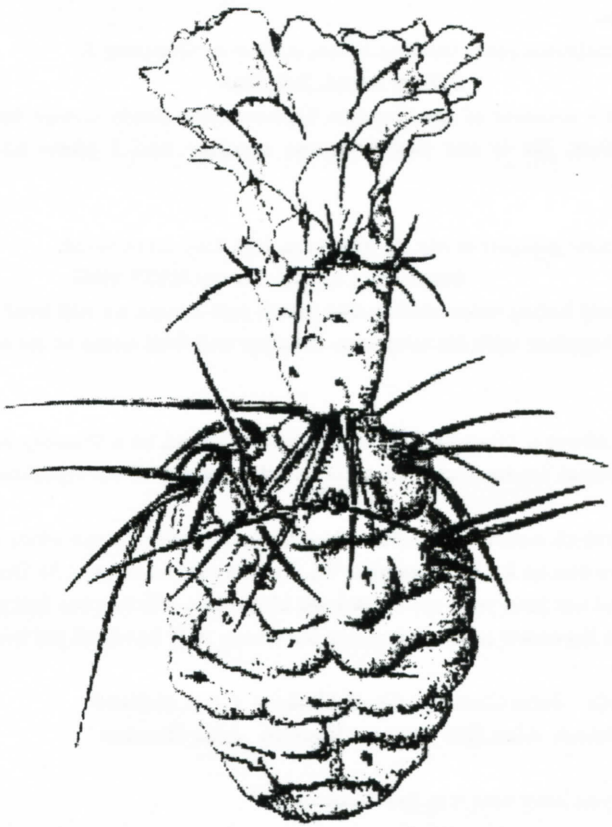
TEPHROCACTI
Study Group



Tephrocactus aoracanthus

Volume 2 No. 1

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ADMINISTRATION MATTERS

To begin with I would like to introduce a couple of new members that have joined us since the last issue:

First may I welcome Joost van den Steen, Aalsterse Steenweg 2,
B 9310 Aaltst, Belgium.

He has been a member of the German Tephrocactus Study Group for some time, and is now it's editor. He is our first overseas member and I know he will be an active contributor.

Our second new member is Mr. H. Walpole, 180, Chadacre Road,
Stoneleigh, Epson, Surrey KT17 2HG

He is obviously keenly interested in our plants and I hope we will hear more of him in the near future together with his telephone number and first name as we are all on first name terms.

To both the above a "Hearty Welcome"! You will find us a friendly bunch, all hoping to learn more about Tephrocacti and other small members of the Opuntia group.

You must have all noticed my deliberate mistake in the last issue when I said that SUBS. for 1996 were due on by 31. December'96. This should have been 31 Dec 1995 of course! So if you have not paid your subs. yet I am afraid this will be your last issue. As a reminder the list below represents those for whom subs have not yet been received by Alan Welsh:

Dave Edwards John Gamsby Geoff Gillham Chris Holland
Keith Granthham Alan Hill Spencer Renolds Alan Weaden

Apologies if you have sent it in the meantime!

The Subs. remain at £10.- and should be sent to the Treasurer:
Alan Welsh, 31, The Quarry, Cam, Glos. GUI 6JA
Please send it promptly! There will be no further reminders!!!

There are a few new import ant matters:

1. We hope to have our next "ONE DAY MEETING" on the 4th August 1996 here at Slimbridge. More details next time, but please make a note now of the date. Please make an effort to attend!

2. We need your photographs of your plants for the next issue, but please try and send in negatives of photographs, as they are much cheaper to reproduce. (Slides if you only take those should be uncounted). Negatives should be in strip-form, which will be returned if requested, but please enclose an S.A.E.
3. Several members have requested that we include a Sale/Wants/Swap" list and I will be pleased to include these in the next issue, but please can we keep them to 30 words on a separate piece of paper stating which category e.g. Sale/Wants, etc..
4. Please remember that we need your comments, experience and views as well as good suggestions. These must reach me by 15 May 1996 to finalise the next issue. So please does it now before you forget!!!

It is obviously a gigantic task for us all to build up enough information on the plants we have elected to study and I welcome the list abstracted from Backeberg's Lexicon that Alan Hill has included this time and I would like to quote from a part of his letter to me, where he says:

"I hope that some of the group will be encouraged to build upon the *information and add* to *it. If they do they, it might mean some duplication of effort. However, it will be better than nothing being done. Also you* will have *found, I think like I have done that to work through the literature and put the information down is a much better way of learning than simply reading* the *work of others."*

How right Alan is on this! By every one adding a little knowledge we will all benefit a lot. Only by the combined effort can we make progress! So please, will you make an effort!
Rene

Odds and ends

The ISI is offering some more introductions and *a* list is available from: HARRY HAYS, WOOLSLEIGH, MOSS LANE, ST MICHELS ON WYRE, PRESTON, PR3 OTY. The offer closes 1.10,1996. (Only three Opuntias on offer).

There is a Cactus Society of Argentina in existence with about fifty members, which may be of interest to someone understanding Spanish. Dr. Roberto Kiesling, I believe, is the Chairman.

FOR EARLIER COPIES OF THE TSG Please contact Spencer Reynolds direct! Tel.01522 794926

A. Hill, 8, Vicarage Rd, Grenoside, Sheffield, S35 8RG

Comments on Volume 1 No. 4

CONGRATULATIONS TO RENE.

Before making any comments I wish to congratulate Rene on having his Tephrocactus collection recognised as a reference collection in the N.C.C.P.G. scheme of National Collection Holders.

CULTIVATION & PROPOGATION: WHERE THE PLANTS GROW. P60.

Martyn states that he would like more information on where the plants grow, the geography, **distribution etc. and the climate they enjoy in the wild. These are some aspects, which interest me: the information will help cultivation and is obviously required in order to sort out the relationships between the plants (and names). As a first step to do some systematic work I have just typed in to an old Amstrad word processor a list of all the species listed by Backeberg in his Cactus Lexicon (English Edition expanded by Haage). I am sending a copy of this with these comments. T.S.G. members might wish to have the list for information or as a template for further work. Details on the list needs to be expanded by adding extra habitat information from other Backeberg publications and the list can be expanded by the addition of other plant names (e.g. from Ritter's books). The names can be re-arranged by country of origin and the places mentioned identified on maps. This will enable the distribution to be more easily understood and will aid understanding of relationships. Information on the climate in specific areas can be found in various publications e.g. the various national Society Journals and The Chilean Society magazines whilst geography textbooks from a public library should help. Perhaps Roy Mottram might be able to suggest some books. Other members might be aware of other sources of information: it is only recently that I realised my morning paper (The Guardian) gave me a report on the previous day's weather in Lima! In the first issue of the T.S.G. Warren Withers included a list of average monthly temperatures for various places in South America. Can this be republished? If we pool the various bits of information we each obtain from our reading we should be able to produce something very worth while.**

SEED RAISING P61.

Thank you very much Alan for a very informative article. On P61 you state you "kept the pots on the staging in a cold greenhouse, giving them cycles of wet and dry as weather permitted." What were the lengths of these cycles and how did the weather affect your actions? In freezing temperatures were the seeds dry or were they frozen in moist soil which then dried out in a warmer period before you watered again?

SPHAERICA ISSUES. P 70.

Spencer states that he does not know how many species are supposed to be in the Sphaerica group. Iliff and Boyce list five names: O.ovata Pfeiff. non Hort. Angl., O.sphaerica Forst., O.dimorpha Forst., O.rauppiana K.Sch. and O.corotilla K.Sch. whilst leaving the specific status of O.kuehnrichiana Werd. & Bkg open to question. In volume 1 No 4 P.78 Rene has given us Backeberg's view of the group. It is a group which we shall need to discuss in some detail.

WINTER WATERING P 71/72.

Rene mentions that he has found that Austrocylindropuntias like a bit of moisture in winter. This ties in with Backeberg's statement, in Bulletin of Cactus Research 1935- 8, that in central Peru "Opuntia floccosa grows at 4,000m above sea level in the misty bottoms of the valleys, often snow covered in winter without the companionship of other cacti. (Incidentally in the 1935 — 9 issue he stated that he "found high mountain (spherical) Opuntias in Bolivia at – 18 degrees. I have been told that K. Gilmer in Germany has found his A.floccosas preferred to grow in winter when he kept them just above freezing point and damp in winter but dry in midsummer. However, he lost the plants when he allowed them to be damp in winter and go below freezing point. My informant was suggesting that in no way should the plants go below freezing point. Rene's statement about leaving his frame slightly open all winter and his use of the term "deep frost" suggests a different situation. Dare I ask the difficult (silly?) question of what is the approximate temperature to which "deep" refers?

PAGE NUMBERS

Three different formats were used in1996 when producing the four issues which made up Volume 2. As a result very extensive editing and reformatting had to be done in order to produce this compendium. Because of this it was not always possible to reproduce all the material from a page in the original publication onto only one of the present pages. Contributors to the Journals in their comments often referred to page numbers. To facilitate ease of reference, therefore, the old page numbers have been retained. Where the material caused a need to insert an extra page this has been acknowledged by numbering the page as a duplicate number with the addition of an "a". In a few cases some pages have ceased to be required. This is acknowledged by stating that no page with that number exists. Ed.

TEPHROCACTUS -Backeberg's Lexicon.

Series (1): Elongati Bkg Series (2): Globulares Bkg.

T. albiscoparius Bkg (2) Bolivia.
T. alboareolatus Ritt (1963) Origin?
T. alexanderi (Br & R.) Bkg (2) Argentina (La Rioja, between Chilencito and Famatina.)
v. bruchii (Speg.) Bkg. Argentina (Catamarca,Mazan).
subv. macranthus (Speg.) Bkg.
subv. brachyacanthus (Speg) Bkg.
v. subsphaericus (Bkg) Bkg. Origin as for type.
T. andicolus Lem = T. glomeratus v. andicolus (Pfeiff.) Bkg.
T. aoracanthus Lem. = T. articulatus v. ovatus (Pfeiff) Bkg.
T. articulatus (Pfeiff. ex Otto) Bkg. (2, one variety 1) (T.:v.diadematus). W. Argentina (Mendoza).
v. calvus (Lem) Bkg
v. diadamatus (Lem) Bkg.
v. inermis (Speg) Bkg (1). W.Argentina (central provinces).
v. oligacanthus (Speg) Bkg.
v. ovatus (Pfeiff) Bkg.
v. papyracanthus (Phil) Bkg. W. Argentina (Mendoza, Catamarca).
v. polyacanthus (Speg) Bkg. W. Argentina, (La Rioja;Cordoba)
v. syringacanthus (Pfeiff) Bkg. Distribution not precisely-known.
T. asplundii Bkg. (2) Bolivia (near Ulloma).
T. atacamensis (Phil.) Bkg (2). Chile (Profetas and Puquios).
v. chilensis. (Bkg) Bkg. Chile (at about 3000m).
T. atroglobosus Bkg (2). Origin? (Riviere collection No 6217).
T. atroviridis (Werd.&Bkg) Bkg (1). Central Peru (Yauli,4000m)
v. longicylindricus Rauh & Bkg. Central Peru (Oroya, Mantaro terraces).
v. parviflorus Rauh & Bkg. Locality as the preceding variety
v. paucispinus Rauh & Bkg. Locality as the first variety.
T. bicolor Rauh: see T. fulvicomus v bicolor Rauh & Bkg. Possibly a good species.
T. blancii Bkg. (1) Peru (Cordillera Negra, about 4000m)
T. boliviensis (SD.) Bkg (2) Bolivia (high plateaux).
T. bruchii (Speg) Speg. = T. alexanderi v. bruchii (Speg) Bkg.
T. calvus Lem. = T. articulatus v calvus (Lem) Bkg.
T. camachoi (Esp) Bkg (2) Chile (Pampa de Antofagasta)
T. catacanthus Bkg 1963 N Argentina(Jujuy, northern mountains)
T. chichensis Card. (2). Bolivia (Potosi, between Tres Palcas and Escoriani).
v. colchanus Card. Bolivia (Potosi, above Colcha)
T. chilensis Bkg = T. atacamensis v. chilensis (Bkg) Bkg.
T. coloreus Ritt. 1963 (2). Origin?
T. conoideus Bkg. non Ritt. (2). Chile (Banos de Puritama)
T. corotilla (K.Sch.) Bkg (2) S.Peru (between Airampal & Pampa, 3300m).
v. aurantiaciflorus Rauh & Bkg. S.Peru (Chiguata, 3200m).
T. corrugatus (Pfeiff) Bkg. = Op. longispina v.corrugata (Pfeiff) Bkg.

T. crassicylindricus Rauh & Bkg.(1)S.Peru (Rio Majes,900-1200m)
T. crispicrinitus Rauh & Bkg. (1) Peru (Cordillera Negra, Punta Caillan).
v. cylindricus Rauh & Bkg.
subv. flavicomus Rauh & Bkg.
v. tortispinus Rauh & Bkg.
T. curvispinus Bkg 1963 (2) N.Argentina (Jujuy, in mountains).
T. cylindrarticulatus Card. (2) Bolivia (between Tres Palcas and Escoriani).
T. cylindrolanatus Rauh & Bkg (1) Peru (Cordillera Raura, 4600m).
T. dactyliferus (Vpl) Bkg (2) S.Peru (Azangaro,3600m).
T. darwinii (Hensl) Bkg (2) S.Argentina (close to Magellan Straits)
T. diadematus (Lem) = T. articulatus v diadematus (Lem) Bkg.
T. dimorphus (Forst.) Bkg (2) S.Peru (Pampa).
v. pseudorauppianus (Bkg) Bkg. Chile (neighbourhood of Coquimbo).
T. duvalioides Bkg = T. dactyliferus (Vpl) Bkg.
T. echinacheus. Ritt. 1964 (2) Chile. (road from Arica to Portezuelo Chapiquina, 2900m on watershed between Azapa and Lluta gorges).
T ferocior Bkg (2). Bolivia (Tres Palcas, pampas N. of Tupiza), to N. Argentina (La Quiaca, according to Frau Muhr).
T. flexispinus Bkg 1963 (2) N.Argentina (Jujuy, in mountains).
T. flexuosus Bkg (2) N.Bolivia (near the Comanche Mine).
T. floccosus (SD.) Bkg (1) Central Peru to Bolivia (3500-4600m).
v. canispinus Rauh and Bkg. Peru (Rimac valley 1500m)
v. cardenasii J.Marn.-Lap. Bolivia (La Paz, Achacachi,3000m)
v. crassior Bkg Central Peru (high plateaux 4500m)
subv. aurescens Rauh & Bkg. Rauh gives this varietal status.
v. denudatus (Web) Bkg
v. ovoides Rauh & Bkg S.Peru (Nazca-Puquio, on Atlantic side, 4100m)
T. fulvicomus Rauh & Bkg. (2) S.Peru (Chala valley).
v. bicolor Rauh & Bkg. Peru (Nazca-Puquio). Regarded by Rauh as an independent species.
T. geometricus (Cast.) Bkg. (2) Argentina (Catermarca, Tinogasta, Angostura de Guanchin).
T. glomeratus (Haw) Bkg (2) N.Argentina (Los Andes).
v. andicola (Pfeiff.) Bkg. Argentina (Mendoza).
v. atratospinus Bkg. 1963 N. Argentina (Jujuy).
v. fulvispinus (Lem) Bkg. N. Argentina (Salta).
v. gracilior (S.D.) Bkg. Origin?
v. longispinus Bkg. 1963 N. Argentina (Jujuy).
T. glomeratus v. oligacanthus Speg. = T. artculatus v. oligacanthus (Speg) Bkg.
T. halophilus (Speg.) Bkg = T. alexanderi (Br & R.) Bkg,
T. hegenbartianus Bkg 1963 (2) Origin? Ex Ritter material.
T. hetermorphus (Phil.) Bkg (1). Chile (Tarapaca, Chiquito).
T. hickenii (Br. & R.) Speg. (2) S.Argentina (Chubut, Puerto Madryn; Rio Negro).

T. hirschii Bkg (1) Peru (Cordillera Blanca, Quebrada Queshque 4000m)
T. hossei Krainz & Gras. = T. articulatus v, polyacanthus (Speg) Bkg.
T. ignescens (Vpl.) Bkg (2). S.Peru (Sumbay) and N.Chile.
v. steinianus Bkg. N.Chile.
T. ignotus (Br. & R.) Bkg = T. corotilla (K.Sch.) Bkg.
T. kuehnrichianus (Werd. & Bkg.) Bkg (2) Central Peru (800 1200m)
v. applanatus (Werd & Bkg) Bkg. Central Peru (Rimac valley).
T. lagopus (K.Sch.) Bkg (1) Peru (near Cuzco, Cordillera Raura etc)
v. aureo-penicillatus Rauh & Bkg. Peru (Ticlio Pass, 4700m)
v. aureus Rauh & Bkg. (Andahuaylas and Cordillera Raura).
subv. brachycarpus Rauh & Bkg
v. leucolagopus Rauh & Bkg.
v. pachycladus Rauh & Bkg Peru (summit of Nazca-Puquio Pass, on bleak Puna at 4400m and among tola scrub near Chuquibamba).
T. leoncito (Werd.) Bkg. (2) Chile (Atacama).
T. reicheanus (Esp.) Bkg is regarded by Ritter as v. or a f.
T. leoninus (Rumpl.) Bkg. (2) Chile.
T. longiarticulatus Bkg 1963 (2). Origin?
T. malyanus Rausch (No class) Peru (near Macusani 4000-4600m)
T. mandragora Bkg (2) N.Argentina.
T. melanacanthus Bkg 1963 (2) N.Argentina (Jujuy)
T. microclados Bkg. (2) S.Bolivia (Tupiza).
T. microsphaericus Bkg n.sp.(2) N.Argentina (Jujuy near Maimara)
T. minor Bkg (2) N.Bolivia (4000m)
T. minusculus Bkg. (2) Bolivia (northern puna c.4000m).
T. minutus Bkg (2) N.Argentine (Los Andes).
T. mirus Rauh & Bkg. (2) Peru (Nazca valley 1200m).
T. mistiensis Bkg (2) S.Peru (Misti Volcano).
T. molfinoi Ritt. = Maihueniopsis molfinoi Speg. Doubt about existance of either.
T. molinensis (Sep.) Bkg. (2) N.Argentina (Salta, Molinos, in the Chalchaqui valley).
T. muellerianus Bkg. (2) Origin?
T. multiareolatus Ritt. 1964 Peru (Dept. Arequipa, Convento).
T. neuquensis (Borg) Bkg. (2) S.Argentina (near Neuquen).
T. nigrispinus (K.Sch.) Bkg. (1) N.Argentina (bleak uplands of Jujuy and Salta,)
T. noodtiae Bkg. & Jacobs (2) Peru (Lake Titicaca, 3900m).
T. orutus (F.R.1098.) No description available.
T. ovallei Remy Chile (Ovalle).
T. ovatus (Pfeiff) Bkg. (2) Argentina (Mendoza).
T. paediophilus Ritt. (No class.) Argentina.
T. parvisetus Bkg. 1963 (2) Chile (in the mountains).
T. pentlandii (S.D.) Bkg (2) Bolivia (Tupiza, Pampa Mochara).
v. adpressus Bkg. n.v. Bolivia (locality?).
v. fauxianus Bkg.
v. rossianus Heinr. & Bkg. Bolivia (Huari-Huari).

