



Central SPINE

CENTRAL ARIZONA CACTUS & SUCCULENT SOCIETY

President's Letter February 2003

Is it still winter? Yes, and you'd better keep the frost cloth handy, because freezing weather can sneak up on us during the next two months. Spring, however, is not far off, and if it's been a few years since you repotted some of your plants, now is a good time to check out those roots to see how everything's going down below the surface. Potting soil gets stale and used up, and some fresh soil is just what your plants need to get off to a good start. Speaking of repotting, Woody Minnich is going to show us not only how to repot, but how to make those plants stand out during our upcoming

annual show in April. Woody has been exhibiting plants and chairing shows for many years, so he knows what judges like and look for in prize-winning plants. Proper staging is what gets plants noticed, and can make the difference to the judges when considering two equally well-grown entries. Woody will also be bringing his usual fine assortment of plants for sale, so whether you're a seasoned master exhibitor or a first-time novice, there will be something for everybody. See you there!

Scott McMahon

Plant Care of the Month: Drip Irrigation Systems - PART ONE

by: Leo A. Martin

Drip irrigation (DI) is a term used to refer to irrigation systems carrying water at relatively low pressures via flexible pipes to calibrated water emitters which are placed near plants. The principles of DI were worked out long ago, but too often homeowners (and professional landscapers) install or operate systems incorrectly, and plants suffer. DI is extremely useful here in the desert if used properly. All our favorite landscape C&S will grow fine with DI. I will try to explain some of the concepts.

DI has several potential advantages:

- Water is applied only where it is needed, thus preventing water waste, and weed growth in non-irrigated areas.
- DI systems are somewhat easier to assemble than are rigid cemented polyvinyl chloride (CPVC) systems. Connections require mostly snapping, plugging, or screwing in of components.
- DI is easier than CPVC to modify when irrigation needs change as plants and landscape change and grow.

It has several disadvantages:

- Because one of its goals is to limit water use, underwatering is quite easy.
- Exposed DI components suffer accidental and

sun damage more frequently than buried CPVC. Thirsty rabbits may chew DI tubing.

- DI emitters must be moved and, frequently, added as plants grow. They must be checked regularly for clogging. DI systems require more upkeep than CPVC.
- Improperly programmed systems allow salt buildup in the soil.

The basic parts of a DI system are:

- a *shut-off valve* between the water main and the DI, allowing DI maintenance without shutting off water to the house;
- a *backflow preventer* (BP), to prevent garden water from being siphoned into the home drinking water pipes;
- a *filter* to keep the system from clogging;
- an *on-off valve*, which is usually controlled by
- an *automatic programmable timer*, but can also be controlled manually;
- a *pressure limiter*, to reduce water pressure from the high-pressure water main to the low-pressure DI pipes;
- large *conduit tubing* to carry water from the on-off valve to the garden;
- smaller "spaghetti" tubing to carry water from the conduit to the plants;

CONTINUED ON PAGE 3

OFFICERS

Officers (1 year term):

President

Scott B. McMahon
(480) 657-7786
smcmahon2@mindspring.com

Vice President

Marjorie Rogers
(480) 575-9893

Secretary

Elaine Tressler
(480) 860-6388
phoenixet@aol.com

Treasurer

Judy Brody
(480) 951-1363
popymallow@aol.com

Past President

Leo Martin
(602) 852-9714
leo1010@attglobal.net

Directors (2 year terms)

Term ending December 31, 2002:

Jerry Chapman
(480) 945-6543

Doug Dawson
(480) 893-1207
doug.dawson@gcmail.maricopa.edu

Scott McMahon
(480) 657-7786
smcmahon2@mindspring.com

Term ending December 31, 2003:

