TEPHROCACTUS

Incl. Maihueniopsis, Puna and related genera

Tephrocactus geometricus. (Castellanos) Bkbg.
Photograph by Elton Roberts

STUDY GROUP

Vol. 11
No. 1 March 2005

SECRETARY'S PAGE.

We have two more new members. They are: Martine Deshogues in France and Doug Rowland in England. We wish them well and hope they will enjoy becoming active members and join in our activities soon.

•All articles and comment should be sent to the Co-Editors.

•Subscriptions for 2005 are now due on the 1st January

•Subscriptions and any other correspondence must be sent to the Secretary (see address below).

May I remind you please to let me know of any changes to your address, telephone number or e-Mail address!

If you write to any Officer and expect an answer, please to include a S.A.E.

•Subs for 2005 remain at £10.00 per annum for the U.K and Europe (European members please note:" no Euro-Cheques are accepted by our banks – but you may send £ Notes") Subscriptions for Overseas members is £14.00 or $25.- (in $bills only). Please make all cheques payable to: "The Tephrocactus Study Group" (not individuals).

• Members may advertise their "Wants" and "Surplus Plants" free in the Journal, in no more than 30 words

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TSG web page: http://freespace.virgin.net/geissler.w/tsg.htm

SECRETARY WANTED.

I have been Secretary of the TSG since its formation. However, I now feel it is time for me to retire. I would like to hand over to some one else at the coming April AGM. Please will you inform me if you are willing to take on the office? I will be happy to discuss what is involved, if the information is desired. Rene.

THE MEETING ON SUNDAY APRIL 17th 2005.

The meeting will be held as usual at the Slimbridge Village Hall, commencing at 10 am. After a short business meeting there will be discussion on Pterocacti. Will members, therefore, please bring as wide a range of these plants as possible to aid the discussion? Also please bring any other plants you think will be of interest or you would like identified. You are also welcome to bring plants for sale. There is no charge for the meeting. All members of the TSG are welcome and you can bring guests who are not members. Light refreshments will be available at the meeting. We shall be going to a nearby pub, which supplies good food, for lunch. After lunch we are to have an illustrated talk by Ian Robinson on his recent visit to Argentina. Please will you inform Rene if you intend to come to the meeting?

CORRECTION.

TEPHROCACTUS PULCHERRIMUS TO MAIHUENIOPSIS SUBTERRANEA SSP. PULCHERRIMA.

On page 55 0f the last issue, TSG Vol. 10 No.4 December 2004, the title and new combination name in the text were spelled incorrectly. The correct spelling of the epithet of the new combination should, of course, be "pulcherrima" not "pulcherimmus" or "pulcherrimus". This error is therefore corrected by publication of this note.

Martin Lowry

Apologies to Martin for the error. Ed.

BLACK SCABS.

In response to the article by John Bettley (Vol. 10 No. 3 p40) where black scabs are mentioned I offer the following comments.

I enclose three photos of *Tephrocactus alexanderi* (Br. & R) Bkbg. Fig. 5 is a segment from Quines, Argentina, seen exactly as it occurred, lying on the ground, except that I have removed some black patches. Other plants/pads in the area were unmarked. Fig. 6 shows a black marked offset, from a plant I bought, which seems to be producing a healthy offset. The third photo, Fig. 7, shows two black-scabbed segments that are offsetting healthily, although one offset appears to have red spider damage. These segments came from another plant I bought (different clone). The parent plant has subsequently grown vigorously and healthily in my normal general-purpose peat based compost, with no further blemishes. In my opinion, the black marks could be the result of some physical damage, which could result from a spine, or even possibly be caused by the pad cannibalising itself when dried out in the pot or due to being detached from the main plant. The resultant damage causes the plant to self-heal by blistering, in much the same way as the human body responds to burns or rubbing. The blisters would understandably weep when punctured, and equally, once healed would be easily detached like a scab.

Ian Robinson. Wrexham.

WHAT IS THIS?

Can anyone name the plant shown in Figure 11? David Parker who bought it from Kent Cacti Nursery, Orpington, Kent in August 2003, gave it to me. It was sold as Tephrocactus sp. and had been collected by Lumik Kral of Czechoslovakia. The pads have radiated out in a series of chains, which have

not put down any roots. They are ellipsoidal in cross-section and about 40mm long by 15mm across. Each has about 20 groups of spines consisting of one central, about 15mm, and up to three radials about 5mm long. All spines tend to be inclined backwards. They are white in colour with brown to black tips. On the older segments tufts of gingery brown glochids replace them. Any information would be appreciated.

Alan James. Birmingham.

SOUTH PERU OPUNTIA LOG PART 4.
Intermediate altitude members of the genus Cumulopuntia..

There are three other species of Cumulopuntia with quite small ranges that we saw briefly on this trip. All were found on the Pacific facing slopes of the Andes. All I would class as intermediate altitude species, by which I mean they are confined to areas at the top end of the range of the coastal *C. sphaerica* and at the lower end of the range of the high altitude *C. boliviana* forms. All grow at 3700m altitude. They often have features suggestive of both these plants making me wonder if they had evolved from hybrids between *boliviana* and *sphaerica* forms. Hopefully, one day soon, DNA analysis may answer this question.

1. *Cumulopuntia ignota.* (Brit. & Rose) Ritter nom. inval. *
Altitude range 3525 to 3765 metres. Fig. 1

We found this plant at three sites on the road from Nazca to Puquio. It grew at the site that contained both the high altitude *Austrocylindropuntia floccosa* and the low altitude *A. exaltata*, again suggesting a plant adapted to this intermediate altitude band. On this road it grew about 300 metres higher than the highest *C. sphaerica* plants we observed.
It was found on both quite steep rocky slopes and rocky areas on flatter land. Sites at these intermediate altitudes tended to be relatively species rich. As well as Austrocylindropuntia it was found growing with *Oreocereus ritteri*, *Matucana haynei*, *Corryocactus quadrangularis* and two Echinopsis species.

2. *Cumulopuntia galerasensis.* Ritter.
Altitude 3710 metres. Fig. 2

This species grows on the rocky, flat Pampa Galeras, on the Nazca to Puquio road only 32 kilometres distant from and 50 metres lower than C. ignota. In both habitat and cultivation the plants show far more affinity for the more oval segments of *C. boliviana* than the more spherical, lower altitude plants. It shares its habitat with *Oreocereus leucotrichus* and *Matucana haynei* as well as the constantly moving herds of goats and sheep.

3. *Cumulopuntia corotilla.* (K. Schumann ex Vaupel) E.F. Anderson
Altitude 3794 metres.

This plant grows above Moquega with *C. ignescens* at the lower end of the latter's range. The plant has affinities to *C. sphaerica* with its more rounded body. Again other species were found on the gentle rocky slopes sharing this habitat. These were, *Oreocereus leucotrichus* and *Neowerdermannia peruviana.*

* C. ignota (Br & R) Ritter (Art. 33.2 Note 1) published without the basionym page number.

Ivor Crook. Manchester.

Please see the map on p.59 of the last issue for help with location names. Ed

AUSTROCYLINDROPUNTIA SEED GERMINATES!

I have been growing cacti and some other succulents from seed for over thirty years with some success. Germination of seed is not usually an issue. If the seed is viable, which often means fresh, then it germinates. Keeping the young seedlings, though, is a different matter. Over the years I have tried many Opuntias and have had some success with North American ones, although, overall, as they are more difficult to germinate I have limited the number of seeds that I have bought.

It was apparent to me long ago that the South American Opuntias were even more of a challenge and I had little success apart from *Pterocactus tuberosus* and some forms of *Tephrocactus alexanderi*, both of which have on occasions produced good germination. Some Maihueniopsis have also done well. Others, such as Maihueniopsis of the glomerata type have done very badly but worst of all have been the Austrocylindropuntia. I have sown bought-in seed many times with no success at all.

However, things changed dramatically with the purchase of seed from the TSG, supplied by Brian Bates, of *A. floccosa* BB1151.02 from Quillacolla, Bolivia. Roger Moreton particularly mentioned success with these and I am pleased to say that I have also germinated a number. When I was in Peru in October and November 2002 I collected some seed, although in retrospect I wish that it had been more and at more sites but of course two years ago I considered it was a useless (I nearly said "fruitless"!) exercise as the seed would not germinate.

I sowed the seed in December 2002 and January 2003. Nothing at all happened in 2003, true to the usual form. 2004 was a different story because in the warm weather of June, July and August seedlings suddenly started to appear; first large succulent bright shiny green cotyledons pushing the gravel aside. The really astonishing thing to me was that, after eighteen months, one day in June three seeds germinated and on another day two. It must have been something in the weather conditions. I now have plants from two sites including the wonderful one shown in many photographs where the plants carpet a hillside. The site is our ACL 478, 44 KM east of Chincheros, Andahuaylas, Apurimac at 4,222m. Most plants had substantial stems. The seedlings have developed rapidly into miniatures of the adult form and have retained their fleshy cotyledons. At three months old most are two centimetres tall and some hair is already in evidence.

So what is my secret? I regret to say that I think it is just good seed and patience. I sow in a John Innes No. 2 and grit mixture and cover with a layer of grit. I place the pots on the bench near to the glass where they can become quite hot. They are watered overhead frequently but less frequently in winter. They have also been left dry for weeks at a time in summer. A varied regime seems to help.

As they seem to develop so quickly they are rewarding to grow and without doubt the thrill of seeing the first cotyledons coming through was fantastic.

One of the seedlings of BB1151.02 is shown in Fig. 3 John Arnold. Lincoln.

NEW! CACTUS EXPLORERS' CLUB MEETING.

Leicester University, Sept. 16-19. £130 including all meals & accommodation.

A weekend of talks about cactus travels in South and North America, together with discussions about the things they bring to light. Similar to the Chileans' meeting (which is not being held this year) but includes habitats outside South America. Everyone is welcome whether you have visited habitats or not. Participants are welcome to bring plants, books or seeds for sale. Limited places available so please book now if you want to come. More information and bookings to Graham Charles, Briars bank, Fosters Bridge, Ketton, Stamford, PE9 3UU. graham.charles@btinternet.com

ROOTING AUSTROCYLINDROPUNTIA LAGOPUS (Schumann) I. Crook, J. Arnold & M. Lowry.

Some five years ago I purchased two small grafted plants, of the then named *Tephrocactus malyana* Rausch from Terry Edney. I asked Terry where he originally obtained the plants. He could only recollect it as a Belgian source without remembering a specific nursery. I placed these plants on a high-shelf position in the greenhouse. They grew quickly and freely produced offsets. Eventually they seemed to slow down and some of the heads began to die back. I should add that I treated them as summer-growing plants with frequent watering and a complete rest in winter. Since then I have read the articles on the species in back-numbers of our Study Group's publications and have realised that I was seriously at fault in not allowing for the plants being winter growers. This probably accounts for their declining growth pattern.

In late May this year the plants were in a sorry state and I recalled having read an article on rooting cuttings of the plant. I cannot remember in which publication the article was printed (and I have recently searched hard after realising its importance). According to that article the essence of success was the removal of wool from the stems with a razor followed by immediate potting. At this stage I had thirteen healthy grafted offsets on the two original plants. All but one were removed from the Cylindropuntia stocks. I removed the wool from about one inch of the lower portion of each stem with a simple Bic disposable razor. These shaven cuttings were then planted in damp compost in 3 "pots and placed on a high-shelf in a well-ventilated position with the crown of each cutting approximately *5"* below unshielded glass. By the middle of June the cuttings had apparently rooted and in most cases there has been a slow but steady subsequent growth. The photograph provided, Fig. 4, was taken 30.08.04. The remaining grafted plant had not shown much growth by the beginning of August so I severed it from its stock and treated it identically to the now rooted cuttings. To date (early September) this has not rooted. It thus appears that I may have been very fortunate not only in my timing but also because I have gone against the perceived wisdom in the cultivation of the plants.

The damp compost I referred to consisted of half and half Emerald Range soil based John Innes No.2 and coarse grit together with a handful of oil-absorbent granules. This particular grade of John Innes is produced by E A Goundrey & Son Ltd, Oxon

The oil-absorbent granules are worthy of comment under the general topic of compost mixtures. I am fortunate that I live next to a small village garage and had noticed that the granules spread on the floor to absorb oil spillages were very similar in appearance to the cat-litter type granules that have become popular for compost preparations. I suspect that to all intents and purposes they are the same material i.e. dehydrated clay. The material is extremely cheap to garages being retailed at 20p per litre in 30 litre bags. It is marketed as FUCHS RENOCLEAN, REGULAR ABSORBENT GRANULES. The suppliers are Fuchs Lubricants (UK) PLC, New Century Street, Hanley, Stoke-on Trent, ST1 5HU Tel. No. 08701 200 400.

Ken Smith. Gosforth

WANTED

Someone to take on a "National Collection" of Cumulopuntia. I have lots of specimen plants at £1 each to start off the lucky recipient, together with further assistance. ☎ 01453 890340 Rene Geissler

Fig. 1 *Cumulopuntia ignota* (Br & R) Ritter nom. inval.
Nazca - Puquio Rd. Photo. I. Crook.

Fig. 2 *Cumulo. Galerasensis* Ritt.
AWC 131. Nazca - Puquio Rd, Km 68.5
Photo. A. Hill.

Fig 3 *Austro. floccosa* (Salm-Dyck) Ritt.
Seedling BB1151.02
Photo. J. Arnold.

