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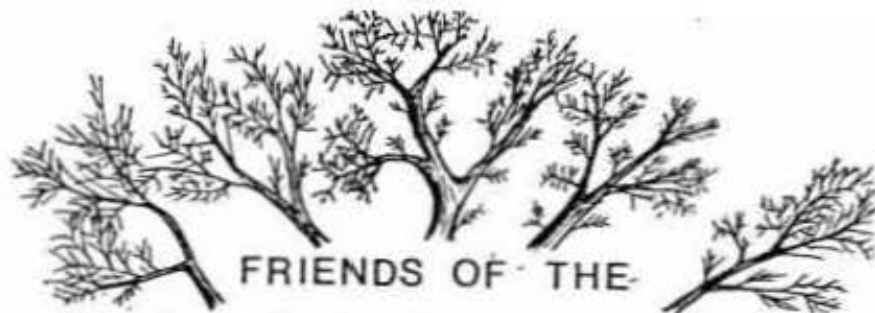
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FRIENDS OF THE
Stephen F. Austin State University

ARBORETUM



FRIENDS OF THE SFA ARBORETUM NEWSLETTER NO. 5, DAVID CREECH,
DEPARTMENT OF AGRICULTURE, PO BOX 13000, STEPHEN F. AUSTIN
STATE UNIVERSITY, NACOGDOCHES, TEXAS 75962
OCTOBER, 1987

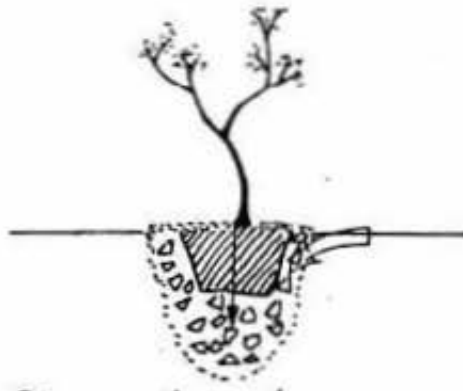
This newsletter marks the end of the first two years of Arboretum effort at SFA. Initiated in September, 1985, as a class project on the slope just to the south of the Agriculture building, the project has grown to the point that we are now an officially-recognized university resource. The Fall class is invading the LaNana Creek bottom armed with hundreds of exciting and diverse landscape plants. The slope to the east of the Art building has been set to a collection of West Texas and Mexico tree and shrub species. The bank of LaNana Creek has been planted to tupelos, mayhaws, several willow species and marks the start of our "river walk". A Japan, China, and Korea tree collection is set and will soon be underplanted with our amazing azalea collection. I urge you to drop by this Fall and enjoy the progress.

The following paragraphs include a report of a summer plant exploration to the mountains of Mexico with the legendary Lynn Lowrey and a trip made to Newton county to view the last remaining Texas stand of the silky camellia, Stewartia malocodendron. Both trips underline a basic function essential to a progressive arboretum.

TREKKING WITH LYNN LOWREY

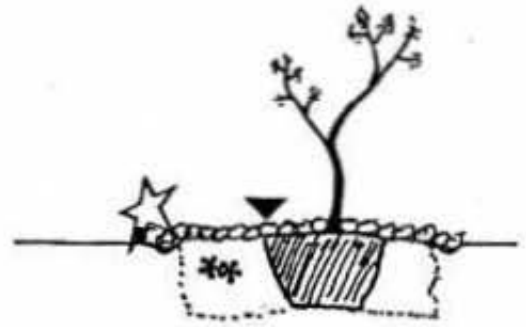
An invitation from Lynn Lowrey for a plant exploration to Mexico was impossible to turn down. Any student of native plants would recognize the name. Lynn has poked, prodded and hacked his way through the woods to numerous plant pockets in Texas and Louisiana and has come away with a plant that "might have a place" His plant introductions and his persistence in the landscaping and nursery business have had a heavy impact on Texas landscape thought. A 1940 LSU horticulture graduate, Lynn has always preached the proper utilization of adapted natives and interesting exotics, with an emphasis on diversity, season of bloom, and form and texture to insure that each landscape is special. While most of his focus