Carol Clapp
cactusnews@earthlink.net

Ray Daley
(623) 876-0060
DaleySPUBUD@aol.com

Richard Maxwell
(602) 252-6101
nuttster@attglobal.net

Jeff Stinebiser
(602) 955-7819
jkstinebiser@aol.com

CSSA Representative

Henry Triesler
(480) 946-1122

Librarian

Paul Schueneman
(602) 381-9859
Schue888@aol.com

Newsletter Editor

Joseph Orazio
(602) 482-3751
jorazio@cox.net

An Open Garden

Cathy Babcock will be hosting an open garden on Sunday March 23rd, from 1:00 - 4:00 p.m. Please bring some hors d'oeuvres or a snack to share. Beverages (leaded and unleaded) and water will be provided. A postcard with directions will be sent to members a week prior to the event. Open gardens are a fantastic way to share information (and sometimes plants) and see how other club members display their goods. They afford an opportunity to meet fellow nuts in an informal setting - it is easier to mingle and talk when looking at plants

Semi-Annual Plant Sale

The Garden's semi-annual plant sale festival will be held on March 14, 15 and 16. We always need volunteers and your expertise is greatly needed for the cactus & succulent tent, not only to help sell plants but to disseminate information regarding our club. If you are not comfortable giving advice to the public, there is a huge number of other volunteer opportunities available. This not only benefits the club, but is a great way to repay the Garden for letting us use their facilities free of charge for our meetings and other activities.

Volunteers Needed

Some of our members would like to show plants in our show but are unable to move their plants on their own. Volunteers are needed to help these members get their plants to the show. Transportation for these plants is also needed. Please call or email your editor or speak up at the next meeting! We want to fill Dorrance Hall!



Arizona Rainbow - *Echinocereus pectinatus*
Submitted by Regina & Hugh Rodgers.
They live in Peoria where this beautiful plant grows in their back yard.

Book Review by: Muriel Beroza

Mary Irish. *Arizona Gardener's Guide*. Cool Springs Press, Nashville, TN, 2003 (271 pp). ISBN 1-8886088-42-0. \$ 24.95, Soft Cover.

The author of this book, Mary Irish, is a well-known local expert on gardening in the desert. She was Director of Public Horticulture at the DBG before launching into her writing career. The author's advice to newcomers and to long time Arizona residents is the same... "Garden where you live." This very wonderful and exciting book is written by an expert in Arizona and xeriscape gardening. It is a well written compilation of plants that do well in climate that features excessive heat and little natural rainfall. There are plants included from other desert climates as well as native flora. The bottom line is that the plants selected are suited to the harsh conditions of the desert. To be a successful gardener in Arizona requires patience, skill and a willingness to use the plants that will survive in our habitat.

The book has profuse color photographs of the plants featured and information needed to grow them successfully. This includes information regarding: sun exposure, heights, spread, bloom period, colors, soil, water conditions, fertilizers, pruning, general care and pest control. The chapters are divided into types of plants from annuals, bulbs, cacti, grasses, ground covers, palms, perennials, roses, vines, shrubs and trees. Each plant is pictured in glorious color with information about its care.

The format is easy to use, with color coded pages to distinguish the chapters, logos for general care and

a map of the state to make it easier to pick the plants that are suitable for your area. There are special sections which discuss common pests and diseases, a landscape watering guide, a glossary of botanical terms and a bibliography.

One of the special features for each plant is a short paragraph on "Did You Know?" which I found fascinating. Some little tidbit of obscure information is there. Have you ever wondered why or how a particular plant has its name? It is easy to fathom this about *Edithcolea* and *Screw bean Mesquite* but others leave one in a quandary. As an example ... *The Chaste Tree* ... "in days of yore was grown in monasteries throughout Europe in the Middle Ages. The edible berries were thought to decrease the Monk's interest in sex." The name Ice Plant "comes from the small crystals of salt secreted on the leaves that gleam in the sun." On the other hand, names can be misleading. *Russian Sage* is not a native of Russia. In this book, each plant has some little factoid that is not part of its normal description. These interesting entries really got me hooked.

My recommendation is that this book should be on the shelf of every erstwhile Arizona and/or xeriscape gardener. The desert garden will enrich your life and this book will give you the advice you need to be an expert.

Mary Irish has also written "Agaves, Yuccas and Related Plants" and "Gardening in the Desert." All of these books are available in the Garden Shop at the Desert Botanical Garden. A fourth volume is due out this spring.