T. platycanthus (S.D.) Lem. (2) Argentina.
v. angustispinus Bkg.
v. deflexispinus (S.D.) Bkg
v. monvillei (S.D.) Bkg. possibly only a form.
v. neoplatycanthus Bkg Argentina = Sch. spec.T platycanthus
T. pseudorauppianus Bkg. = T. dimorphus v. pseudorauppianus Bkg
T. psuedo-udonis Rauh & Bkg. (1) Peru (Cordillera Raura on high plateaux).
T. punta-caillan Raugh & Bkg. (1) Peru (Cordillera Negra, Punta Caillan, 4300m)
T. pyrrhacanthus (K.Sch.) Bkg. (1) Peru (Tacora and Cerro Tornarape, 4400m).
v. leucoluteus Bkg. Bolivia (Murillo, Calvario, 4000m).
T. rarissimus Bkg. (2) N.Bol. (between Lake Titicaca and La Paz.
T.. rauhii Bkg. (2) S.Peru (Nevado Ausangate, Hacienda auramarca. Probably also in Cordillera Huaytapallana near Huancayo).
T. rauppianus (K.Sch.) Bkg= weak spined form of T. sphaericus.
T. reicheanus (Esp.) Bkg. (2) Chile (valley of the Rio Toro, 3550m and Banos del Toro, Andes of Elqui). Ritter thinks = T.leoncito (Werd) Bkg
T. retrospinus Lem. = Op. retrospinus Lem., an Airampoae.
T. riojanus (Hoss.) Bkg. = T. alexanderi (Br. & R.) Bkg.
T. russellii (Br. & R.) Bkg (2) Argentina (Mendoza, Portrillos)
T. schaeferi Ritt. not described = T.conoideus Bkg non Ritt.
T. setiger Bkg = T. weberi v. setiger (Bkg) Bkg.
T. silvestris Bkg (2) Bolivia (La Paz). Resembles T. minuscula.
T. sphaericus (Forst.) Bkg. (2) Peru (Arequipa).
v. glaucinus Bkg 1963 (2) Origin? (S.Peru, Pacific side?).
v. rauppianus (K.Sch.) Bkg. Could be a form.
v. unguispinus (Bkg) Bkg. S.Peru (desert of La Joya).
T. strobiliformis (Berg) Bkg= T.articulatus v.inermis (Speg)Bkg
T. subinermis (Bkg) Bkg (2) N.Bolivia (high plateaux 4000m).
T. subsphaericus Bkg = T. alexanderi v. subsphaericus (Bkg) Bkg
T. subterraneus (R.E.Fries) Bkg. (2)N.Argentina (Jujuy, near Moreno and Javi).
T. tarapacanus (Phil.) Bkg. (2) Chile (Calalaste). Known-
T. tortispinus Ritt. Not described. insufficiently.
T. turpini Lem. = T. articulatus v. syringacanthus (Peiff) Bkg.
T. udonis (Wgt.) Bkg. (1) Peru (Cordillera Negra 4300m).
T. unguispinus Bkg. = T. sphaericus v. unguispinus (Bkg) Bkg.
T. variiflorus Bkg. (2) N.Argentina (pampa, S. of Villazon).
T. verticosus (Wgt) Bkg (1) Peru (Cordillera Negra, Katie Pass)
T. virgultus Bkg. n.sp (2) Origin.?
T. weberi (Speg.) Bkg. (1) Argentina (San Juan; Salta).
v.dispar (Cast. & Lelong) Bkg. (Catermarca, Tucuman).
v.setiger (Bkg.) Bkg. (Cordoba? Tucuman?).
T. wilkeanus Bkg. (2) N.Bolivia (Viacha).
T. yanganucensis Rauh & Bkg (1) Peru (Cordillera Blanca, Quebrada Yanganuco 3000m).
T. zehnderi Rauh & Bkg. (2) S.Peru (Sarasassa Volcano, near Incuio, on lava ash, 3500m.

Van den Steen Joost , Aalsterse Steenweg 2, 9310 Aalst, Belgium

After Werner Geissler had written to me that there was a Tephrocactns Study Group, I was immediately interested in joining the group. My main interests (in cacti) are small Opuntias and Peruvian cacti. But 1 mainly collect the small Opuntias, because there are too many species of cacti in Peru to collect them all. Since ten years ago, I collected Tephros After a short shift to Peruvian cacti (because at that time, I didn't know other Tephro-fans), I returned back to my first love (but I'm still interested ii the Peruvian species). I'm also a member of the German study group AGT (Arbeitsgrnppe Tephrocactus) and of the new started Round Robin Tephrocactus (of the CSSA).
I have no problems with understanding English, but to write it, that is a different problem. In fact, I just replace the Dutch words and the construction of the sentences in English. So, I apologise for the level of my English. This time, I'll give my opinion on some articles of the last publication.

GROUPS OF PLANTS (P. 58) AND SPHERICA ISSUES (P70).

On the link between T. *dimorphus* and T. *herteri,*. I believe that both plants are forms of the same species. The problem is of course: what is the difference between species, varieties and forms. I'm no biologist, so I went to several departments of the Gent University to ask for a practical definition of these three "taxonomic-levels" but nobody was able to give such a definition. After all my questions (and the answers) I've the impression that taxonomy is still a descriptive science. To translate the descriptions in evolution-terms or in level of species / variety / form, that is still a very subjective and personal matter Sorry, if I should have insulted some biologists, that was not my intention at all.
The definition I use is: two plants are two species if there are no intermediate forms between them. Of course, then you need field-research. Perhaps we had better use the term, what the Germans call, "Formenkreis" (= group of forms).
The Sphaerica-plants are very variable. I have bought some plants from Knize (Peru). The new joints in my greenhouse (completely different looking from the Knize joints) were almost identical. I think that we have only one very variable species. Ritter mentioned that you could find different forms on each slope.
1 don't think that the Spharicas are the link between *Tephrocactus* and *Airompoa.* I prefer theclassification of Ritter: Cumulopuntia. The Sphaericas are much more related with the C. boliviana-group (and especially *C. zehnderi)* then with *Airompoa or Tephrocactus.* I have the impression that C. *zehnderi* is the link between C. *sphaerica and C. boliviana.*

T. MALYANUS (p 59)

I'm also convinced that *T. malyanus and T.* floccosus var. *cardenasii* are forms of the same species. I prefer the name Austrocylindropuntia floccosa *var. cardenasii.* First

because the floccosa belongs to *Austrocylindropuntia* and secondly I think that "malyanus" is only a variety of A. floccosa.

O. ARTICULATA AND DETERMINATE GROWTH. (P68)

In my greenhouse, the temperature once became -6°C (2 IF). A lot of joints detached during the next two days, mostly of' T articulatus (diademata forms, but not the "turpinii") T. paediophilus and also forms of C. *sphaerica.*

T. CURVISPINUS (P 69)

I'm convinced that *T. curvispinus* is just a (beautiful) form of *C. boliviana.* In the magazine *(3/95)* of the German study group AGT (Arbeitsgruppe Tephrocactus), Klaus Gilmer wrote: "... .The members of this group (Cumulopuntia) can still be found in the middle of Argentina, they are forms of *C. boliviana* (Ritter has called these plants *C. famatinensis).* The most southern Cumulopuntia (according to our findings), which can be found on steep slopes at altitudes of 2300 m (not so high as the more northern forms), is probably the *T. curvispinus* of Backeberg. Only the distribution of *T. curvispinus* (Jujuy, according to Backeberg) is different, the plant, which we found, agrees with the description of T. *curvispinus.* Probably the T. *curvispinus* of Jan Biesheuvel is something else?

HEAT (P. 70)

This winter (and also the previous one, but then it wasn't very cold: minimum -7°C (20F)) I kept my Airompoas, Corynopuntias (except C. invicta), Cylindropuntias, Op. fragilis outside (with some plastic over them, to protect them against rain). I have lost no plants, but for some plants (Cylindropuntias), - I 2°C (I OF) seemed to be the limit. I was surprised that a *C. sphaerica* (7'. *dimorphus v. pseudorauppianus)* had no problems at all with this low temperature. The plants outside didn't lose joints at -12°C (lOF), but in the greenhouse they lose their joints already at -5°C (23F).

TEPHRO OR NOT (P. 74)

In the Flemish magazine, people often refer to Backeberg, saying that he made a mistake. But, thirty years after he published his monumental work, people still refer to him. I also find that he made some (=a lot) mistakes, but I have great respect for the job, he did.

I prefer the classification system of Ritter, but I'm convinced that he created too many new species. The I.O.S. system (call everything *Opuntia)* gives too large genera. If you define the genus *Opuntia,* as the cactii with glochids and hard seed-coat, then our plants are indeed Opuntias. Personally, I have no problems with *Opuntia articulata,* belonging to the subgenus *Tephrocactus.* But, I prefer *Tephrocactus articulatus,* belonging to the subfamily *Opuntioideae.* It is practical, but the differences (dry fruits, the different seeds-structure) are large enough to accept a separate genus (for me).

The system of Backeberg is something in between, but I find it too artificial.

What now with the "Sphaeroid group"? I mostly call them Cumulopuntia sphaerica-group. For me, there exist only a few "Formenkreisen":

- ***-Austrocylindropuntia floccosa, verschaffeltii and vestita***
- ***-Cumulopuntia boliviana, rossiana, sphaerica and zehnderi (?)***
- ***-Maihueniopsis glomerata and platyacantha (l)***
- ***-Puna subterranea (2)***
- ***-Tephrocactus alexanderi, articulatus and weberi***

(I) M. *platyacantha* (southern mountain form), *M ovata* (northern form) and *M. darwinii* (southern coast-form) belong to one "Formkreis". But I'm not sure that *M ovata* and *Opuntia ovata* (Pfeiffer) are the same plant.
(2) I don't think that Clavarioides is a *Puna* (as Kiesling thought), but neither is it *an Austrocylindropun*tia. May be, we can call this plant *Clavarioidea* (as Fric did).

Joost.

Rene Geeissler, Kingston Road, Slimbridge, GLOS. GL 2 7BW

MY COLLECTION IN 1995

In many ways 1995 has been somewhat of a test year for a lot of my plants. Quite a number of my plants have become more mature and over the past two or three years I have propagated additional material from them. This means that I was able to experiment a little more and could even afford to chance the odd one without the risk of losing a genus or clone.
I have been able to risk leaving certain plants in my cold frame that I would not have been able or willing to sacrifice and this has shown up quite a few interesting points. Just one year can not prove anything conclusive, but the Autumn of 1995 and now the Winter of 1996 have been considerably harsher than some of the previous years. There have been longer spells of below zero temperatures.
hilst the general run of Tephrocacti and Maihueniopsis can take all that in their stride, there were some plants originatinq from the Peru area that are now looking distinctly unhappy. These are most of "floccosa and kuehnrichianus/ sphaericus" type. Interestingly enough certain ones still look quite healthy whilst plants of the same type have virtually collapsed. It is not quite clear as to why this should be yet, but suffice it to say for now that these groups are somewhat doubtfully hardy at temperatures more than 2-3 degrees below zero. It could well be that they are used to higher altitudes where they receive more intense radiation and the air may have a lower moisture content.
Quite a majority of the Austrocylindropuntias and Cylindropuntias, whilst quite hardy, require a little more moisture even in the Winter than I had thought in the past. If kept totally dry, some of the branches will shrivel and dry up and in certain cases are

even shed, whereas those that received some moisture or even rain through partly open side windows, I have noticed remained turgid and healthy. This looks particularly the case for A. verschaffeltii.

Last year (1995), I have brought my main plants of the floccosa group into the greenhouse and placed them on the top shelf. In accordance with experience reported by the German Study Group they have been watered throughout the Winter at roughly three weekly intervals and they look very healthy indeed. They have remained upright and did not drop their segments as they did in previous years, when they were kept cold and dry. They continued to grow in the Autumn and none of the new segments dried up as they did before. I have not seen any buds as yet, but that may be due to the fact that they are still getting acclimatised and used to the new treatment. So I am very hopeful for next year.

In the Autumn of 1995 my collection was awarded "National Collection Status" by the NCCPG and I have already given my first report to the Plant Conservation Officer. In connection with that I am looking for any material of either collected or otherwise authenticated material, and if any member can supply a cutting I would gladly purchase or exchange.

A <u>MYSTERY DONOR</u>

A couple of days ago a rather surprising parcel arrived from Argentina by Registered Post with a number of Austrocylindropuntia (Puna) clavarioides, from some one I don't even know. I hope in a few days some one will tell me who the kind person is that has sent them as there was no letter in the parcel. Despite the postal trip they looked in remarkably good condition. Now, at least I know what this plant looks like in habitat.

Only two or three joints were present that appear to have grown above ground. They were attached to a thread-like, up to a foot long root, which ends in a longish potato—like tuber about 3" long and just over 1" diameter. I hope they will acclimatise.

<u>MORE A. MALYANUS</u>

Last Summer I grafted a piece of A. malyanus on a tuber of Pterocactus kunzei. It has taken well and looks promising. At least this will mean that I could have a plant that looks reasonably natural instead of growing on a high stick. If the two grow reasonably well together it may be the first stage to eventually growing it on its own root. Grafting on Pterocactus was suggested by a member of the "Chileans" and it could offer possibilities for other plants.

Rene

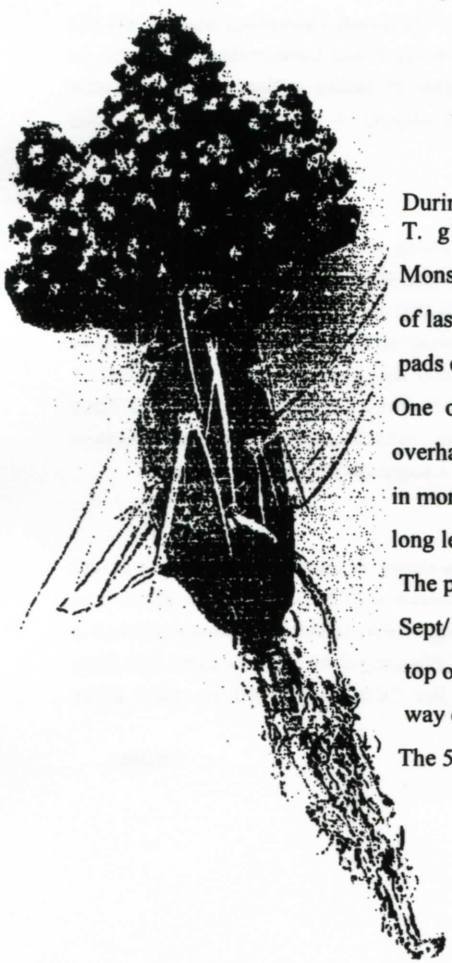
Tony Higuera
25 Heol Nant
Churchvillage
Pontypridd
CF38 IRT

7th Feb

SEEDS

I note with interest Alan's method of germinating Tephro seeds and have put it into practice having just received seeds from Doug Rowlands.

It's just a case of waiting and seeing what happens now.

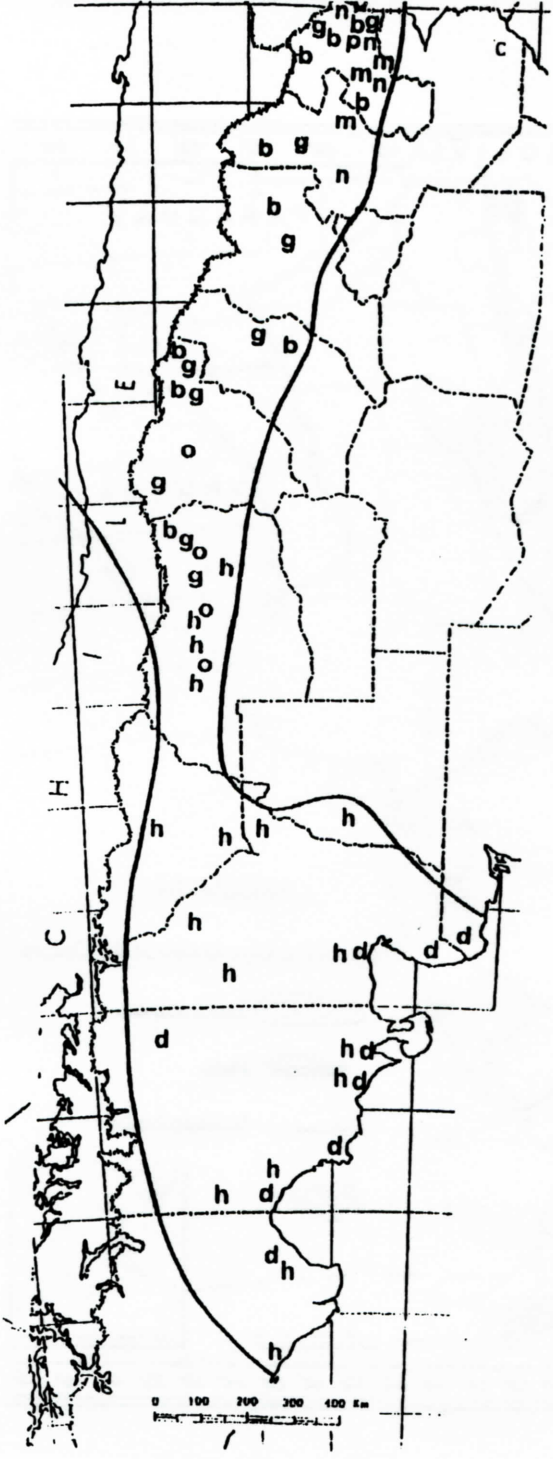


MONSTROSE GROWTH

During the last growing season I had a few T. glomeratus cuttings change their growth pattern to Monstrose. They were cuttings taken at the beginning of last year. They were put into 3" pots with some pads of T.nigrispina that had fallen off over the winter. One of the pots was inadvertently pushed under an overhanging shelf where it was quite dark. This resulted in monstrose growth on the T.glomeratus pads and long leggy growth on the T.nigrispina pads.

The picture on the left is one of the pads photographed Sept/ Oct last year. The monstrose growth started at the top of the pad when first spotted and has been working it's way down since.

The 5p coin at the top of the photograph is an indication of size.



Maihueniopsis

b ---- M. boliviana

d ---- M. darwinii v. darwinii

g ---- M. glomerata

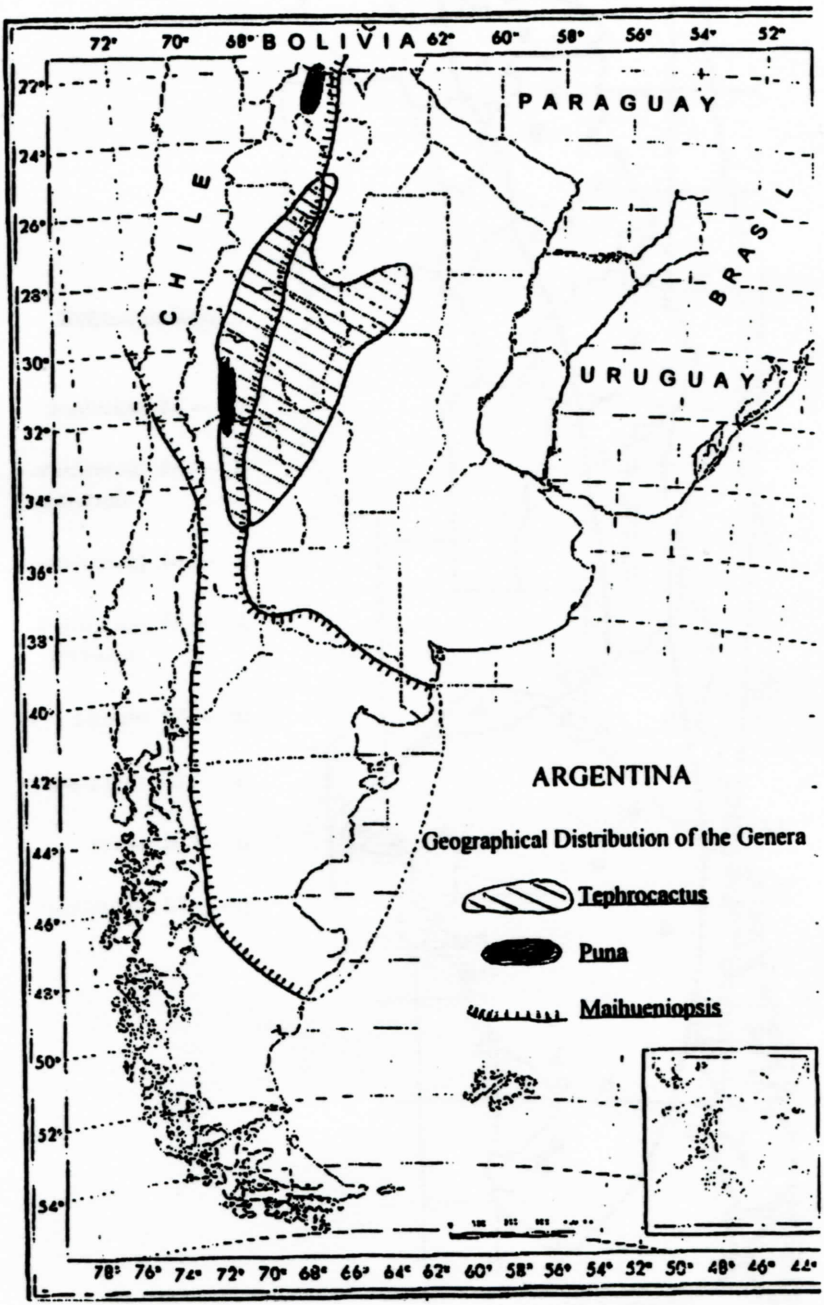
h ---- M. darwinii v. hickenii

m --- M. minuta

n----- M. nigraspina

o ---- M. ovata

p ---- M. pentlandii


BOLIVIA
PARAGUAY
CHILE
BRASIL
URUGUAY
ARGENTINA
Geographical Distribution of the Genera
Tephrocactus
Puna
Maihueniopsis

TEPHROCACTI
Study Group

Maihueniopsis
darwinii
var hickenii

Volume 2 No. 2

W.G. Geissler,
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ADMIN. MATTERS.

