted names in the book I am excited many of unknown plants have been identified. Some doubtful names are clarified. Apart from the positive comments, there are still some negative ones. For some of the newly described plants the descriptions are often too brief and not scientific enough. It is not easy to follow for correct identifications. I have to stick to the picture-matching technique. In some occasions, the new name combinations are not valid as they have been previously treated by someone else. It is often very difficult/impossible to check for some names which are not recognised by Bayer. I expect they can traced by using the index and should appear under synonyms in the corresponding accepted taxon. Overall this is an indispensable reference in *Haworthia* for every *Haworthia* enthusiasts. It is the latest stepping stone for further improvement on the understanding of *Haworthias*. On the other hand there are a number of other students of *Haworthia* also working on it. Their views are often different from Bayer's. I anticipate there are further complications and confusions ahead. As amateurs if we put aside the name games, we can still enjoy the beauty and diversity of *Haworthia*.