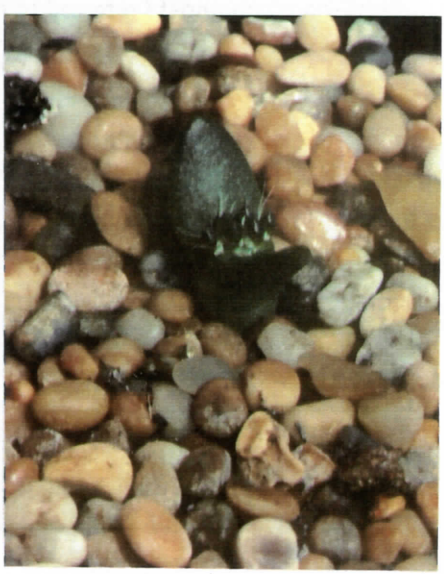
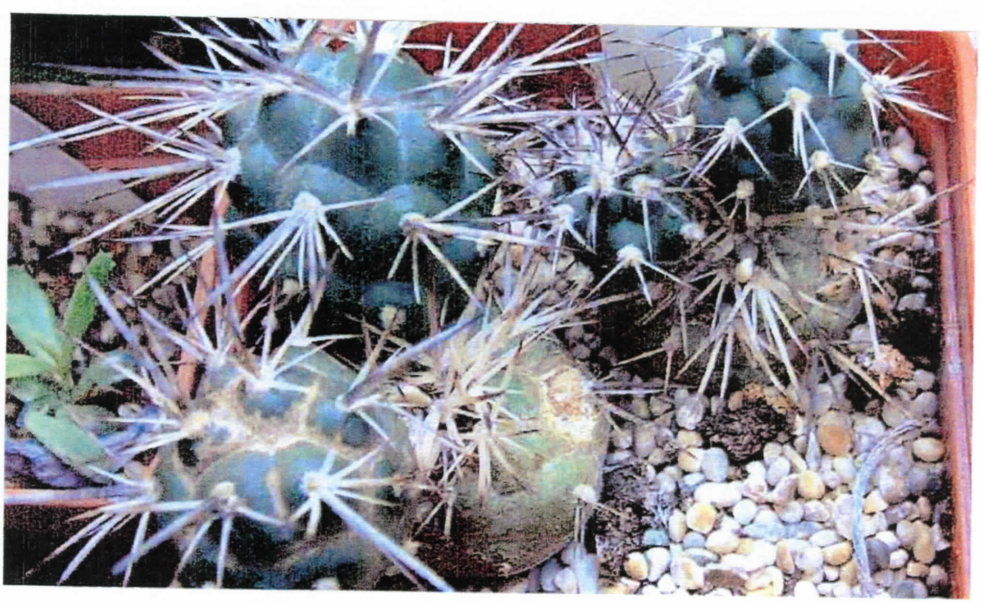


Fig. 4 Rooted cuttings of *Austrocylindropuntia lagopus* (Schumann) Crook, Arnold & Lowry . Photo Ken Smith.
Fig. 5 *Tephrocactus alexanderi* (Br & R.) Bkbg. Segment at Quines, Argentina. Photo by I. Robinson.

Fig. 6 & 7 *Tephrocactus alexanderi* (Br & R.) Bkbg.
Photos by I. Robinson.



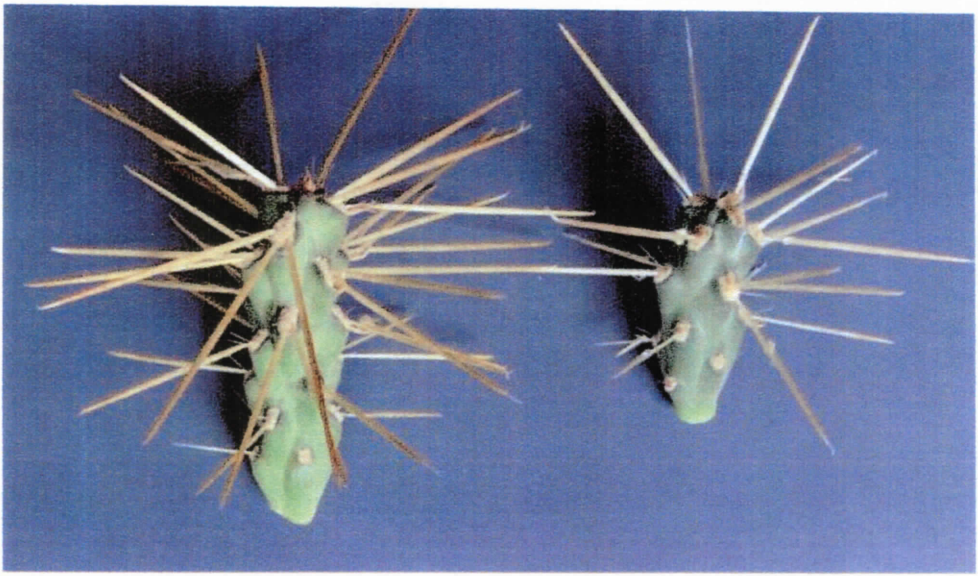


Fig. 8 Opuntia hystrix Grisbach from Imias, Cuba. Photo R. Mottram

Fig. 9 Cylindropuntia leptocaulis (Candolle) Knuth. Photo E. Roberts

CYLINDROPUNTIA HYSTRIX?

David Parker's photo of Bill Jackson's plant in 10(3): 45 is not *O. leptocaulis* Candolle or *O. ramosissima* Englemann as suggested by Elton Roberts (10(4): 49). May I suggest that Bill's plant is *Opuntia hystrix* Grisbach, a Cuban species? I attach a photo (Fig. 8) of a small cutting sent to me recently by Joel Lode, which he had collected at Imias, Cuba. It can be much spinier than this. Joel sent it to me because I had questioned his photo of this plant in his journal Cactus Adventures last year, which he had thought was *Opuntia caribaea* Br. & R.. However, that is a much slimmer plant, rather like *O. leptocaulis* Candolle, with weaker spination, and appears to be endemic to Azua in the Dominican Republic.

Roy Mottram. Sutton-under- Whitestonecliffe

Page 45 of Vol. 10 No. 3 2004 showed David Parker's photograph of my yellow spined Opuntia and invited suggestions for its name. There was a good response; six candidates in total. Elton Roberts nominating two (Vol. 10 No 4 2004 p49. Roy Mottram has circulated photographs of segments of a Cuban species, *Cylindropuntia hystrix* (Grisbach) Knuth. David sent me a full sized printout of these. I was able to sit down and compare the photo (Fig. 8) with a segment from my plant. There is no difference in any of the following features.

Segments: size, shape and colour.
Tubercles: Size, shape and distribution.
Areoles: Size, shape and colour.
Spines: Number, size, angles and colour.

My cutting had been drying for some time and was very slightly thinner and a bit shrivelled looking but there really was no significant difference.
Before this I had been favouring the name *C. molesta* (Brandegee) Knuth based on a picture in Anderson. Now I think it has to be *C. hystrix* (Grisbach) Areces, unless someone knows better. I do have one reservation. How on earth does a Cuban species survive and flourish in an unheated greenhouse?
Since this provoked such a good response how would you all like to try your hand at identifying the spectacular specimen shown in figure 10? Those spines are up to 12cm long. This came from Kakteen Haag in Germany and was labelled *Cumulopuntia sp.*

W. L. Jackson. Sutton Coldfield. Jan. 2005

Please see Fig. 9 for the illustration of *Cylindropuntia leptocaulis* (Candolle) Knuth, commented on in the last issue, p49/50, by Elton Roberts. Ed.

David Parker has informed me that he now has the two cuttings of *Opuntia hystrix* Grisbach for rooting. He will be happy to provide material from them in the future. I will pass on his telephone number to anyone who requires the material. Ed.

WANTED. NEW SECRETARY.
Please see Rene's "Secretary's page".

TEPHROCACTUS GEOMETRICUS SEED PODS.

The seed pods of the Mesembryanthema family have adaptations to maximise the chance of the seed germinating successfully. The seed pods have compartments with fast opening lids (when hit by rain drops) and the seed is in a substance that has to dissolve to release the seeds. Along with this I am sure that you have read of germination inhibitors that Mother Nature covers or adds to the seed cover. It seems that even in the same seed pod the seed have differing amounts of this inhibitor. This is so that not all the seed will germinate at the first small rain and die off because it is not enough to keep them alive. Some seed will germinate at the first rain and some will have to be through many rains before they will germinate. Lots of cactus seed will be in or on the soil for years until the conditions are right for germination.

Some cactus that bloom in the fall like Ariocarpus will not put much life in to growing seed pods until the next spring so that the seed will be dispersed before the summer thunderstorms. These storms are their primary source of water. The seed pods ripen in time for some to germinate in these rains. When you grow lots of plants from seed you can at times get quite frustrated trying to know what seed needs what kind of care to germinate.

I am now finding another strange thing that some cacti do to keep all the seed from trying to germinate at the same time. In the *Tephrocactus geometricus* (Castellanos) Bkbg. photograph on the front cover notice that there are seven seed pods. That is a bit less than half of the seed pods that that plant produced this year. I have four of the plants that bloomed, were pollinated and set seed pods. For one plant it was its first year blooming and it had only one flower. It set one seed pod. That seed pod ripened, dried out and fell off the plant. The other three plants each set between five and eighteen seed pods. Now the strange thing is that just over half of the pods on each plant ripened and dried out. The rest have ripened or turned red and have stayed that way. After turning red the seed pods then dry out and fall off the plants in only a few days to several weeks.

All the plants bloomed about the same time and over several weeks time. Yet some seed pods have not dried out so as to release the seed. As I have been waiting for these seed pods to dry and come off or fall off at a touch, I remembered that last year the same thing happened. What I am thinking is that Mother Nature is again doing some thing here to make sure that seed gets dispersed at different times and here, at different seasons also. She is delaying the ripening of almost half of the pods so the seed will be dispersed at a different time of the year. The first round of pods dried out and fell, or dropped at a touch, by about mid September as I remember. Why are seed pods, developed at the same time as the rest, not drying out and dropping off till mid spring? I am convinced that it is another way the plants are guaranteeing that seed will have a chance to germinate and at a different season of the year.

This year I have had several *Tephrocactus alexanderi* (Br & R.) Bkbg and the variety *bruchii* (Spegazzini) Bkbg bloom together so I could get seed. The same thing happened with the seed pods. Having noticed this two years in a row I will have to watch other plants to see if others do the same thing.

Elton Roberts. Ripon California USA 30 Dec. 2004

PLANT NAMES.

Having a medical problem that has laid me up for over three weeks I have gone back through some of the older TSG Journals. I would like to give a thought or two on David Parker's thoughts on 'name groups'. This is in TSG Vol. 8 No. 4 Dec. 2002.

David wrote, "I am still left with much confusion as to which "name-group" to follow officially." Right after that the Editor explains in quite clear language why we cannot really do 'official name groups'. Then he says, "By debate we could try to come to some form of TSG consensus as to what names we will use in our discussions. However, we are a long way away from that because we have not even begun the debate." Now if this debate ever got started I must have slept through it or it could be my faulty memory. (It did not start even though I asked, "please will someone start it?". I now repeat the request. Ed.)

TSG Vol. 10 No. 2 June 2004 pages 21, 24 through 27 Gordon Rowley gives us some enlightenment on the confusion of generic names and rival classifications of the Opuntia family. We are given Wallace & Dickies' cladogram of Opuntioideae of 2002, with added vertical lines - - - - . This shows how the names have changed since Britton and Rose from 1919 to Anderson in 2001. This is good but still not what, I think, David Parker was wanting.

Getting closer to the idea of what to do with the many names given to a plant is found in TSG Vol. 10 No. 3 Sept. 2004 pages 41 and 42. There we have a table showing what has happened to Austrocylindropuntia names over the years. There we can see from Backeberg to Anderson in 2001 that many names have gone by the way side. Still these are names we see being used almost every day. Still the question is not answered. I think the question is more how do we know what family name is the correct one for us in today's thinking. I think that this would be much easier to figure out if we were given an easy to understand definition of what makes a Tephrocactus a Tephrocactus as compared to Cumulopuntia or Maihueniopsis etc. I know that many times I have been told that a Tephrocactus is easy to identify, as it is a ball stacked on a ball on a ball. In the most part this is more or less true. *T. articulatus, alexanderi* and *var. bruchii, aoracanthus*, and *sphaerica* are easy to see they are Tephrocacti for they are ball on a ball on a ball. But wait, *T. sphaerica* all of a sudden is not a Tephrocactus after all but now a Cumulopuntia.

I think to make figuring out where a plant belongs, much easier, we need an easy to understand chart of the differences between Cumulopuntia, Tephrocactus, Maihueniopsis, Puna, Austrocylindropuntia and the rest of the names that the plants that we grow come under. I am sure that most of the Tephrocactus Study Group members are not botanists and do not claim to be. So it would be nice to see a description of what makes a plant fit where, say Anderson says, it is. Then maybe I will be a lot more willing to go along with a consensus and an 'advice list' or 'make sense list'. It would sure be nice if I knew what plant some one was talking about that has a dozen or more names.

Elton Roberts. California

Please will a member (or members) draft a provisional outline chart as suggested by Elton in the last paragraph? It could then be discussed and amended according to the discussion that hopefully will follow. Ed.

THE DREADED FUNGUS AGAIN!

The recent article by John Betteley (Vol.10 No. 3 p.40) has stirred me to reach for the pen again (or should I say for the key-board). He has raised a number of interesting points that may bear some further comment.

When we talk about viruses, matters become a little muddy. Viruses usually affect the vascular bundle of Cacti and are transferred from plant to plant, sometimes by grafting, but the black stuff that can affect the joints of our plants is usually a fungus. If that is the case there can be a lot of reasons how that occurs. I have a *Ferocactus schwarzii* (Linds.) that gets a covering of the dripping, black fungus almost every year. In the end I just did not know what to do any more so now is goes outside by the side of the greenhouse door sometime in May and stays out there for about three months come rain or sunshine when it is as clean as a whistle and the following year it flowers its head off. And this is where Michael Kiesling and John Betteley could well be right. Is it just possible we give our Ferrocacti and some of our other plants too much water in early spring and autumn and not enough sunshine? Pressure may build up in the plant and it comes through the areoles and the fungus takes hold. I am sure you may have noticed that if the greenhouse glass gets wet too often and moisture stays there for months, black mould will form just like on the Ferocacti. That could still be poor ventilation, the greenhouse is not ventilated so often and we try to conserve heat at that time. A perfect time for the fungus to form!

Now assuming it really is a black fungus and not the scaling left by sciarid fly as shown on the top of the plant illustrated on the front page Vol. 3 issue 1, we have to consider some way or other how the fungus thrives. Most fungi have rather specific requirements. Most grow at a temperature of from 2 - 5°C in a damp and close atmosphere over a fairly prolonged period.

When it comes to Tephrocacti these conditions would apply over autumn and winter because they do not like either high or low temperatures for prolonged periods, ideally -1 to + 4°C with flowing air movement. Maihueniopsis, Cumulopuntia, Puna and Tunilla are happier in much lower temperatures in winter. Strangely, in my greenhouse where two fans are moving the air round day and night I do not have a problem, but in my little cold greenhouse, where only the door is closed on stormy days, they have no all-round flowing air and I get some problem with fungus.

So when we talk of good ideal conditions we must ask: do we have all-round airflow, what is the air moisture and what is the temperature. Just to have a window open occasionally, with high air moisture remaining in the greenhouse, it is not enough. When I started growing Cacti 35 years ago my early mentor in those days told me that I would have to make a small investment and buy a Hygrometer (moisture meter) and I bought one for £1 2s 6p. It was the best investment I have ever made for the hobby. When the air moisture reaches 75 – 80% in the greenhouse it is high time to open all the windows. The cost of such an instrument is hardly more than £2.50 now and well worth while!

Having said all that, I do agree with what John has said in his article about high nitrogen. Too much water and high nitrogen is a killer for cacti, as we all know. The plants will either split or pressure will build up which could well lead to the release of sap through the areoles and may lead to the forming of mould there.