We have a new member:

Kevin Lear, 32 St. Augustines Road, Camden, London NW1 9RN Tel. 267 1192

No doubt you all wish him a "Hearty Welcome"! I know he is very keen, so we hope *to* hear from him in the near future as a regular contributor.

The Subs. remain at £10 for 1996 and should be sent *to* the Treasurer:
Alan Welsh, *31.*, The Quarry, Cam, Glos. GL11 6JA

There are a few new important matters:

1. ONE DAY MEETING.
We will have our next "ONE DAY MEETING" on the 4. August 1996 here at Slimbridge. More details will be send out at the beginning of July, but please make a note now of the date now.

Please make an effort to attend!

2. We need your photographs of your plants for the next issue, but please try and send in Negatives of photographs as they are much cheaper to reproduce. (Slides if you only take those should be unmounted). Negatives must be in strip—form, single negatives can not be reproduced. All negatives will be returned if requested, but please enclose an S.A.E.

3. Several members have requested that we include a "Sale/ wants/Swap" list and I will be pleased to include these in the next issue, but please can we keep them to 30 words on a separate piece of paper, stating which category eg: Sale/Wants, etc.

4. Please remember, we need your comments, experience and views as well as good suggestions. These must reach me by 15 August 19' 96 to finalise the next issue. I always get the "Hibi-jibies" when it gets near the deadline date and if it were not for the two or three regular contributors we would be sending out empty pages.
So please do it now before you forget!!!

5. This issue contains an up-to—date list of our members and if *you* know of any one who is keenly interested in our plants, than ask him/her to become a member.

FOR EARLIER COPIES OF THE TSG Please contact Spencer Reynolds direct!
Tel.01203 327397

A. Hill, 8, Vicarage Rd Grenoside, Sheffield, S30 3RG

COMMENTS ON VOLUME 2 No. 1.

Where the plants grow. P84.

Modesty might prevent Roy Mottram from publicising his work so I wish to draw members attention to the publication, in Bradleya, of an "Opuntia Index" compiled by Roy with Richard Crook. Only "Part 1:Introduction and A-B" has so far been published but it is a very useful reference for us. It is an "alphabetical nomenclature to epithets that have been published in the genus Opuntia at specific and inspecific levels". Not only does each entry give literary sources but also the geographical location cited for the type plant.

Joost van den Steen. P90.

I found your comments very interesting and there is no need to apologise for the level of your English. On Page 90 the concept of "Formenkreis"(=group of forms) is mentioned. This concept is something that I have come to accept (reference my comments in earlier issues especially Volume 1, No.2, P30). On Page 91 you state that you kept some plants outside with plastic over them to protect them from rain. Were the plants in pots or planted in the soil? Did the plastic cover the sides or were these open? I wonder whether the fact the plants inside lost joints, whilst those outside did not, was because the plants outside had access to more moisture either in the air or/and the compost? This would tie in with Rene's comments on P.92.

Distribution maps P.95 & P.96

These look like the maps produced by R.Keisling for his 1984 article in Darwiniana. The one on P95 is identical although with a different key layout. The one on P96 is slightly different (eg: "Chile" is printed in a different place) and hence not a straight enlarged photocopy from the above quoted article. Please can you tell me the origin as it implies there is an article about which I am unaware? For years I have puzzled over the distribution of the letters on the map. Can anyone explain the significance of the placing of these letters on the P.95 map? Obviously they are intended to indicate distribution of species but is this a generalised or specific location? ie: in Chubut Province there is indication of M. darwinii v. darwinii and M. darwinii v. hickenii along the coastal region and then a long gap until there is one "d" far to the west. Does this mean that there are no locations in the middle of the province for either of the two species and that there is one small disjunct group of M.darwinii v. darwinii in north western Chubut? A similar query arises about the absence of an "h" in southern Mendoza and northern Neuquen. In Darwiniana 25 (1—4), 1984 P.185 there is a distribution map of Tephrocactus sensu Kiesling. It indicates T. weberi as clustering in west Tucaman, southern Salta and in two locations in Catamarca. There is one location far away in San Juan (the type location) with nothing shown in the in—between province of La Rioja. However, on P190 (if I translate the Spanish correctly) the distribution of T.weberi is said to include La Rioja. Thus the letters do not appear to always indicate the full distribution but there must be some logic behind their exact positioning.

REACTIONS ON THE PREVIOUS MAGAZINES

C. famatimensis and M. grandiflora (p69)

The only remark on these plants I found in "Cites, Cactaceae Checklist" of David Hunt. He wrote that *C. famatimensis* is the same as *Opuntia boliviana* (p 49) and *M grandi flora* is not only a good species but probably a real *Maihueniopsis* and not an *"ordinary"Opuntia* (p 49).

After reading the descriptions and looking to the pictures, I am also convinced that *C. famatimensis* is a Boliviana-form. *M grandiflora* belongs, I think, to the Glomerata-group: a large form/variety? According to Ritter, the plant should be very rare.

***T. curvispinus (p 69* and 91)**

I went to Biesheuvel to look for his T. *curvispinus.* As Spencehas already mentioned the plant of Biesheuvel is a *C. rossiana* (with grey, gently curving flexible spines). It is indeed a beautiful plant. But I didn't get any cuttings. May be I had to speak English?

Winter watering (p 85)

I'll give an overview of the experiments of Klaus Gilmer in the winter of 1993/1994 with *A. floccosa.*

1. **Wet without freezing temperatures. protection against rain (in the greenhouse).**
   No problems: the growth continued, the new joints were as large as the older ones (grown in summer) and formed the same amount of hairs
2. **Wet. with freezing (to -17°C. 0 F). protection against rain (in the greenhouse).**
   No plant survived
3. **Outside without protection**
   No plant survived
4. **Dry. with freezing. protection against rain**
   No plant survived

5 Dry without freezing. protection against rain
New joints dried out.

With method one (and one month dry in June/July), he got flowers in the summer of 1995.

Last winter, I also gave my Austrocylindropuntias some water, but I am not satisfied with the result. May be they need some time to adapt. But probably it's the right method, because the seeds germinate mostly in autumn and Klaus got flowers.

List of names (p 86)

I don't know if everybody is familiar with the classification system of Ritter. I'm convinced that his general groups *(Austrocylindropuntia, Cumulopuntia, Maihueniopsis and Tephrocactus)* correspond better with the reality. May be we can create a list with all the names, we can find, but also indicate to which genus/group (of Ritter's classification system) the plant belongs. Ritter's genera correspond very well with the groups of Leighton-Boyce and Iliff. I've also included a list of the names that were described from 1966 to now (the period after Backeberg). I haven't included the new combinations.

The problem is of course: What is a genus? What is a species?

Dirk Van Vliet, a I.O.S. member and mainly interested in *Notocactus,* wrote in Succulenta, that:

> **if hybridisation is possible between two species, then they belong to the same genus.**

I'm more and more convinced that that is a very practical and useful definition, but it needs a lot of experiments (and there will be serious problems to convince people of the value of this definition)..

As I wrote last time, my definition of species is:

> **if intermediates between two plants can be found, they belong to the same species (or formgroup).**

But then you need a lot of field work.

Continuous growth

Most of the segments (of our plants) are formed in one year (except Austrocylindropuntia). Some plants of the C. sphaerica group form most of their segments in one year and sometimes one of the segments takes two years to develop completely. Michael Kiesling, from Germany, wrote to me that one of his Sphaericas (T. dimorphus Typ 1, from Bleicher) showed the same development. But all the segments need two to three year to full growth (8-9 cm long).

This year, I saw the same on a T. ovatus sensu Ritter (T. aoracanthus). Last year, a rooted cutting formed a small segment (only 5 mm long) in August and the growth stopped. Now (in April) the small segment continued its growth.

Joost

New descriptions (1966 –1990)

Austrocylindropuntia lauliacoana (Ritfer)

Kakteen in Sudamerika, 4:1247-1248, 1981

Peru: Lauliaco, Rimac, 3600m

Austrocylindropuntia machacana (Ritter)

Kakteen in Sudamerika, 4:1246-1247, 1981

Peru: Machac, Cord. blanca, 3500m

Cumulopuntia alboareolata (Ritter)

Kakteen in Sudamerika, 4:1249-1250, 1981

Peru: east of Quicacha (Arequipa), 3000 m

Cumulopuntia berteri (Ritter)

Kakteen in Sudamerika, 3: 885, 1980

Peru (Arequipa) to Chile (Montenegro) almost to 4000m

Cumulopuntia echinacea (Ritter)

Kakteen in Sudamerika, 3: 884, 1980

Chile: 2600-4000m, to Peru

Cumulopuntia famatimensis (Ritter)

Kakteen in Sudamerika, 2: 400-40 1, 1980

Argentina: Famatima mountains (290 degrees SL.)

Cumulopuntia frigida (Ritter)

Kakteen in Sudamerika, 2: 493-494, 1980

Bolivia: Llallagua-Huanuni, 4000-4500m

Cumulopuntia galerasensis (Ritter)

Kakteen in Sudamerika, 4:1249, 1981

Peru: Galeras (Nazca-Puqiuio), 3500m

Cumulopuntia hystrix (Ritter)

Kakteen in Sudamerika, 3: 883-884, 1980

Chile: Sta. Barbara, 3000-3200m.

Cumulopuntia pampana (Ritter)

Kakteen in Sudamerika, 2: 402-403, 1980

Argentinia:Abra Pampa, Jujuy, 3300m

Cumulopuntia tienamarensis (Ritter)

Kakteen in Sudamerika, 3: 885, 1980

Chile: Ticnamar, 31OOm

Cumulopuntia tortispina (Ritter)

Kakteen in Sudamerika, 3: 885, 1980

Chile: from Guatan to Tocone and Sta. Barbara, 3000-3600m

Cumulopuntia tubercularis (Ritter)

Kakteen in Sudamerika, 3: 888, 1980

Chile: Chusmiza, prov. Tarapaca, 3000-3400m

Cumulopuntia tumida (Ritter)

Kakteen in Sudamerika, 4:1254-1255, 1981

Peru: Chala Vieja (Arequipa), near the coast

Cumulopuntia unguispina var maior (Ritter)

Kakteen in Sudamerika, 4: 1251-1252, 1981

Peru: Lomas (Arequipa)

Maihueniopsis albomarginata (Ritter)

Kakteen in Sudamerika, 2: 389, 1980

Argentina: Mamargue, Mendoza to Las Lajas, Neuquen

Maihueniopsis archiconoidea (Ritter)

Kakteen in Sudamerika, 3: 877, 1980

Chile: Transito (Huasco) 1200-2800m

Maihueniopsis crassispina (Ritter)

Kakteen in SOdamerika, 3: 879-880, 1980

Chile: Quebrada Maitencillo

Maihueniopsis domeykoensis (Ritter)

Kakteen in Sudamerika, 3:878-879, 1980

Chile: Domeyko (Huasco)

Maihueniopsis grandiflora (Ritter)

Kakteen in Sudanierika, 3: 877-878

Chile: Lianos de Huanta, 1700m

Maihueniopsis leptoclada (Ritter)

Kakteen in Sudamerika, 2: 388, 1980

Argentina: Tres Cruces (230 S.L.), Jujuy, 3500m

Maihueniopsis ovata f. calva (Ritter)

Kakteen in Sudamerika, 2: 389, 1980

Argentinia: Villavicencio, Mendoza

Maihueniopsis ovata f sterilis (Ritter)

Kakteen in Sudamenka, 3: 871-872, 1980

Chile: Las Aranias, 2000m

Maihueniopsis wagenknechtii (Ritter)

Kakteen in Sudamenka, 3: 878, 1980

Chile: Cord. de la Punilla, 2000m, 50km east of Tres Cruces

Tephrocactus malyanus (Rausch)

Kakt. und Sukk. 22: 43-44, 1971

Peru: Masucani, 4000-4500m

Tephrocactus weberi var deminutus (Rausch)

Succulenta, *65: 249-252*, 1986

Martyn Collinson
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COMMENTS ON PREVIOUS ISSUES.

Apologies for not contributing to the last round but I have had a few problems at home over the winter.

A.verschaffeldtii (p.58)

I find that young plants have a tendency to elongate whereas my older more mature plant tends to produce lots of smallish round segments and these are the little perishers that fall off in the autumn. I am sure that a lot of our plants grow much "tighter" in habitat due to the harsher conditions and higher light levels.

Seed raising (p.61 & 94)

Many thanks to Alan Weeden for his fascinating account of seed raising. I feel his point about clones is a very valid one and his article has prompted me to have another go at seed raising. Like Tony Higuera

I too have purchased seed from the Rowlands and this was sown in February. Already several interesting
things have happened but I intend to keep a record of germination etc. and write up a detailed report for
an issue of the TSG magazine later in the year.

Growing points (p.66)

Alan Hill asks if we think that most Tephrocacti push out offsets which are fully formed pads in miniature. I have been watching my plants closely this spring and I would say that this is almost certainly the case, not only with the Tephros but with Platyopuntias and larger growing tree opuntias as well, of which I have a few. If you look closely at the small emerging pad all the leaflets can be clearly seen from which spines and areoles appear. If you consider large opuntias, the next years growth always comes as new pads, I cannot imagine a previous years pad starting to grow again. Pterocactus on the other hand do seem to have a growing point which starts elongating again the next year. I am probably stating the obvious here but it is an interesting subject on which I hope we have more comments.

0.Articulata (p.68)

This seems to bear out my assumption on page *52* that this joint shedding occurs quite naturally in some species and is not necessarily an indication of poor cultivation.

Habitat information (p.87)

This species list is a useful start to building up a picture of the plants and where they live and I for one will be putting this onto computer when time permits. The problem then is adding to it as we don't all have access to Backeberg, Britton & Rose etc. I have got a reasonable library of basic cactus publications but if there is one particularly useful book I would like to know what it is.

Winter watering (p.85)

Having now repotted most of my plants the only one which did not seem to have a reasonable root system was T.nigrispinus. It appears to have very fine roots which obviously dry right up in winter. This would seem to point to the need to water this plant occasionally in winter thus avoiding the dreaded joint loss.

Cultivation & propagation

All my plants have survived what turned out to be one of the coldest winters for 30 years with the exception of O.invicta. This developed a nasty grey mould which rapidly progressed through the plant and I could not save even one offset. I assume now that this plant is not very hardy and future specimens will be given warmth with the "other cacti". I have yet to be as brave with my Tephros as Joost Van den Steen (page 91) and even resorted to a small heater on the coldest nights (-7C/-8C). Like Rene though I now have duplicates of many plants so I can perhaps afford to experiment more next winter. The only problem I am finding with the cold frame now is that the plants are drying out very rapidly and I could almost water several times a week. How often do you water in the summer Rene?

Doug Sizmour of Kent Cacti has one or two interesting Opuntias on his list this year so it might be worth sending for it.

Martyn.

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Dear Rene,

You asked for any bits of information that any of us in the study group may get and to forward it for the list. Well when I ordered my seed from Steven Brack (Mesa Gardens) amongst the seed I had ordered was Tephrocactus alexanderi v. geometricus DJF3 19 E. Loro Huasi, Cat. T. alexanderi v. geometricus DJF 320 W. Fiambala (Pink Soccer balls) and T. aoroacanthus DJF474 50k. N. San Juan and with the receipt against these he wrote sow in the summer. So I sent Steven an email on the internet asking if there was any particular reason to why to sow these in the summer. His reply is below and may be of interest to the rest of the group.

Forwarded Message Follows
Date: Thu, 22 Feb 1996 09:03:19 -0700 (MST)
From: Steven Brack @cactus.swcp.com>
To: John Garnesby <John. Gamesby@AZTEKIUM.octacon.co.uk>
Subject: Re: seeds

Dave F has seen most Tephros in habitat, and they are not high elevation creatures at all. They live in low elevation very hot regions with only minimal frosts. In many ways they live in regions like Arioc fissuratus, although warmer in the winter. All the Maihueniopsis, etc., are high up in the Andes valleys often at over 4000m.

I finally got good germination on Tephros by sowing them in the hottest part of the summer. I am sure the pots were routinely at 110 F in the day, and most pots popped like crazy.
Regards, Steven

By Dave F. I take it he means David Ferguson. I hope this is of help.
Regards, John Gamesby.

Rene Geissler
Kingston Road
Slimbridge

CULTIVATION

A lot more experience is needed in this field I am quite sure, At least as far as I am concerned, because I still make mistakes. This last Winter (1995/96) has been something of an eye—opener for me and a test for some of my plants. For the first time, I have brought most of the plants •in the "floccosa" group into the green house following the tests carried out be Klaus Gilmer and I have been watering them judiciously through the Winter. Some were left in the frame as before and most survived, but only just.

I have also been careless at the onset of Winter and did not clean the glass nor did I clear out the gullies the glass is resting in. Consequently dirt and leaves collected in them and this caused water to seep inside and drip on some of the plants which I keep on the hanging shelves that were close to the glass. This resulted in some casualties and I was glad to have propagated from most of the plants during last Summer and Autumn.

Most of the Maihueniopsis type have few problems and stand our Winters well and the number of buds being produced this Spring are really quite exceptional. This also applies to the Pterocacti which are doing rather well now. One group of Tephros that did not look too happy are T. weberi and even worse are the "sphaericus" group, but only some seemed to be unhappy from either the cold or the high moisture content in the air, I am not sure which. This leads me to believe that some come from different locations in habitat. So Alan's suggestion that we should study the locations/origins of plants, is a very valid one and deserves our careful attention in the future.

My large Puna subterrania also met with a mishap and that too was probably my fault. I have gone on watering far to long in the autumn and, as the plant was in a very large pot, it retained too much moisture before the onset of Winter. It may have even had some drips in the centre and it rotted off from the roots. The plant was about 15" across and I have noticed that it only produced three or four flowers last year, whereas when it was smaller it was covered in flowers. I have noticed this phenomenon on Sulcorebutias too. When they get too large and many headed, the flowers get less and less. Perhaps this is not surprising when one considers that Punas and Sulcorebutias, for that matter, grow mostly singJe in habitat, whereas in cultivation most grow multi-headed. Maihueniopsis on the other hand form large mounds in the wild.

We may think we are growing some of our plants quite well and even get them to flower, but when we consider the diverse areas of South America where our plants come from, there is still much to learn and understand to be able to reproduce those conditions as far as possible in our northern climate.

This Winter I have also kept a number of the "articulatus" group on the top shelf of the green house, simply to find out if they would be shedding some of the joints as they do in the frame. To my surprise they hardly lost any. So I was rather surprised to read that in Joost's case the situation was rather reversed and he lost more inside than out. The T paediophyllus (hossei) qroup in particul appeared to enjoy the green house treatment and are now showing a couple of buds. All apart from the "floccosus" were kept dry throughout the Winter period.

It is well known that Austro. malyanus is virtually impossible to keep on it's own roots, so while I keep trying I have grafted it on a Pterocactus tuber and it seems to be doing rather well on it. Every one who has seen it takes it for being on it's own roots. I will let you know how it is progressing in the future.