WRONG



- Plant easily settles
- run-off water fills hole
- excessively porous soils dry out quick

RIGHT



- ✱ Plenty of well-drained, loose soil
- ☆ Drain run-off water away
- ▼ Bark mulch

ANNOUNCEMENTS

Everyone is invited to the garden talks associated with the Men's Garden Club. Held every second Thursday of the month at the Agriculture Building, Room 116 or 118. The Men's Garden Club is planning a November bulb, tree, and shrub sale to take place at the mall. This cooperative effort with the Horticulture Club should help in getting a "courthouse" landscape project funded. Homer McAninch, club president, encourages anyone with a gardening interest to attend our programs.

Take a good look at the ornamental Cabbage and Kale planted by the Grounds crew at SFA. Bob Rogers is testing this crop in a big way at the campus entrance. There are also several small beds set to the crop. Dr. Alhashimi's class has planted the box garden in the Phase 1 area to white, pink, and red cabbage and kale. Should be interesting!

The new area just to the south and east of the Poly greenhouse is planted to vegetables this fall. We are trying to clean up this section. In the spring, it will be converted to Dr. Alhashimi's turf grass display area. We are testing several of the new geotextile "weed barrier" products in this garden. Most cost 5 to 10 cents per square foot and are reported to be porous to water and fertilizer but not to weeds! More on these exciting new products later.

In the future, the Horticulture Club will be mailing you post cards to keep you posted on their plant sales.

Thanks for the support.

has involved the natives of Texas and Louisiana, the lure of Mexico carries a special place in this man's heart. His love of the mountains of Mexico goes back to the 1960's and I believe that the trip we made in July, 1987, was his sixtieth excursion south of the border. Also on the trip was Dr. Ray Jordan, an ophthalmologist and enthusiastic amateur botanist, who had made this trip with Lynn many times before.

The land that stretches from Nuevo Laredo to Anahuac and Lampazos and on to Bustamente is a thorny and somewhat mean landscape. The lonely vistas that run along the narrow road remind one of west Texas and New Mexico. The few rivers that meander through this region support impressive populations of Mexican sycamore, Platanus mexicana, and Montezuma bald cypress, Taxodium mucronatum. The sycamore is very similar to our own but bears leaves with an exceptionally white underside, an accent quite striking when the wind blows. The cypress is a more flat-topped and open version of the species distichum that grows throughout east Texas and eastward to Georgia and Florida. We have a six-foot Montezuma cypress next to the Wilson Drive sidewalk just to the south of the large corkscrew willow.

The only hotel to stay at in Bustamente is the AnCira. After all, it has one of the few phones in town. The hotel has an old-world charm and faces a small courtyard blessed with pecan trees, bougainvillea vines, containers of tropicals, and a very striking Hibiscus. With a form similar to our own Soldier Rose Mallow, Hibiscus militaris, this particular five foot globe was cloaked in yellow-petalled, black-throated flowers. In spite of our late night arrival, Senor Hernandez gladly opened his doors and saw to it that we received a hot meal before bedding down. At dawn, Lynn had us creeping down a rocky trail just to the west of Bustamente on our way to a stand of Myrospermum trees. Nestled in an "arroyo" the trees cling to a dry rocky landscape. The habitat is interesting. Occasionally flooded by a rush of water from rainstorms further up in the canyon, the small stand, less than an acre, was first discovered by Lynn in the early 1980's. Lynn really gives the credit to Emmitt Dodd who first remarked, "What's that tree with the white flowers?" Amazingly, the tree proved to be a botanical unknown. Inspected by botanists at the University of Texas, the tree was named Myrospermum sousanum. Indians in that village referred to the tree as Palo Judeo (spelling?), or Bean tree. From seed pod collections, Lone Star Nursery at San Antonio, Texas, has introduced the plant to Texas and its northern and eastern range is now being determined. Perhaps, most interesting about this find is the fact that several years after the original discovery, a similar stand, although smaller, was found over 75 miles away. Further to the west, past several mountain ranges and a long flat desert landscape, these trees occupied a similar habitat, a rocky wash fed by occasional canyon rains. Most remarkable was the fact that local Indians referred to the tree with the same common name used by Bustamente villagers. Why only two small stands with the same common name so many miles apart? Did the tree once

