TO THE POINT
NEWSLETTER OF THE CSSA

Vol 87 No. 1 - January - February 2015

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Terms ending 1/2017
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Immediate Past President: Laurel Woodley 310-375-4472
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WEB SITE: <http://www.cssainc.org>
ONLINE SHOP: <http://shop.cssainc.org/>

SERVICES TO MEMBERS

SEED DEPOT
Sue Haffner <sueh@csufresno.edu>
3015 Timmy Ave., Clovis CA 93612-4849
Tel: 559-292-5624
Wanted: Donations of cleaned, identified seed.

AFFILIATE INFORMATION
Chris Miller, Affiliate Chairperson
Any club interested in affiliating with the CSSA Inc. should send a copy of their bylaws to the chairperson. After approval an application form will be sent, which should be returned with the necessary fee. $55/75 U.S./Other for 2012.
email: <cmiller@cox.net>.

EDUCATION TROPHY
Joe Clements <joe_clements@pitzer.edu>
927 Occidental Dr., Claremont CA 91711-2552
Send copy of show schedule/program giving credit to the CSSA for donation of the trophy with request. Two or more entries are required to qualify. Allow at least 6 weeks after request.

MEMBERSHIP
Active Membership, including Journal and Newsletter for USA $50; Associate (spouse/significant other/partner) membership is an add’l $10. Institutional $100. See Affiliate Information.
Membership is on a yearly basis from join date or date of renewal. Members will receive 6 issues of the CSSA Journal and To The Point each subscription year. Life Membership, including Journal and Newsletter is $900. International Membership (all countries) is $70. Send fees in $ U.S. or Visa/MasterCard (no cash) to Cactus & Succulent Society of America, P. O. Box 1000, Claremont, CA 91711; Tel: 626-852-8085.
email <geisel@citruscollege.edu> or use our convenient membership online at CSSainc.org.

MEMBERSHIP/MARKETING/PUBLICITY
Questions about membership, other than dues. Contact Gregg DeChirico 415-407-7898; or by email < u4banut@gmail.com>. Richard Schreiber, Chair; Gunnar Eisel; Leo Martin; Clifford Meng; Lee Miller.

MEMBERSHIP BROCHURES
Now available from CSSA Business Manager: 626-852-8085 or email <geisel@citruscollege.edu>. These brochures are great at annual shows.

RESEARCH COMMITTEE
Tom Glavich and Laurel Woodley are co-chairs of the CSSA Research Committee. Tom is the contact for Research Grant applications. See the CSSA Web site <http://www.cssainc.org/index.php?option=com_content&task=view&id=179&Itemid=206> for grant application materials or contact Tom at <tglavich@sbcglobal.net> or phone 626-798-2430. Committee members: Bob Barth, Gregg DeChirico, Root Gorelick, Steve Plath, John Trager.
FIELD TRIPS
Daniel L. Mahr <dmahr@entomology.wisc.edu> is chair of the field trips committee, which arranges field trips within the U.S. and abroad. For more info contact Dan.

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TO THE POINT
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Table of Contents
President’s Message ....................................................4
William Francis Maddams............................................5
2015 Seed Depot..........................................................6
2015 Calendar of Events..............................................9
CSSA Election Results.................................................11
Beginner’s Guide to Succulent Pelargoniums..........12
Pushing the Limits with Cacti and Succulents in Cold Climates.........................................................15

On the Cover: Pitzer College Grove House. A 1903 Craftsman house complete with Stickley furniture that was relocated to Pitzer circa 1990. This would be a great place to relax and have a cold drink or a cup of coffee during the convention.
President Message
Gregg DeChirico, CSSA President

Return to the Future

I want to thank all those who took the time recently to return the ballots with their choice of candidates for the 2015 open seats on the Board. It seems so easy for me to claim victory in “winning” re-election to a second term as President of CSSA when running unopposed… life should be so accommodating in all facets. But looking to the future, I make no mistake in thinking my role as President will be as easy. There are new and continuing challenges ahead. And hindsight really is 20/20 in this case, as now I have a much better grasp of what all that entails looking forward at the next two years.

But whatever the challenges to be faced, I won’t stand alone to the onslaught. There is a team of competent and reliable people, both on and off the Board- nearly all volunteers, who rise in concert to face the tasks. They are the backbone of this organization and I am grateful for it!

Post-election results return Jeff Pavlat to the Board, joined by new Directors Brian Kemble and Nels Christianson, whose terms began following the January Board meeting. We are thrilled to have these fine folks working on the Board. Congratulations!