All last year's cuttinqs and young plants across the range were still kept in the small, unheated qreen house and virtually all have come through the Winter splendidly. Watering did not commence until mid-April when they started to come into growth.

Before the Autumn comes I am planning to fit a shelf high up under the eaves of the greenhouse and there I hope to keep most of the plants which I believe do better without freezing temperatures, such as the floccosa group, the sphaericus group and also some of the articulatus group too. They will still be kept quite cool, because as most of you know my green house is rather high and I produce a false ceiling with plastic bubble sheeting to reduce heating costs, so the plants will be above that. This will also use up the unused space at present in the green house whilst creating some extra room in the cold frame for most of the Maihueniopsis.

Now, I also have a problem and wonder if any one may be able to help me. I have grown T. nigrispinus in it's various forms, but try as I might, it has not yet flowered for me. We all know that it is a bit of a problem plant. Is it a Tephro. or a Maihueniopsis, where does it come from and how can one stop it shedding most of it's joints during Winter? There are several clones of it and some do better than others. Has any one flowered any of them? Does it need more warmth in Winter or not to make it perform? I have only heard of one person so far in the South of Germany, where it is bedded out in a cold or only slightly heated green house in the worst of the Winter. He has flowered it and tells me the flower' is a very deep red. So please don't be Shy. If you were lucky then please share the secret with us

Rene

Spencer Reynolds 47 Main Road Washingborough Lincolnshire LN4 1AU 01522 794926

CULTIVATION

As some of you may have noticed I have recently moved from my previous residence in Nuneaton, Warwickshire, to the vast plains of Lincolnshire. As with any moved forced by a change of employment, things were a little rushed. I still do not have all my plants with me in Lincoln, but I have most of my *Maihueniopsis* and *Tephrocacti* with me, leaving the *Corynopuntias & Cylindropuntias* still in the greenhouse in Nuneaton. I have been fortunate to find myself in a company run by a family with an old interest in cacti who have generously given me permission to keep my plants on the work site. So as a temporary measure I have fashioned two old pallets into a makeshift greenhouse by covering the pallet in bombproof Polyplax material and constructing a prism-section cover from large bubble wrap and wood. Every morning when I arrive at work I lift the cover completely back off the pallets to give the plants some air. Watering is by rain whenever I can keep an eye on things. If not I water at least once every two weeks. If the forecast is good, I leave the cover off over night. It has been very interesting watching the plants react to this drastic change in conditions. The plants which started growing before the move have slowed down and developed stouter, darker, flatter spines. Several plants have shown a tendency to grow more offsets slower. The colours of the older joints has become lighter and the new growth a more luscious green. The few *Cylindropuntias* I have with my have shown a distinct dislike to these conditions, but *Tephro's, Maihueniopsises, Austro's & Platyopuntias* seem to prefer them. A general rule of thumb is "the older the plant, the more it appreciates these conditions". I shall keep you informed. (p.s. all the plants are still in pots, but completely open to the elements.)

FLOWERS

I have had two flowers on *M glomerata* (Abbey Brook's *0. darwinil)* again, and I have three buds recently form on M *mandragora* (Rene Geisler).

T. CURVISPINUS

I don't think Jan Biesheuvel gives out cuttings of this plant anymore. He got fed up with Coventry B.C.C.S. continental trippers asking for them after Warren Withers told us where to find it!!

CONTINUOUS GROWTH

I have noticed several plants continuing to grow and develop a joint from the previous season including: T. *alexanderi, T. alexanderi v. bruchil, M atroglobosa,* and *M ignescens.* This is the first year that I have noticed *Maihueniopsis* type plants developing a previous years joint. This may just be a joint completing growth not completed the previous season.

SAD NEWS

Recently I have been able to spend very little time with my plants. I have not yet re-potted a single plant this season! I am not prepared to watch my small but loved collection slowly degenerate because I can't spend the time on them that they deserve. I would much rather someone else who has more time (and probably greater talent) to grow them on. So for all you out there who are interested in increasing your collections mine is now up for sale. Give me a ring if you want details.

Spencer.

A.Hill, 8, Vicarage Rd, Grenoside, Sheffield,, S30 3 RG.

MY COLLECTION DURING THIS LAST WINTER.

Unlike the previous winter I have been lucky enough not to have any heating failures so I have maintained the usual temperatures as previous winters in all my greenhouses and coldframe. However, I have had more casualties than ever before such as all my large Submatucana madisoniorums (kept in two separate greenhouses). I also had two heads (facing the glass on the eastern side) rot on a multi—headed Echinocactus grusonii. I mention these "non Tephrocacti" because I think it is relevant to the question of winter hardiness: it suggests the length of the period of low temperature is an important factor. My minimum temperatures did not change. The only Tephrocactus I lost was a plant labelled T. weberi v. setiger. It was on the top shelf next to the glass of the northern eve and the bubble insulation, an inch or so above the plant, had a hole a few inches square. A T. platycantha next to it, thus with no insulation above, and an A.floccosa in similar circumstances (on the same shelf etc) were unscathed. A T. articulatus v. oligacantha, on the same shelf, whose flower remains were on the outside of the insulation because the flowers had grown through it, was also undamaged. Other T. weberi at the same height of shelf but at the gable end, hence further from the glass, were unmarked. When I mentioned this to Harry Middleditch he commented that he would expect the T.weberi to be more tender than the T. platycantha as it grows in the valleys where it will not be as cold as the conditions facing the T.platycantha.

Harry has lost all his forms of T.articulatus. He left them in the unheated section of his greenhouse. He thinks they might have survived if he had kept a fan running in there. He also told me that he has had several reports of people losing all their collections of Sulcorebutias due to leaving them in an unheated greenhouse. Previously I have been told that these were cold greenhouse plants. Obviously the temperatures this year have been too low for too long for them. In the first edition of the Newsletter I asked for information on how some cacti contend with frost. It appears my worry was justified: there is the danger of losing the "frost hardy cacti" when temperatures fall. I hope to read about other members' experiences this last winter.

Kingston Rd,
Slimbridge,
Glos. GL2 7BW

A FEW REMARKS ON Vol. 2 No 1

P.84-Thank you to Alan H. for his kind remarks on me becoming a holder of the National Collection-Tephrocactus. This places quite a responsibility on me to maintain and expand it. In this connection I would be very pleased to hear from any one who has plants with field collection data. This is an area I intend to concentrate on in the future.

P85. WINTER WATERING.

There could be some misunderstanding about the hardiness of the "floccosa" group as well as the watering required in our climate. When I said that they were capable of withstanding deep temperatures (up to —15 degrees.) as referred to by Alan Hill, it needs clarification.

Mine have certainly withstood temperatures down to —12 degrees. in at least one previous year. Although they did, they were not too hardy and lost some joints.

One thing we must remember is that circumstances in habitat in Peru could be quite different to what we encounter here in this country. In Peru high up in the Andes, I would imagine that the temperature could drop quite low over night but would rise again in the day time. Also Ritter talks about plants reaching large proportions in habitat and so the plant itself could afford itself some of its own protection and the ground below may not even be frozen, or hardly so. The atmosphere too will probably *be* much drier. We really do need to know a lot more about habitat conditions.

This last year when we had long spells of cold and damp conditions, some of the plants I left out in the frame looked decidedly over stressed and one actually died. Most of the plants in the "floccosa" group were kept in the greenhouse and watered over Winter for the first time and look decidedly better We should take note from Klaus Gilmer's experiments!

P86. PLANT LOCATIONS.

I would like also to thank Alan for extracting the location data. This is something that could be expanded for all other descriptions and finds.
It would be interesting to get some of these plants, if they were still around, and compare them to current day thinking, as for instance we now know that Backeberg's T. variflorus is now regarded as a form of T. (Puna Kiesl.) subterranius(a), or T.(M.) molfinoi = Maih. rossiana group. However, it starts to build up a general picture of the locations and that should be an important part of our study. Also the reports of

recent—day travellers in habitat eventually helps to complete the picture. To gather all the location details from all the various publications is quite a task and perhaps it is something for

the long Winter evenings when we have more time to plough through all the journals and books that are around. It is indeed something that will require lots of patience and time to research.

P. 90. JOOST. **Yes I would go as far as to say that T. floccosus v. cardenasii (Backb.) and T. malyanus (Rausch) are one and the same plant. I think they were merely described by two different collectors. I wonder has any one got the two plants and are they significantly different?**

P. **91. Joost's T. curvispinus is one plant I have not come across, so it would be interesting to see an illustration of it. Would it be possible for Joost to let us have a photograph for publication here?**
I would regard the "spaeroid" type of plants as just such a "formenkreis" or group as Joost described, as are the "articulatu&' which form a fairly distinct group. However, the Maihueniopis are more difficult to group and I do not see a clear division between Maihueniopsis and Cumulopuntia as Joost suggests. Or have I misunderstanding the point he was making? Perhaps some one can clarify for me the differences?

PUNA CLAVAROIDES. I have had some correspondence from Dr. Roberto Kiesling regarding this plant He states that he has studied the plant in habitat for several years, trying to find the club-shaped form which exists in Europe always on a graft. He also states that it dues not exist in this form in habitat, but those that he had found could almost be mistaken for a Pterocactus at the first glance. I now have two plants collected in habitat that have large potato-like tubers which seem to grow 20/ 30cm below ground and are connected by a string-like stem to the growth above ground with two or three joints that end club—shaped.

P94. **TONY I have had quite a few plants suddenly develop fasciate growth and it is quite puzzling how and why this should occur. One of my Pterocacti has also suddenly developed a cristate shoot. Naturally, I grafted it because I thought that it was fairly unique. Can anyone offer an explanation why these occur? No one, as far as I know, has put forward a plausible theory about this.**

Thank you Tony for the distribution maps which I seem to have seen in a similar form somewhere, but perhaps different authorities have different thoughts on this subject and indeed over the years many other locations have been found and added. This too could be a task for us to expand and complete at a later date.

Rene

CURRENT MEMBERS

The following is a complete list of members at present and I would be grateful if you would check your address for any mistakes and/or changes, also advise me of your current telephone number so that the list can be completed and up to date.

Collinson, Martyn Mr
111 Parkland road, Chichester,
W. Sussex
Tel - 01243 785356

Dyson, Geraldene A Mrs
5 Warwick street, Church, Accrington, Lancs.
BB5 4AL
Tel - 01254 397743

Edwards, Dave Mr
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North Humberside. NU14 3DU
Tel - 0412 634193

Geissler, Rene Mr
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Grantham, Keith Mr
21 Wadhurst Avenue, Luton,
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Tel - 01582 27594

Henderson, Anna Mrs
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Newcastle upon Tyne NE2 3QT
Tel/ Fax - 0191 284 54 56
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Higuera, Tony Mr
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Mid Glam. CF38 1RT
Tel - 01443 217879

Hill, Alan Mr
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Tel - 0114 2462311

Lear, Kevin Mr
32 St. Augustines Road, Camden, London
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Tel - 267 1192

Morton, Roger Mr
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Tel - 01214 722879

Mottram, Roy Mr
Whitestones Gardens Ltd, Sutton - Under - Whitestonecliffe, Thirsk, N Yorks. YO7 2PZ
Tel - 01845 597467

Phillps, Wilfred Mr
2 Goodshaw Close, Pleckgate,
Blackburn, Lancs.
Tel - 01254 677734

Reynold, Spencer Mr
47 Main road, Washingborough, Lincon.
LN4 1AU
Tel - 01522 794926

Joost van den Steen Mr
Aalsterse Steenweg 2, B - 9310 Aalst,
Belgium
Tel - ?

Walpole, H Mr
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Surrey. KY17 2HG
Tel - ?

Weaden, Alan Mr
Cappela, Pill road, Abbnots Leigh,
Bristol B58
Tel - 01275 374100

Welsh, Alan Mr
31 The Quarry, Cam, Glos
GL11 6JA
Tel - 01453 543549

SALES, SWOP SHOP & WANTS.

Here you can advertise if you have any plants for sale, exchange or if you are looking for plants or cuttings.
Please remember to try and keep it to about 30 items, or we may get flooded in time. It is quite free and an opportunity to aquire those rare items you have been looking for a long time.

MARTYN COLLINSON has the following rooted cuttings, as labelled, to swap:

- **A. subcompressa WG 054**
- **A. verschaffeltii ex. WG.**
- **C. qrahamii WG 241**
- **0. erectoclada ex Hollyqate**
- **0. microsphaerica ex Brookside**
- **0. teres ex K & C**
- **0. triacantha ex K & C**
- **T. LB 006 ex WG.**
- **T. articulatus ex Whitestone**
- **T. fragrans WG 95**
- **T. nigrispinus WG 237**

HE WANTS:

- **A. floccosa**
- **A. Lagopa**
- **M. berteri**
- **M. buissellii**
- **N. darwinii**
- **M. ignescens**
- **M. kuehnrichiana**
- **M. russelii**
- **T. aerocanthus**
- **T. articulatus v. diadematus**
- **T. geometricus**
- **T. paediophyllus**

RENE GEISSLER is looking for: (to buy or swap)

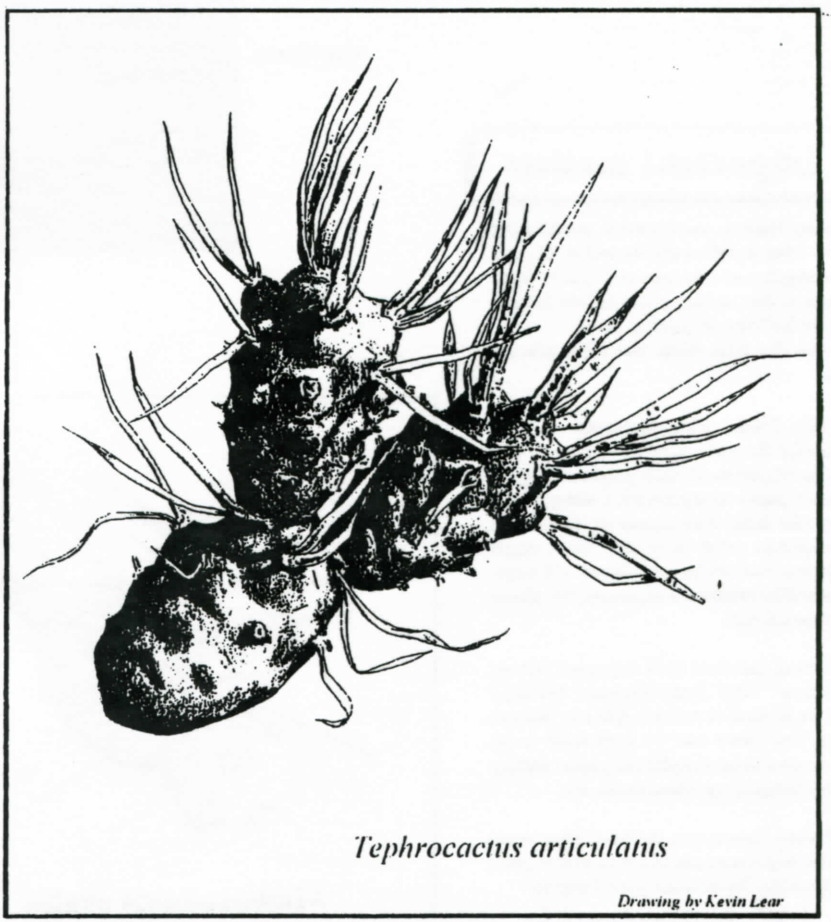
CUTTINGS **of any Tephro. Maihuenia, or Pterocactus with genuine field data from a reliable sourse for the Reference Collection.**

Also any Micropuntia apart from M. pulchella.

TEPHROCACTI STUDY GROUP

NEWS LETTER

Volume 2 Issue 3 September 1996



Tephrocactus articulatus

Drawing by Kevin Lear

ADMIN. MATTERS

We have a new Member:- Wilfred Phillips, 2 Goodshaw close, Pleckgate, Blackburn, Lancs. Tel - 01254 677734.

No doubt you all wish him a "Hearty Welcome"! I know he is very keen, so we hope to hear from him in the near future as a regular contributor.

It is rather gratifying that we now have a few rather keen and active members, so we can look forward to some interesting discussions. Kevin Lear, who joined us recently is producing some magnificent drawings in colour which are much more detailed than any photograph can ever be. It is just a pity that at the moment we have no means of reproducing them. If anyone has a colour scanner and printer would you please let me know.

W.G.Geissler

The Subs.remain at £10 - for 1996 and should be sent to the Treasurer:-

Alan Welsh,
31 The Quarry,
Cam, GLOS.
GL11 6JA

Important matters

1. Tony Higuera has agreed to produce our News letter in future and he will be doing it by computer, so you may send yours direct to him on disc as long as it is in Text formate and on 3.5" disc or typed as usual.
He can also scan Black and white illustrations.

2. **We Need Photographs** of your plants for the next issue, but please try and send in Negatives of Photographs as they are much cheaper to reproduce. (slides if you only take those they should be unmounted). Negatives must be in strip-form, single negatives can not be reproduced. All negatives will be returned if requested, but please enclose a S.A.E.

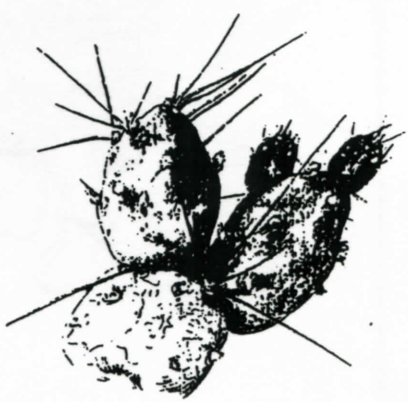
3. Several members have requested that we include a " Sale/ Want's/Swaps " list and I will be pleased to include these in thenext issue, but please can we keep them to 30 words on a **separate piece of paper,** Stating which category eg. sales/ wants, etc.

4. **Please remember,** we need your comments, experience and views as well as good suggestions. These must reach Tony by

15th November 96

to finalise the next issue.

5. This issue contains an up-to-date list of T.S.G Plants.



Maihueniopsis ovallei
Drawing by Kevin Lear.

SUN, RAIN AND WIND. - *Kevin Lear*

How I enjoyed reading the publication. After having grown these plants alone for three years with such a scarcity of useful information elsewhere, it is so interesting to read what other people are up to, and what a lot there is to learn.

I do not have a greenhouse or cold frame. My *50* or so plants grow on a second storey roof area in the open. They get sun, rain and plenty of wind. In the winter I cover them with a supported plastic sheet. I lost no plants this year. In London the winters are very mild, and in the first year I had no cover at all but lost plants to rot. Out of the small group of plants I had then, only M *glomerata* and M *boliviana* were OK. After looking at weather charts I realised how dry most of them are in winter and started covering them. What I do have is plenty of air movement. I lost joints of *T. articulatus (* but not in the winter) in the summer in high wind!

All my plants grow well in these conditions except T. *articulatus* and varieties plus T.dimorphus. *T. dimorphus* starts growing late in the year - not until the end of June. Is this usual? Does it grow earlier in the greenhouse?
***T. bergen* is the same, but not as slow. Growth on *T. articulatus* and Vars. Started early then virtually stopped. I moved them into much warmer sheltered position and they are now growing OK. I think they would be better under glass?**
I will be interested to hear more from Spencer (p109).

Maihuenia
I have been a regular visitor to see the Maihuenia growing in the outdoor rock garden of the alpine house at Kew. It was seeing this plant that first got me interested in the 'Tephro's! What a beautiful specimen it is. It must be around 2 ft across now, prostrate and so healthy looking with strong deep green new growth each year. I thought it always grow like that. Imagine my surprise when I recently saw supposedly the same plant in a succulent collection growing under glass in general 'Cactus' cultivation. This plant was so dull and feeble looking in comparison. It was hard to believe I was seeing the same plant!

COMMENTS ON VOL. 2 NO. 2.

COMMENTS BY RENE GEISSLER.

I am delighted that we are now making steady progress and indeed some of our members have written in with some very interesting contributions. At our recent "One Day Meeting" here at Slimbridge on the 4th August some novel improvements to our publication were put forward, as well as some new areas for further study. The many phone calls and correspondence received recently show that there is increasing interest in our plants.