The Life's Trip to the Baja of California: by: Debora Life

After a few enthusiastic presentations over the last year I had placed a trip into Mexico's Baja at the top of my *To Do List*. Spending some time as a Master Gardner at MCC desert display also encouraged me to see these plants in captivity. Husband Chris made this happen November 29, 2002. A trip was planned by a group of local BMW riders. The group was made up of riders from 4 states. We would be the only ones traveling with passengers, daughters Sara and Emily.

Nine bikes crossed the border at Calexico en route to San Felipe. We were treated to a shower on our way into town, which later gave us a double rainbow over the Sea of Cortez as we had a late lunch. In the midst of such a severe drought how can one be unhappy with rain.

Our journey to Ensenada was now with 8 bikes, as Jim from Ca. bike would not start

We obtained tourist visas and headed onto Catavina. This would be our longest day with 237 miles ahead of us. A fuel stop in El Rosario proved to be the most pleasant surprise for me. As I looked over to see an American filling up his truck, I got up the nerve to confirm my suspicion that I had indeed run into Woody Minnich in the middle of Mexico. He was on his way home with a group that had spent time in Bahia de Los Angeles. (I have a picture to confirm this).

After a few long hours of night driving we arrived at Catavina. I had missed the giant cardons, herds of cattle and a few horses along side the road that my headlights did not see. I was busy watching center strips and taillight of the bike ahead of me.

Chris fueled the bikes Sunday Morning while I walked around seeing a forest of cardons and bojum

trees. Looking at the makeup of the soil and rocks I will add much more rocks to my soil mix for drainage. I made not discoveries that will make it into the cactus journals but instead saw an incredible part of the world, which few ever see.

We were now heading to Bahia de los Angeles, back to the Sea of Cortez. We again stayed in a wonderful little hotel with clean, huge rooms and good food. We celebrated Emily's birthday with an ice-cream sandwich with a candle, and came to the conclusion that the grocery stores in Mexico had far less junk food than the US. The girls enjoyed a kayak adventure in the bay and I enjoyed beautiful scenery. This was a fairly remote destination with the town being run by generator, but only part of the day, battery back up was then necessary.

Day 4 we would backtrack to San Quintin and have lunch and one last fish taco on the Pacific side. The girls and I walked the beach and was chased by cold Pacific Water. We did watch a NFL Monday night FB game in Spanish, which was fun, there would be ??? "touch down".

Day 5 we headed north toward Tacate. An easy crossing put us back into California.

Of the 2000-mile total trip I would guess that we had 50 miles of pothole dodging. Only once did Chris motion for me to follow him. The trucks were very courteous, signaling that it would be safe to pass ahead. The roads were narrow, with inches for a shoulder then a 3-foot drop off.

I witnessed a very poor part of the world with hard working people. Will I return you ask? In a heartbeat. My next trip will probably be with plant people. If it were plant people on MC that would be the best of both worlds.

Plant Care of the Month: Drip Irrigation Systems - PART ONE CONTINUED FROM PAGE 1

• emitters at the ends of spaghetti tubing to measure water to the plants.

The unit consisting of an automatic valve, filter, conduit tubing, spaghetti tubing, and all emitters, is often referred to as a *line*.

Since most of us are doers rather than talkers, I'll start by talking about how to build the systems, and leave the boring thinking part to the end. That way those of you who get too excited to read this whole article and want to run out and convert your entire home to DI this weekend will have systems we can all laugh at. There are lots of mistakes to be made, so pay attention. I've never made any of them myself, of course, but I read about it on the Internet. Before you start, though, remember: You can't be too rich, too thin, or have too much capacity in your drip lines.

Shut-off valves between the home water supply and any irrigation system are not absolutely necessary, but housemates of clumsy gardeners will not appreciate weekend days spent without water while the irrigation system is installed or changed. The Uniform Building Code requires a BP between all garden spigots and the home water supply. Imagine returning home from vacation. The hose has had warm water in it for a week. Pick up the end of the hose to water your thirsty plants, open the hose valve, and some of that water (now populated with lots of microscopic garden creepy-crawlies) might be siphoned into your kitchen pipes.

The best solution is to install a metal T from the water main, downstream from the shutoff to the whole house, then a threaded ball valve, then PVC piping to the automatic valves. Some install one BP near the water main, and others rely on the BP built into each automatic valve.