As I have mentioned so often in the past, very little community activity can be accomplished without our corps of volunteers. 2015, especially, being a Convention year, brings the extreme challenge of managing all the logistics that it requires. It actually started over a year ago with the Convention Committee and a small group of volunteers laying the ground work. In the next few months more and more volunteers will join the ranks to help make this Convention one of the most exciting and cost friendly we’ve had in many years. You are welcome to join us as a convention volunteer or a registrant. Find out more information and also register online via our website:  http://cssa2015.com/

In addition to volunteers who so willingly donate time and effort to CSSA activities like the Convention and our Annual Show and Sale, there are many generous supporting members who make donations in addition to their membership. These gifts come from both individuals and also supporting Affiliate clubs who routinely support CSSA with cash donations. We are so very grateful for your support. I am personally grateful to those who made gifts to the Endowment Fund this past year. Every dollar that goes into the Endowment fund is akin to another brick in the foundation of support that will help ensure that CSSA will continue in perpetuity. On behalf of the Board, please accept my heartfelt thanks for the gifts to the Endowment Fund and all donations made to CSSA. You really are the heart of this organization.

Equally important support comes from our advertisers in the Journal. The revenue from purchased ads is yet another form of financial support we depend upon. Please take time to view the ads and tempt
yourself to a purchase. Doing so will help support us all, and you’ll feel good about it too!

And 2015 is already turning out to be an exciting and busy year! As a greenhouse grower, I see new life beginning to stir in dormant pots and seed trays that brings promise for a vibrant and productive year. Our collective Affiliate community is also beginning to break dormancy as calendar schedules for local and regional activities begin to come in. Check out the Affiliates and Calendar pages on our Web site (http://cssa.com/) and make sure we have the most current contact and event information for your club. We want to help make sure you have the best year possible!

And while you’re there, make sure you check out ALL the events in your area so you don’t miss out on sharing quality time with friends old and new, and also have a chance to add to your collection. You can never have too many friends… or plants! See you there….Gregg DeChirico. President

William (Bill) Francis Maddams 1926 - 2015

North Surrey Branch in 1957 and first secretary from 1957.

Bill was also a founding member of The Mammillaria Society in 1960 and its editor of the journal from 1960.

He was a lecturer, author and prolific writer for various journals. He became a member of IOS in 1973 and was deeply involved in the merger of CSSGB and NCSS into the British Cactus & Succulent Society on 31 December 1982. He received the prestigious BCSS Fellow Award in 1983 and the CSSA Fellow Award in 1997.

Bill continued to be involved with his beloved Societies in various ways up to the time of his death.

Article courtesy of CSSA Historian, Chuck Staples; photo from Ted Hutchinson’s slide library, courtesy of Chuck Staples.
2015 CSSA SEED DEPOT

This list supersedes all previous lists.

First, let me thank all the many donors of seeds during the past year—too many to list. Your generosity is much appreciated by me and by the Depot customers. We are always looking for cleaned, identified cactus and succulent seed. Contact the Director for more information.

Price: seed packets are $1.00 apiece; non-CSSA members pay $2.00 apiece. If you are ordering by mail, please list selections by number, as packets will be marked by number. For orders placed via the CSSA website, the numbers will appear on your invoice. Generally 20-25 seeds are included per packet, unless the list specifies otherwise; one packet per species per order is the general rule, but some varieties are available in larger quantities. Please inquire first. Please list some substitutes, or substitutions will be made at the Director’s discretion.

Postage: U.S., $5.00 per order; Canada and other countries, $8.00. Payment must be in U.S. currency—cash or money order—or check drawn on a U.S. bank (payable to CSSA Seed Depot). Send mail orders to: CSSA Seed Depot, 3015 Timmy Ave., Clovis CA 93612-4849 USA. You may also order by credit card from the secure CSSA site: www.cssainc.org.