As already mentioned by Alan Hill (p.98), on-going publication of an "Opuntia Index" by R.Crook and Roy Mottram will be of great interest to all our members when completed. It is published in "Bradleya" and members are advised to look out for it. Our task will be to extract those names that are in our group of plants from the huge genus of the Opuntia.

Joost (p.99 - 100)

Yes I would broadly agree with the groups you have suggested, but can anyone explain to me what the differences are between Maihueniopsis and Cumulopuntia ? I know the group of M. has been extensively studied by Dr. Roberto Kiesling based on plants largely growing in Argentina and Ritter established Cumulopuntia, basing his study on plants growing mainly in Bolivia, Peru and Chile. But what are the actual characteristics differences of the two groups? As plants don't recognise borders I wonder if they are not similar in structure, but growing in different conditions, or maybe even altitudes. I can recognise a Maihueniopsis, but what are the finer differences of Cumulopuntias compared to these.

We also have somewhat of a problem with 0. nigrispina (K. Schumann) Backeberg. He assigns it to Tephrocactus, but Ritter insists that it is round jointed Platyopuntia, in the sub group Airampoa. Personally, I feel it fits better into Maiheuniopsis where indeed R. Kiesling places it. I am also somewhat puzzled where the Spaericus(a) group of plants should be placed. This all makes it anything but clear.

Perhaps I should also take issue with your suggestion about " What is a species" or rather the definition according to Dirk Van Vliet, on the basis whether hybridisation is possible or not. If only it were that simple. " If hybridisation is possible between species, then they belong to the same species " To quote just one example :- crosses are

known between Ferocactus and Leuchtenbergia. So are we saying that Ferocactus is a Leuchtenbergia or vice versa ? Many other such examples do exist. I do however go along with groups and varieties within a species and this is acknowledged more and more.

Martyn (p.103 - 104)

You may remember that I have referred to the little "ball - shaped joints" on A. verschaffeltii before and I am more and more convinced that they represent a secondary means of reproduction. They appear all to be shed by the plant later in the spring and in habitat they probably roll down hill or are rolled away by the wind over some distance. I have also observed that a large number of other Austrocylindropuntia,s produce such joints and they behave in a similar fashion. Last year, I actually propagated a number of plants from them in just such a way and they rooted very rapidly and elongated as soon as they were rooted, whereas they do not elongate on the plant.

Somehow I think you were most unfortunate to lose your C. invicta. I have found Coryopuntia are quite hardy if absolutely dry. Mine have survived temperatures down to -12C quite happily without any ill effects. Could it be that there was some residual moisture in the compost, or maybe the plant suffered from the ingress of a disease that was not apparent? I would be interested to hear if other members have experienced difficulty with this plant. Has anyone flowered it?

John Gamsby (p.105)

S.Brack's comments are indeed interesting! I have only tried just a few seeds in the past without any success. However, this year I have been a little more adventurous and have sown about six pots, treated them as cold germinators and none have showed up. But since then I have put them on the top shelf so that they were really baked by the sun and watered every other day. Quite a few have now popped their heads up in a matter of days. Thank you for the tip John!

Rene Geissler

COMMENTS BY MARTYN COLLINSON.

Groups of Plants

Having now obtained the Leighton Boyce booklet and read it through for the first time I begin to see what other members are getting at with reference to plant groups or forms of groups and clearly this is the way to proceed. Deciding which plants fit into which groups is going to be the difficult part. For example, there seem to be several plants which to my simple mind are clearly related to T. articulatus and yet they appear in different groups. I feel that a further look at these plants is warranted.

Growing points/Continuous growth (p. 100)

Thank you Joost for putting so well the point about the sphaerica group and others taking more than one year to develop - this is something that had puzzled me but now makes some sense.

Seed Germination (p. 105)

I too ordered some seed from Steven Brack in May and had to ring him with some information - he said that contrary to popular belief, most of the Tephro's (in the broadest sense) require a lot of heat to germinate with not so much emphasis on the stratification. My seeds arrived in three weeks and was sown at the beginning of June. I have had about 50 seedlings come up already spread across half of the species. Although this only represents about 10% germination overall I am confident that many more will come up perhaps in the autumn or next year. I shall not discard the seeds for a long time. I used unheated propagators in the cold frame with the small propagator vent open and I think the temperatures have been quite high - I have had to water about twice a week to keep the pots moist. As previously stated I will do a full report on this for the next issue.

Martyn Collinson.

COMMENT BY TONY HIGUERA.

Winter Watering (p. 103)

The problem of T.nigrispinus losing it's pads has not happened this year. On inspecting the plant, the roots appear to be very fleshy and the pad that the cutting was originally from has changed it's shape since it has been submerged. Unlike the original T.nigrispinus pads it now looks almost spherical and tuberous. Perhaps this encourages the plant to form a tuber? It certainly forms a larger root area and storage area. I have tried this with several other plants. I have found that if a plant becomes leggy rather than taking lots of cuttings it is better to treat the whole plant as a cutting. The old growth then becomes tuberous. Initially they do not grow as fast as a plant which has not been submerged but after a season or two it grows with a lot more vigor.

Tony Higuera.

CULTIVATION – Rene Geissler.

As spring and summer is always my busiest season and the plants need all my attention, I will restrict my self to commenting on the cultivation side and on some points made in the last issue. There are always plants that need to be re-potted and propagated. Re-potting in particular does seem to re-invigorate plants. It also helps to be generous with the pot size and depth too if it is a tap rooted plant. This year in particular I am moving those plants into the greenhouse that are not as hardy as I first thought. Plants from the higher altitudes in Peru such as the" Floccosa group" and also the " Sphaerica group" are not happy at the -2 to -3 or below for longer periods. For these I have erected a shelf at approximately 10/ 11 ft above the floor level and just under the glass, where all can be accommodated over the winter above the false ceiling level of large bubble plastic to conserve heat. This will, I hope have the double effect of being high under the glass and still have some what cooler temperatures.

Contrary to recent recommendations in the German Study Group for taking cuttings in the Autumn, my experience has shown that if cutting are in the spring and early summer (15th April/ 15th August latest), they will root for me in a week to ten days. These cuttings establish better and are in full growth before the onset of winter and I gain a full years. The reasoning of the German growers is that a mature cutting taken in the Autumn and kept dry over Winter will root next spring. Both methods seem to work, but I just don't like cuttings lying around all Winter. I stick to what works best for me.

One bit of useful advice that has emerged from the German Study Group is that the *T. weberi (* group) and the Sphaerica group of plants require far less watering than the other *Tephrocacti* and Maihueniopsis, which can be freely watered overhead during the warmer weather. I had experienced this too and found that if the two mentioned groups were kept on the dry side they produce better spines and flower more freely.

I am still puzzled whether under or over watering causes the joint drop on the "articulatus group". Some growers seem to produce the most sensational specimens for shows, but they do not give much information away.

NAMES, LOCATIONS AND SYNONYMS. – Rene Geissler.

Being troubled by all the different names for the same plants by the different authors, I have decided to try to make it my task to prepare a register of all the synonyms and cross reference them. At the same time I will also add the location of where in habitat each herbarium specimen was found. Naturally this will only apply to the plants for our study. Hopefully this may eventually throw a little more light on the confusion with which we have to battle at present. It may also help to track down some of the more obscure and lesser known plants. At least I will try!

CULTIVATION – MARTYN COLLINSON.

It was very interesting to read other members accounts of how their plants had faired during the last winter - (p. 106- 108). I got to thinking as I read the various reports how we all fall into the same trap of assuming that (a) we can possibly recreate the conditions that the plant enjoy in the wild (although as I have said this knowledge will certainly add to our understanding of their requirements) and (b) that plants in pots, whether they be cacti, succulent or any sort of plant for that matter, are in natural conditions. For example I also grow Bonsai trees (I have about 100) and during the summer these trees have to be watered daily unless there is a dull spell with heavy rain, a rare occurrence in recent years. Indeed, I can water in the evening and by the next mid-day some trees may already be showing signs of distress. However, plants those same trees in the ground, let them become established and they will happily survive weeks or even months without water before showing any real discomfort.

At the moment, I am watering my *Tephros* at least once a week and they are quite happy because their pots are quite dry again within one or two days of watering. Although the frame is cooler than the greenhouses the greater circulation of air round the plants seems to dry them out much quicker. I also water my choicer cacti such as *Ariocarpus, Strombocactus, Turbinicarpus* etc. once a week. The only proviso being that they are kept on the top shelf of the greenhouse and so are probably dry within two days. I was amazed to read in the Leighton Boyce booklet of someone they knew who only watered his plants two or three times thoroughly during the growing season - - I just wonder what sort of condition those plants were in.

I am not suggesting that everything should be bedded out, that would be impossible for most of us, but that we cannot expect plants in pots to behave " naturally ". Hence the reason for some members losing plants unexpectedly due to excess moisture or excessive cold during the winter. They will simply never respond the same as they would in the ground, wherever they were.

I feel that our plants are only really hardy if they are bone dry at the roots and then it is probably better to keep then above freezing if at all possible. This is borne out by the account of the experiments by Klaus Gilmer which were very enlightening (p. 99). 1 stopped watering at the end of October last year and recommenced in the middle of March. With only the minimum of heating (a small paraffin heater on the coldest nights) all my *Tephros* looked fine in the spring and I had no joint losses and little shrivelling although it is possible that the paraffin heater gave off a certain amount of atmospheric moisture which may be just what they needed.

I have also, rather reluctantly, come round to agreeing with those who say that regular repotting is the key to healthy, happy cacti and I think this applies very much to *Tephros* as they are such fast growers (I exclude here the sphaericus group and some of the smaller *articulatus).* I have received rooted *Maihueniopsis* cuttings which have grown to 18-20 pads in two years and needed a *5-inch* pot! From then on, as Rene has stated in the past, they can be "pruned" to keep them compact which then gives you more plants. (This of course can be a mixed blessing!).

Martyn Collinson.

DEAR ALL - *Anna Henderson*

Welcome to Joost! You are not the only one who has to "struggle" with English. Rene and me (I?!) are foreigners too! This is my first contribution, and there is not much I can say about growing *Tephro 's* which has not been mentioned in the Study Group before. My plants are very small and it will take quite a while before they reach flowering size especially as they are exposed to mostly morning sun due to the location of our small garden. But I am optimistic!

I do not know if I am the only biologist (well .... Zoologist) in the group. But there are some remarks I would like to add to the debate about species/group etc. The definition quoted by Joost is not a full one. It has a second part which is quite often omitted, but might be useful for our purpose:- Two or more organisms belong to the same species when they cross-breed (hybridise) and produce fertile offspring.

Everybody has surely heard about mules but nobody ever succeeded in breeding them! There are examples from the plant kingdom too e.g. plants (Cacti included) which get cross pollinated, but when they reach flowering stage all the seed they produce is infertile. As many of the members of the Opuntiae seldom produce seeds which germinate, relying instead on vegetative propagation (e.g. easily rooting joints), there is obviously a problem in evaluating the systematic level of a given plant; be it pure species, be it hybrid. An added complication arises from the fact that living organisms are very adaptive to the conditions in which they live. It might, and probably does account for the fact that we see enormous variation within, what we describe as species. Enough of theories for one letter.

(The above article was on page 116 in the original issue. Ed.)

THE AUGUST 1996 ONE DAY MEETING

1. QUARTERLY JOURNAL.

Production of the journal was discussed because Spencer, having now moved home and job, had indicated that he would prefer someone else to do it. Tony volunteered to do it and this is his first edition. All future copy should be sent directly to him, It would be easier for him if it is sent on PC. Software (he will return the disc) but printed contributions are still welcome. Photographs can be scanned but will appear in black and white, as he does not have a colour printer.

Some discussion took place on how people could be encouraged to contribute to the journal. It was suggested that the journal should have a "notice board" where it will be possible to ask a question or make a comment without the need to write an article. Location maps for various species would be useful: there is no need to have an accurate outline, as a rough one will suffice. It was suggested that groupings of plants could be listed e.g. Backeberg and Ritter's ideas and this might generate comment. Also do we accept the idea of splitting *Tephrocacti* (sensu Lemaire) into *Tephrocacti, Maihueniopsis* etc. (sensu Kiesling) and if so where do the Bolivian, Peruvian and Chilean plants fit into the system?

2. STUDY GROUP PLANTS.

The query was raised as to whether we should continue the system of TSG reference plants. It was thought that we ought to continue with the system. The discussion led to consideration of labelling and it was suggested that one could double label or stamp reference numbers onto strips of lead flashing to avoid the label fading: Certain types of drink cans are also suitable for converting into labels.

3. TREASURER'S REPORT.

Alan reported that our assets amounted to £219.47 as a result of membership contributions and bank interest after paying out £108.46 for the printing of the journal and for postage. It was agreed that the membership fee should continue to be £10 and that membership should run from January to December for everyone with new members who join during the year receiving any back numbers for that year (having journals on disc will facilitate this). However for previous back numbers the easiest way was for new members to obtain them is to borrow a set and photocopy them.

4. POSSIBLE SPEAKERS.

It was suggested that it would be useful to have some one speak to us on habitat details and a number of potential speakers were mentioned. This led to the query as to where and when such a lecture or lectures should be held: should it be at the present August meeting or could it be in the September when it might be possible to link it to someone

visiting the Chilean's Weekend. This led to a discussion on whether the present meeting was held at the best time of year. It was suggested that we were restricted to the time when cuttings root best. However, opinions vary as to when the best time is for cuttings. Whilst some people favour taking off the cuttings in late Spring to root them down others, such as those in the German group, say that it is better to take the cuttings in the Autumn and root them down in the following spring. It was decided to ask members of our group, via this journal, their views about a meeting.

5. THE NAME OF THE GROUP.

It was reported that the German Tephrocactus Study Group had renamed themselves as a group studying the small *Opuntias* of South America. This was to reflect the fact that they were not just restricted to *Tephrocacti.* The question was posed as to whether we should do something similar.

6. MAPS

The value of maps as a tool to understand the distribution and relationship of our plants was discussed. The Bartholomew World Travel Map series was shown as an example. The scale of 1; 5,000,OO0 means that there is not the fine detail but the three maps of Argentina & Chile etc., Bolivia etc. and Peru etc. do cover the areas in which we are interested. They can be photocopied in small sections in order that one can write upon the photocopies for one's own study. Each one cost *£5.99* at W.H.Smith's book shops but can be obtained more cheaply as was proved by them being sold at a boot sale for £1.00 each. Other maps can be traced from other publications. Whilst we do not want to infringe copy right there is no reason why we should not be able to build up something for our own use with our added information. What we must not do is simply copy material from other publications.

7. SEEDLINGS.

There were some wonderful examples of seedlings on show proving that plants can be grown from seed.

8. T.S.G. PLANTS.

Cutting were distributed of two more plants:

TSG13	TSG14
Maihueniopsis glomerata v. longispina,	Tephrocactus subinermis
A.Hill	A.Hill
Tephrocactus glomerata v. longispina	misspelled Tephrocactus subinermis
Ex a Sheffield Branch Member 1970s	Ex a Sheffield Branch Member 1980s

THANK YOU

On behalf of the members who were able to attend I would like to thank Rene and his wife for their kind hospitality also to thank Rene for his generous gifts to us of plants and cuttings.

WHAT DO YOU THINK?

The above is a factual report on the meeting. Several thing were decided and other things not. There are many good reasons why people cannot attend a meeting but it often then means their views are unheard. People attending a meeting often arrange the details of the next. Inevitably the venue and the date suit them. The people who couldn't come to the meeting perhaps cannot come to the next but this is not known when the meeting is arranged. I like meeting at Rene's home in August but what about those members who have not been? Where should we hold the meeting? When? What would encourage you to attend? Should we have a speaker on habitats? Who? When? Where? Should it be a separate meeting? Should we change the name of the group? We do use the name Tephrocactus in at least two ways, some of us accept that T. floccosus is an Austrocylindropuntia. Airampoae plants are sometimes mentioned in discussion and some of us grow Pterocacti and Austrocacti. What do you think?

Your views will be welcome in an article, comment for the notice board or in a private communication to Rene or to me. What means of communication you use is up to you but PLEASE express an opinion on the above and any other topic upon which you have a view.

A. Hill.

TSG REFERENCE PLANTS

This is based on the German Study Group system and works as follows:-

A. Any member can distribute cuttings once they have propagated enough material to enable each member present at one of our annual meetings to have a cutting.

B. The plant will be given a TSG Number and the donor as well as those receiving cutting from it should make sure that this number stays always on the plant label.

C. Every member of the TSG shall be entitled to receive a cutting, but distribution will only be made at one of our annual meetings.

D. A register of all the plants given a number will be kept by W.G.Geissler who will periodically publish the up - dated list.

E. The following information should be supplied with each plant by the donor as far as known.

- Name of the plant
- Name of the donor/Keeper of the plant.
- The name under which the plant was originally obtained.
- The source, e.g. Nursery, or individual where obtained.

F. Even unnamed plants may be contributed as long as they are significantly different from those already given a number and that they are within the scope of the TSG.

The intention here is to establish enough plant material in member's collections that will serve as reference plants within the group

TSG1 - Maihueniopsis dactilifera
W.G.Geissler
Maihueniopsis dactilifera
T.penttandii, Rudolf Lippitsch1987
from M.Kiessling.

TSG2 - Maihueniopsis boliviensis
W.G.Geissler
Tephrocactus boliviensis W.G 086
(source unknown)

TSG3 - Maihueniopsis glomeratus
A.Hill
Maihueniopsis glomeratus
Ex. Whitestones (spec. from Abrpampa)

TSG4 - Maihueniopsis glomeratus
A.Hill v. fulvispina
Maihueniopsis glomeratus v. fulvispina
Ex. Horris Kenwell

TSG5 - Tephrocactus nigraspinus
A.Welsh
Tephrocactus nigraspinus
Ex. W.G.G, W.G 237

TSG6 - Tephrocactus Weberi
A. Welsh
Tephrocactus Weberi
Ex. Lakeveit, Holland

TSG7 - Maihueniopsis glomeratus v. longispina
A. Welsh
Maihueniopsis glomeratus v. longispina
(origin not known)

TSG8 - Tephrocactus articulatus v. inermis
W.G.Geissler
Tephrocactus articulatus v. inermis
W.G. 082 (origin not known)

TSG9 - Puna subterrania
W.G. Geissler
Tephrocactus subterrania
W.G. 233 (Brian Makin)

TSG10 - Tephrocactus articulatus v. oligacanthus
W.G.Geissler
Tephrocactus oligacanthus
W.G. 160a (Ex Tony Mace)

TSG11 - Maihueniopsis neuquensis
W.G. Geissler
Tephrocactus Neuquensis
W.G. 115 (origin not known)

TSG12 - Maihueniopsis cylindrarticulata
W.G. Geissler
Tephrocactus cylindrarticulata
W.G. 087 (origin not known)

TSG13 - Maihueniopsis glomeratus v. longispina
A. Hill
Maihueniopsis glomeratus v. longispina
(origin not known)

TSG14 - Maihueniopsis subinermis
A. Hill
Maihueniopsis Subinermis
(origin not known)

W.G.Geissler

NOTICE BOARD

What is the volume one of the TSG ? When I contacted Spencer he has kindly sent me the back issues but they start with " Round Three ". What happened before that ? I have returned the duplicate photos to Rene, but have not got those my set was missing. Since the group is groving may I suggest concessionary subscription rate for students (myself) ?

Does any body have the old book called " The Subgenus Tephrocactus ".
I tried to locate it in the ILL, but to do so I have to know the author and year of publication (and possibly publisher).

Anna Henderson

SALE, WANT'S AND SWAPS

You can advertise here if you have any plants for sale, exchange or if you are looking for plants or cuttings. Please remember to keep it to about 30 items, or we may get flooded in time.