occupy a wider range? The fact that livestock do not find the tree appealing would suggest that. How could it have slipped through the fingers of botanists? To further confuse the picture, a single tree was discovered only a few years ago in south Texas as a planted tree in an old landscape. The owners had no idea of the exact history of the tree.

In its home, the *Myrospermum* is surrounded by Blackbrush Acacia, Mesquite, cacti, *Miscagynia*, and others. The *Myrospermum* forms a graceful twenty foot-specimen with airy, light-green compound leaves, bark interest, white flowers and large seed pods. The tree was provided to our arboretum by Lone Star Nursery and is making excellent growth near the entrance to Phase 1, just to the south of the large corkscrew willow. In spite of a very dry first summer and a hard late freeze in April, the tree appears healthy and happy in its new home. While our mid-winter low fell only once into the high teens, the fact that the tree didn't even suffer tip damage is encouraging. Time will tell.

The road back to Monclova is bordered by hilly dry landscapes that provide a home for *Bauhinia congesta*, the orchid tree. The seed was on Lynn's wish list but after several roadside excursions, we decided that the pods were too green to collect. This delicate-leafed bush/tree with its fragrant white to pink blooms seems a little out of place amid its thorny neighbors. We moved south to the mountains and Saltillo. After recovering from a few lost hours trying to find the road further south, we found a scarred rocky trail that looked too inviting to pass up. After a long expanse of flat upland desert, we approached a small canyon. One walk into the brush led to a small colony of *Kalanchoes*, their bright red plumage easy to spot even from a distance. The altimeter read just a little over 7,000 feet and because the area has a history of mid-winter freezes, we all felt that the plant might have a measure of hardiness uncommon to the genus. A few miles further into this group of mountains we ran into our first and only stand of *Pinus greggii*. With *Agarito*, *Amelanchier*, and barrel cactus as neighbors, the trees offered a pendulous grace to the boulder strewn picture. The trees, none in this stand over fifteen feet tall, sported a dense nodding crown that began at the ground and rounded to oval forms. The trees were full and dense enough to almost completely hide the central trunk from view, even when viewed up close. The trees strike quite a different contrast to the rigid, somewhat upright branching habit of our slash and loblolly pines. Ray has a specimen in a planting west of Houston that is doing well and I'm eager to try the species in Nacogdoches.

The main road that runs south from Saltillo acts as the western border to the Sierre Madre Oriental mountains. The range is only a little over one hundred miles south and west of the Texas border. While several hundred miles long, it is only fifty miles wide. It can be characterized as a heavily dissected region with many narrow valleys, few trails, and very low human population. While much of the range suffers from some seasonal overgrazings, surprisingly large areas are relatively

pristine and unaltered. Like many mountain groups in semi-tropical and tropical latitudes, rainfall and temperature varies greatly within short distances. The botanical examples of the Mexican alpine rock garden, existing in pockets above nine thousand feet, are awe inspiring. The northeastern side of the range is blessed with a little more rain and, while not quite a "cloud forest", the trees and understory take on more mass. These areas are frequently swallowed up by fast moving clouds that pass through the region. Many of the canyons are narrow with steep walls which receive sun light only a few hours of each day, and catch only occasional thunderstorms. The channeling of runoff water and silting in of low pockets allows diverse plant colony development. With such extremes of temperature, rainfall, sunlight, and soil moisture in short distances, the opportunity for plant adaptation has been excellent. Tree and shrub species in this range have enjoyed over ten thousand years of adaptation, with little opportunity to "escape" northward or eastward because of the desert. The interest that this region holds to horticulturists and botanists lies in the fact that our kinship to the region may be very close. That is, the flora of the region contains many plants related to plants in the southern United States. Redbuds, dogwoods, cypress, oaks, pecans, ashes, acacias, and other trees bear a very tidy resemblance to their distant neighbors in our area, enough of a resemblance to keep botanists somewhat confused on acceptable taxonomic labelling. Many feel that the region was once coupled to our area in a wetter, cooler time, tens of thousands of years ago, and that the desert that separates us was once more hospitable. Because of elevation, many of the species are exposed to very low temperatures. Much of the range can be characterized as Zone 8 with winter temperatures commonly dropping into the teens.