01 Acanthocalycium glaucum
02 Adenium obesum
03 Adenium swazicum
04 Aeonium nobile
05 Agave celsii
06 Agave gentryi
07 Agave horrida
08 Agave lechuguilla
09 Agave lophantha
10 Agave pelona
11 Agave potatorum
12 Agave victoria-reginae
13 Agave xylancantha
14 Aloe ciliaris
15 Aloe conifera
16 Aloe deltoides x ssp candidans
17 Aloe ‘Ed Hummel’ – toothy form
18 Aloe elegans
19 Aloe ferox
20 Aloe globuligemma
21 Aloe krapholiana
22 Aloe littoralis
23 Aloe marlothii
24 Aloe prattensis
25 Aloe striata
26 Aloe thraskii
27 Aloe variegata
28 Anacampseros telephiastrum
29 Ariocarpus agavoides [5]
30 Ariocarpus fissuratus [5]
31 Ariocarpus kotschoubeyanus [5]
32 Ariocarpus kotschoubeyanus elephantidens [5]
33 Ariocarpus retusus [5]
34 Ariocarpus retusus furfuraceas [5]
35 Ariocarpus trigonus [5]
36 Ariocarpus hybrids [5]
37 Arrojadoa rhodantha
38 Astrophytum capricorne
39 Astrophytum myriostigma
40 Astrophytum ornatum
41 Avonia quinaria
42 Bulbine alooides
43 Bursera fagaroides [10]
44 Bowemia volubilis
45 Browningia candelaris
46 Buiningia brevicylindrica
47 Calibanus hookeri
48 Carnegiea gigantea
49 Cereus peruvianus
50 Cleistocactus micropetalus
51 Cleistocactus strausii
52 Cleistocactus tupizensis
53 Cleistocactus winteri
54 Cleistocactus open pollinated hybrids
55 Coleocephalocereus aureus
56 Coryphantha macromeris ssp runyonii [10]
57 Coryphantha micromeris
58 Coryphantha vivipara ssp vivipara
59 Cylindropuntia imbricata ssp arborescens
60 Deilanthe peersii
61 Dinteranthus microsporum ssp puberulus (white flower)
62 Dinteranthus microsporum ssp puberulus (yellow flower)
63 Dinteranthus wilmontonianus
64 Dyckia go-goiana
65 Dyckia ‘Naked Lady’ – open pollinated
66 Dyckia platyphylla
67 Echinocactus grusonii
68 Echinocactus horizonthalonius [5]
69 Echinocactus platycanthus
70 Echinocactus texensis
71 Echinocereus cocineus
72 Echinocereus dasyacanthus
73 Echinocereus engelmannii
74 Echinocereus enneacanthus
75 Echinocereus fasiculatus
76 Echinocereus fendleri
77 Echinocereus fendleri ssp hampelii
78 Echinocereus ferreirianus
79 Echinocereus ferreirianus ssp lindsayi
80 Echinocereus huitcholensis
81 Echinocereus nicholii
82 Echinocereus pentalophus
83 Echinocereus polyanthus ssp densus
84 Echinocereus primolanatus
85 Echinocereus reichenbachii
86 Echinocereus reichenbachii ssp baileyi
87 Echinocereus rigidissimus
88 Echinocereus rigidissimus ssp rubrispinus
89 Echinocereus scheeri ssp gentryi
90 Echinocereus stramineus
91 Echinocereus subinermis
92 Echinocereus triglochidiatus
93 Echinocereus triglochidiatus ssp triglochidiatus
94 Echinocereus vieereckii ssp morricalli
95 Echinocereus viridiflorus
96 Echinopsis bridgesii
97 Echinopsis deserticola
98 Echinopsis huascha
99 Echinopsis mamillosa
100 Echinopsis marsoneri
101 Echinopsis mirabilis
102 Echinopsis schickendantsii
103 Echinopsis spachiana
104 Echinopsis ‘Epic’ – bright red flower
105 Echinopsis ‘White Knight’
106 Echinopsis – yellow flower
107 Epithelantha micromeris [10]
108 Eriosyce bulbocalyx
109 Eriosyce napina ssp spinosior
110 Eriosyce senilis
111 Escobaria emskoetteriana
112 Escobaria hesteri
113 Escobaria lloydii [10]
114 Escobaria minima
115 Escobaria missouriensis [10]
116 Ferocactus acanthodes
117 Ferocactus alamosanus
118 Ferocactus chrysacanthus [10]
173 Lithops localis prince Albert form ex C-134
174 Lithops marmorata ex C-163
175 Lithops naureeniae C-304
176 Lithops olivacea C-109
177 Lithops optica ‘Rubra’ C-81A
178 Lithops pseudotruncatella C-263
179 Lobivia ferox
180 Mammillaria candida
181 Mammillaria compressa
182 Mammillaria densispina
183 Mammillaria dixanthocentron
184 Mammillaria glassii [10]
185 Mammillaria grahamii
186 Mammillaria guelzowiana
187 Mammillaria hutchisoniana ssp louisae
188 Mammillaria lenta
189 Mammillaria mammillaris
190 Mammillaria matudae
191 Mammillaria mazatanensis [10]
192 Mammillaria peninsularis
193 Mammillaria petterssonii
194 Mammillaria pottsii
195 Mammillaria prolifera
196 Mammillaria spinosissima
197 Mammillaria thornberi
199 Melocactus baiensis
200 Melocactus curvispinus
201 Melocactus erubescens
202 Melocactus levistatus
203 Melocactus matanzanus
204 Melocactus neryi variegata
205 Melocactus oreas
206 Melocactus salvadorensis
207 Mesoklema tuberosum
208 Micranthocereus densiflorus
209 Moringa oleifera [5]
210 Myrtillocactus geometrizans
211 Neobuxbaumia polylopha
212 Neoperonia occulta
213 Opuntia basilaris ssp treleasei [5]
214 Orbea variegata [5]
215 Oreocereus celsianus
216 Oreocereus x Cleistocactus
217 Ornithogallum concordatum
218 Ornithogallum fimbirimarginatum
219 Pachypodium lamerei [5]
220 Parodia erinacea
221 Parodia erubescens
222 Parodia hasselbergii
223 Parodia hasselbergii ssp graessneri
224 Parodia leninghausii
225 Parodia magnifica
226 Parodia mammulosa
227 Parodia mueller-melcherrsi
228 Parodia schlosseri
229 Parodia scopar
230 Pelargonium aridum
231 Pfeiiffera ianothele
232 Pilosocereus aurisetus
233 Pilosocereus gounellei
234 Pilosocereus leucocephalus
235 Pilosocereus pachycladus
236 Pilosocereus pachycladus ssp pachycladus
237 Pilosocereus royenii
238 Pseudobombax ellipticum [5]
239 Pseudolithos nigridimus [5]
240 Pseudorhipsalis ramulosa
241 Puya chilensis
242 Puya mirabilis
243 Rebutia ‘Lemon Queen’
244 Rebutia spagazziniana
245 Rhipsalis baccifera ssp horrida
246 Rhipsalis micrantha
247 Sclerocactus uncinatus
248 Sclerocactus uncinatus ssp wrightii
249 Stapelia gettiffi [5]
250 Stenocereus pruinuosus
251 Stomatostemma monteiroae [5]
252 Strombocactus disciformis
253 Sulcorebutia rauschii [10]
254 Thelocactus bicolor [10]
255 Thelocactus conothelos [10]
256 Thelocactus hexaedrophorus [10]
257 Thelocactus hexaedrophorus ssp lloydii [10]
258 Thelocactus macdowelli [10]
259 Thelocactus rinconensis [10]
260 Thelocactus setispinus [10]
261 Thelocactus setispinus ssp sinuatus [10]
262 Turbinicarpus horripilus [10]
263 Turbinicarpus lophophoroides [10]
264 Turbinicarpus pseudomacrochele [10]
265 Turbinicarpus schmiedickeanus ssp andersonii [10]
266 Turbinicarpus schmiedickeanus ssp flaviflorus [10]
267 Turbinicarpus schmiedickeanus ssp schwarzii [10]
268 Turbinicarpus swobodae [10]
269 Turbinicarpus valdezianus ssp albiflorus [10]
270 Turbinicarpus hybrids
271 Urgenia maritima
272 Yucca whipplei
Calendar of Events - 2015