Only by discussion and interchange of ideas can we finally beat this problem, so I hope other members will tell us if they have mastered it and how!

Rene Geissler. Slimbridge

FIELD COLLECTION NUMBERS OF THE OPUNTIODEAE

RITTER		
FR14	Pterocactus sp	Pie de Palo
36	Platyopuntia retrorsa	Betania
37	" quimilo	Puente Acre
38	" sulphurea	
38A	" " redish-brown spines	La Quiaca
38B	" " pinkish spines	
60	Austrocylindropuntia weingartiana	Tupiza
61	" vestita v. schaferi	Purmamarca
62	Platyopuntia soerensii	
63	" " v.tilcarensis	Tilcara 2300-2700M
64	" sulphurea	La Quiaca
65	Tephro pentlandii v. daxtyllifera yellow spines	
65A	" " " golden yellow spines	
65B	" " v. colchana white spines	Colcha K
65C	" " " reddish-brown spines	
65D	" " " black spines	
65E	" " v. nova	Vamburuta
66	" glomeratus	San Antonio de los Cobres
90	Platyopuntia nigrispina	Humahuaca
91	Tephrocactus subterraneus	Moreno
92	Platyopuntia cordobensis	Leon
93	" sulphurea	
94	" spinibarbis	Carrizal 2500M
94A	" " v. grandiflora	Tupiza
95	" atroglobosa	Chiguana
96	" soehrensii f.	La Paz
97	Austrocylindropuntia teres	La Paz
104	Platyopuntia ficus indica	
110	Brasiliopuntia sp	Palzuela Bolivia
114	Austrocylindropuntia vestita	La Paz
117	Platyopuntia brachyantha	E. Indipendencia
118	" alka-tuna	
121	Tephrocactus berteri	Tarata
121A	" kuehnrichiana	Chosica
121B	" unguispina	R.Tambo, Arequipa
121C	" berteri	Central Chile
121D	" "	Chapiquina
136	Austrocylinropuntia floccosa	
136A	" lagopus v. rauhii	
136B	" floccosa fm nuda	
137	" exaltata	
138	Platyopuntia sp.	San Bartolome, Peru
151	" aequilateralis	
152	Austrocylindropuntia lagopus	E. Areqipa 4000M
152A	" " fm nuda	
153	Platyopuntia ficus-indica	
153A	" cordopbensis	
171	Austrocylindropuntia floccosa fm udonis	Huarez
172	Austrocylindropuntia pachypus	

With many thanks to H. Middleditch for permission to use the Chilean's compendium. R. Moreton. Birmingham

Fig. 10 "Cumulopuntia sp." Photo by W.L. Jackson
Fig. 11 Opuntia sp. Photograph by A. James.

TEPHROCACTUS

Incl. Maihueniopsis, Puna and related genera

Pterocactus tuberosus (Pfeiffer) Britton & Rose.
Photograph by Elton Roberts.

STUDY GROUP

Vol. 11
No. 2 June 2005

SECRETARY'S PAGE.

•All articles and comment should be sent to the Co-Editors.

•Subscriptions for 2005 are now due on the 1st January
•Subscriptions and any other correspondence must be sent to the Secretary (see address below).

May I remind you please to let me know of any changes to your address, telephone number or e-Mail address!

If you write to any Officer and expect an answer, please to include a S.A.E.

•Subs for 2005 remain at £10.00 per annum for the U.K and Europe (European members please note:" no Euro-Cheques are accepted by our banks – but you may send £ Notes") Subscriptions for Overseas members is £14.00 or $25.- (in $bills only). Please make all cheques payable to: "The Tephrocactus Study Group" (not individuals).

• Members may advertise their "Wants" and "Surplus Plants" free in the Journal, in no more than 30 words

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THANK YOU RENE.

On 20th April 1992 Rene wrote a letter to me asking me, in view of my interest in small Opuntias, if I would be keen enough to join in an informal study group of these plants. Several other people received similar letters and thus, due to Rene's efforts, the TSG was born. The group has changed a great deal from those early days of the Round Robins but Rene has worked tirelessly as Secretary for the group to guide it where it is today. After thirteen years Rene has decided to stand down from the post of Secretary and hand over to someone else. However, Rene is to continue to be an active member and intends to give all possible assistance to the new Secretary and the TSG in general. This is just a short note therefore to thank him for all that he has done. It is fitting that we should also thank his wife for her support for Rene in his work and for what she has done for the TSG. She has always provided a warm welcome and refreshments at our meetings: in the early days at their house and later at the Slimbridge Village Hall.

A. Hill. Chairman TSG.

A NEW SECRETARY.

We are pleased to announce that John Betteley has agreed to take on the role of Secretary. He will be familiar to members through a series of articles in the TSG journal over the last few years. John has grown cacti for over forty years with a longstanding interest in Opuntias.

John is presently Secretary of the BCSS Lincoln branch and is also Treasurer of the BCSS National Shows Committee, which annually tests the competence of all BCSS judges. As a qualified BCSS judge he has judged both TSG shows, at Oxford and Birmingham, to date.

We are very grateful to him for taking on the work of TSG Secretary.

A. Hill. Chairman TSG.

OFFICERS OF THE TSG.

Apart from the Secretary all the officers from last year were re-appointed at the Slimbridge meeting. I thank them for the work they have already done and for agreeing to continue to work for the group. I also am very grateful to Alan James who has volunteered to help the Editorial Team.

A. Hill. Chairman. TSG.

THE TSG MEETING 2006.

This will be held as usual in the Village Hall at Slimbridge. At this year's meeting the date was discussed and it was agreed that it would be better if the meeting were held a little later in the year. The hall has therefore been booked for Sunday 7th May 2006.

COVER PHOTOGRAPH.

The photograph shown on the front cover of Vol. 11 No. 1 has to be one of the best yet. A good photo of a superb plant. I want to know why my *T. geometricus* (Castellanos) Backeberg isn't like that. I imagine that quite a few other cactophiles feel the same way. Could Elton Roberts be persuaded to tell us a bit more about it? Obviously the Californian sunshine has to have made some contribution but I have wondered about other factors. How old is it? Is it grafted? If so what is the stock? What sort of mixture is it growing in? What fertilizers does he use? Since, as well, it is difficult to believe that these fairly ordinary cultivation parameters can, alone, be responsible for such a spectacular result, will he tell us the real secret, dancing round it at full moon or what other mystical measures he uses?

W.L. Jackson. Sutton Coldfield.

I have received several congratulary comments on the photograph. Ed.

ARGENTINA 2004

The following is an outline of the talk by Ian Robinson at the Slimbridge meeting.

Between 27th September and 11th October Ian enjoyed an organised tour in Argentina travelling from Buenos Aires to La Quiaca on the Bolivian border and back. The first part of the journey was 700Km from Buenos Aires travelling west across the flat land of the pampas before reaching the low foothills of the Andes in Cordoba. The first Opuntia seen in habitat was *Opuntia sulphurea* Gillies ex Salm-Dyck at Achiras in Cordoba (Fig. 1) GPS 33.10S and 65.01W. This species is widespread in Argentina with variation in the length of the spines and size of the pads and was seen at most of the "cactus stops". It was the end of winter so there had been rain and the leaves of plants were green. Dropped previous leaves meant that there was some humus and therefore nutrient on the soil surface. The second day the party travelled northwest and at Quines, San Luis, the first Tephrocacti were seen consisting of spineless forms of T. articulatus (Pfeiffer) Backeberg ("inermis") and well spined forms ("diadematus"). Propagation appeared to be clonal with goats having kicked the plants and segments fallen off to root in the ground. For the next five days the party travelled in a general north direction between lines of GPS 67.50W and 65.02W through the provinces of San Juan, La Rioja, Catamarca and Salta to reach Jujuy. Many Tephrocacti were seen on the side of the road on the journey to Marayes. Here *T. alexanderi* (Br. & Rose) Backeberg appeared with two-inch diameter segments. The plants were on gravel and down the slope were the rooted heads that had become detached from the plants. The spineless form of *T. articulatus* (Pfeiffer) Backeberg was still in evidence but also now a form that could be referred to as *v. papyracanthus* with white spines through to black. There were seedpods so regeneration will be from seed as well as clonal distribution.

Continuing north to Rio Las Costos a visit was made to the Valle de la Luna (" Moon Valley") in Ischigualasto National Park. At Corrales Tunilla species, *Opuntia scheeri* Weber and a nude form of *T. articulatus* (Pfeiffer) Backeberg (Fig. 3) were seen. At San Fernando, alt.1560m, more *T. articulatus* (Pfeiffer) Backeberg were seen with a Tunilla that could have been *Tunilla soehrensii* (B. & R.) Hunt & Iliff (Fig. 2.) *T. molinensis* (Spegazzini) Backeberg appeared at San Carlos whilst a very impressive feature of the area was the changing colour of the rocks. At Volcan more Tunilla were seen together with *Austrocylindropuntia vestita* (Salm-Dyck) Backeberg. Passing through Purmamarca (where the party had to climb rocks to reach *Blossfeldia liliputana* Werdemann) and Tilcara the northern point of the journey was reached at La Quiaca in Jujuy province..

The following morning the party turned east towards Yavi and reached a height of 3,200m at Toqueros where winter temperatures can go down to -20°C. *M. boliviana* (Salm-Dyck) Kiesling was found here in flower with *Austrocylindropuntia weingartiana (Bkbg) Backeberg* and two Tunilla species. One had white spines but the other had dark spines with pads upto 2" long (IRR 27.03). On the flat plain at Yavi, GPS 22.08S 65.26W, *Puna subterranea* (R. Fries) Kiesling) and *M. boliviana* (Salm-Dyck) Kiesling were found. Slight indents in the soil betrayed the existence of a plant. When the soil was scraped away the *Puna subterranea* (R. Fries) Kiesling was exposed. This area was not the area where *Yavia cryptocarpa* Kiesling & Piltz grows although those slopes could be seen in the distance. The *Puna subterranea* (R. Fries) Kiesling plants were all single headed (Fig. 5) except where the original head had been chewed by an animal. It was in this area that Ian found a plant with a few heads just above the surface of the soil (IRR29.03). The heads were tuberculed and almost spineless (Fig. 6) and Ian suggests that it possibly is *M. pentlandii* (Salm-Dyck) Kiesling. (Any Comments? Ed.) Another relatively spineless plant (IRR 29.02) similar to IRR 29.03 was also found with seedpods (12,300feet), as was a *M. glomerata* (Howarth) Kiesling with fruit (Fig. 9)

Travelling back south at Iturbe *A. weingartiana* (Bkbg.) Backeberg plants were found (Fig. 7). Two were in bud and some had fruits. *Opuntia nigrispina* Schumann and *M. glomerata* (Howarth) Kiesling (Fig. 8) plants were present as was a nude form of *M. boliviana* (Salm-Dyck) Kiesling. Lovely specimens of *Oreocereus trollii* (Cooper) Backeberg with orange spines were seen. A new Blossfeldia site was seen at Alemania before passing through Cafayete and reaching Aimacha del Valle where *T. weberi* (Spegazzini) Backeberg with ginger spines grew. The journey back went through Tafi del Valle, La Angostura, La Rioja, Capilla del Monte, where *Op. cordobensis* Spegazzini can be found with *Austrocylindropuntia salmiana* Parmentier ex Pfeiffer, and after a night in Cordoba the party arrived back in Buenos Aires having covered 3,500 miles in eleven days.

Ian closed his talk with slides of *T. alexanderi* (Br. & Rose) Backeberg segments he had found on the ground at Quines. They had been rooted at some point into the ground but had beeen kicked out of the ground and had also obviously suffered water stress. One of these segments is shown in Fig. 5, p7, in the last Journal. He commented that he does grow the *T. alexanderi* (Br. & Rose) Backeberg in peat. He also commented that Maihuenia do not like to be dried out. In answer to a question Ian said that on this journey other members of the party saw *Tephrocactus weberi* (Spegazzini) Backeberg but he had missed seeing the species. A. Hill. Sheffield

A COMMENT ON SEED INHIBITORS.

Having cleaned quite a few Opuntia sensu. lato. (Opuntia in its widest sense) seed, I notice that they are in a clear glue like substance, which I suggest dries to a clear invisible coat on the seed. I wash the seed many times until the exude is much less viscose, then dry the seeds in a cloth bag. Maybe the amount of washing accounts for the apparently good germination of my Austrocylindropuntia floccosa BB 1151.02. Members might try soaking the seed for a few hours to rehydrate any coating, and then wash a few times in a bag or wrapped in a handkerchief.

B. Bates. Sucre, Bolivia. cactus@cotes.net.bo

CONTRIBUTIONS FROM MEMBERS.

We are very grateful to members who do send in articles or make some response to them. This is a reminder to other members that any contributions are welcome. You might wish to comment on something in the Journal: agree/disagree, request clarification/give further information etc. As a study group we need to have such dialogue. Articles need not be long. Short snippets of information are very useful as are requests for information. Ideas for material to include in the Journal (even if you cannot produce it yourself) are also welcome. The Editorial Team is always willing to help in the production of a contribution (it can be in handwritten form) so please do not feel inhibited about going into print for the first time. There are a number of issues raised in previous journals that have had no response. For example in the last issue there was a request for suggestions of names for the plants featured in Fig. 10 & 11. So far there has been no one prepared to make any comment. Please will members try to make a response to that query and for any other that they find? Ed.

THE NEW CACTUS LEXICON.

The New Cactus Lexicon, compiled and edited by David Hunt, Nigel Taylor and Graham Charles, is now in press for publication this autumn or early next year. The text and nearly 2500 colour illustrations will be in two separate hardbound volumes 210 x 280 mm totalling over 900 pages. The published price will be about £100 including postage, but if you subscribe before 31 August this year you can get it for only £75 incl. postage. Further details and order forms are available from David Hunt, The Manse, Chapel Lane, Milborne Port, Sherborne, DT9 5DL (e-mail: dh@davidhunt.demon.co.uk). There is also an announcement on the Internet at www.cactuslexicon.org

PTEROCACTI

The following is an outline of the discussion, led by Rene that took place on plants at the Slimbridge meeting in April. Attention was drawn to the article by Rene in TSG Vol.6 No 3. Sept. 2000 p394 -396.

The genus Pterocactus has tuberous roots, apical flowers and winged seeds. *Pterocactus tuberosus* (Pfeiffer) Br. & Rose has a range from Rio Negra Province in Argentina up to Salta province. The name *Pterocactus tuberosus* (Pfeiffer) Br. & Rose is the oldest name and should therefore be used instead of the newer names of *P. kuntzei* Schumann and *P. decipiens* Guerke. The form *P. kuntzei f. lelongii* Ruiz Leal ex Kiesling must therefore be regarded as a form of *P. tuberosus* (Pfeiffer) Br. & Rose if its longer, sprawling thinner stems merit distinction.