Rene Geissler

Is looking for:- (Buy or Swap)
CUTTING of any
Tephro, Maihuenia, or Pterocactus
with genuine field data from a
reliable source for the reference
collection.
Also any Micropuntia apart from
M. pulchella

Kevin Lear

I would like any Mahuenia
(to Buy !) Cutting's or v.small
rooted plants

Martyn Collinson

Has the following rooted cuttings as labeled to swap

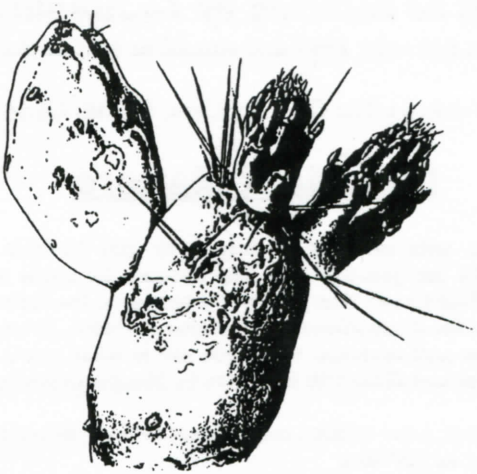
A. subcompressa	WG 054
A. verschaffeltii	ex WG
C. grahamii	WG 241
O. erectoclada	ex Hollygate
O. microsphaerica	ex Brookside
O. teres	ex K & C
O. triacantha	ex K & C
T. LB 006	ex WG
T. articulatus	ex Whitestones
T. fragrans	WG
T. nigrispinus	WG237

He Wants

A. floccosa	M. kuehnrichiana
A. lagopa	M. russellii
T. aerocanthus	T. articulatus v. diadematus
T. geometricus	T. paediophyllus
M. berteri	M. buissellii
M. darwinii	M. ignescens

Tephrocacti

Study group



dactyliferous
Drawing by Kevin Lear

Volume 2 No.4

The original photographs, which were on the cover of this issue, are on the cover of this combined volume.

TEPHROCACTUS

Incl. Maihueniopsis, Puna and related genera

Tephrocactus Hickenii WG 101.

STUDY GROUP

Vol. 2 1996

ADMIN. MATTERS.

Geissler
W.G

We have yet another new Member:- Alain Letroye. Rue Rouvroi 56A
B-4460 Horion-Hozemont, BELGIUM.

We wish him a hearty " Welcome " to our fold. He is very keen to find out all he can about raising Tephrocacti from seed and I hope he will be able to benefit from other members' experience in this field.

The Subs. are now due for 1997 and must be received by 1st January 1997

They remain at £10 - for 1997 and should be sent to the Treasurer:

Alan Welsh, 31 The Quarry, Cam, GLOS. GL1I 6JA

Important Matters

1. Tony Higuera tells me that in future he will be able to include colour photographs in our journal! For this purpose he needs actual photographs, preferably " Post Card" size. These will be stored for future use and are none returnable. As the illustrations will be colour printed, photographs should have good definition and contrast. What you see is what you'll get. In view of the above negatives and slides will therefore be inappropriate in future.

2. Please remember, your articles may be sent to Tony direct either typed or in PC text format on 3.5" disc

3. Several members have requested that we include a Sales/ Wants/Swaps list and I will be pleased to include these in the next issue, but please can we keep them to 30 words on a separate piece of paper, stating which category e.g. sales/ wants, etc.

4. Please remember that we need your comments, experience and views as well as good suggestions. These must reach Tony by 15th February 1997 to finalise the next issue.

During the past couple of months I have received a number of enquiries from a number of people interested in growing Tephrocacti and I am quite sure some of them will join in the new year.

Finally let me wish all our members

A Happy Christmas And good growing in 1997

Kingston Rd, Slimbridge, Glos, GL2 7BW

A Few Comments on VoL2 No 3

First of all I was very pleased that quite a number of our members were able to attend the One Day Meeting here in August 1996". Secondly thanks go to Alan Hill for taking notes and reporting the proceedings in our last Journal (Page 121). Our Editor, Tony Higuera tells me that our request for articles and comments from other members is bearing fruit and he has already some useful and interesting material for this issue

One day meeting for 1997

Next Years One Day Meeting is provisionally planned for Sunday 3$_3$rd August 1997, unless there are strong feelings to the contrary. If so will you please let me know very soon! This will allow us to plan and obtain a speaker. Please makes a note of the date now!!

Martyn Collinson

Interesting, what you say about Tephro. seed requiring more heat! I have sown some seed two years ago and whilst one or two germinated quite early after sowing the rest did not. This led me to think of a natural phenomenon with seed of plant coming from areas suffering from long periodic drought. e.g. Lithops. In such cases seed remains viable for many years with only some germinating and the remainder lying dormant for another period more favourable for seedlings in case the first did not survive. Nature's way of ensuring the survival of the species.

This year (after two years), after soaking the tray again and placing it in the propagator with a temperature of approx. 90 -100.F. a much larger number germinated after 8-10 days.

1 have also for the first time this year tried immersing the seed in a phosphoric acid (5-6%) solution for eight to ten seconds instead of chipping and that too has proved successful, but I need to run more trials to get the time of immersion right. Over-immersion will kill the seed, whereas under-immersion will not produce the softening of the testa. But you are quite right. I have come to the conclusion that Opuntia seed needs quite a high temperature to germinate and the seeds will not germinate if they dry out.

Anna Henderson (p. 116)

How interesting to hear from Anna, particularly on the hybridisation of species. I would however point out that Opuntia do produce seed very freely and I found that it is possible to pollinate one species by a completely different one and produce seed that is pure of the species so pollinated.

This has sometimes referred to as "triggering seed formation" on species known to be self-sterile. One of the examples that is quite well known is the case of Sulcorebutias which are often poor seed producers. They can be successfully pollinated with pollen from Weingartias (particularly from those that grow in the same area) to produce seed in abundance and remains pure. I have done so many times when I specialised in Sulcos for a while and it works! I also find this holds true for many Opuntias. I would be very pleased to hear Anna's comments.

Rene

Labelled as WG 422

Labelled as WG 297

TEPHROCACTUS
sensu Ritter non Backeberg

I believe that Tephrocactus is a separate genus, because:

- **the seeds are (mostly) flattened, somewhat like seeds of Pterocactus**
- **the fruits are dry with glochids between the seeds**

but I don't have problems accepting the term Opuntia subgenus Tephrocactus.

Ritter, later followed by Kiesling (Argentine, believed that Tephrocactus and Pterocactus are related genera. Probably, they were right.

In Tephrocactus there are two subgenera/groups: Articulatae and Weberii (no official names).
The subgenus Articulatae consists of four species (or one species with four subspecies): T. articulatus, T. alexanderi, T. molinensis and T. aoracanthus and the subgenus Weberii with
only one species: T. weberi.

The status of T. molinensis is not quite sure. Some of us think that it is even a third development line but I think it is a form/variety of T. articulatus. There are no essential differences between the two and T. molinensis can be found at the border of the distribution area of T. articulatus. where the most extreme forms can be found.

1. T. alexanderi (Britton and Rose) Backeberg

These plants can be found from the south of Catamarca to the extreme north of San Juan. No doubt: the most beautiful Tephrocactus and one of the most beautiful Opuntias.

We use three names but there are a lot of transition forms between these three:

- **T. alexanderi: the smallest form**
- **T. bruchii: the largest form. widely distributed, with the heaviest spination**
- **T. geometricus: mountain form (to 2,800 m high, 9,000 feet) with hardly any spines**

2. T. articulatus (Pfeiffer) Backeberg

The plants are widely distributed: from Salta and Santiago del Estero in the north to Mendoza and San Luis in the south (550 miles) at a height of 500 to 1,800 m (1,600 to 6,000 feet). Sometimes they dominate the landscape.

The best know forms are T. papyracanthus and T. diadematus with the papery spines. In Argentina, these forms are not widely distributed. In fact, you have 50 of more forms. *A* form is not limited to a certain area: two identical plants can be found 300 miles from each other whilst in between there is no sign of this form.
The structure can be very compact but can also be an unbranched stem of 1.2 m (4 feet) high.

The next names belong to this species

- without spines: T. articulatus. var. calvus and var. inermis (syn. T. strobiliformis)
- with spines: T. articulatus var. diadematus, var. oligacanthus, var. papyracanthus and var. syringacanthus

3. T. aoracanthus

These plants can be found from Salta to San Juan (350 miles) at heights to 2,000 m (6500 feet). (The eastern part of the distribution of articulatus)
Two forms can be distinguished (with intermediates and not limited to a certain area):
- with the shortest spines: T. aoracanthus (syn. T. (articulatus var) ovatus)
- with spines to 25 cm long: T. paediophilus (syn. T. articulatus var. polyacanthus) The fruit of this species becomes red before ripening.

4. T. molinesis

This species grows In the southwest of Salta at altitudes of 1,600 to 2,000 m (5,000 to 6,500 feet). This species has a more compact structure than the other Tephros. The form of Cafayate is smaller.

5.T. weberi

The plant can be found from Salta to San Juan between 700 and 2,000 m (2,500 to 6,500 feet). Three varieties are described: var deminutus, var. dispar and var. setiger. The differences concern only the spines (colour and length) and the segments (length). More important is that in Argentina two structures can be found: in the north this species has a less compact structure then in the south.

Cultivation method

Soil: mineral, very rich of nutrients, permeable,
give (a lot of) manure (e.g. cow manure) if not repotted that year.

In summer: sun, heat and (a lot of) water.
In the growing period you can keep them continuously wet (say three months a year)

In winter: dry and no frost. They can tolerate several degrees of frost but ifs better to keep them frost free.

Propagation:
cuttings: In autumn, let them remain on the plant and repot them in spring
seeds: between February and May, best results with fresh seed but don't throw them away after the first year. optimal temperature: 30-35^{0}C (90~100 degrees F)

Joost

Howard A. Walpole. 180 Chadacre Rd, Stoneleigh, Epsom, Surrey.

In Vol 2. No I. W.G. announced me as a new member and requested my Christian name which now appears above.

I would imagine that most growers go through the phase in their early years – mistakenly - of trying to grow some "bunny ear" Opuntia's and come rapidly to the conclusion that they are too large, too fast growing and too spiteful. All too true. They may also try the 'bushy" types, such as Pereskia and "semi bushy types such as 0. salmiana - which at best will flower easily.

I went through those phases whilst in the throes of building up a comprehensive collection of Cacti and other succulents. Part of my interest was still with..small Opuntia's and it was at this stage that I purchased such things as 0. gracills/fragrans v. brachyacantha, 0. iries and 0. picardoi - all of which turn out to be invasive, prickly and eminently dumpable.

But I did of course also pick up certain plants which do grow reasonably tidy and are compact and it is those that form the backbone of my "Opuntia "collection and hence my interest in the TSG.

I now have about 70 plants and have learned something about mastering their needs - all very large or rampant growers have none and as newer plants come into my possession I constantly renew the status of the plants I have. In order to accommodate the "goodies" I dispose of the "baddies".

I did have some taller growing species. such as 0. darwinii, 0. lurida and 0 ramosissima which will probably be disposed of in 1997 and I must admit that plants from the T. olilgacantha group I regard as a lost cause due to their constant shedding of pads. Whether this is due to over or under-watering or the effects of low/high temperatures or just the basic inability of their structure, I do not know, but most of them are pests and will soon go. I have one form which, although untidy, does flower and will be retained. It is the form recently wrongly labelled as T. hickenii in the BCSS journal. I have it under a Hollygate collection number.

Since moving to my present address 3 Years ago I have a new, well positioned and well lighted greenhouse and the conditions must be suitable as my plants have started to Flower I

In 1995 the following plants flowered for the first time:

- T. olilgacantha - as mentioned above
- Maihueniopsis molfinoi
- T.sphaerica

In 1996 the above all obliged again and were joined by

- **Corynopuntia moelleri (sold by T. Jenkins as T. moelleri)**
- **T.molinensis**
- **and a plant labelled 0. Moellii?**
- **a plant labelled as T. albiseatescens which proved to be a form of T. russeillii (I think)**
- **Corynopuntia invicta. This flowered in June 1996 and was grown from seed planted in July 1976.**

I am hoping for even better results in 1997.

I am enjoying the TSG Newsletter even though I must admit that many of the plants mentioned are unknown to me at present. but time may change that.

I must admit that I find all correspondence about "low temperatures" to be quite fascinating but I wonder what is the purpose of it. Is it a scientific debate or just an attempt to save on heating bills? I keep all my Cacti in the greenhouse over winter and I attempt at all times to maintain 2 - 3 C as the lowest point. If the interest is scientific, then I feel that the result obtained are not valid as the "sample "is too small and the conditions too variable. To have any significance, one would need to expose 30/ 50 plants (or maybe more) under clear defined temp/humidity/air flow conditions for a set period of time. Results could then be expressed as % age survival. If it is just to save heating, then it seems a waste of valuable material. Accidental losses are of course excluded. At present your results appear to be relevant only to the plant in question and the answer is usually that the plant expires.

Watering in winter is always a difficult decision when applied to Cacti. I try to keep a close eye on the greenhouse and I tend to water an "Opuntia" if it shows signs of any shrivelling and I have at times watered them all - and it does appear to be beneficial. W.G. recommends watering all "floccosa" types in winter (which I have done), but the non-watering in summer does look like trouble. Once the roots have dried out, one is in a difficult situation. In their native environment one would imagine that mist and cloud will provide some moisture at all times, especially in conditions of high day/low night temperature syndrome.

I am puzzled by the T. strobiliformis situation. I had 4 clones of this plant from various sources - including one from W.G. but over the past couple of years 3 of them have developed spines from the newer growth. Should we assume that these Plants are T. oligacanthus forms and if so, why do they grow without constant pad shedding?

I have rambled on too long so I will leave you with these thoughts.

Howard Walpole

I also hope Alan's write-up will have drawn some comments about the title of our own journal. When our Study Group was formed, it was taken to include all plants as Tephrocacti that fall into that group according to Backeberg and many growers still hold onto that belief. I would therefore be in favour of retaining our title as Tephrocactus Study group but add a subscript in small letters:

TEPHROCACTUS
Incl. Maihueniopsis, Puna and related genera

Tony has also the thought of reducing the size of the journal to A5 with the new computerised printing which may be a little more convenient for posting and also the storage.

With colour printing we may also eat a little more into the funds which the Treasurer holds for us but I feel sure members will wish us to use more colour.

Rene

Each year at the annual meeting in Germany (AGO), we discuss the date of the meeting. The idea to combine it with the annual meeting of the Chileans seems a good idea to me.

What do you think? - p 122
In Germany we decided to change the name to Study Group Opuntia (of South America). The reason was to avoid becoming a subgroup of a larger new Opuntia group (in future) and because most of the members are not only interested in Tephros. There was discussion on the addendum "South America", because a Study Group Opuntia still can absorb us and most of us have also North American Opuntias. But we will certainly discuss it at the meeting next year.
What is a Tephrocactus? We called ourselves Study Group Tephrocactus or Arbeitsgruppe Tephrocactus and used the definition of Backeberg. My opinion is that Tephrocactus defined by Backeberg is too small or too large. If you are a splitter (Ritter, Kiesling) it's too large, because several groups of related plants are bought together, If you are a lumper, you will call all the Tephros Opuntia (I.O.S.).
In Germany we changed, the name, but the accent will remain on Tephrocactus (Backeberg). Pterocactus can also be treated, but not Austrocactus because it isn't an Opuntia.

Joost

If we are voting for a time for the annual meeting, I would vote for keeping it in August – if people are keen enough they will try and attend. If you ask for revised dates you will get as many different dates as there are members. On the subject of the name of the group I feel that we should keep the current TSG (the group that likes to say yes?) on the understanding that this encompasses all of the smaller growing Opuntias as I am sure that most members grow a cross section (this has been proved at the open days when comparing plants, that our collections are broadly very similar). I tend to refer to them all as "Tephros" but this is a habit I must get out of – it is just easier to say and spell than Maihueniopsis or Austrocylindropuntia
May I also belatedly second Alan's thanks to Rene and his wife for another very enjoyable Open Day meeting.

Martyn

GROWING FROM SEED - Martin Collinson.

Here as promised is an account of my experiences of growing Tephrocacti from seed this year

Seed from D & V Rowland (see appendix *1*)
Seed was ordered from Doug. Rowland in February and sown in an unheated propagator on 12th February The propagator was placed on a top greenhouse shelf to gain as much light and heat as possible. The seeds were sown in 2' square pots and watered as soon as they dried out, in practice about once a week. The first germination took place approximately one month after the initial sowing - a T. glomeratus. The rest of the glomeratus then germinated over the following weeks but it was the end of April until another species - floccosus, germinated and then only one. By the end of May I had 21 seedlings up but that was it - only 2 more germinated after that and nothing at all between the end of June and the middle of September.
Overall germination was about 7% and 8 species had some germination 15 none at all.

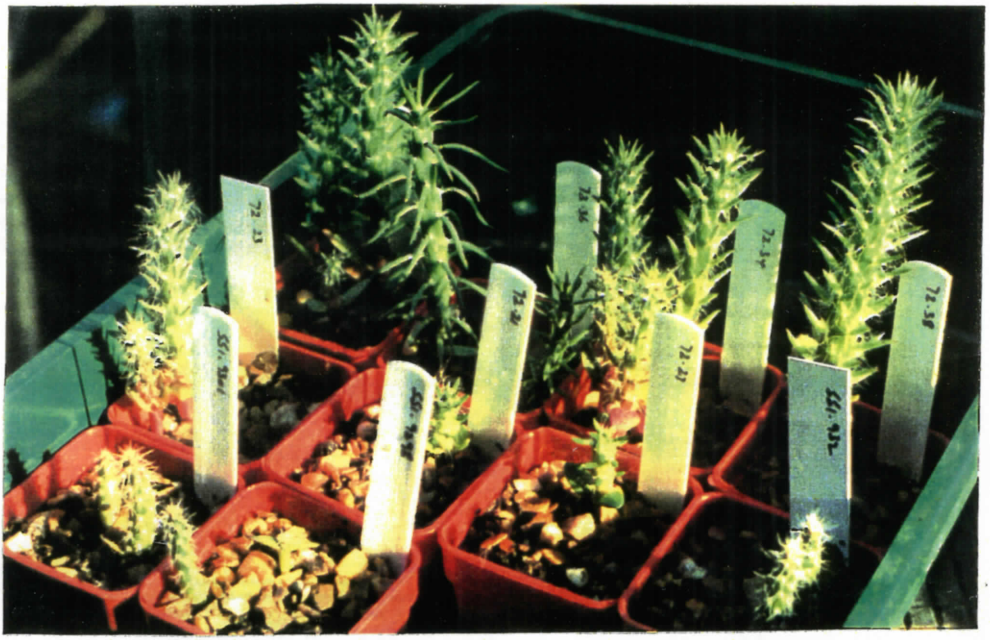
Seed from Stephen Brack (see appendix 2)
The seed was received only 3 weeks after ordering (which was quicker than expected) and sown on 6 June split between 2 unheated propagators. Due to lack of space the propagators were moved about a bit but ended up in the frame where they cooked nicely. Just 3 weeks after sowing 28 seedlings were up across 13 species / varieties. 3 weeks after that the germination was almost doubled but then things slowed down and only 13 more came up in the next two months at the rate of one or two a week. A total of 64 seedlings came up covering 23 or about half of the total species / varieties. Overall germination was slightly over 10% but in several cases was nearly 50%.

Discussion
The germination of the Rowland seed was disappointing with the exception of T. glomeratus, which achieved 100% germination! One possibility of course is that this seed was fresher than the rest. Also germination overall was poorer than the Brack seed. It may be that Brack seed is fresher but I have nothing to substantiate that. The condition of the two lots of seed was very similar. In fact some of the Brack seed looked quite old but Alan Weaden has suggested that this could be a good thing as it has already had same stratification. The performance of the seed from Stephen Brack was exciting and notable successes were certain Austrocylindropuntias and the T. alexanderi group. Some of the Austro's were 4" high after only about 10 weeks. The boliviensis group were conspicuous by their total absence.