Mar 27-29  Orange County Cactus and Succulent Society Spring Show and Sale. 9:00 a.m. to 5:00 p.m. Fri/Sat; 12Nto 4:00 p.m. Sun. Anaheim United Methodist Church, 1000 S. State College Blvd., Anaheim, CA. For information call: 562-587-3357.

Apr 4-5  Austin Cactus and Succulent Society Spring Show and Sale. 10:00 a.m to 5:00 p.m. Austin Area Garden Center at Zilker Botanical Garden. <www.austincss.com>.

Apr 10-12  Central Arizona Cactus and Succulent Society’s Annual Show and Sale at the Desert Botanical Garden, Phoenix, Arizona.

Apr 11-12  Cactus and Succulent Society of New Mexico Show and Sale. Albuquerque Garden Center, 10120 Lomas Blvd NE, Albuquerque, NM from 10 a.m. to 4 p.m. both days. For further information see <http://www.new-mexico.cactus-society.org/>.


Apr 11-12  South Coast Cactus and Succulent Society Show and Sale. 9:00 a.m. to 4:00 p.m. South Coast Botanic Garden, 26300 Crenshaw Blvd., Palos Verdes, CA. For information: 310-378-1953 or <http://www.southcoastcss.org>.

Apr 18-19  Monterey Bay Chapter of the Cactus and Succulent Society Spring Show and Sale. Sat: 9 a.m. to 5 p.m.; Sun: 9 a.m. to 4 p.m. San Juan Bautista Community Hall, 10 San Jose Street, San Juan Bautista.

Apr 26  Huntington Plant Sale. 10:00 a.m. to 5:00 p.m. Huntington Botanical Gardens, 1151 Oxford Road, San Marino, CA. For information call: 626-405-2160.

May 2-3  Sacramento Cactus and Succulent Society 55th Annual Show and Sale. Saturday and Sunday, May 2 & 3, 2015. 9 a.m. to 5 p.m. each day. Shepard Garden and Arts Center, 3330 McKinley Blvd., Sacramento, CA 95816. 916-808-8800. Contact: Keith Taylor, 707-290-0627 or <caudex.one@gmail.com>.

May 2-3  Sunset Cactus and Succulent Society Show and Sale. Veterans Memorial Center, Garden Room, 4117 Overland Ave., Culver City, CA. For information call: 310-822-1783.

May 3  South Bay Epiphyllum Society Show and Sale. 9:00 s.m. to 4:00 p.m. South Coast Botanical Gardens. For information call: 310-833-6823.