The best place to enter the range on the western side is probably at El Potosi. This small dry village at the base of the mountains is heavily planted to the Desert willow, Chilopsis linearis, and the trees were heavy with bloom as we entered the town. After meandering through the village trails we selected and took cuttings of several trees with distinctive blooms. This tree is becoming quite popular in Texas. Two recent introductions by Benny Simpson, TAMU - Dallas, White Storm and Dark Storm, provide a distinctive white and dark lavender blooming tree. On the way to the mountain town of Galeana, the trail landscape becomes a wave of Penstemons, Salvias and numerous orange to yellow blooming composites. I couldn't help but think that these natural rock gardens would take a lifetime to create in a civilized garden! Mounds of pink, red, orange, blue, and yellow flowers emerge from cracks in the rock, cracks that also provide a home for several cacti and numerous succulents. The Mexico alpine garden is a very bright cocktail.

The trail's high point is a valley at ten thousand feet and the sheep herding village of San Jose de la Joya. The mountain stream that snakes its way across the small plain is bordered by heavily overbrowsed grass. Down the other side of the

On the way down the mountain to Galleana, we stopped our truck at numerous canyons to make brief climbs up wash areas to look for plants. A stand of Mahonia gracilis appeared unhealthy to Lynn when compared to his last visit. I had never seen Cowania mexicana before and became convinced that this heavy bloomer deserves a try in our area of east Texas. Classified as a Zone 6 by Hortus, this shrub to seven feet sports stiffly ascending branches and, at the time of our visit, was cloaked with cream-colored flowers. The plant enjoys a rocky, steep, dry habitat and was particularly common near ravines and canyons. The stands of Cercis mexicana, the Mexican Redbud, and Fraxinus cuspidata, the Fragrant ash, were inspiring. The Mexican Redbud with its undulating leaf margin and glossy leaves has achieved a high degree of popularity in Texas cities further to our west. Some botanists argue that the tree should probably be classified as Cercis canadensis "mexicana". While remarkably similar the leaves are smaller with a wavy margin and, in general, the tree itself is smaller, seldom reaching twenty feet in those areas we visited. There is, no doubt, tremendous selection opportunities with this species. Bloom and leaf variability is substantial and would make a good starting point.

One entire day and most of the night was devoted to the mountains and valleys south of Inturbide. After a brief climb, the trail settles alongside a stream and meanders for miles into the mountain range. For some distance, the land remains hospitable and displays an occasional field of corn and beans. At one stop, a small colony of plants, numbering no more than several hundred specimens and appearing to be members of the Lily family, lay scattered in an area no more than 100 feet wide and long. While most were well past bloom, the few that remained indicated a short six-inch inflorescence with small blue flowers. The plant itself resembled an Aloe, with fleshy light green leaves six to eight inches long. They sport none of the spines or rigid blades of any of the yuccas and Ray was eager to make a run at keying out the plant. With a worn P.C. Standley's Trees and Shrubs of Mexico in hand and a few spent flowers, Ray felt that the plant was, indeed, a lily and most likely a Yucca, but he couldn't get any further than that. On the few plants inspected closely, the root system consisted of root swellings two to three inches long, similar to soft tubers, just beneath the scanty soil pockets these plants called home. The plant is still unidentified.