In the Neuquen area is found *Pterocactus valentinii* Spegazzini. There are enormous variations in plants of this species because the plants grow in a large cline with changes developing along the cline but no definite breaks to allow differentiation. The J. Lambert plants (JL99 from Vaca Muerta) circulating under the name of *Pterocactus fischeri* Br. & Rose are in fact *P. valentinii* Spegazzini. There is a great deal of confusion between *Pterocactus* fischeri Br. & Rose and *P.* australis (Weber) Backeberg. The ISI plant distributed as *P. australis* (Weber) Backeberg is in fact *P. fischeri* Br. & Rose. The two species can be differentiated because the papery flat central spine is more reflexed in *P. fischeri* Br. & Rose than in *P. australis* (Weber) Backeberg. The latter plant is found further south than *P. fischeri* Br. & Rose. The two are obviously related and their range is down to Patagonia from Chubut Province through Santa Cruz Province.

Pterocactus megliolii Kiesling is found in the north of San Juan Province. *Pterocactus reticulatus* Kiesling is similar to P. *megliolii* Kiesling so a question mark must be placed against the latter name. The large tuberculed *Pterocactus araucanus* Castellanos has very thick shortish globular joints that do not become detached so easily as many Pterocacti. Spines may or may not be present on different specimens of the species, which is found in Chubut Province. *Pterocactus hickenii* Br. & Rose can be found two to three kilometers north of San Juan. It is a similar looking plant to *P. araucanus* Castellanos and again can have spines or not. *Pterocactus skotsbergii* has very nice relatively long spines but easily falls to pieces and the name is now a synonym of *P. hickenii* Br. & Rose. *Pterocactus gonjianii* Kiesling is found in the same area as *P. hickenii* Br. & Rose.

Pterocacti do not like peat in the soil and require deep pots as the plants grow larger. Rene puts plenty of grit in his soil mix, stops watering at the end of September and keeps plants in a cold frame during the winter where temperatures can fall well below freezing. He starts watering in April. As it is the new growth that produces flowers he also knocks off the old segments of *P. tuberosus* (Pfeiffer) B. & Rose in April.

A. Hill. Sheffield.

Fig. 1. *Opuntia sulphurea* Gillies ex Salm-Dyck at Achiras, Cordoba Province
Fig. 2. *Tunilla soehrensii* (Br. & Rose) Hunt & Iliff. San Fernando, Catamarca Province

Fig. 3. *Tephrocactus articulatus* (Pfeiffer) Backeberg "inermis form" at Los Colorados, La Rioja Province.

Fig. 4. *Tephrocactus articulatus* (Pfeiffer) Backeberg at Corrales, La Rioja Province

Fig. 5. *Puna subterranea* (Fries) Kiesling at Yavi, Jujuy province.

Fig. 6.
Maihueniopsis pentlandii (Salm-Dyck) Kiesling, (IRR29.03) at Yavi, Jujuy Province

Fig. 7.
Austrocylindropuntia weingartiana (Bkbg) Backeberg at Toqueros, Jujuy Province

Figs 1-9
Photographs
by Ian Robinson.

Fig. 8. At Toqueros, Jujuy Province
Maihueniopsis glomerata (Howarth) Kiesling
Fig. 9. At Yavi, Jujuy Province

PTEROCACTUS TUBEROSUS (Pfeiff.) Br. & Rose.

In Vol. 10 No. 3 Sept. 2004 p32 the Editor said that one of his hanging over plants included *Pterocactus Tuberosus* (Pfeiff.) Br. & R. In habitat the above ground parts of the plants are not here all year. The wind blows them off or some critters of some nature devour the stems. All that is left are the roots and the stems that are just under the soil. These are all underground and stay that way till next growing and flowering season. You will notice that the flowers are terminal and so the plant has done its job when it blooms. In habitat it will set seed and soon after the stems are gone. In cultivation we keep the stems on the plant and so each stem that has bloomed has to grow more stems. These will bloom but will not get as large in diameter as the first stems. I have had some stems in very good light that got down to less than 1/8 inch in diameter. When I was moving about a dozen plants that had been in one place for about nine years all the stems fall off. The plants had bloomed only once in a while. After the plants were repotted they grew new stems and bloomed in about thirty-five or forty days. So I took of the stems again and the plant threw new ones and again these new stems grew and bloomed. Now I trim the plants all the time. If I plan to show the plants I trim them about twenty to thirty days before the show. In order to have more stems grow I will leave several of the largest stems on the main stems. The plant in the photograph (Front cover & Fig 10) has been trimmed four times this year. This trimming today is time 4.

The after trimming photograph (Fig. 10) shows the roots that I have raised in the soil several times. If you look closely you will see that the pot is going oblong. So the roots will need to be worked up again or a bigger pot given to the plant. The pot in the photograph is in a seven inch pot.

It is very important that you leave the main stems growing out of the roots. So do not cut those off. I have had as many as forty to fifty flowers open on a plant as large as this plant after the trimming. Trimming also gets rid of the problem of hang over and taking up too much room. Any and all the stems will root down if just set on top of the soil. In a year's time you can have a tuberous root to 3 cm in diameter and to 5 or 6 cm long. At this time you can raise that root to just below the soil level and give the plant a deeper pot so the root can grow unhindered. In just about five or six years you can have a plant about the size of mine.

While trimming the jungle of stems off a tray of sixteen pots of *Pterocactus tuberosus* (Pfeiff.) Br. & Rose I saw that one plant's root was pushing the soil out of the pot. It had the soil about 2.5 cm above the top of the pot. So I decided it was time to raise the root. The new pot is a 15 cm pot so you can see the size of the root Fig. 11. In time the roots can get to be quite large. My largest has a clump of roots that are 18 cm across. As you can see I have trimmed the stems and left about 2.5 to 3 cm of side stems. This is so the plant will throw more branches and so have more flowers. I have cut the side stems to about 2 -3 cm long. I have been doing this for years and get many times the flowers than allowing the plant to just grow or to take it back to just the main stem.

Elton Roberts. California.

PLANT NAMES.

Elton Roberts asks for an easy to understand chart of the differences between *Cumulopuntia*, *Tephrocactus* and rest of the little groups that interest TSG members. He could do worse than try to develop the one Roberto Kiesling published back in 1984[1], though Roberto didn't recognize *Cumulopuntia* as separate from *Maihueniopsis*. More recently Wolfgang Stuppy has provided an identification key to all the opuntioid genera[2] which will be recognized in the *New Cactus Lexicon* (now in press) and James Iliff has provided keys to the Andean groups (and individual species) in his Checklist[3]. But of course you may have to hedge your bets if you haven't got the flowers, fruit or seeds. Being a botanist won't help. Positive identification down to this level is really only possible for enthusiasts who've learned by experience what all the individual species look like.

That's why, for the rest of us, it's much easier to think of them all as opuntias, or dwarf opuntias, or tephrocacti. There aren't that many species, after all, probably not more than 50, and James has done a pretty good job in sorting out the names of all the variants. As he pointed out in his Checklist, very few of the specific or 'trivial' names (i mean the 'specific epithets', like *articulatus* or *zehnderi*) are duplicated in different groups so it doesn't much matter whether you call 'em all *Opuntia* or follow the current fashion for mini-genera like *Cumulopuntia* or *Maihueniopsis*. You scarcely need the genus name on the label, but it may help to put "C.", "M.", "Te." or "Tu." in case (like me) you can't remember to which group it belongs.

As to the species name, it is also a matter of preference, depending where you are coming from. Is *O. (C.) dactylifera* a "good species" or a variant of *O. (C.) boliviana*? Your choice! One way to remember they are related would be to write *boliviana (dactylifera)* - that's the older/more inclusive name first - or *dactylifera (boliviana)* - the more narrowly defined name first. Much more important is to assign an individual *NUMBER* (accession number) to every plant or clone in your collection, put it on the label, and cross-reference it to your ledger, card-index or computer spreadsheet, with details of when you got it, where or from whom you got it, what it was called, and (most important) any field source or collector's number etc you got with it. (If you don't do this you really shouldn't be reading articles like this!)

David Hunt. Milborne Port. dh@davidhunt.demon.co.uk

References

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2. Stuppy, W. (2002). Seed characters and the generic classification of the Opuntioideae (Cactaceae). In Hunt, D. & Taylor, N. (eds), Studies in the Opuntioideae. Succ. Pl. Res. 6: 25-58. [Key on pp. 41-43].

3. Iliff, J. (2002). The Andean opuntias: an annotated checklist of the non-platyopuntioid opuntias *(Cactaceae-Opuntioideae)* of South America. In Hunt, D. & Taylor, N. (eds), Studies in the Opuntioideae. Succ. Pl. Res. 6: 133-244.

[Succulent Plant Research Vol. 6 is available from David Hunt, The Manse, Chapel Lane, Milborne Port, Sherborne DT9 5DL. Price £25 incl. p. & p. (Cheques payable to 'DH BOOKS')]

PLANT NAMES (2)

Elton Roberts, in Vo. 1, No. 1, re-iterates the plea for some way of classifying the plants, which would allow us to make a better guess when it comes to choosing a species name. I am writing here to suggest that our best choice of system, for the time being, is the set of groups proposed by James Iliff in "Studies in the Opuntioideae".

To try and make this more convincing it is useful to get back to first principles. The first question then is "Why do we need a classification?" Elton gives two reasons. Firstly, the existing species names and descriptions are a muddle. A classification would help in rejecting wrong name choices. Secondly, he gives a very good example. He describes a Tephrocactus as a 'ball stacked on a ball on a ball'. (I looked this up. I think those well-educated botanists call this arrangement 'moniliform'.) But he then goes on to ask why sphaerica is not a Tephrocactus. So we agree that we do need a classification to help with this sort of thing.

A second question concerns the nature of the classification. Books provide a good analogy here. Should they be classified by subject, by author or by publisher etc? On its own no particular choice is any better than any other. The choice is arbitrary unless it takes into account the intended use. Botanists have a clear answer to this question. As far as possible their classification should try to reflect the ancestry and evolution of the plants. (I looked this up too. It should be phylogenetic.) This is obviously the right answer for botanists but I have to admit that it takes second place for me. I think that the most important feature of the scheme should be that it is useful in dealing with the sort of problem raised by Elton. To achieve this it should be based on accessible characteristics. A scheme based on DNA analysis is not going to do this. I am not trying to belittle phylogenetic schemes and DNA tests and all that. Long term these things are the best objective for everyone. But they're no use to me now. They are not going to solve the problems outlined by Elton.

To be useful the classification should come with clear instructions describing how a plant is to be assigned to a class. The best way of doing this is to provide a key. Iliff divides our plants into 12 Groups. He doesn't suggest that these are genera. It simply names each group after its best known species e.g. Group 4 is the Boliviana Group. He does say that these groups can be separated and, most important, he does provide a key to show how. This is quite an achievement. There is a valid reason for all our difficulties. Evolution has adapted the plants to very similar, very harsh environments. Consequently they tend to develop very similar characteristics. Any attempt to classify on the basis of visible characteristics is going to have difficulty. But that is what we need and that is what Iliff has provided.

We can test his scheme on the Tephro/ Sphaerica example quoted by Elton.

Starting at Item 5 in his key. (page 137) (and paraphrasing to keep it short) Plants are erect, moderately and openly branched, branching sometimes moniliform; Segments normally determinate. Flowers usually white.

You then have to work your way down to Item 11 rejecting Miquellii, Verchaffeltii, Glomerata, Boliviana and Floccosa groups. In each case there are accessible characters to help decide whether to reject. To be fair these characters do include flower and seed properties which may be accessible to some of us for only some of the time, but it is possible to get down to Item 11 which says; Segments determinate, globose, with large, close set areoles, moderately branched; flowers often orange.

So the system works. It's not a Tephrocactus if it has large, closely set areoles together with orange flowers.
There is a problem. Iliff's items do not mention all the plants' features. For example the Sphaerica Item should admit that the moderate branching is always moniliform, (if it is?). If I ever get time I shall expand the explanation of each group to mention all the group's features but it does work just as it is.
Iliff goes on to provide keys to several of the better established species in each group.
So, really he has answered our question. We could start with his answer, try to improve it, add species, which he has not covered, and so on.
Finally it is worth mentioning that his groups are fairly closely related to the genera that are gradually becoming accepted. They are not exactly the same. For example, he splits Cumulopuntia into two groups, Boliviana and Sphaerica. The DNA may not agree with this but it does seem a very useful distinction to me.

W.L. Jackson Sutton Coldfield.

PLASTIC POLYTUNNELS = EXCEPTIONAL GOOD GROWING?

Last year I purchased some Opuntias from Bill Greenaway. In April this year I purchased some more from his new list. Some are from cuttings and some from seed. The plants are very sturdy with strong spination. After receiving the plants I sent him a letter in which I commented that his growing really impresses me. For example: how did he manage to grow the floccosa plants so compact, many headed and short stemmed? Was it partly because they are seed based rather than cuttings?
Bill replied with the following comments. "In general terms I do everything wrong in growing the opuntias. They are in a bark/coir/perlite compost and are watered with everything else (Melocacti, Ariocarpi, Rhipsalis, Tephros all get watered the same amount and at the same times with a hose).
"My personal belief is that these relatively high altitude plants are used to high levels of near ultra-violet light. Glass completely blocks off these wavelengths whereas plastic does not (I grow in plastic polytunnels). People comment frequently on the spines, growth habit and free flowering of a number of plants that I grow and generally put it down to the "superior growing conditions" in Cornwall. I don't think that this is true - I believe that it is entirely due to the wider spectrum of light that passes through plastic!"
Ray Weeks also grows in a polytunnel and he obtains very good spination. Ray says that a great deal of his own success is due to the polytunnel. Do any other members find that the use of polythene, rather than glass, has proved beneficial? I use bubble polythene as winter insulation and leave it up all year round. I have thought at times that the practice will have a detrimental effect on the plants. In view of the above this might not be true. Of course the fact there is a layer of glass on the outside will cancel any of the benefits of a polytunnel.
In Vol. 10 No.3 Sept.2004 p443 I recommended that if you want some field numbered, documented Opuntias then send Bill a stamp asking for his sale list. I do not apologise for repeating the statement in this issue. Bill's address is West Halabezack Farm, Porkellis, Helston, TR13 0LD, Cornwall.

Alan Hill, Sheffield.

FIELD COLLECTION NUMBERS OF THE OPUNTIODEAE.