May 15-16  Gates Cactus and Succulent Society 34th Show and Sale. Fri/Sat 9:00 a.m. to 4:30 p.m. Landscapes Southern California Style, 450 E. Alessandro Blvd., Riverside, CA. For information call: 951-360-8802.
May 16  Santa Barbara Cactus and Succulent Society annual plant sale. Trinity Lutheran Church, 909 N. LaCumbre Rd. Santa Barbara. 10:00 a.m. to 3:00 p.m. For additional information: call 805=895-0812, or email <pposch@cox.net>.

May 16-17  Long Beach Cactus Club Plant Show and Sale. 10:00 a.m. to 5:00 p.m., Rancho Los Alamitos, 6400 Bixby Hill Road. For information call: 310-922-6090 or <www.lbcss.org>.

May 23-24  Central Coast Cactus and Succulent Society Annual Show and Sale. 10:00 a.m. to 4:00 p.m. Ludwick Center, 864 Santa Rosa, San Luis Obispo, CA. For information call: 805-237-2054 or <www.centralcoastcactus.org>.

May 30-31  Los Angeles Cactus and Succulent Society 30th Plant Show and Sale. Sat: 9:00 a.m. to 5:00 p.m.; Sun: 9:00 a.m. to 3:30 p.m. Sepulveda Garden Center, 16633 Magnolia Blvd. Encino, CA. For information: email <www.lacss-show.com>.

Jun 2-13  Treasures of the Sierra Madre, CSSA Pre-convention tour to East-central Mexico. For additional information: see article in 86-4 newsletter.

June 6-7  San Diego Cactus and Succulent Society Summer Show and Sale. Balboa Park, Room 101, San Diego, CA. For information call: 858-382-1797.

June 6-7  San Francisco Succulent and Cactus Society Annual Show and Sale. Sat and Sunday 8 a.m. to 5 p.m. CFB (Gallery) San Francisco Botanical Garden, 8th Ave and Lincoln Way, San Francisco.

Jun 14-19  CSSA Biennial Convention, Pitzer College, Claremont, CA.

Jun 20-24  Desert Days and Las Vegas Nights. CSSA Post-convention tour to the Mojave Desert of California and Nevada. For additional information: see article in this newsletter.


July 24-26  Orange County Cactus and Succulent Society Summer Show and Sale. Fri/Sat: 9:00 a.m. to 5:00 p.m.; Sun: 12N to 4:00 p.m. 1000 South State College Blvd., Anaheim, CA. For information call: 949-212-8417.

Aug 8-9  30th Intercity Show and Sale. Los Angeles County Arboretum. 9:00 a.m. to 5:00 p.m. 301 N. Baldwin Ave., Arcadia, CA. For information call: Tom Glavich, 626-798-2430 or John Matthews, 661-714-1052.

Aug 21-23  Mid-Iowa Cactus and Succulent Society Annual Show and Sale. Merle Hay Mall’s north end in Des Moines, Iowa.

Sept 5-6  Austin Cactus and Succulent Society Fall Show & Sale. 10:00 a.m. to 5:00 p.m.  

Sept 6  CSSA Board Meeting. Huntington Botanical Gardens.

Sept 6  Long Beach Cactus Club Annual Plant Auction. 12N to 5:00 p.m. Rancho Los 
Alamitos, 6400 Bixby Hill Road, Long Beach, CA. For information call: 
310-922-6090.

Sept 26-27 Monterey Bay Chapter of the Cactus and Succulent Society Fall Show and 
Sale. Sat: 9 a.m. to 5 p.m.; Sun: 9 a.m. to 4 p.m. San Juan Bautista Community 
Hall, 10 San Jose Street, San Juan Bautista.

Oct 24-25  Palomar Show and Sale. Sat: 9:00 a.m. to 5:00 p.m.; Sun: 10:00 a.m. to 4:00 p.m.  
San Diego Botanic Gardens, 230 Quail Gardens Rd., Encinitas, CA. For 
information call: 858-382-1797 or <hciservices@gmail.com>.

Nov 7-8  San Gabriel Valley Winter Show and Sale. L.A. County Arboretum, Ayres Hall, 
9 a.m. to 5 p.m. 301 N. Baldwin Ave, Arcadia, CA. For information call: Tom 
Glavich 626-798-2430.