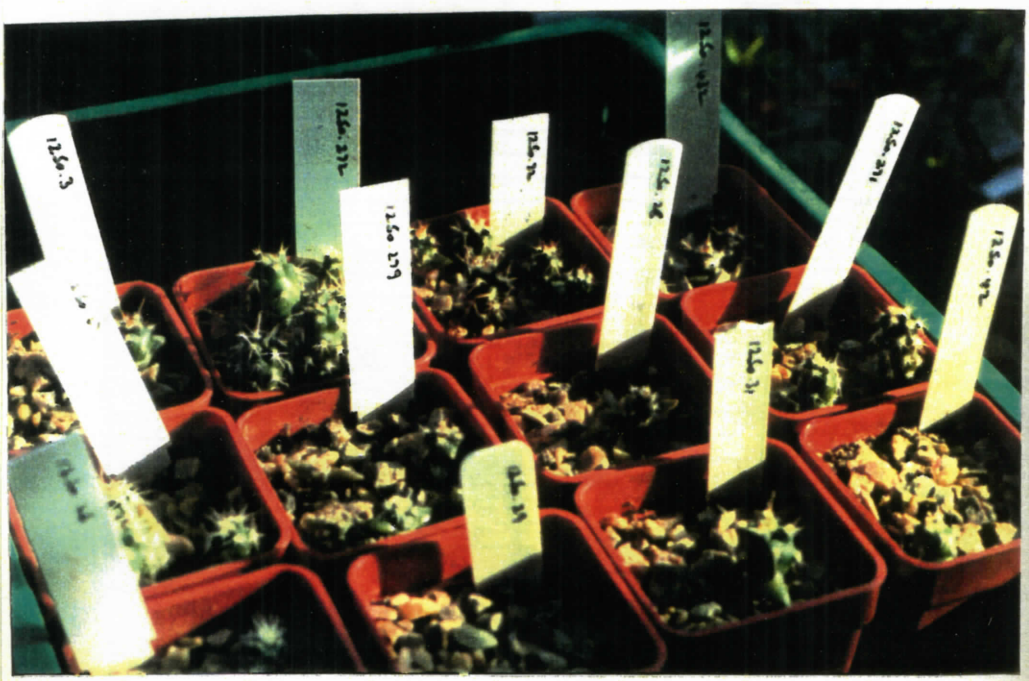
Conclusions (as at end of Sept.)
At first glance the results may seem disappointing but the following points should be borne in mind -

1.I used unheated propagators - it would be a good thing it someone with a heated system could duplicate my experiments and see if the results were different.
2, After the experiences I have had in the past with BCSS seed I am not too disappointed with the results. I have often had just one or two seedling from a batch of seed (unlike sowing one's own Notocactus seed for example which always seems to give 101% germination!)

If I had to recommend a species to a beginner to grow from seed it would have to be glomeratus on the performance so far but why it should be easier to germinate I don't know. Any suggestions?



AUSTROCYLINDROPUNTIA(vars), M. GLOMERATA



T. ALEXANDERI(vars), T. AOROACANTHUS, T. ARTICULATUS

The future

I had to decide whether to leave the propagator lids on to conserve heat and moisture and therefore encourage more germination or, when a few seedlings had appeared, remove the lids to allow air circulation more light mid lower temperatures. I chose the former with the result that I lost a few plants due to rotting off. I have now removed the lids (mid. Sept.) I do not like disturbing seedlings in the first year so they will be potted up next spring and the remaining ungerminated seeds treated in the same way as they were this year. I am hopeful that more will come up next vent - watch this space as they say. (my thanks to Alan Weaden whose original article prompted me to "have a go").

" Tephrocactus " seed from D & V Rowlands 1996

Appendix 1

Date sown :- 12 February 1996
Approximately 15 seeds of each species

	Species (name as per D&V R)	Number of seedlings germinated by -								
		16/3	30/3	13/4	27/4	11/5	25/5	8/6	22/6	14/9
1.	alexanderi									
2.	alexanderi v bruchii									
3.	articulatus									
4.	articulatus v strispinus									
5.	articulatus v papyracanthus									
6.	articulatus v polyacanthus									
7.	articulatus v syringacanthus						1	1	1	1
8.	asplandii									
9.	boliviarus									
10.	camachoi									
11.	camachoi Tupiza form									
12.	chilenecitoensis						1	1	1	1
13.	crispicrinitus KK1953						1	1	1	1
14.	floccosus				1	1	1	2	2	2
15.	floccosus v ovoides					1	2	2	2	2
16.	glomeratus	1	10	13	13	14	14	14	14	14
17.	glomeratus v stratospinus								1	1
18.	igneocens									
19.	kuenrichii									
20.	lagopus									
21.	mistiensis									
22.	noodtiae									
23.	rauhii				1	1	1	1	1	1
	Total	1	10	13	15	17	21	22	23	23

" Tephrocactus " seed from Stephen Brack (Mesa Gardens) 1996 Appendix 2

Date sown :- 6 June 1996
Approximately 10 -15 seeds of each species

	Species (name as per SB)	Number of seedlings germinated by - 1 July	21 July	17 Sept.
1 .	Austro. floccosa		1	1
2 .	Austro. haematacantha		3	3
3 .	Austro. humahuacana			
4 .	Austro. inarmata	1	2	4
5 .	Austro. nigrispina			
6 .	Austro. rauhii		1	1
7 .	Austro. salmiana			
8 .	Austro. schaferi			
9 .	Austro. steiniana	1	4	5
10 .	Austro. verschaffeltii	1	2	2
11 .	Austro. vestita			
12 .	Austro. weingartiana	1	1	1
13 .	Maihueniop. boliviensis DJF247			
14 .	Maihueniop. boliviensis DJF431			
15 .	Maihueniop. boliviensis DJF426			
16 .	Maihueniop. boliviensis DJF445			
17 .	Maihueniop. boliviensis DJF446			
18 .	Maihueniop. boliviensis DJF450			
19 .	Maihueniop. boliviensis DJF266			
20 .	Maihueniop. cylindroarticulatus			
21 .	Maihueniop. glomerata		2	2
22 .	Maihueniop. glomerata DJF177		1	2
23 .	Maihueniop. glomerata DJF280	4	4	4
24 .	Maihueniop. glomerata DJF455			
25 .	Maihueniop. nigrispina DJF289			
26 .	Maihueniop. nigrispina DJF448		1	1
27 .	Maihueniop. pentlandii			
28 .	Maihueniop. sp. Yocalla			
29 .	Tephro. alexanderi DJF469	6	6	6
30 .	Tephro. alexanderi bruchii		2	3
31 .	Tephro. alexanderi bruchii	3	3	4
32 .	Tephro. alexanderi DJF397	1	2	3
33 .	Tephro. alexanderi bruchii	5	6	7
34 .	Tephro. alexanderi geometricus		2	5
35 .	Tephro. alexanderi geomet psb	1	1	1
36 .	Tephro. aoroacanthus DJF337			
37 .	Tephro. aoroacanthus DJF362			
38 .	Tephro. aoroacanthus DJF472			1
39 .	Tephro. aoroacanthus DJF474	2	2	2
40 .	Tephro. aoroacanthus DJF478	1	1	1
41 .	Tephro. articulatus Campana			
42 .	Tephro. articulatus Chilecito	1	2	2
43 .	Tephro. articulatus DJF274			
44 .	Tephro. articulatus DJF314		2	3
45 .	Tephro. articulatus DJF475			
	Total	28	51	64

General View (as Labelled) (Rowland seed)

The One Day Meeting at Rene's - 4th August 1996

Rene Geissler Tony Higuera

Roger Moreton Alan Weaden Alan Hill Alan Welsh

Photo Taken by Martyn Collinson

Martyn Collinson, 111, Parklands Rd, Chichester, W. Sussex, PO19 3DY

COMMENTS ON VOL. 2 NO. 3

Firstly, congratulations to Tony on producing a very professional looking Newsletter.

Kevin Lear (p. 116)
Welcome to the group. Yes, some of the slower growing varieties do indeed seem to come into growth very late in the season. In fact I noticed new offsets forming in August this year on the following (as named): T. dimorphus, sphaericus, pseudorauppianus, turpinii, inermis and stromboliformis. These are all fairly slow growing plants that as previously mentioned can take two or three years to fully form a new pad.
I too have seen small Opuntias languishing in general collections - they always seem to be the most neglected plants and are nearly always under watered so they never give of their best. People are usually only too pleased to give them away which is good news for us.

Rene (p.117)
Yes I think you are right about a disease or virus on my C. invicta. It was a grey mould which spread rapidly through the plant. I have experienced this once before on a Monadenium which rotted from the tips inwards and nothing I did stopped it. On the subject of diseases I have lost joints on both of my T. molinensis due to what appears to be a virus - the joints go discoloured then black, shrivel and drop off, It has also happened on a plant labelled as 0. riojana where all of this year's pads were lost. I hope these are isolated instances.

TSG Reference Plants (p 123)
Correction - TSG6 was donated by myself (Martyn Collinson). Interestingly the plant that I used as a stock plant has grown many new offsets this year and looks very healthy but my other plant has not looked at all happy - is there a moral here somewhere?

Anna Henderson (p124)
I think you will find that rounds I and 2 were the rounds that were circulated before the TSG was properly formed and you would have to get one of the early members to copy a set for you. The details you require for the book are as follows Authors - Gilbert Leighton-Boyce & James Iliff. Publisher - The Succulent Plant Trust. Year of Publication – 1973. Good hunting!

John Gamesby

The Flowering of Tephrocactus platyacanthus

I obtained my Tephrocactus Platyacanthus from Westfield in 1988, and since then it has been growing in my 6 × 8 Alton greenhouse. Which used to be heated during the winter months to 5°C. But as my collection grew another greenhouse a 10 × 12 was added, this was also heated to 5° C. both greenhouses heated with an electric fan heater, the fan running 24 hrs.
two years ago I decided to keep the Alton as a cold house with only a fan running 24 hrs. blowing across the plants.
Over last winter (1995 - 1996) the coldest temperature recorded on a min / max thermometer was - 7°C. over the Christmas weekend, otherwise -3°C. was common in December and January, January was especially bad as there was very thick, low cloud cover for most of the month.
This was the first time any of my cacti and a few succulents were kept in such conditions, my loses were down to only one plant Tephrocactus ignescens, which seemed to rot off and turn to a black mess in the pot.

1

After this winter treatment my Tephro's, Airampoa, Mahueniopsis and other dwarf Opuntias look especially healthy, and responded in the spring by coming into growth faster than I have noticed before. Tephrocactus platyacantha looking especially healthy with a lot more new growth. On June the 14th a large flower bud (photo #1) was first noticed measuring 24mm across.
The flower opened June the 20th (photo #2). It only half opened and seemed restricted by the spines on the receptacle. June 21st and the flower opened fully (photo #3) unfortunatly the photograph does not show the true colour which was deep yellow darkening to a deep orange towards the tips of the petals. The flower lasted five days in total before dying off.
While collecting some of the pollen with a brush the stamens all moved to the centre of the flower quite quickly, it took only about five minutes for them to reset. I understand that sensitive stamens is quite a common in Opuntias though this is the first time I have observed this first hand.

2

3

NOTICE BOARD

Recycled Paper

Is the newsletter printed on recycled paper? If it isn't then I think it would be appropriate for us to do so -- as plant lovers. The cutting of forests may well be responsible for the seriously low rainfall in the mountains of Columbia and this might soon also affect the rainfall throughout the rest of the Andes!

Kevin Lear

Perhaps I am the best person to answer this question. Unfortunately the photocopying of colour pictures requires special coated paper, which has to be of the best quality, or the pictures are affected. I will make some enquires to see if there is an alternative.
By changing to this format we have reduced the amount of paper used by half and the envelopes we use can be bought with a percentage of recycled paper.
Incidentally most the wood used for paper manufacturing is softwood and either home grown or imported from Canada or Scandinavia. The reputable paper manufacturers replant a tree for every tree used thus sustaining the forests and their jobs. The biggest problem is pollution from the bleaches used to make the paper white.

Tony

Has any body heard of PVA being used on Cacti?

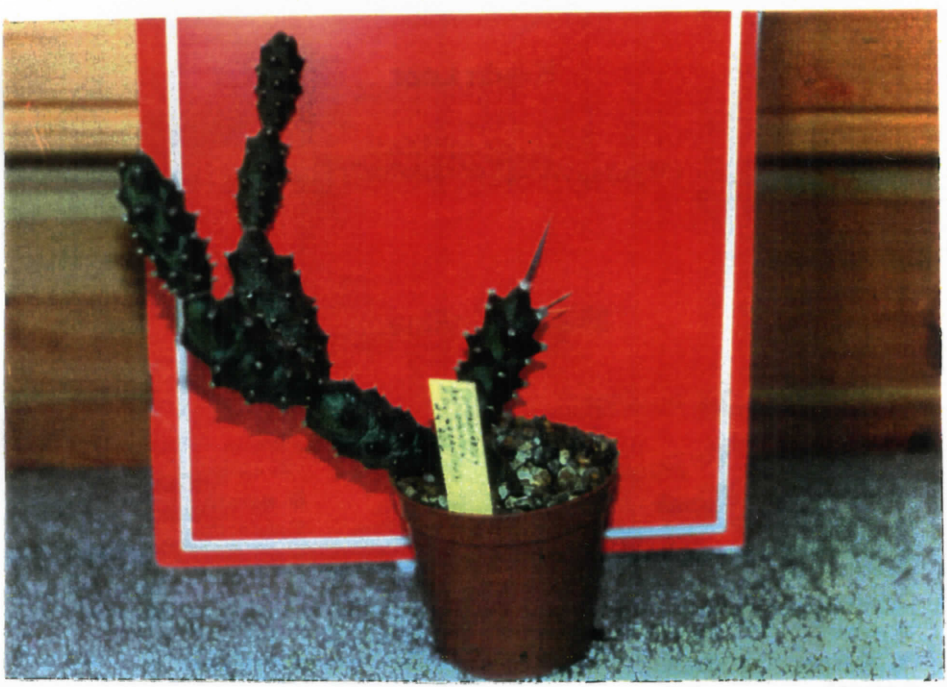
A few years ago while reading through a patent I came across one for the use of PVA (Poly Vinyl Alcohol) for reducing frost damage to soft fruit i.e. plants watered with a low concentration. I wondered has any body has heard of this in the Cactus context. Incidentally PVA is the glue which is used on the back of postage stamps and is not as noxious as the name sounds. It is used as a thickening agent in quite a lot of things. Perhaps this could be an alternative to heating and allowing the plants to dry.

Tony

A.Henderson , 46 Sturdee Gdns, Newcastle, NE2 3QT

Dear All

Further to my comments about the species/form etc debate I enclose a photograph of one of my plants. It is from the best source possible , I reckon, having Rene's W.G. no 206 Tephro. articulatus v. oligacanthus. But is it really ? or more precisely - what made it grow perfect spines typical for articulatus on half of its joints, and remain spineless in the rest of its main body. I have been talking to a botanist at the Uni, and he has told me that even the definition of species I quoted in my last letter isn't quite precise. He said that there are known, and relatively numerous examples of cross pollination, resulting in viable seeds which in turn go on to producing off-spring. Well in that case he admitted the only really reliable source of information of plants systematic position is genetic study of course it is extremely expensive, and rarely applied to cacti. So part of our discussion is really slightly academical.



As my Tephro. clearly shows: He has genes capable of producing spines. But it seems to be outside (cultural) constitious which trigger their expression. That's all from me the only other remarkable plant was a little O. salumana, which flowered three almost separate times this year. and still has some buds growing in November !

My Kind regards to all.

Anna Henderson

P.S. Rene, I am waiting for my missing photo's. Any comments ?

SALE, WANT'S AND SWAPS

You can advertise here if you have any plants for sale, exchange or if you are looking for plants or cuttings. Please remember to keep it to about 30 items, or we may get flooded in time.

Rene Geissler

Is looking for:- (Buy or Swap)
CUTTING of any Tephro, Maihuenia, or Pterocactus
with genuine field data from a reliable source for the reference collection.
Also any Micropuntia apart from M. pulchella

Kevin Lear

I would like any Mahuenia
(to Buy !) Cutting's or v.small rooted plants

Martyn Collinson

Has the following rooted cuttings as labeled

To swap		He Wants	
A. subcompressa	WG 054	A. floccosa	M. kuehnrichiana
A. verschaffeltii	ex WG	A. lagopa	M. russellii
C. grahamii	WG 241	T. aerocanthus	T. articulatus v. diadematus
O. erectoclada	ex Hollygate	T. geometricus	T. paediophyllus
O. microsphaerica	ex Brookside	M. berteri	M. buiseliii
O. teres	ex K & C	M. darwinii	M. ignescens
O. triacantha	ex K & C		
T. LB 006	ex WG		
T. articulatus	ex Whitestones		
T. fragrans	WG		
T. nigrispinus	WG237		

Rene Geissler, Kingston Rd, Slimbridge, Glos. UL2 7BW.

Maihuenia poeppigii (Otto ex F.A.C. Weber)

A Cactus which retains its leaves in the Sub-family Pereskioideae from South Chile and southern Argentina. This plant has only recently become popular with Cacti enthusiasts. There has been very little literature on the subject but Backeberg has described the plants. Robert Kraus in a recent article has, in the German Journal, "Kakteen u. andere Sukkulenten", reported more details on the habitat of Maihuenias. I have used some of the information contained in it.

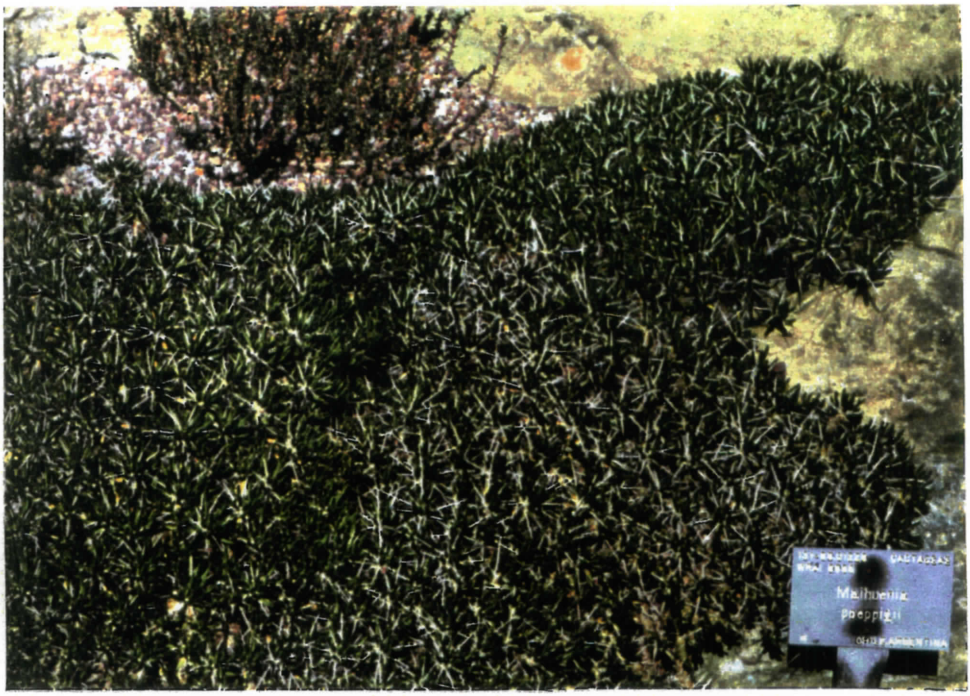
Mahuenia poeppigii is the most southerly growing of all the Cacti in South America although it also occurs in valleys of central Chile. It grows typically in the Andean cordillera at 700 - 1800m above sea level under Pines and Acacia stands, where it makes large cushions or carpets, or even occurs in otherwise vegetation-free lava flows.

M. poeppigii usually establishes easily in light acid conditions, in very fast draining old Lava streams, with very little humus or nitrogen present. The black Lava grit quickly warms in the sun and retains the warmth. The pH value of the aggregate is approx. 6.4, which equates to European forests.

In some locations of the habitat where M. poeppigii grows in open areas, the light intensity is very high, whereas in association with other vegetation, such as Pine or Southern beech trees there is a good deal of shade with little apparent effect on the growth of the plants, or in the spination, although there may be some differences in compactness.

As can be surmised from the locations described, the average temperature between July and January is only about 14 degrees C. from a low of around minus 10 to a high of about 15 degrees C in the Summer. In Winter the Plants usually enjoy protection of a cover of snow.