RITTER.			
FR 184	Tephrocactus alboareolatus		E.Quicacha 3000M
198	" echinaceus		Chapiquina
198A	" " v.		Estique
242	" berteri longer segments		Salamanca
242A	" "		Los Andes
256	" archiconoidea		Transito
257	Austrocylindropuntia miquelii		Huasco
275	Tephrocactus multiareolatus		Convento
275A	" rauppianus		Convento
298	Platyopuntia quitensis		Chalhuanca
305	Austrocylindropuntia intermedia		
308	Platyopuntia quitensis		Trujillo
309	" infesta		Chavin
337	" sp		Inquisivi
338	" orurensis		Oruro
344	" cochabambensis		
346	Tephrocactus frigidus		Llallagua-Huanuri 4000M
388	Platyopuntia retrorsa		San Isidro Bol
389	" vitelliniflora		Samaipata 1800M
394	Tephrocactus pentlandii v.pentlandii		
395	" bolivianus		
395A	" pampanus		Abra Pampa
410	Austrocylindropuntia verschaffeldtii		Volcan
410A	" "		Prov.Mendez
410B	" "		Tafi del Valle
411	Platyopuntia nigrispina		
412	" corrugata		Volcan
414	Maihuenia albolanata		Zapala
414A	" " v. viridulispina		Zapala
415	" cumulata		NW. Las Lajas
416	" latispina		Malargue
417	Tephrocactus ovatus		
418	" albomarginatus		Malargue
419	" alexanderi		Famatina
420	" articulatus v.articulatus		Mendoza
421	" strobiliformis		Mendoza
422	Platyopuntia salagria		
423	" microdisca		Villavicenzio
451	Tephrocactus weberi		Pie de Palo
452	Platyopuntia salmiana		Chamical
453	Platyopuntia sp	Cylindrical	Las Robanos
454	" sp		
455	" sp		W.Famatina
456	" kiska-lora		Catamarca
457	" sp		W.Catamarca City
463	Tephrocactus ovatus f.sterilis		Las Aranas
497	" leoncito		Banos el Toro
513	" colorea		Salar Maricunga

With many thanks to H. Middleditch for permission to use the Chilean's Compendium.

R. Moreton, Birmingham

Fig. 10. Frontispiece plant after trimming.

Pterocactus tuberosus (Pfeiffer) B. & Rose. Photos by Elton Roberts.

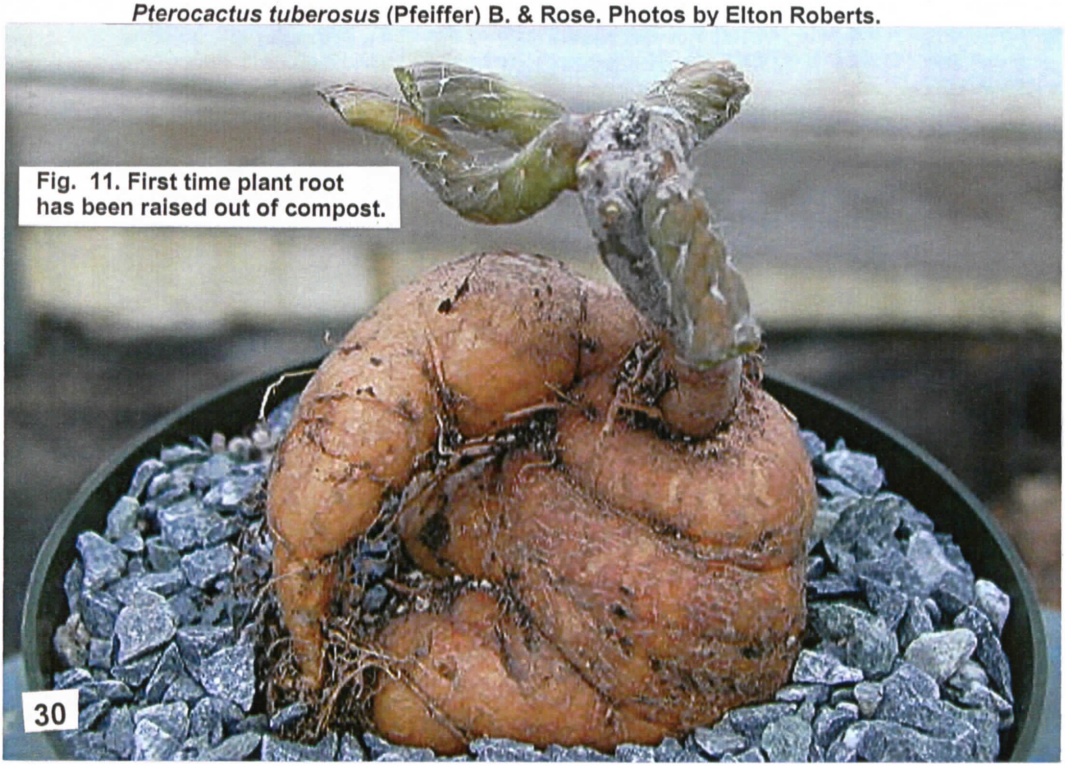

Fig. 11. First time plant root has been raised out of compost.

TEPHROCACTUS

Incl. Maihueniopsis, Puna and related genera

Maihueniopsis nigrispina **(Schumann) Kiesling.**
Photograph by Elton Roberts

STUDY GROUP

Vol. 11
No. 3 September 2005

SECRETARY'S PAGE.

•All articles and comment should be sent to the Co-Editors.

•Subscriptions for 2005 are now due on the 1st January
•Subscriptions and any other correspondence must be sent to the Secretary (see address below).

May I remind you please to let me know of any changes to your address, telephone number or e-Mail address!

If you write to any Officer and expect an answer, please to include a S.A.E.

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MORE INFORMATION ON TEPHROCACTUS GEOMETRICUS (Castellanos) Backeberg.

In TSG Vol. 11. No 2 at the bottom of page 17 W.L. Jackson asks some questions about my *Tephrocactus geometricus* (Castellanos) Bkbg on the cover of TSG Vol. 11. No 1. I will try to make a sensible answer to each. So get out your Vol. 11. No 2 and I will give a fast answer to the questions then try to go into more depth after the answers.

Q 1, Yes

Q 2, 8 years old

Q 3, No, it is not grafted

Q 4, It is on its own roots

Q 5, Perl-lite plus a potting mix with no sphagnum moss, peat moss or peat in the soil. To that I add, for each seven-gallon soil batch, quarter cup of sulphur powder and quarter cup gypsum. The mix is 50:50 and for plants that need extra drainage the mix is 60% Perl-lite and 40% potting mix. If there is any question about that mix growing plants you can ask TSG member Eddie Newman of Basingstoke about it. He has been here for two weeks and is now back in England. (Any comments Eddie? Ed.)

Q 6, The fertilizer is Technigro - 20,18,18 with micro-nutrients plus sulphur. The sulphur keeps the soil on the acid side as I have alkaline water.

Q 7, Secret? Well I am not sure if it is the full moon dance or just telling the plant how fantastic it is.

The plant is eight years old. Yes that is right! I got several of them from Mesa Garden as non-rooted joints. Each is a different clone. They are all of David Ferguson collection 319. I rooted them down and it took a year for the heads to show any signs of growth. The only way I knew that they were rooted is that they held tight to the soil. All the heads were young, less than a year, as they had not fully filled out. This they did about a year after I got them. The next year they put out one or several heads. In a few more years I had the plant shown on the cover of the TSG Vol. 11. No. 1. That was last year and the plant had grown six new head. Notice that the seedpods are on the left side; the six new heads all grew on the right side. In this year's photo (Fig 2) can be seen nine of the ten new heads of this year. The strange thing is that most of the new heads are on the left side and the seedpods are on the right side. In the different photos (Fig 2-5) are the different plants, all the same age. Each plant has different size joints these are from 4.5 cm to 6.5. Why the difference I do not know. They all grow side by side and get the same amount of sun light and heat. They get watered about once in two to four weeks, depending on the weather and temperatures. I feed about once every month or two. The two biggest plants (Fig 2 plant 22 cm across) and (Fig 3 29cm across) each put on ten new heads this year. One other plant (Fig 4. 17 cm across) put on three heads and the last plant (Fig 5. 14 cm across) put on only one head. On most of the plants the heads are now almost as large as the older heads. They are about three-quarters the size of the old heads and that is in only four months time. Now for the secret, well I just do not know. It could be the full moon dance or it is just Mother Nature cuddling her own. Maybe it is the sulphur in the soil keeping it on the acid side.

On the cover of the TSG Vol. 11. No. 1 showing the photo of *Tephrocactus geometricus* (Castellanos) Bkbg are 3 seedling plants in the back ground with blue tags. In the photo of the now two-year-old plants (Fig 6) are several of these seedlings. They are now multi-headed. The single head centre and bottom of the photograph is 18 months old. In the other photograph Fig. (7)

are seedling *Tephrocactus geometricus* (Castellanos) Bkbg that are eighteen months old and ten months old. Notice that one plant has a new joint on the top and the other has a head coming out at the bottom of the back of the plant. The ten-month-old seedlings are 1.5 cm in diameter and 2 cm tall. None of the seedlings are fully filled out or they would be almost round. Seeing these seedlings I hope will help confirm that the front page cover plant is really only about eight years old. Elton Roberts. California

MORE QUERIES ABOUT TEPHROCACTUE GEOMETRICUS (Castellanos) Backeberg.

A TSG member recently said that one of his *T. geometricus* (Castellanos) Backeberg was different from his others in that the segments were not spherical but rather elongated. As the plant was with the others the difference was not due to cultivation/light differences. The member had wondered whether the difference was due to the plant coming from a different population. Has any one else noticed this tendency for an elongated form in plants of geometricus or alexanderi? Please can any members give us some information about the plants in habitat? What is the geographical area where *T. geometricus* (Castellanos) Backeberg is found? Are there disjunct populations or does the taxon just appear over one area? I am aware that various authorities consider *T. geometricus* (Castellanos) Backeberg as being a synonym of *T. alexanderi* (Br. & Rose) Backeberg. I have been told that the former grows on the hillside above the latter. Is there any demarcation zone?

It is noteworthy that Backeberg, in The Cactus Lexicon p476 lists a *T. alexanderi* (Br. & Rose) Bkbg *v. subsphaericus* (Bkbg) Bkbg with "oblong segments". He gives the habitat origin "as for the type". It appears that Backeberg was aware of some elongation in some plants and typically erected a separate variety. A. Hill. Sheffield

MAIHUENIOPSIS NIGRISPINA (Schumann) Kiesling.

From the South American country of Argentina comes *Maihueniopsis nigrispina* (Schumann) Kiesling. The plant is a kind of scrubby small shrub-like plant. I would have to guess that it is not as scrubby of a shrub-like plant in habitat as it is in cultivation. Out of the wind the segments kind of hang on, where in habitat I would have to guess that the wind and critters keep the plant much more compact. The segments detach quite easily, which at times is frustrating. It is Mother Nature's way of vegetatively propagating the plant rather than just with seed.

The plant is to twenty cm tall and about the same across. This is where the wind is not blowing segments away. That is why it is said that the plant is to twenty cm and not that the plant is always twenty cm tall. Anderson says that the plant is one to two metres tall. I do not know what plant he is talking about. Two metres are six and a half feet tall and twenty cm is all of almost eight inches tall. Anderson also says that the plant has abundant wool at the areoles: it does not. It would really nice to know what plant he is talking about.

Segments are to three cm long and to one cm in diameter. The new segments are a dark colour as can be seen in the photograph (Fig 10). I would have to say that they are a blackish-green. They will fade to a grey green in about a season's time. The spines are black on new growth but like the segment colour they will fade to grey. They are to five cm long.

The flower is a wonderful colour of deep red. On some plants the flower has a plum red colour darker centre. Flowers are to four cm across. I have the plant outside on a table that is protected from winter rain but not the cold. It does fine and I have not seen any problems with the cold we have here. I give the species a good soil mix; I do not recommend any soil with peat, peat moss, sphagnum moss or pumice in the soil. Elton Roberts. California.

COMMENTS ON MAIHUENIOPSIS NIGRISPINA (Schumann) Kiesling.

I am grateful to Elton for starting a discussion on this taxon, as our group has not discussed it in any depth. Elton has drawn attention to two problems with Anderson's description of the taxon. Study of the history of the descriptions of the taxon gives some insight.

The 1899 original description of *O. nigrispina* was given by K. Schumann.

"Shrubby, low, ramose, yellow-green; with short-cylindrical stem-segments: spines 2-5, the larger violet-black.

"Shrubby, ramifying, low-growing, hummocky, hardly 10cm high, bristling with spines. Stem-segments cylindric or ellipsoid, 2-3.5cm long, 1-1.5cm thick: yellow-green, strongly tuberculate when young. Areoles round. 2-3mm across, clad with white or brown somewhat flock-like wool. Glochids brown. Spines 2-5: 1-2 of these strong, up to 2.5cm long, acicular, violet-black, rough under the lens; several smaller, lighter-coloured.

"Bolivia, on the Puna of Humahuaca—Lorentz."

In 1973 Iliff & Boyce gave further information that the town of Humahuaca is now south of the Bolivian border, in Argentina, Prov. Jujuy, and that according to Spegazzini (Cact. Plat. Tent. : 512) *O, nigrispina* is common in Salta and Jujuy (the Calchaqui valley). They added that Spegazzini broadly confirms Schumann, describing the stem-segments as "of a pleasant green"... "rather glossy", and adding the details, "spines 1-3 more rarely 5, erect, stiff ... at first a dirty part-translucent reddish-yellow, blackening thereafter from base to tip, in age an opaque black. Flowers average, the petals lemon-yellow."

In 1905 R. E. Fries in Nova Acta Regiae Societatis Scientarum Upsaliensis, ser. 4, 1:123 erected *O. purpurea* giving the following description.

"Shrubby, low, ramose, erect; stem-segments dark greenish or reddish-violet, oblong-elliptic, terete, the younger segments bearing decurrent spirally arranged tubercles; spines 3-5, long, straight, subterete, whitish-rose; flowers small, purple-coloured.

"Densely ramifying, l-2dcm high, the branches erect. Stem-segments 2-4cm long, 1-2cm thick. Areoles seated on the upper part of the tubercles, round, 2-3mm across, furnished with wool and exceedingly abundant yellow glochids up to 2mm long. Spines only on the upper areoles, 3-5 on each, 2.5-3cm long: as a rule 1-2 in the areole are shorter: all porrect, acicular, or the stoutest has an insignificant flattening on the upperside at the base: rather weak, smooth, whitish-rose. Flowers 1 or 2 to each stem-segment, lateral, 22-25mm long. Ovary I cm long, inverse-conical, nearly smooth, furnished above only, at the top and about the upper rim, with nearly terete pointed leaves, 1.5-2mm long, having a certain amount of wool and 2 weak spines ca. 5mm long in their axils. Outer perianth-segments elongated, pointed, the inner spatulate, pointed, l.5cm long, 6mm broad, purple-red. Stamens ca. 6mm long. Style 7mm long, thick-set; lobes 5, porrect, 2mm long.