CSSA Election Results

Officers: 2-year term
President - Gregg DeChirico
Vice President - Judy Pigue
Secretary - Lee Miller
Treasurer - Cliff Meng

Board of Directors: 4-year term
Jeff Pavlat
Brian Kemble
Nels Christianson
Beginner’s Guide to: Succulent Pelargoniums

by
Tom Glavich

Pelargonium is one of the genera of the Geraniaceae family, along with Geranium, Monsonia and Eriadium. The flowers of a true Geranium are five petalled, and symmetric, or nearly so. Pelargoniums have two upper petals that are different from the three lower petals. The genus Pelargonium covers a broad range of habitats from damp and near constant wet to extremely dry desert regions. It includes species that exhibit succulence in some form or another (as well as many that do not). Some have leathery leaves, some have thickened succulent stems, and a surprising number are geophytes, with the plant body mostly underground. Some species use more than one method of nutrient and water storage to keep alive in a very unforgiving environment, combining succulent stems and thick leathery leaves, or a succulent stem and an underground tuber. This article concentrates on those species that are stem succulents.

Most succulent pelargoniums are winter growers, with most growth occurring in mid to late autumn and throughout the spring, with until real summer heat starts. A few species are opportunistic and will grow nearly all year around whenever there is sufficient water in the soil. Succulent pelargoniums are in general easy plants to grow. They are tolerant of most growing mediums, as long as there is good drainage. They do very well in non-organic mixes consisting mostly of pumice or the equivalent, but then require regular feeding. Any commercial plant food will work. Some species can grow too robustly, but respond well to frequent and sometimes severe pruning.

Pelargoniums are generally free of most pests and disease. Occasional aphid attacks will accompany flowering, and mealybugs make an infrequent appearance, usually preferring other plants when given the choice. Pelargoniums are not heavily grazed, many have an unpleasant tasting or fragrant oil that deters most herbivores, but they do get eaten in habitat.

Succulent pelargoniums are easy to propagate. During the growing season most species need to be pruned into shape. All of the cuttings can be immediately potted up without waiting for calluses to form. They root quickly, often showing fresh growth within a couple of weeks. New cuttings should be treated like your mother’s geraniums; there really is not that much difference. Some species produce root tubers in addition to the succulent stems. These can be removed and potted up as well, with the top of the tuber, and a bit of the connecting root just above soil level. These usually re-root and start showing new growth as well, sometimes immediately, sometimes after a few months or a year. Patience pays with tubers.

The first set of pictures show Pelargonium echinatum, one the most easily grown and propagated plants. A fully grown plant starts the sequence followed by two types of propagation. The next shows cuttings in full growth about 2 months after cutting. These stems were cut, potted, with the pots allowed to sit in about half an inch of water to keep them constantly moist for a few
weeks. The third picture shows one of the root tubers, cut from the main plant, and potted at the same time as the cuttings. It is also on the way to making a good new plant. The final picture shows a flower.

**Pelargonium carnosum ssp. ferulaceum** is another easy to grow succulent pelargonium. It is relatively slow and propagates easily from cuttings. The plant shown in the picture has been in small pots for many years, helping the plant to maintain its shape. If these are watered year around, the summer growth will be weak and spindly. This is nearly evergreen except for a few weeks during summer. Cuttings from *Pelargonium carnosum* root easily in pumice. Because the stems are so thick, this is one species that does best if the cuttings are allowed to dry for a few days.

Another nearly evergreen species is **Pelargonium alternans**. The picture shows the plant after a couple weeks of rainy weather. In the summer there are a few green leaves, no growth, but flowers and seeds. This is an old plant with a history of several owners. The tight growth is the result of years of tip pinching.
and it is ready for some pruning to force it back to shape.

Many of the stem succulent pelargoniums are sprawlers. These quickly become untidy messes, with stems getting everywhere. *Pelargonium sidoides* is shown in the picture. The persistent thatch could be removed, but this thatch is protecting the stem from sunburn and dehydration. Some plants look best in the ground, where they can spread and sprawl. This is one of those.

Finally, a strange Pelargonium species nova, still undescribed and somewhere between a geophyte and a stem succulent. It has normal roots, a small caudex with only a few stems, and lanky branches. Like all pelargoniums it propagates easily from cuttings and seed. Not a beautiful plant, but certainly an interesting curiosity.

*Pelargonium xerophyton* is in cultivation with several leaf shapes and sizes available. The one shown in the picture has small leaves. It is grown in full sun and watered weekly in the summer. It is ever green and a shy bloomer, rarely exhibiting more than one or two small flowers at a time. Like many of the shrubby species it needs constant pruning and pinching to maintain it shape. The branch on the lower right needs to be removed, and the green peeking out from behind the left side also needs work. It is a slow grower. The one in the picture is at the limit of acceptability,
When the sun breaks through after a midwinter storm, there are very few things that can compete with the large rosette of a century plant, half covered in snow for sheer magnificence. There is something special about a subtropical plant, looking perfectly at home, and happy, in glistening snow that just draws a person in. The sharp, dark tips of the leathery leaves, piercing through the clean, white snow makes such a strong contrast that it becomes intriguing. But winter is not the only season that these plants add to the overall beauty, and charm of a dry garden. Like the tall, trunk forming Yucca species, century plants bring the feeling of a much warmer climate, to a garden where winters are sometimes harsh. Although there is a growing interest among gardeners, to include these plants in dry gardens, in many places, they are still not as familiar as they should be. Plants that provide so much, year around interest should be thought of as an important element in any xeric garden, especially in cactus and succulent gardens everywhere.