Valves are made of rigid PVC. They have threaded inlets and outlets. Generally the water supply to the valve is rigid PVC with a threaded fitting at the end which has been cemented onto the end of the pipe. To this the valve is attached. Banks of valves are usually placed side-by-side in a manifold. Be sure to leave a good length of supply pipe projecting after the last valve; almost everybody wants to install more lines down the road. For automatic systems, the on-off knob of each valve is unscrewed and removed and an electromechanical on-off device called a solenoid is inserted. A low-voltage wire bundle runs to the automatic controller nearby with one color-coded wire from each solenoid in the manifold and one (normally white) common ground wire.

The pressure limiter is screwed into the outlet of the valve. Most pressure limiters have filters built in. Use Teflon pipe tape for all threaded connections; this will prevent almost all leaks. Pressure limiters are made in different flow rates in gallons per hour (GPH.) During your planning you will select these based on the requirements for that line. You didn't think you could irrigate your entire garden without planning, did you? Lots of people try, but CACSS members are much too intelligent (or experienced) to do something like that. We'll come to planning after this brief rundown of components.

If you try to save money and leave out the pressure limiter, your emitters will probably blow off the spaghetti tubing when you are on vacation for a week, and all the water will run out of two or three open tubing ends, leaving most of the emitters dry. If this doesn't happen, one of the connections in

your conduit tubing will blow and you will have a lagniappe fountain someplace in your garden. In either event your plants will suffer, especially since most people tend to install irrigation systems in the spring when it's hot already, then promptly go on vacation.

Conduit and spaghetti tubing is black and made of soft, somewhat flexible PVC. It is sold in long rolls, 50 to 100 feet or more. The material has a "memory" for shape, and for ease of handling on the day I use it, I anchor one end, unroll the entire roll in the sun, and anchor the other end. It is much easier to work with straight conduit.

It is usually cheaper per foot if you buy bigger quantities. Buy enough (after you calculate how much you need in your planning session) to allow for goofs, more goofs, and major goofs. An extra 50 feet probably costs less than the gas to drive to Home Depot plus the impulse purchases you'll make in the garden section. ("I know I can rescue this Hawaiian tree fern here in the desert!")

Conduit tubing is soft enough for gentle curves but so soft it will kink at 90 degree bends. And, it is often necessary to branch conduit lines or join them together. Connectors are sold for these purposes: 90 degree elbows, straights, and Ts. There is also a capped, threaded connector used as an end-piece for lines. The cap is screwed on to terminate the line. If the gardener wants to extend the system in the future the cap is removed, and the connector can be screwed into a connector on the new extension. Or, you can do what I do: Just bend the end of the conduit over and use a small hose clamp, tightened down, to seal. It makes professionals cringe but looks so nice when the metal pokes up through the decomposed granite.

Heat-softened conduit ends, cut neatly and square, are pressed into the connectors. Now you can see why a pressure reducer is needed for the line. Savvy DIers carry a thermos filled with boiling water. We dip conduit ends to be joined into the hot water for a few seconds to soften them up, one at a time, then press the ends into the fitting, one end at a time. If you try to do both at once you'll find out why I don't. Quality fittings have ridges on the inside to prevent pushing conduit out the other side of the fitting.

There are connectors for spaghetti tubing, as well. You are better off not using connectors to join spaghetti tubing. Each tiny joint is susceptible to getting clogged. Be a big spender and cut another section off the roll.

Although you are certainly going to plan first, don't cut any tubing until the trench is dug. It's amazing how hard it is properly to measure a trench that isn't there yet. And, if you cut tubing before you dig the trench, and the tubing winds up being too short, it will still be too short no matter how much more you cut. Moral: If you're impulsive, buy lots of extra straight connectors.

Spaghetti tubing is attached to conduit with small plastic devices like hollow two-ended darts. These connectors are sold in small bags and big bags. You will be using a lot, so buy them in big bags. They last a long time in your storage shed, and you will be using more of them in the future as you make changes to your system.

Conduit is soft enough to puncture with almost any sharp object, but for the sake of your median nerve, please spring for the \$3 conduit puncher rather

than using an ice pick, pocket knife, or steak knife. And, while it is macho (for the men... I've been informed the feminine adjective is *facha*) to use bare hands to push the sharp connector into the hole you just made, please hold the connector with a wrench. At the end of the day you'll be glad you did.