The rough and rocky mountain slopes that border the trail soon change to steep canyon walls that leave only enough room for the stream, the trail, and two thin strips of soil capable of supporting plants. The narrow canyon floor displays an incredible array of Quercus polymorpha and canbyi, oak specimens with open heavy branching cloaked mysteriously in Spanish moss. While the oaks are certainly not rare in their own habitat, I was quite surprised to see that the understory in this particular forest contained so few juvenile trees. With only a few seedlings and young trees in a many-mile stretch, the forest was dominated by fairly even-age mature specimens.

While there may be other explanations, our first guess was that the area suffered from an abundance of browsing livestock. A close inspection revealed a heavy acorn crop and Lynn will, no doubt, be making a collection run in the late fall. The wild olive, Cordia boissieri, also makes its home in this valley and the trumpet-shaped, showy white flowers were in full force. Further into the valley, and after several low water crossings that I thought were too high, we decided to find our way to the village of San Francisco and a main road by traveling east. The maps we utilized were aviation maps and, while they never revealed trails, they seemed to indicate that the stream we were following would leave the mountains and get us to the foot hills and on to the village of San Francisco. While my Spanish is not perfect and several friends of mine who do speak the language call it "bulldozer" Spanish, I was able to communicate to an occasional horseback Indian and ask directions. "Is this the road to San Francisco?" I would ask. All assured us that the trail led to San Francisco. "Is the road OK?" was my second question. "No problema" they always replied. Three hours later, after fording a few streams, passing and seeing no one, we finally arrived at a small thatched roof house that sits at the base of the mountain of, you guessed it, San Francisco. And, wouldn't you know it, there was no way to get to the village of San Francisco except back through Inturbide. With just enough gas, a broken shock absorber, and a little luck in remembering our "roads," we were able to limp back to civilization. Top speed on most of the trails is 15 miles per hour and most of the time is spent dodging small boulders that dot the road. At night, with no light for miles in every direction, it's easy to understand just what draws some men and women to live in such a strange and rugged land.

From Inturbide the main road turns eastward, leaves the mountains, and then meanders northward to Montemerellos. Horsetail Falls is only a brief drive back up into the mountains. The Falls are spectacular, resembling their name, and the plume sends up clouds of mist as it collides with rocks and crags that jut away from the cliff wall. Because of the humidity and mist, a cloak of plants has found a home on the sheer face of the mountain. From Horsetooth Falls the road climbs to a little over seven thousand feet and then changes into a trail. In a pine tree forest, I got my first look at an understory of Mexican blueberry that I had never seen, Vaccinium confertum or, perhaps, Vaccinium rugosa. The plants formed a thin ground cover in the dense shade of the pines. I was surprised that the root system did not make a fine fibrous mat under the pine litter but, instead, appeared to be dominated by several roots penetrating deep into the rocky soil. None of the plants exceeded four feet tall and most appeared non-vigorous. Also on this slope were several thirty foot tall specimens of Mexican dogwood, Cornus unbiniana. The tree is similar in appearance and may be a type form of our own dogwood, Cornus florida. The high pine forest soon drops into a canyon with sheer cliff faces bordering each side of a stream and trail. The Mexican yew, Taxus globosa, makes its home here

and there, clinging to pockets of soil between boulders. The valley is strewn with herbaceous perennials and wild flowers. There's an occasional wild dahlia, numerous penstemons, salvias, a few composites, a Verbena, and what appeared to be a rather floriferous vetch, Vicia. Lynn was pleased with the find of a red-flowered Monarda, or horsemint, that lay as a one-foot ground cover mass in shade pockets of the forest, literally creating small pools of red.

After backtracking east to the main road that runs between Montemerellos and Monterrey, we made one last side excursion to Chipinque. This mountain town and associated forest is home for thousands of Mexican redbuds, numerous oaks, and a forest floor of salvias and penstemons. On one hike, a large flowered Phaseolus vine was spotted and, according to Lynn, the best find of the trip, a Skullcap colony, Scutellaria species. This rhizomatous, perennial herb made a strong attractive ground cover in a few sun-lit forest pockets.