"Prov. Jujuy. Moreno, rare in stony mountains at 3500m."

In 1919 Britton and Rose gave *O. purpurea* Fries as a synonym of *O. nigrispina* Schumann. In 1973 Iliff & Boyce commented that "on the basis of the descriptions this reference is rather puzzling" although they do state that

O. nigrispina and *O. purpurea* "are evidently similar in several respects". Iliff and Boyce point out that the Briton and Rose "description of *O. nigrispina* consists entirely of a shortened version of Fries' *purpurea* with the insertion of "purplish-black" in place of "whitish-rose" spines." Iliff and Boyce did not note that Britton and Rose changed the description of the areoles so that it read "areoles 2 to 3mm in diameter, bearing abundant wool and glochids". Compare this to what Schumann and Fries wrote about the areoles: there is no mention of abundant wool. The line drawing of *O. nigrispina* Schumann in Britton and Rose shows no wool. It appears that Anderson relied upon the Britton and Rose incorrect written description.

Schumann gave the height of *O. nigrispina* as "hardly 10cm high". Fries gave the height of *O. purpurea* as1-2dcm". Britton and Rose give the height of *O. nigrispina* Schumann as 1-2dm high. I assume that dm (or dcm) is an abbreviation for "decimetre" which is a unit equal to ten centimetres. 1- 2 dm is therefore 10 - 20cm and not 1 -2 metres as appears in Anderson's book.

Although we are therefore spared the need to find a plant over six feet with abundant wool there is a query about the colour of the flowers. Schumann did not give a description of the flower. Spegazzini is said to say that the flower is lemon-yellow whilst the plant of Fries has small purple-coloured flowers. Britton and Rose follow Fries whilst Anderson simply says purple. Elton's plant has deep red flowers and so does a plant that I have flowered. How significant are these details?

Backeberg, 1958, and Kiesling,1984, followed Britton and Rose in treating *O. purpurea* Fries as a synonym of *O. nigrispina* Sch.. However, Backeberg moved the taxon to Tephrocactus whilst Kiesling moved it to Maihueniopsis. Ritter tried to move it to Platyopuntia with no mention of purpurea.

When I first started growing Tephrocacti I thought that *T. nigrispinus* (Sch.) Bkbg did not easily fit into the genus due to its different morphological appearance. Backeberg placed it in his Series 1; Elongati. Series 2 being Globulares. His comment on dividing the Tephrocacti into two sections was that it was based upon the typical growth habit of the plants.....Cont. P40:

PTEROCACTI AT THE SLIMBRIDGE MEETING.

In the last issue, Vol. 11, No 2, June 2005, page 20, an account was given of the discussion on plants of Pterocacti that were taken to the Slimbridge meeting. There was no space in the June Journal for a photograph of the plants so now Fig. 1, opposite, shows some of the plants. In the photograph there are twenty-four Pterocacti plus two other cacti.

In each corner at the front of the tray there is a *P. araucanus* Castellanos with a *P. valentinii* Spegazzini between them. In the second row there is a *P. hickenii* Br. & Rose, overhanging on your right, with two *P. megliolii* Kiesling on the left. The plant in the square pot in the left back corner is *P. gonjianii* Kiesling with *P. australis (Weber)* Backeberg in the other corner. In front of the *P. australis* (Weber) Backeberg there are *two P. fischeri* Br. & Rose in the round pots at the side of the tray. On the other side there is another *P. australis* (Weber) Backeberg whilst in the centre there are two more *P. valentinii* Spegazzini.

Outside the tray, at the front, there are two *P. fischeri* Br. & Rose with a *P. valentinii* Spegazzini behind the *T. geometricus* (Castellanos) Backeberg. On the back corner of the table there is a *P. megliolii* Kiesling.

Thanks are given to R. Geissler for identification of the above plants.

A. Hill. Sheffield.

Fig. 1 Some Pterocacti
at Slimbridge.
Photo by R. Weeks

Figs 2 &3

Figs 4 & 5

Fig 6. 2 year old plants. ◄

Fig 7. 18 & 10 month old ►

***Tephrocactus geometricus* (Castellanos) Backeberg. Photos by E. Roberts**

Fig. 8. Elton Robert's protected plants in Ripon, California.
Fig. 9. Ray Weeks' protected plants in Burton-On-Trent, England.

Fig 10. *Maihueniopsis nigrispina* (Schumann) Kiesling. Photo by E. Roberts

Fig 11. *M. nigrispinus* (Schumann) Kiesling. Spineless form. Photo by A. Hill

Cont from P35... Thus Backeberg separated the taxon from the globular taxa and placed it alongside taxa such as floccosa and weberi. Backeberg's Series 1 does look rather like a section just to place plants that did not sit easily into his Series 2. In later years it has become clear that floccosa fits more easily into Austrocylindropuntia and I sometime wonder where weberi should be placed. Ritter obviously thought that nigrispina was incorrectly placed and erected a comb. nov. of *Platyopuntia nigrispina* (K. Sch.) Ritter (P413). Iliff (P214) states that Ritter's "reference of the species to his subgenus Airampoa seems oversimplified and implausible". However, Iliff's observations on nigrispina do include a statement that "further study is needed both to determine the possible range of variation in this anomalous species and to re-examine reports of the material taken for it". Perhaps some of our group can offer views on this. Iliff shows the neotype of nigrispina on P213 of his article on Andean opuntias. The spination is much denser than that which we usually see in England. Members' comments on the status of nigrispina will be very welcome.

In my early days of growing *Tephrocactus nigrispinus* (Schumann) Bkbg I was mystified in that it appeared that I had purchased two forms or some incorrectly named plants. I am not referring to the labels that say "green form" (Fig. 12) or "red/dark form" (Fig.13) referring to the colour of the segments. The difference was between a form with relatively robust segments and spination, as possessed by Elton's plant (Fig. 10), compared to a form with weak, lax segments with short wool at the areoles but no spines. After many years of growing it the latter form has recently produced a few segments and spines that bear some relation to the "normal" growth (Fig 11). It would appear that the plant has retained juvenile features or is it a form of monstrosity?

Elton mentions that the segments of nigrispina are easily detached. This has been my experience until recently. I tried to take a cutting from a nigrispina that came with the information "Red form ex K. Gilmer" (Fig. 13). Despite grasping it firmly with forceps and twisting the segment (which had flowered) it would not detach. In order not to damage the segment with the forceps I had to cut it off at the base. A TSG member has suggested that this tenacity is due to watering the plant. Could that be the simple explanation?

Accounts of members experience with nigrispina will be most welcome.

A. Hill. Sheffield.

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ERRATA

I am grateful to Elton Roberts for drawing attention to an error that crept into the Secretary's Page in December 2004 and has continued. The correct email address for the Co-Editor, Bill Jackson, is wljackson@supanet.co

In Vol. 11, No. 2, June 2005 Page 18 Ian Robinson's field numbers are given as starting with IRR. In fact they start with IGR.

COMPARATIVE TABLE OF CUMULOPUNTIA NAMES.

Other	Backeberg	Ritter (1980)	Anderson (2001)
Opuntia boliviana Salm-Dyck 1845 Opuntia asplundii Rowley 1958 Op. echinacea (Ritt) Hoffmann 1989 Maih. Boliviana Kiesling 1984	Tephrocactus bolivianus 1950 Tephrocactus asplundii 1957 Tephrocactus albiscoparius 1962 Tephro. melanacanthus 1963	Tephro echinaceus1964 Cumulop. echinaceus famatinensis pampana	boliviana
Tephro chichensis Card. 1952 Opuntia chichensis Rowley 1958 Opuntia ferocior Rowley 1958	Opuntia ferocior 1953	boliviana (misapplied)	chichensis
Op corotilla Schum. ex Vaupel 1913 Opuntia ignota B. & Rose1919	Tephrocactus corotilla 1935 Tephrocactus ignotus 1935	ignota 1981	corotilla
Op crassicylindrica Rowley 1958	Tephrocactus crassicylindricus Rauh and Bkbg 1956	crassicylindrica 1981	crassicylindrica
Opuntia dactylifera Vaupel 1913 Tephro cylindrarticulatus Card. 1952 Opuntia noodtiae Rowley 1958	Tephrocactus dactyliferus 1958 Tephro noodtiae Bkbg & Jacobs1957	pentlandii v. dactylifera (Vaupel) Ritter	dactylifera
Opuntia frigida Navarro 1996		frigida	frigida
Opuntia fulvicoma Rowley 1958	T. fulvicomus Rauh & Bkbg 1956	(?) (A)	fulvicoma
Opuntia galerasensis Hunt 1997		galerasensis 1981	galerasensis
Op sanctae-barbarae Hunt 1997		hysterix	hysterix
Opuntia ignescens Vaupel 1913	Tephrocactus ignescens 1936	ignescens	ignescens
Opuntia mistiensis Rowley 1958	Tephrocactus mistiensis 1936	(?) (B)	mistiensis
Op pentlandii Salm-Dyck 1845 Pseudotephrocactus pentlandii Fric 1933 Maiheuniopsis pentlandii Kiesling 1984 Opuntia rarissima Borg 1951 Opuntia wilkeanus Borg 1951	Tephrocactus subinermis 1935 Opuntia subinermis 1935 Tephrocactus rarissimus 1936 Tephrocactus wilkeanus 1936	pentlandii	pentlandii
Op pyrrhacantha Schumann 1899	Tephro pyrrhacanthus 1958	pyrrhacantha 1981	pyrrhacantha

Opuntia rossiana Hunt 1997	T. pentlandii 1936 (C) T. pentlandii v. fuauxianus 1953 Tephro pentlandii var rossiana Heinrich & Bkbg 1953 Tephrocactus microclados 1962	Rossiana (D)	Rossiana (E)
Opuntia sphaerica Forster 1861 Cactus berteri Colla 1834 (rejected name) Echinocactus berteri Gay 1847 Opuntia berteri Hoffmann 1989 Opuntia dimorpha Forster 1861 Opuntia leucophaea Philippi 1891 Opuntia rauppiana Schumann 1899 Opuntia campestris Br & R. 1919 Op pseudorauppiana Marshall 1941 Opuntia mira Rowley 1958 Opuntia muelleriana Rowley 1958	Tephrocactus sphaericus 1936 Tephrocactus dimorphus 1942 Tephrocactus rauppianus 1936 Tephrocactus campestris 1935 Op kuehnrichianus Werdermann & Bkbg 1931 Tephro kuehnrichianus 1936 Tephro pseudorauppianus 1936 Tephro mirus Rauh and Bkbg 1957 Tephrocactus muellerianus 1957	Tephrocactus berteri 1958 berteri rauppiana 1981 kuehnrichianus 1981 Tephro multiareolatus 1964 multiareolatus 1981 tubercularis	sphaerica
Opuntia ticnamarensis 1997		ticnamarensis	ticnamarensis
Opuntia guatinensis Hunt 1997		tortispina	tortispina
Opuntia tumida Hunt 1997		tumida 1981	tumida
	Opuntia unguispina 1937 Tephrocactus unguispinus 1937	unguispina 1981	unguispina
Opuntia zehnderi Rowley 1958	T. zehnderi Rauh & Bkbg 1957 Tephrocactus alboareolatus 1963	alboareolata 1981 zehnderi 1981	zehnderi

Notes:
1. Generic name = Cumulopuntia when none is given.
2. Backeberg column also includes entries where Backeberg was a co-author.
3. Names in horizontal blocks correspond but not necessarily on the same line.
4. Please see separate article on Page 43 for comments on (A) to (E).

Bibliography. Please see above quoted article.

The table is an attempt to show how the various names relate to each other as rearrangement took place by various authorities. Comments will be very welcome: corrections, omissions, clarifications, queries etc. Ivor Crook (Manchester) & Alan Hill (Sheffield)

COMPARATIVE TABLE OF CUMULOPUNTIA NAMES.

The table is, as stated, an attempt to show how the various names for the same taxa relate to each other. Various authorities have erected/rearranged names to illustrate their views of the taxa. The names in the horizontal blocks therefore are intended to relate to the same taxa although due to the limited space on the pages the names do not necessarily correspond on the same line within the block. However there are aspects that cannot be shown by a simple table. Hence the following notes should be used in relation to the table.

A. Ritter does not list *Tephrocactus fulvicomus* Rauh & Bkbg amongst his recognised species. Nor does he list it as a synonym. However, on p1248 he does discuss the taxon and says that it could belong to *Cum. pentlandii* (S. D) Ritter. He states that there is no differences between the descriptions and that the photograph published by Rauh and Backeberg could show a natural hybrid that grows at Lagune Parinacochas. The choice to be made for the table was to list it without comment, to leave a blank space or carry out the action we have chosen.

B. In the same way, as above, the name *Tephrocactus mistiensis* Bkbg is not listed but is discussed on p.488. Thus in the table the name is given the same treatment as above.

C. Backeberg's concept of pentlandii was what we now know to be a rossiana type plant. Hence his "pentlandii" is placed in the rossiana block.

D. Ritter did not list *Tephrocactus pentlandii v. fuauxiana* Bkbg as a separate species nor as a synonym of rossiana but in the discussion on p488 accepts it as linked in a wide sense.

E. Anderson does not mention *Tephrocactus pentlandii v. fuauxianus* Bkbg. The name rossiana in the Anderson column covers his thoughts on *Cumulopuntia pentlandii v. rossiana* (Heinrich & Bkbg) Ritter and also *Tephrocactus microclados* Bkbg, which he accepted as a synonym but claimed is not validly published. There is no indication of his thoughts on *Tephrocactus pentlandii v. fuauxiana* Bkbg.

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Hunt, D.R. (1999) CITES Cactaceae Check List.
Iliff, J (2002) The Andean Opuntias... - In Hunt, D. & Taylor, N. Studies in the Opuntioideae. Suc. Pl. Res. 6.
Ritter, F. (1981). Kakteen in Sudamerika.

Ivor Crook (Manchester) & Alan Hill (Sheffield).

COVER FOR MY PLANTS.

This is my table or bench for my South American Opuntia family plants (Fig 8) The bench is 25 feet long. I have another that is 20 feet long. The bench is covered on the top, back and the ends. The north side is open all year round. The rains come from the south and so the plants hardly ever get rained on. The covering is Lexan green house panels. Here in the Central Valley of California the summer temperatures can get to 120+ degrees F. So I have sprayed the clear Lexan with super thinned white latex paint. Paint does not have to be reapplied every time it rains. The paint cuts out the burning rays of the sun and still the plants grow just fine.

Elton Roberts. California

FIELD COLLECTION NUMBERS OF THE OPUNTIODEAE.

RITTER CONTINUED.