The annual average rainfall in this region is 1200 - 2800 mm., which compares to middle European woodlands at 6500mm. Therefore the habitat would receive almost more rainfall than we would normally expect here in the UK


Malhuenia
poeppigii


SBB-1223
WRAI 8836
Malhuenia
poeppigii

Maihuenia Poeppigii as a plant for the enthusiast

When grown well, the plant has a definite appeal, making rather attractive cushions as a pot plant with the white spines contrasting beautifully against the rich green leaves. Some rather attractive specimens can sometimes be seen on the show bench, although I have never seen one in flower. In a cold-frame on the other hand M. poeppigii does well, or better still on a south or east facing rockery in the open where it will survive the Winter with ease. I am still trying to find the most favourable position for it and now I am in the process of moulding a largish stone trough where it can be under-planted with small Sempervivums that can slowly be removed as the mound grows. A plant has grown well for me in the open in a pan without protection but I need to find a way of controlling self-seeded weeds that seem to grow a lot faster than the Maihuenia itself. An elevated position may help.

Maihuenias enjoy a very mineral rich aggregate as can be judged from the conditions in habitat and, as one of the hardiest Cacti, it deserves to be grown more widely. Although not a Tephrocactus by any stretch of the imagination I am recommending Maihuenias as attractive companions for Tephrocacti and Maihueniopsis.

The accompanying photos were taken at the alpine house in Kew Gardens. The Dot plant is situated in the house and one can easily see the differences in habit compared with the plant grown outside facing SW where it has attained a diameter of more than one metre.

Photographing seeds

Has anybody any seed that is surplus to requirements so that we can use it for photographs to make a directory of seeds of all the plants? This, hopefully, would shed some light on the parentage of some of them. I now have the facilities to photograph seeds and would be grateful for any seed. Please will you send me seed with the name of the plant? I will return the seed if required. If not the seed will be retained on file. I intend to photograph the seed from the suppliers before sowing next year and publish the photographs in a future issue of our journal.

Tony.

A. Hill, 8, Vicarage Rd, Grenoside, Sheffield, S30 3RG

THE SET OF PHOTOGRAPHS.

We are in a rather unfortunate position in that the group now splits into three sections: the ones who purchased the sets of photographs about eighteen months ago, the ones who were members then but did not want to buy them and those who have joined since and might want to buy them but cannot because no spare sets were printed. I have just spoken to Tony who is considering ways to make the pictures available as photocopies. They might appear gradually in future TSG volumes or in a special booklet. If you are anxious to have a set now, rather than wait, please contact Tony. We did say that we would make use of the Photographs so I apologise to those who haven't a set but give below the clarification which was done at the August meeting on the numbering of the prints and make some comments upon them.

All prints of the individual photos have the same printed WG numbers on the back. Some of these were altered by hand before dispatch. However, due to the large number of photographs some of the numbers on them are incorrect. The following notes are the finalised numbers made at the TSG August meeting. No attempt was made to confirm that the names are accurate. Where a number only is given in the following list it means that the number was originally accurate and needs no alteration.

039. Change 323 to 081. 082. 112. 126. 139. Change 160A to 160. Change 075A to 175A. 204. Change 424 to 359. 207 is correct but please add 359 to the list as the photograph shows two plants. 222. Change 140(22/3) to 228. 235. 248. 262. Delete 278 alexanderi on the list as it appears correctly later as 278 platyacantha. 293 has two similar photographs. ? is 318. 424 molinensis on the list should be deleted. 438. Geometricus has no number.

061 is 061 and is a different plant to the 323 which was changed to 081 above. We were asked to accept that there are two 061s. 077. 092. 100. 101. 102. Change 104 to 103. Delete 119 pentlandii from the 1st. 127. Change 138 to 139. 140 is the plant with no spines and is marked (23/3). 151. 159 is 159 but listed as 157 therefore please change the 1st number to 159. 173 is 173 and not 173A as listed. Change 185 to 182. 184. 186. 187. 188. 190. 191. 193 has two different pictures of the same plant. 216. 220 with two pictures of two different specimens of the plant. 221. Change 116 to 223. 224. 227. 230. 231. 237. 246. 247. 251. 252. 255. 258. 278. 299. 304. Change 317 to 307. 314. 319. Change 271 to 320. 321. 326. 327. 352. 353. 355. 356 is 358 but is listed as 358A. 360. Change 423 to 361. 363. 369. 371. 398. 418. 420. 422. Change 278 to 423. Change 104 to 424. 438. 447 boliviana (gigas) on the list should be deleted. 444. 447. 457. 459 is 459 but on the list should be RBT 77 not RBT 49. 493. Change 318 to 232. Change 232 to 266. 093. 105. 120 is correct with two pictures of two different specimens of the plant. 172. 219. 276. 284. 316. 330. 054. 124. Change 223 to 233.

There are seven photographs which do not appear on the list. 218 printed on the back of the photograph should be altered to 213 and added to the list. Rene's Stock list 28.08.92. lists 21 3 as russellii TJ/CH. 218 is written on a print labelled blanki / rossiana. On Rene's stock list 218 appears as rossianus ex Whitestone CH. 234 was not changed at the meeting but the number appears to be wrong because 234 on the stock list is rossianus form BM which is not the plant in the photograph. The printed 297 was not altered but again the number appears to be incorrect, as 297 on the stock list is alexanderi which does not match the illustrated plant. 320 was originally changed to 297 and according to my notes was changed back at the meeting to 320 = alexanderi.

However I must be wrong because 320 on the stock list is "bulbispina" and 297 is alexanderi so the correct number must be 297. This re-enforces the view that 297 on the previous photograph must be wrong. (Please help me, someone).
423 was changed to 361 (M. spec) This leaves a query over the photograph of what appears to be rossianus with 361 printed on the back. It would appear one of these "36s" needs changing. The 1992 stock list ends at 321 so it is no guide.419 is the final print not listed.

Having sorted out most of the numbers we are in a position to make comments on the prints. Someone has to be the first to lay their neck upon the block so I will take the plunge. The photographs were sent out in WG number order and the list was also arranged in that order. I have sorted out my photographs into groups as follows. I think I should remind readers that Rene has stated several times that the name attributed to the plant is the name it had on the label when he obtained the plant and he only alters it when he is absolutely sure that he has the correct name to replace the original one. Thus I presume he will readily now concur with some suggested changes. It also makes some of my previous statements about "the numbers appears to be wrong because the plant does not represent the species named against the number on the stock list possibly tenuous because Rene might already be considering a change to the name against the number. Remember that the number of a plant will not change even if the name does. The numbers we are changing are incorrect ones put on the back of the photographs.

Pterocactus: 232, 266.
Airampoae: 54. We have commented before on how this plant is mistaken for a Tephrocactus. 360.
Geometricus: no number.
Molinensis: 112, 207, 359.
Nigrispinus: 237, 304.
Subterraneus 124, 233.
Austrocylindropuntia 172. Species name might be challenged.
Austrocylindrica "Floccosa" group 93, 105, 120, 219, 330. Species names might be challenged. I also link the following to the group. WG 316 KK 397 is atroviridis. I do not know the name steiniana. The plant VVG 276 looks like WG 316 and I would suggest they are both atroviridis although Backeberg might give them different varietal status. WG 284 yanganucensis looks to be a very close species. Yanganucensis, floccosa and atroviridis all grow in Peru and Backeberg in the Lexicon mentions hybridisation between the latter two.
Weberi: 222, 235, 423. Varietal names might be challenged.
Aorocanthus: 262.
Paediophilia: 039.
Articulatus group: 82, 126, 139, 160, 175A, 204. 248. 318, 438. We have already started a discussion on whether there is a difference (growing points?) between the two spineless types. I have made clear I now believe there are intergrades between the forms of articulatus rendering the old varietal names superfluous (please comment on this). However, oligacanthus appears distinctive.
Platyacanthus: 187. 258. 278, 314, 436. I do not know the name buissellii against WG314 and it does not appear in the Opuntia Index published in Bradleya so I suggest that it be ignored. Perhaps it was an attempt to spell a misheard and incorrectly identified "Russellii".
Rossianus/fauxianus: 061, 061. 139, 188, 218, 361. This is where we have two 061s. The

printed 061 is pentlandii v. rossianus (Backeberg) and the printed 323 changed to 061 showing a plant in flower is pentlandii v fauxianus (Bkbg). The 192 stock list shows a 061 and a 061A. listing them both as rossianus v. fauxianus Perhaps Rene can clarify if one plant is 061 and one 061A.

Alexanderi: 293. 1 can accept this as a very juvenile form of the species but would like the views of others. The same comment applies to printed 320 changed to 297 by hand before issue and possibly changed back to 320 at the meeting (see help above).

Glomerata: 100. 127. 216 - the form Harry Middleditch says comes from Abra Pampa. 227 I have this form which came labelled russellii, 246, 252, 369 a very juvenile form. 419. 159 obviously belongs here. The label is fulvicoma but this is wrong, as it doesn't match the description of the Peruvian plant. There could have been some confusion between fulvicoma and glomeratus v fulvispinus although I must point out the plant does not match the photograph in Iliff and Boyce P.19. However they could be in error. Whatever the variety I think it is a form of glomeratus. Does 307 belong here? It bears the name and there are some features one can see that make it possible

Sphaerica group: We have not yet had any discussion on this group but to me the photographs fall into three groups. 103 and 224 are labelled kuehnrichiana, which to me is very distinctive. 191 and 371 is a second group and there is a separate group of 220, 221, 352, 398, 424 and 493. I have written an account of why T. berteri does not exist (Vol. 1. No 2, new format, my P3) and possibly all those in the latter group could be classified as dimorphus.

Darwinii group: 184, 193, 186, 299. 101 with only the latter being v. hickenii. 459 M. neuquensis, a collected plant, obviously is close to darwinii v darwinii. Keisling's map (Dar. 25(1-4) 1984 P197) shows darwinii v hickenii in Neuquen but not darwinii v. darwinii. The plant fits the description in the Lexicon except it doesn't have radial spines pointing downwards. However, it is exactly like the illustration of neuquensis illustrated in figure 423 in the Lexicon! 213 (which is russellii on the stock list) is a very good match to the picture in Britton and Rose of russellii on P.94. As Rose and Russell collected the plant there can be no doubt about the name.

Minutus/ mandragora: 190, 230, 231. Although R. Kiesling made mandragora into a synonym of minuta (Darwiniana 25 (1-4). 1984 P204) 1 prefer to keep them apart as I have two very distinctive forms. I would classify these prints as M. minutus.

Pentlandii group: I have followed Iliff and Boyce by using this term and they say it is entirely provisional. 140, 223. 255, 321. 327, 422. The plants in this set of prints all look very similar to a habitat plant I possess, KK 400 from El misti, hence mistiensis. We do need to spend some time on this group. Pentlandlii, subinermis and mistiensis are all names attributed to this group and are close to the plants listed. If you add some spines to them you have a plant similar to 228 which could be one of the forms to which is given the name boliviana. Britton and Rose (P97) in fact put boliviana and dactilifera as synonyms of pentlandii.

102 ignescens does not match Backeberg's description of spines straight and erect, as there are downward pointing spines. Nor does it match the Illustration on Plate XV1 opposite P98 in Britton and Rose. The plant looks similar to 320 which is misnamed because bulbispina is a Corynopuntia. 182 looks similar. 173 and 420 appear to be the same species. 319 M. variflorus (from Cardena - Bolivia). Is this a mistype for Cardenas? Backeberg gives the species distribution as pampa south of Villazon in northern Argentina. 234 looks similar to a plant I have from San Juan Limite but my specimen has yellow spines.

247 "M. kleinoides". I cannot trace this name. The plant looks a form going towards darwinii.

326 is not terres. 0. terres (Cels) is attributed to near "vestita" by Britton and Rose p71. Could it be flexispinus? Compare it to fig 415 in the Lexicon.

361 and 444 appear to be the same species. Body suggests the pentlandii group
363 atacamensis does not match the drawing on P94 of Britton and Rose.
077 alboareolatus is a very good match for the plants of that name in fig. 408 & 409 in the Lexicon
457 russellii. I doubt whether this is correct.
On November 5th we are advised to light the touch paper, stand back and wait for the fireworks. I have now done that. I will welcome any comments confirming, correcting or adding to the above plus comments on any of the photographed plants upon which I have not commented. The fact that we are looking at a plant from only one angle and not in three dimension only adds to the problem of identification.

Alan Hill

The Newsletter

Well as you will have noticed by now the format of the newsletter has changed yet again. I must apologies for this. There are several reasons why I feel we need to change to this format. The main reason being the cost. If this can be kept down we will be able to reproduce more colour photographs. So please keep those colour photographs coming in, preferable in picture form which will be non – returnable as they will be kept as originals to reproduce any future reprints of that newsletter. If any body has difficult with this I will except negatives but this does mean more work. (The photographs need not have an article with them, as we do need some to fill in any gaps)

Those new members awaiting back copies of the newsletter: I am at present going through the back copies scanning the pages into the computer. This will enable the back issues to be reproduced more economically and also enabling them to be sent out on disc to those of you with access computers and printers. It is quite a task. At present I have nearly finished this year's 4 issues.

The text in the newsletter has to be scanned into the computer using an OCR (optical character recognition) program, which enables any text to be inputted to the computer from a typed copy. This is a lot quicker than typing the text in and is nearly 100% accurate although it does occasionally misread a letter. If there are any mistakes please let me know and I will rectify them for any reprints.

Tony

COMMENTS ON PREVIOUS ISSUES.

A.Hill p 98: plants losing joints

I kept my plants outside in the soil, not in pots. One sides of the plastic tunnel was open. I wondered also why the plants inside lost joints and those outside (cuttings of the same plants) didn't. I haven't measured the moisture neither of the air nor in the compost. I think that the moisture of the air was higher for the plants outside.

A. Hill p98: distribution mans

I guess that the letters on the map indicate specific locations where Kiesling has examined these species. Recently I received an interesting letter from Klaus Gilmer (Germany) where he gave some comment on the genus Maihueniopsis (glomerata and darwinii). The entire article will be published in Kuas. He wrote that there exists probably only one Maihueniopsis species in Argentina: in the north you have M. glomerata, in the centre M. ovata and in the south M. darwinii but there exists no sharp boundaries between the three. The typical M. glomerata differs of course a lot from a typical M. darwinii, but as always you can find a lot of intermediates.

Martyn Collinson p 103 Habitat information

I can recommend on interesting book (but in German). Hans-Peter Thomas and Klaus Gilmer wrote a booklet on the genus Tephrocactus (sensu Ritter), based on their field experiences. They went twice to Argentina only to look for small Opuntias.

Rene Geissler p 107 losing Joints

May be I didn't make myself clear enough. I kept sphaerica forms outside not articulatus. Some years ago I tried once with articulatus. At –5 degrees C (23 F) all plants except one rotted, but this one survived temperatures to -10^{0}C (14 degrees F).

Rene Geissler p 107 T. nigrispinus

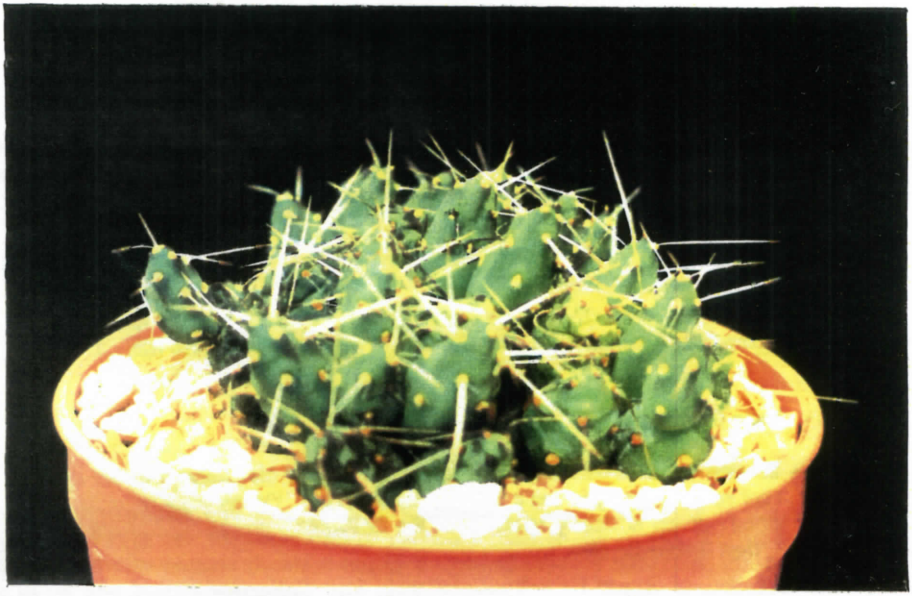
I have also problems with some clones and not with others. For a few years I got some plants in the Netherlands and had (and still have) a lot of problems with them. Last year I got some cuttings in Germany and they are all growing very well. But no flowers, yet.

Ritter renamed the plant: Platyopuntia nigrispina. I think that the plant is related to atroglobosus and may be with T. minutus and T. virgultus.

Rena Geissler p 107 Micropuntia pulchella

According to L. Benson (in "Cacti of the United States and America") there exist only one Micropuntia. Most of the minor forms should be abnormal types produced after injuries (mainly from grazing animals). The ability of the plants to flower and fruit during juvenile stages has given rise to some of the confusion. The plants are found on sand dunes, dry lake borders, river bottoms, washes, valleys and plains in the desert (in Nevada and mid W-Utah) According to R.H. Kirkpatrick (Borston. California) you can find joints with the characteristics of Micropuntia and of Corynopuntia pulchella on the same plant. No difference can be found in flowers nor fruits of the various forms.

On the annual meeting of the German Studygroup Tephrocactus (7-9 June in Bad Hersfeld) we discussed the genus Tephrocactus as defined by Ritter. Hans Peter and Klaus went twice to Argentina to look for Tephros. I wrote a small report based on the conclusions of this meeting and my own opinion. This report is my own opinion not of the AGT, but the differences between the two were small.



Labelled as WG 246 (Tephrocactus Glomeratus)

Labelled as WG 321

Sun Rain and wind - - Kevin Lear. P116

I have the impression that *T. articulatus, T, dimorphus and Corynopuntia* need a lot of heat before they start to grow. In Spring the groups *M. glomerata* and *boliviana* need only a few warm days to start growing (even with cold night temperatures).

Dear all -Anna Henderson. P116

I'm convinced that most (older) Opuntia-species in our collections are 'pure species' because they were (mostly) propagated vegetatively. But of course in nature you also find hybrids.

Comments - Rene Geissler. P117

You can see at once the difference between *Cumulopuntia and Maihueniopsis* but to find good criteria, that is not so easy, I will try to find some out. for next time. On the other hand I'm convinced that the *Sphaerica* group is closely related with the *Boliviana* group. If *Boliviana* should be a *Maihueniopsis* then *Sphaerica should also be in that genus.*

The 'ball - shaped joints 'of *A verschaffeltii* are not only on plants in the greenhouse but can be seen in Bolivia as well thus forming a secondary means of reproduction (according to Mr. Van den Broeck F.).

***Corynopuntia* is indeed winter hardy (in dry conditions), except for *C.. invicta and* Grusonia *bradtiana.* Last Spring (March) I bought (at two nurseries) a plant of each of these species that had already started to grow. My older plants didn't form one single new segment. I guess because they were kept too cold in winter. The winter temperature of the nurseries is 60 F. Mine is only 32 F (or even less). It is remarkable that the plants of the nurseries continued their growth in my colder greenhouse,**

Groups of plants - Martyn Collinson. P118

I have the impression that the groups proposed by Leighton - Boyce and Iliff are very well according to reality, Deciding which plants fit into which group appears (to me) not so difficult after a few years of collecting Tephros. A problem can be (and is) to put an exact name on a plant: e.g. is a plant a C. *boliviana* or is it a *C. ignescens* or is it *C. echinacea?*
On the last pages of their book they discuss a lot of species/ names they can not fit into one of their groups. However, now most of them can be placed into a group.

Cultivation - Rene Geissler. P119
Cuttings in Autumn: yes, but only for the real Tephrocacti like *T. alexanderi, T. aoracanthus, T. articulatus and T.* weberi, but not for the others. I find the best time for cuttings of *Maihueniopsis and Cumulopuntia (boliviana) is* Spring. For *Austrocylindropuntia* and *Cumulopuntia sphaerica there are* no problems in Spring and Summer, they always root.

Joost

Tephrocactus hossei syn. Paediophyllus WG 039