Spaghetti tubing is cheaper than conduit, probably because it is 1/4 inch in diameter and most conduit is 3/4 or 1/2 inch. Don't be tempted to save money by running multiple emitters from one length of spaghetti, or by branching spaghetti. There is only so much water that thing can carry. Impress the kids and run one piece of spaghetti tubing per emitter. If you planned carefully, your conduit will run right along your plants, and you can connect emitters directly to the conduit. You were going to plan first, right?

Oh, I forgot the most important part -- goof plugs. These are small plastic plugs that fit in holes made where they aren't supposed to be. The plugs have two ends, big and little. For a nice clean hole made with a conduit punch, the small end fits tightly. For a hole made with teeth, or fingernails, or a connector that's been worked over, the big end is more useful. Buy a big bag of goof plugs.

Emitters are sold in 1, 2, and 4 gallons of water per hour delivered. In general, it's better to use larger-capacity emitters and run the system for less time, so long as the water is actually soaking in and not running off. If the water is running off, shift to lower-capacity emitters and run the system longer. Lower-capacity emitters tend to clog more easily with dirt. You did spring for a filter, didn't you?

As you're assembling the system, keep the tubing clean and don't let anything get in through open ends or holes you just punched. Tiny particles of soil clog emitters and soon it's a plug rather than an emitter. And, don't install any emitters and don't cap the end until all the conduit and spaghetti are connected for the whole line. Turn on the water, and let it flush out any dirt in the lines. Then cap the end. Water will continue to flow out the spaghetti tubing. Begin attaching emitters at the openings closest to the valve. This will allow the water to keep dirt moving on down the line. When all but a few emitters are attached, open the end, flush the line once more, and recap. Then attach the last few emitters. Leave the end accessible; you should flush dirt out of the entire system from time to time.

Inspect your system at least monthly. Turn on each line in sequence and walk each line. Inspect each emitter and all parts of the tubing visible. Emitters become clogged. Rabbits chew them off, and chew holes in tubing. Any time a plant isn't looking right, inspect the emitters right away.

As your plants grow larger they will need more water. Adding more emitters to growing plants is better than running the system for more time. Smaller plants may be receiving adequate water at the original setting and would be overwatered with longer irrigation.

Remember water must be delivered to the roots of the plant, not the base of the trunk. As the plant grows the feeder roots should grow out from the trunk. Move emitters away from the plant gradually at first, maybe two to four inches per month, and keep moving emitters to the dripline over time.

Upcoming Events - CALENDAR

General meetings are at 2:00 pm unless otherwise noted. Board meetings are one hour earlier. Members are welcome to attend board meetings.

March 30, 2003 John Trager of the Huntington Gardens - Photography of Cactus & Succulents

April 9-13, 2003 CACSS Annual Show and Sale, Dorrance Hall

May 18, 2003 Guided Tour of DBG Greenhouses, Dorrance Hall

June 29, 2003 CACSS Member Gard Roper - Agave, Dorrance Hall

July 27, 2003 Pete Petrie: Argentina, Dorrance Hall

August 24, 2003 CACSS Board Member Doug Dawson - CSSA Tour to Richtersveld & South Africa

September 28, 2003 CSSA President Duke Benadom - Echinocereus of Mexico, Dorrance Hall

October 26, 2003 Silent Auction of Member's Plants, Dorrance Hall

November 23, 2003 Leo Martin - Convention report, Dorrance Hall

December 7, 2003 Holiday Party 12:00 p.m. - 3:00 p.m., Webster Auditorium

Central Spine is the newsletter of the Central Arizona Cactus and Succulent Society. All opinions are those of respective authors. Publication herein does not imply that CACSS or any CACSS members agree with any statements published.

Change of Address:
contact our Treasurer,
Judy Brody, with any
changes of address.

DEADLINE FOR NEXT ISSUE!

The deadline for material submission for the next issue of *Central Spine* is:

March 7, 2003

Please make a note of this!

C.A.C.S.S.
PO BOX 63572
PHOENIX, AZ 85082-3572