FR 544	Maihuenia poeppigii (=233)	
547	Tephrocactus camachoi	
547a	" " v.	Copipo- Salar Maricunga
548	" atacamensis	Profetas
549	" conoidea	Puritama
550	" tortispinus	Guatin
551	" ignescens	Villama
552	" " v.	Chusmisa & Alcereca
553	" tubercularis	Chusmisa
554	Platyopuntia soehrensii	N.Chile 2800 -3200M
554a	" "	Bolivia
554b	" "	Villazon
554c	" " (=646)	Volcan
554d	" "	40Km W. Cachi
554e	" "	Villazon – La Quiaca
554f	" " v.transiens	Zapahuira
554g	" " v grandiflora	Salitre – Cueva
560	Tephrocactus ignotus	Pampa de Arrieros
562	Platyopuntia chilensis	Alcerreca, Dept Arica
563	Austrocylindropuntia floccose v.	Galeras
564	Platyopuntia nana	Sondorillo
574	Tephrocactus ticnamarensis	W. Ticnamar
604	Platyopuntia albisaetacens	Tupiza
605	" nana	Rahuapampa
606	" corrugata	Potrerillos 1500- 2500M
610	" salmiana	Betania
611	" cordobensis	Jujuy
614	" salmiana	Mataral
624	" cordobensis	Millocatu La Paz
625	" sp	Irupana – Plazuela
646	" soehrensii (=554c)	
647	Tephrocactus articulatus	La Rioja
648	" ovatus f.calvus	Villavicenzio
652	Austrocylindropuntia subulata	
653	Platyopuntia sp.	Piazuela – Inquisivi
673	Tephrocactus crassicylindricus	R. Majes
674	Austrocylindropuntia floccose v. udonis	Santiago de Chuco
701	" machacana	Machac 3500M
701a	" lauliacoana v (=1418)	
702	" lagopus f nuda (=152a)	
704	Platyopuntia sp	Matucana, Canta, Churin
719	Tephrocactus wagenknechtii	Cordillera de la Punilla
720	" grandiflora	Llanos de Huanta

With many thanks to H. Middleditch for permission to use the Chilean's Compendium.

R. Moreton, Birmingham

***Maihueniopsis nigrispina* (Schumann) Kiesling.**
Fig. 12. Green form ex K. Gilmer
Fig. 13. Red form ex K. Gilmer

Photos by A. Hill

TEPHROCACTUS

Incl. Maihueniopsis, Puna and related genera

Puna claverioides **(Pfeiffer) Kiesling.**
Photograph by Elton Roberts

STUDY GROUP

Vol. 11
No. 4 December 2005

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•Subscriptions and any other correspondence must be sent to the Secretary (see address below).

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THE 2006 TSG MEETING.

This will be held in the Village Hall at Slimbridge on Sunday 7th May 2006. Roger Ferryman, who has travelled many times in South America, will give the illustrated talk. Members are reminded that they may bring non-members as guests

PUNA CLAVARIOIDES (Pfeiffer) Kiesling.

On my benches of small Opuntia type plants, *Puna clavarioides* (Pfeiffer) Kiesling ranks right along with *Tephrocactus geometricus* (Castell) Backbg in the "Oh wow!!! What is that", range. Sometimes it is hard to remove someone from in front of the plants. I have had people stand and just look for as long as 15 minutes. They have asked about some other plant and as I walk on and talk about the other plant I find that I am talking to my self. Retracing my steps I find the person parked in front of the *Puna clavarioides* (Pfeiffer) Kiesling saying to them selves 'cool plant!' 'I want several'.

The plant is like a Pterocactus in the plant area not the seed area. The plant has tuberous roots just like a Pterocactus, and a stem that goes from the tubers to just under the surface of the soil. The above ground portions of the plants are detached when the plant pulls down for the dormant time of the year. The plant will grow several heads each year after blooming these heads will wither and detach. The strong winds in habitat will blow the heads away some root and make new plants others just fade away.

Heads are cone shaped and anywhere from 2 cm to 5 cm (this is cultivated plants) across. In the photos (Front cover plus Figs 6 & 7), you will see normal heads, the ones that are cone shaped, and monstrose heads. The odd shaped heads are not seen in habitat plants. As stated the heads blow away in habitat, in cultivation we keep the heads growing year after year and that helps some heads to grow weird like. I have two plants that are 17 cm across and one that it 23 cm across. I have seen plants a lot larger than my big one but they were grafted. Mine are not grafted. I insulted my big plant by repotting it. I found that some rot had reduced the length of the tuberous roots. Watering has to really be watched or the roots will rot away. It is taking some time but my big plant is slowly starting to show signs of wanting to happy up again.

The plant comes from an elevation of 7000 to 9000 feet in Argentina so it can take the cold. You might want to pot your plant in a deep pot so the root can grow large. If you do so you better provide a super fast draining soil. Even if you do not go for the deep pot give the plant a fast draining soil. The flowers are to 4 cm across, yellow, brownish yellow, and some rare ones are pink or red. I would love to have a pink or red flowered plant.

Elton Roberts. California

WANTED.

Pterocactus megliolii & Pterocactus hickenii,
Maihueniopsis subterranea ssp. pulcherrima or misnamed "Puna incahuasi"
Opuntia corrugata ("longispina") subsp. brevispina ("hintonii")
Tephrocactus paediophilus
Quiabentia chacoensis

Bernard Werbrouck, Vieux Chemin de Willems 13, B-7500 Tournai, Belgium.
bwerb@belgacom.net

PUNA/MAIHUENIOPSIS CLAVARIOIDES.

The taxon first appeared in the literature in 1833 as *Cereus clavarioides*, which was a nom nud by Otto. In 1837 Pfeiffer published the valid name *Opuntia clavarioides*. The original description is as follows.

O. clavarioides H . Berol. Cer. Clavarioides Catal. Cact. Berol. 1833 - Cereus sericcus, Opuntia microthele Hort. Pa: Chile.

O. diffuso-ramosa; trunco terete, inaequali, suberecto; articulis virdibus elongatis, gracilibus, cylindraccis vel obclavatis; areolis regulariter confertis albo - lanuginosis; aculeis 8 - 10, flavido - rubellis vel albidis, tenuissimis, rectis, stellatim adpressis.

Articuli rarius compressi, cristam quasi undulatum formantia, plerumque columnares, 3 - 4 lin. Diam. Aculeoli 1 - 2 lin. longi. Areolae confertissimae, juniores foliolo minutissimo rubescente, subulato suffultae.

I am not a Latin scholar but my rough translation is:

O. spreading-branching; trunk elongated-cylindrical and round in cross section, unequal, almost erect, joint greenish elongated, slender, cylindrical, or club-shaped but attached by the thicker end; areoles regulariter crowded white-woolly; spines 8 -10, yellow-reddish or white, small, straight, star-like adpressed.

Joint rarely compressed, crest as if undulated shape, for the most part columnar, 3 - 4 lin. diam. Spine 1 - 2 lin. long. Areoles crowded, young leaves minute reddish, awl-shaped suffultae.

I would be very grateful to any members who will send me their translated version to replace my crude translation. Also welcome would be clarification of "lin.". Pfeiffer was German. There is an old unit of German measurement with the name of "linie". One linie equals 2.117mm. Is this a "lin"?

The original description is published without a drawing. However, the use of the word obclavatis (cylindrical or club-shaped but attached by the thicker end) indicates that Pfeiffer was describing the unusual feature seen in cultivated plants.

In 1919 Britton and Rose published a description, which is apparently totally dependent on Schumann's description of 1897. The Britton & Rose description reads as follows. "Low, much branched, grayish brown, 4dm. high or less, truncate or cristate at apex; joints not tuberculate, rather fragile, short-cylindric or clavate, 1.5 cm in diameter; leaves minute, 1.5 mm long, reddish, caducous; areoles minute, closely set, filled with wool and minute spines; spines 4 to 10, white, appressed; flowers 6 to 6.5 cm long; sepals linear, pointed, reddish, petals light brown, narrowly spatulate, slightly crenate; ovary bearing minute leaves with wool and short bristles in their axils; filaments white, shorter than the petals; style white, with 7 stigma-lobes; fruit ellipsoid, 1.5 cm long, one-seeded."

Once again we see Britton and Rose use the unit "dm" which is equivalent to 10cm. Schumann actually states 40cm.This height is obviously incorrect. Even in cultivation the plants do not grow to anywhere near that height. It might be reached if one includes the height of the stock of a grafted plant. The illustration of a cultivated plant in Britton and Rose (Fig. 1b) is a copy of Fig 104 in Schumann but Schumann gives no information as to whether the Schumann published drawing, credited to von Behrend, is an original drawing or itself a copy from a publication. Schumann's usual approach is to use a previous illustration. It should be noted that the above Britton and Rose description mentions (and the illustration depicts) "truncate or cristate at apex". Schumann uses the words "cristati" and "fingerformig". The latter

word refers to the development of "fingers" on the edge of the surface of the top of the segment which is a feature often seen on cultivated plants but never reported on those in habitat (Fig. 7). This reference to apparently malformed segments could be the reason why in 1953 Castellanos would not accept the name *Opuntia clava*rioides Pfeiffer as, he claimed, the description was based upon a monstrous plant.

Although the species name "*clavarioides*" has remained constant the taxon has been linked to many genera since Pfeifer placed it in Opuntia in 1837. In 1930 Knuth placed it in Cylindropuntia. In 1935 Fric and Schelle made an attempt to introduce a new genus, clavarioidia, for the taxon but the name is nom valid. Being a South American plant Backeberg, in 1942, placed the taxon in his Austrocylindropuntia and in 1982 Kiesling placed it in his new genus of Puna. However, despite Kiesling considering Puna to be a good genus Anderson in 1999 made the comb nov of *Maihueniopsis clavarioides* (Otto ex Pfeiffer) Anderson. This move reflected the "consensus" discussions of the IOS Cactaceae Working Party. In 2002 Stuppy noted that the seed structure of Puna was identical to Maihueniopsis and stated that Puna could be regarded as a subgenus of Maihueniopsis.

The attempts of Monville 1846, Darrah 1901, Schelle 1907 and Heath 1995 to erect a valid name for a cristate form of the taxon would appear to be superfluous in view of the above descriptions and the known habit of the taxon to change its morphology in cultivation. If one must differentiate then *Opuntia clavarioides* "Cristata", as suggested by Crook and Mottram, would suffice as the term recognises a cultivated form. The 1853 *Opuntia clavarioides v monstrosa* Monville would also appear to be superfluous. The new name of a species *Opuntia clavarioides v fastigiata* Mundt of 1893, (fastigiate = many upright branches oriented parallel to the stem) misspelled as v fasciata Schumann in 1897 appears to have been "doubtfully distinct from the normal *clavarioides*" according to Crook and Mottram.

There is another strand of names starting with *Opuntia ruiz-lealii* Castellanos 1943 nom illeg, through *Opuntia ruiz-lealii* (Cast) Rowley 1958 nom inval, to *Austrocylindropuntia ruiz-lealii* (Cast) Bkbg in 1958 nom inval. However, in 1955 Castellanos had made *ruiz-lealii* a synonym of *clavarioides*. In the 1976 edition of the Cactus Lexicon Backeberg listed *ruiz-lealii* as a variety of *clavarioides*. The difference between the two was said to be that *clavarioides* has a flower up to 6.5 cm long whilst *ruiz-lealii's* flower only goes to 4 cm and has a green stigma. In 1982 Kiesling made *ruiz-lealii* identical with *clavarioides*.

During the nineteenth and early twentieth centuries the true habitat of the taxon was unknown. Originally the habitat was stated to be Chile and in 1897 Schumann reported that it had been found in Mexico in 1896. In 1919 Britton and Rose stated that the plant was rare in collections and only refers to both previously named habitat locations. It should also be noted that they said nothing about the underground sections of the taxon. The information available now is able to enlighten us on the two aspects. The taxon is found in Argentina in the provinces of Mendoza and San Juan. It has a tuberous root with underground stems as illustrated in the drawing in Kiesling's 1982 article (Fig. 1a). The drawing, at half the actual plant size, also provides information on the dimensions of the various parts of the plant. As late as 1943 Castellanos was continuing the earlier reports that the fruit of the taxon only contained one seed. However, Kiesling in 1982 reported that a range of 15 to 23 seeds was found in the examination of four fruits.

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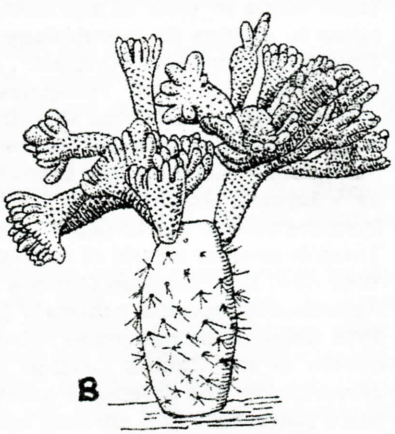
Eggli. Glossary of botanical terms with special reference to Succulent Plants 1993
Hunt & Taylor. Studies in the Opuntioideae (Cactaceae). 2002. Iliff P.186. Stuppy P.38
Kiesling. Hickenia Vol. 1 1982 No 55 P289/293
Pfeiffer. Enumerata Diagnostica Cacteorum
Schumann. Gesamtbeschreibung der Kakteen 1902 edition P 687/88
Steam. Botanical Latin
Alan Hill. Sheffield

Fig. 1a. *Puna clavarioides* (Pfeiffer) Kiesling.
Drawing from Hickenia boletin del Darwinion.
Vol 1 No. 55 July 1982
with the kind permission of R. Kiesling.

Fig. 1b. From Britton & Rose's copy
of von Behrend's drawing in Schumann's book.



MAIHUENIOPSIS NIGRISPINA (K.Schum.)R.Kiesling

TSG Bulletin. 11(3): p34 (2005) states that Schumann recorded the area for the type collection of the species to be Lorentz, Bolivia, on the puna of Humahuaca and Iliff and Boyce gave information that Humahuaca is now south of the border in Argentina. As far as I know Humahuaca has never been in Bolivia, but always in Province Jujuy of Argentina.

The geographical distribution of ***Maihueniopsis nigrispina*** (K. Schum.) R. Kiesling is in northern Argentina in the provinces of Jujuy and Salta also from Tucumán, southern Bolivia in Departments Potosí and Tarija, not far north of the Argentinean border, at altitudes between 2900 and just below 4000m. There is also an unconfirmed and probably erroneous record from La Paz, Bolivia, NW of Nevada Illimani which is about 1000 kilometres by road to the north of the main area of distribution. Continued on Page 55

Fig. 2. *Pterocactus fischeri* Britton & Rose.

Fig. 3. Grafted, "hard" (badly) grown *Puna clavarioides* (Pfeiffer) Kiesling. Note how left and right side growths have developed a stem.