My first experience with century plants, as garden material, was back in the late 1970s, with Agave havardiana. I bought a small plant, potted in a tin can, and growing in pure mud, from a roadside cactus dealer in west Texas. I brought it home and potted it into a nice ceramic container, using a commercial cactus mix, and it took off right away. For several years, I would drag that plant outside, into the garden, for the summer, and back to a sunny, dining room window, for the colder months. After a few seasons, the plant, with its dangerous, dagger-like, leaf tips had become too large to be kept safely inside. Our dining room window, which was the only sunny place I had to keep it through the winter months, was also a high traffic area in our home. I felt bad, but I had nowhere to protect the plant from winter weather, and I could not find anyone who wanted a large, hazardous specimen. So the A. havardiana remained outside where I kept an eye on it through the winter, after every cold spell I would check for damage. Each time, I was sure that this would be the final stretch of bitter, arctic weather that it could take, and I would find a pile of mush. My admiration for the cold tolerant qualities of the plant grew as the winter progressed. In early spring it was given a proper place in my cactus garden, as it had suffered minimal damage through the season, and still was quite attractive.

Another of my early experiences with century plants, in the garden, was with an A. polianthiflora I bought from Woody Minnich in the early 1980s. After about six years as a container plant in the greenhouse, it bloomed and set seed. When the flower spike started to develop the plant offset prolifically, leaving me more pups than I knew what to do with. On a lark, I decided to put a couple of them in the garden for
the summer, using them like the tender perennials that the green industry markets as annuals in cold climates. Through the summer the small plants grew quickly and seemed to be quite happy. Like the *A. havardiana* that I had put in the garden a few years earlier, I watched the *A. polyanthiflora* through the winter, just to see how much cold it could take before being significantly scarred. It too turned out to be impressively tolerant of frigid winter weather. After about ten years in the garden the *A. polyanthiflora* bloomed and set seed. Several offsets from that flowering event are still growing there, and are approaching blooming size. Seedlings from the plants that bloomed outside here have been planted in gardens in many parts of Colorado and northern New Mexico.

After stumbling on two Agave species that could survive the weather conditions in Colorado, I was on a mission to find more species that could be planted in cold climates. I had no idea that anyone else was experimenting with, or was even interested in, cold hardy cacti and succulent plants, at the time. It was years later, when I found out that I was not alone. People like Steve Miles, in Boulder, and Rod Haenni, who lives just outside of Denver, were also pushing the limits of cold that succulents could endure, including century plants. Now, these plants have become an important element in cold hardy cactus gardens, although, there are still too few cold hardy cactus gardens. The Denver Botanic Gardens has had century plants on display, in outdoor beds, for years now. A number of public, and private gardens in Colorado have Agaves, such as *A. parryi*, *A. lechuguilla*, and *A. neomexicana* in their collections. Several varieties, or subspecies of *A. utahensis*, as well as *A. gracilipes*, *A. toumeyana ssp. bella* and others have also been planted, in climates with real winters, throughout the western part of the United States.

Mark Pennington with *A. utahensis ssp. kaibabensis* flowering at Agua Fria Nursery, in Santa Fe.

In eastern states, where humidity levels are higher, and rain is more frequent, gardeners are installing berms, and finding better ways to improve the quality of their soil drainage. By doing so, they are better able to successfully grow some of these plants outside. In regions that are colder, and wetter than the places Agaves are native to, drainage becomes paramount, if they are intended to thrive. In nature, Agaves are typically found growing on dry, rocky hillsides, or slopes, in soils that do not hold moisture well. In wetter and colder situations, using rock and incline to limit the amount of water to the plants can be the difference between success and failure for the gardener. For the plant, it could be the difference between life and death. Yes, I know that you will see those attractive landscapes, with Agaves situated in the middle of flat beds, in places like Texas or Arizona. And I am aware that it can make an appealing presentation. But, after years of growing dryland plants in Colorado, where the climate is referred to a semiarid, I really recommend the top, or the south face of a berm as the most likely place for century plants to succeed. Especially, if your climate is wetter than semiarid you will be more successful by doing all that is possible to keep moisture from settling near the base of dryland plants.
The soil that is used for outdoor succulent plantings, in cold climates, should dry quickly, when water is applied. Before anything else is considered, and definitely before anything is planted the soil that is to be used, should be tested to ensure that it does not hold moisture for an extended period of time. This is a simple thing to do, but it can save the gardener a good deal of time and money in the long run. Find a soil mix that is low in organic material, and if it is necessary, add enough gravel to decrease its ability to hold moisture. When you are satisfied, that even without thirsty plants using the water in the soil, that it still dries reasonably quickly, it is time to plant. By doing this, even in areas where rain falls frequently, irrigation may be needed during extreme, summer heat waves. The soil that is used to create garden berms will dry much faster, especially on the face of south slope.