Figs. 4 & 5 Puna clavarioides (Pfeiffer) Kiesling. Cerro Uspallata, Mendoza. Photographs by R. Ferryman

Figs. 6 & 7. P. clavarioides (Pfeiffer) Kiesling. Photos by Elton Roberts
Fig. 7. Note the three different shapes of the segments; normal, cristate and monstrose ("finger-forming")

Fig. 8 *Pterocactus australis* Backeberg

Fig. *9 Pterocactus valentinii* Spegazzini

In habitat it rarely grows above about 10 cm tall. The habitat is usually grassy and relatively flat. The offsets easily detach. It grows with *Cumulopuntia boliviana, C. chichensis, C. dactylifera, Maihueniopsis glomerata* incl. *hypogaea, Austrocylindropuntia shaferi, Puna subterranea, Opuntia sulphurea* and *Tunilla soehrensii.* Other cacti include *Rebutia (Mediolobivia) species, Oreocereus celsianus, O. trollii, X.Oreoechinopsis, Echinopsis marsoneri, E. lateritia var. citriflora, E. pugionacantha, E. longispina, Parodia maassii,* and *Cleistocactus hyalacanthus,* also Zephyranthus and Talinum.

Brian Bates. Casilla 937, Sucre, Bolivia. cactus@cotes.net.bo

MAIHUENIOPSIS NIGRISPINA (K. Schumann) R. Kiesling.

I was most interested in the feature on *Maihueniopsis nigrispina* (Sch) Kiesling, together with the accompanying photographs, in the last Journal. My sole specimen is the clone DJF 448 from La Quiaca, Prov. Jujuy, Argentina.

My plant has the typical deep blackish purple when young, gradually fading to a greyish-green with age, when it develops the larger areoles - similar to those on the older segments shown in fig 11. It has fewer spines than the plant depicted in Fig 10 of the typical black colour and is not curved or twisted as the plant in fig 12*.

I can confirm that this plant is more prone to falling apart on re-potting than others of the brittle Maihueniopsis species. *M. darwinii v. hickenii* is my other "nightmare" plant, but this flowers, unlike my *M. nigrispina.* My formerly "largish" plant fell apart last year on repotting and I have two smaller plants and several cuttings to show for my efforts.

When I first encountered this species I was immediately struck by the resemblance to some of the North American (Boreo)cylindropuntias, but without the sheathed spines of course, and in passing, like many growers of these plants, wonder too about the exact status of "T. weberi", with its indeterminate growth pattern more reminiscent of an Austrocylindropuntia than a typical Tephrocactus.

My growing regime is a rather hard one. I water infrequently, with a hosepipe, and drench the whole collection until water flows from the pots and onto the greenhouse floor. I then close the door so the inside becomes a "sauna". I do not water again for several weeks - even five or six weeks in poor summers!

My compost for this group of plants is a very porous loam based mix, but unlike Elton, I do include peat. The compost is as follows: -

Loam = 26%, Peat = 14% both passed through a 1/42 sieve.

Flint grit = 60% in three sizes.

Plus charcoal, gypsum and a generous dose of pelleted slow release fertilizer: - N/P/K = 14; 7; 29 with 7 trace elements (Mg, B, Cu, Fe, Mn, Mo, & Zn).

With this treatment, I tend to get a good balance of growth and flowering with most species, although some clones appear more floriferous than others, and some never flower for me - even huge clumps!

If anyone out there has cuttings of documented *M. nigrispina* (Sch) Kiesling in exchange for those of DJF 448, please contact me.

Wilf Phillips, 2, Goodshaw Close, Pleckgate, Blackburn, Lancs, BB1 8PG.

* I should have stated that my plant in Fig. 12 in the last issue is curved due to being grown on a top shelf and thus growing against the bubble insulation. Ed.

COMPARATIVE TABLE OF NAMES IN THE GENUS PTEROCACTUS.

Original and other descriptions	Britton & Rose 1919	Kiesling 1982	Hunt 1999 and Anderson 2001
araucanus Castellanos 1964		araucanus	araucanus
Opuntia australis Weber 1898 australis Backeberg 1950	Op. australis Weber	australis	australis
fischeri Br & Rose 1919	fischeri sp nov.	fischeri	fischeri
gonjianii Kiesling 1982		gonjianii sp nov.	gonjianii
hickenii Br & Rose 1919 (Non Op hickenii Br & R. 1919)	hickenii sp nov.	hickenii	hickenii
Opuntia skottsbergii Br & Rose 1919 Pterocactus skottsbergii Backeberg 1950	Op skotsbergii sp nov		
megliolii Kiesling 1971		megliolii Kiesling 1971	megliolii
reticulatus Kiesling 1971		reticulatus Kiesling 1971	reticulatus
Opuntia tuberosa Pfeiffer 1837	tuberosus	kuntzei f kuntzei	tuberosus
Opuntia tuberosa albispina hort (erroneous Salm-Dyck 1885) ex Backeberg 1958 kuntzei Schumann 1897 kurtzei Schumann 1897 decipiens Gurke 1907 (Non Op. decipiens Candolle 1829)		kuntzei f lelongii forma nova	
valentinii Spegazzini 1899 pumilus Br & Rose 1919 (Non Op pumila Rose 1908)	Op. australis Weber pumilus sp nov.	valentinii	valentinii

Notes: 1. Generic name = Pterocactus when none is given.
2. Names in horizontal blocks correspond but not necessarily on the same line.
3. Please see separate article onPage 57 .

Bibliography. Please see the above quoted article.

The table is an attempt to show how the various names relate to each other as rearrangement took place by various authorities. Comments will be very welcome: corrections, omissions clarifications, queries etc.

Ivor Crook (Manchester) & Alan Hill (Sheffield).

A SHORT HISTORY OF THE GENUS PTEROCACTUS K. SCHUMANN.

Karl Schumann erected the genus Pterocactus in 1897 with the type being *Pterocactus kuntzei* (the only taxon in the genus). The genus is named after the distinctive seeds that are more or less circular, flattened and display a papery wing. In a separate publication the same year Schumann mentions *P. kurtzei* (r not n as third letter) as a second, larger species of the genus but without adequate description. It is thus viewed as a nomen subnudum not a typographic error.

The genus was expanded with the first descriptions of *Pterocactus valentinii* by Spegazzini in 1899 and *Pterocactus decipiens* by Gurke in 1907.

Britton and Rose added first descriptions of *P. fischeri,* (Fig. 2) *hickenii* and *pumilus* in 1919. They recognised the taxon *australis* Weber in the genus Opuntia and grouped the taxon in their series Glomeratae with *Opuntia glomerata* Haworth. They also sank *Pterocactus valentinii* Spegazzini (Fig. 9) into synonymy with *Opuntia australis* (Fig. 8). The wording of the description in the 1939 edition of The Cactaceae suggests this taxonomic decision was made without ever seeing the seeds. In their first description of *Opuntia skottsbergii* they failed to recognise the taxon as belonging to Pterocactus. They placed *skottsbergii* in Opuntia series Pentlandianae whilst acknowledging that the species was not closely related to any other species in the series! The fruit is described as unknown so presumably so too were the seeds. The taxon *Opuntia tuberosa* Pfeiffer and its form *albispina* Salm-Dyck were transferred to Pterocactus and the latter with the taxa, *Pterocactus kuntzei* Schumann *P. kurtzei* Schumann and *Pterocactus decipiens* Gurke were all given as synonymous with *Pterocactus tuberosus.*

In 1950, Backeberg transferred *Opuntia australis* Weber and *Opuntia skottsbergii* Britton and Rose to Pterocactus. Castellanos extended the genus with the description of *Pterocactus araucanus* in 1964.

Kiesling further extended the genus with the addition of *Pterocactus megliolii* and *Pterocactus reticulatus* in 1971. Kiesling then published a revision of the genus in the Cactus and Succulent Journal of Great Britain in 1982. In this article he accepted nine species, one with two forms, and gave the first description of *Pterocactus gonjianii.* He accepted *kuntzei* as the oldest name for *Pterocactus tuberosus* Britton & Rose by questioning the original description of *Opuntia tuberosa* which he felt too short and ambiguous to be certain if it referred to *P. kuntzei* or *P. reticulatus.* Kiesling also defined two forms of *kuntzei*; form *kuntzei* with stem segments 8-15mm diameter and form *lelongii* with narrower stem segments, 5-8mm diameter. However, Hunt, in the CITES Cactaceae Checklist accepted *tuberosus* as the oldest name for the species and this is mirrored by Anderson in his work The Cactus Family with *P. kuntzei* sunk into synonymy. (It is intended, in a later article, to further clarify the debate on *P. tuberosus/kuntzei*). Ed.)

It is interesting that the genus Pterocactus has always remained separate from the rest of the Opuntioideae throughout the lumping together of the family by Rowley (1958) and Hunt (1992). In recent times, evidence from floral and seed morphology plus DNA sequencing point to Pterocactus being a good and primitive genus within the family Opuntioideae.

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Ivor Crook (Manchester) & Alan Hill (Sheffield).

TEPHROCACTUS GEOMETRICUS (A.Castell.) Backeb.

In the last issue, page 33, there was a request for information about *T. geometricus* (A. Castell) Backeb. The geographical distribution of the taxon is mainly to the west of the town of Fiambalá, in the province of Catamarca, Department Tinogasta. I have personally seen it from km 15 to km 51 on Ruta 45, the road to Paso San Francisco on the road to Chile, at an altitude between 2000 and 3000m. It is also reported from km 6 on the same road. I have two records that are different, the first from EAST of Fiambalá that may just be an error of direction. The other is definitely disjunct, from the province of La Rioja, from W of Villa Manzan, ESE of Villa Mervil, at Aimogasta. This record could be a misidentification for an aberrant form of *T. alexanderi* (Br. & Rose) Backeb. but is from a very knowledgeable and experienced cactophile.

The habitat is fairly barren, black, volcanic rock. The tephros grow mainly in the shallow valleys, where there will be a little more humidity and moisture available, but also, more rarely, on the slopes of about 20+°. It grows with *Pterocactus meglioli*. Nearby grows *Maihueniopsis mandragora, Puna bonnieae, Cumulopuntia boliviana, Opuntia sulphurea* and a Tunilla spec. Other cacti are *Echinopsis leucantha, Echinopsis formosa, Echinopsis famatimensis ssp. bonnieae* and *Denmoza rhodacantha*.

Young offsets are elongated, but usually on maturity become spherical. Like most tephros, the species proliferates by vegetative means as well as sexually, although the offsets do not detach as easily as in *T. articulatus*, but are easily twisted off. Offsets root easily in the spring, especially easily here in Sucre. They do not have to be set in an upright position and will root easily if also set on their side.

Taxonomically it is very near to *Tephrocactus alexanderi* (Br. Rose) Backeb. but I believe different enough, and geographically isolated enough, to be classified as a subspecies. In its distribution it is fairly variable at least in one of the localities where the spination is variable, mainly short black spines but also some longer white more erect spined plants.

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FIELD COLLECTION NUMBERS OF THE OPUNTIODEAE.

RITTER CONTINUED.

FR 544	Maihuenia poeppigii (=233)	
547	Tephrocactus camachoi	
547a	" " v.	Copipo- Salar Maricunga
548	" atacamensis	Profetas
549	" conoidea	Puritama
550	" tortispinus	Guatin
551	" ignescens	Villama
552	" " v.	Chusmisa & Alcereca
553	" tubercularis	Chusmisa
554	Platyopuntia soehrensii	N.Chile 2800 -3200M
554a	" "	Bolivia
554b	" "	Villazon
554c	" " (=646)	Volcan
554d	" "	40Km W. Cachi
554e	" "	Villazon – La Quiaca
554f	" " v.transiens	Zapahuira
554g	" " v grandiflora	Salitre – Cueva
560	Tephrocactus ignotus	Pampa de Arrieros
562	Platyopuntia chilensis	Alcerreca, Dept Arica
563	Austrocylindropuntia floccose v.	Galeras
564	Platyopuntia nana	Sondorillo
574	Tephrocactus ticnamarensis	W. Ticnamar
604	Platyopuntia albisaetacens	Tupiza
605	" nana	Rahuapampa
606	" corrugata	Potrerillos 1500- 2500M
610	" salmiana	Betania
611	" cordobensis	Jujuy
614	" salmiana	Mataral
624	" cordobensis	Millocatu La Paz
625	" sp	Irupana – Plazuela
646	" soehrensii (=554c)	
647	Tephrocactus articulatus	La Rioja
648	" ovatus f.calvus	Villavicenzio
652	Austrocylindropuntia subulata	
653	Platyopuntia sp.	Piazuela – Inquisivi
673	Tephrocactus crassicylindricus	R. Majes
674	Austrocylindropuntia floccose v. udonis	Santiago de Chuco
701	" machacana	Machac 3500M
701a	" lauliacoana v (=1418)	
702	" lagopus f nuda (=152a)	
704	Platyopuntia sp	Matucana, Canta, Churin
719	Tephrocactus wagenknechtii	Cordillera de la Punilla
720	" grandiflora	Llanos de Huanta

With many thanks to H. Middleditch for permission to use the Chilean's Compendium.

R. Moreton, Birmingham

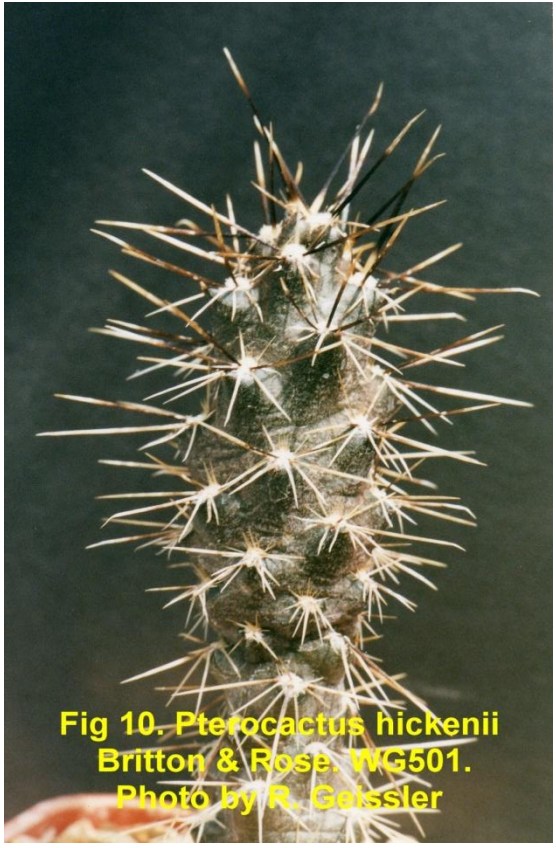

Fig 10. Pterocactus hickenii Britton & Rose. WG501. Photo by R. Geissler

Fig. 11 Pterocactus megliolii Kiesling. Photo by R. Geissler.