Winter wind can take a toll on most evergreen succulents, this includes iceplants, sedums, and cacti, but it can be especially true of Agaves. Positioning cold hardy cactus gardens, in a manner that offers the plants some protection from the harshest winds, during the coldest months, will be highly beneficial to the garden as a whole. Where I live the strongest winter winds come from the north, and the west, in the northern hemisphere this is often the case. Fences, buildings, trees, or even large boulders can provide enough of a wind block that it will help to protect plant material to some degree.

Agaves, growing in cold regions, will always look best when they are given as much sun as possible. It is not that the plants cannot grow, with less than half a day in direct sun, but they may not be as strong as they need to be, to deal with the stress caused by winter temperatures. When gardeners loose plants in the winter, it is not always because the plants are not able to survive the climate. It is often times due to the fact that the plants were not in the best health, going into the winter. Plants are lost too often because of something that the gardener did not take into consideration, or did not know, this often involves plant placement. Remember, this is still a new, experimental type of gardening, and the gardener should not be faulted for what he or she has not learned yet, they should be encouraged. In many cases, the only way that we gain knowledge is from trial and error. With this type of gardening, microclimate is immensely important, and direct sunshine, wind exposure, and soil type are major environmental factors that determine the microclimate. Strong, direct sun adds to the vigor of desert plants in northern climates. Also, keep in mind that the sun beating directly down on the soil will encourage it to dry much faster.

*A. parryi* in my garden, on the south side of a greenhouse for extra protection. This plant is about 20 years old.
In the spring of 1982, or 1983 I bought a packet of *A. neomexicana* seeds. I prepared two pots with soil, wet them down, pressed the seed into the mix, and covered them with clear plastic for a few days. In very little time one of the pots showed signs of progress, ten seeds produced ten seedlings. The other pot had ten seeds, but only three of them had sprouted. A few weeks later I moved the small plants into separate pots. I plucked the three little seedlings from the second pot and then tossed the soil from the pot, onto the side of a berm in the dry portion of my garden. While I am not sure, I have always told myself, that throwing small amounts of soil on my berms, while repotting, helps to compensate for erosion. At any rate, in the middle of August, I found six tiny Agave seedlings, growing right where I had tossed the soil. By the spring of the following year, only one of the small plants had survived, but that little plant grew without any help and eventually bloomed.

When I planted anything that was thought to be marginal in the garden, (as all Agaves were thought to be at one time), only part of me believed that it would live for any length of time. In the early days of my garden, I have to confess that I lost more than my share of plants by experimenting. All of the Agaves that I planted were untried, from what I knew at the time, and all of them surprised me by surviving. The idea that they could actually offset prolifically, and take over the entire garden bed, never even entered my mind. It took me awhile to learn that the easiest mistake to make with century plants is placing them too near other plants. This is a lesson that I had to learn more than once. When I planted the *A. havardiana*, years ago, I was only interested in how it looked in the garden, and that maybe it would survive a few years. I had no idea that it would offset in a cold climate, let alone that it would do so with so much energy. It took almost no time for Agave pups to start showing up in places like the center of prized, old Echinocereus clusters.

Agaves, will generally take a little longer to bloom where the length of the growing season is shortened. In my garden it took twenty years for *A. lechuguilla* to flower, and *A. parryi* took over thirty years. But
when they bloom, they are quite capable of setting good seed and making lots of pups. Seed from *A. havardiana* that fell to the ground in my garden sprouted and started growing, without any encouragement. Those seedlings are several years old now, and like the *A. parryi* seedling they have grown in a part of my garden that does not get any irrigation. That means that the species is capable of naturalizing in climates that are much colder than their natural habitat, if the soil drains freely.

If you have, or if you are considering creating, a cold hardy cactus and succulent planting, these are plants that you will think of as indispensible when they mature. Besides the fact that they are terribly pretty plants, they are natural companions to cacti in the field and add a subtropical feeling to the garden. Most of the cold hardy cacti will take years to reach specimen sizes while Agaves are much faster. Be careful where you put them, but I really do recommend many of these species to gardeners in cold climates interested in growing succulents in the garden.

*Note how this *A. gracilipes* in Don Barnett’s garden is tucked between rocks, to improve drainage.*

*Benson Auditorium, site of 2015 CSSA convention lectures; Pitzer College.*

*The newly constructed Marilyn and Eugene Stein Atrium creates an elegant and light filled entry to Benson Auditorium at Pitzer College, site of 2015 CSSA Convention.*
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