After leaving the mountains behind us and before crossing back into Texas, several hours were spent looking for seed of Yucca rostrata, the Beaked Yucca. An excellent colony was located on the trail to the microwave tower near Mamulike pass. This blue species is quite striking, six to seven feet tall, and appears to be adapted to many areas in the South. It acts as a treelike shrub with one to five shoots and will flower in two to three years. After five years, the plant begins to develop a trunk. Like many yuccas, this species thrives on dry calcareous well-drained soils. After the last collection, all that remained was to clean the seed, remove soil from root systems, and list all the species in the collection. Lynn has a plant import permit, and is well aware of what can and cannot be imported. Plant quarantines exist on numerous species. For instance, no members of Hibiscus can be brought across the border since they are related to cotton.

I can assure you that the trip made me look at many of our arboretum trees and shrubs, those from Mexico, with a new eye. I couldn't resist the urge to add a little more limestone to the soil and made a vow to water them less!

COLLECTING PLANTS FROM THE WILD

Collection of plants from native habitats has become an increasingly complex issue. While digging a few yaupons on a farm and placing them into a landscape hardly strikes one as a plant endangering act, it's important to understand the issues involved. Plant protection laws exist to prevent the rampant plundering of certain habitats. Literally thousands of large specimen cacti are dug in the western United States and this practice is now heavily regulated. Plant protection laws also protect rare and endangered plants. Many plants exist on the edge of extinction. Some plants no longer exist in their native habitat but have found a home in cultivated landscapes, their genes saved for posterity. Some plants may exist only in highly scattered small communities. It is important to preserve each pocket, if at all possible, so that genetic diversity can be

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maintained. For instance, many species of the south find their western range defined just inside our state. Two examples would be Magnolia pyramidata and the silky camellia, Stewartia malocodendron.

In 1973, Congress passed the Endangered Species Act which gave federal protection to plants. The list of plants to be protected by the new law was developed by the Smithsonian Institution and included about three thousand native plant taxa, or about one out of every ten native plants that live in the U.S. Many scientists were surprised. As a result of the law, many plants cannot be collected from government lands without a permit issued by the appropriate agency. In addition to this federal law, about half of the states have passed laws to protect certain plants, some by insuring the preservation of habitats. APHIS, the Agricultural Plant Health Inspection Service, is responsible for monitoring the entry of plants into the continental United States. They must insure that no soil, insects, or diseases enter on plant material and that the plants must not belong to prohibited families. One must recognize, however, that plant collecting and the commercialization of that practice is difficult to monitor and in many cases, is rapidly depleting plant inventories.

When purchasing native plants, it is always best to insist on propagated plants. That is, plants that are propagated at a nursery from stock plants are preferred over plants dug in the wild. Some large "nurseries" dig native plants, transfer them to a large container, throw in a little media, grow it for a while and sell a "container-grown" plant. The problem is much greater when dealing with nurseries selling rare natives. The removal of just a "few" plants from a small colony can, over the years, reduce that colony's precarious population to numbers that make the colony unsustainable. Be aware that most wild flowers offered for sale through mail-order catalogs are collected from the wild.

Even when collecting a few plants from the wild for an arboretum or botanical garden or to secure stock plants for nursery propagation purposes, one must consider the impact. If a population numbers in the hundreds or thousands, little damage is done by the removal of a few specimens. Indeed, the retrieval may be warranted to "save" the species by placing it under the care of a concerned plant scientist. If there is interest, the species can be multiplied and its survival assured. Rather impressive efforts are being made now to secure plant germplasm from many areas of the world that are experiencing plant habitat destruction. Those of you interested in native plants of Texas and the laws that regulate the collection of plants may contact the Native Plant Society of Texas, 1204 South Trinity Street, Decatur, Texas 76234. Dues are \$15.00 per year with six newsletters per year. The newsletter focuses entirely on the native plants scene with interesting articles concerning rare, endangered, and unusual plants.

In late July, Monte Bales, a graduate student at SFASU, and I made a trip to Newton county to meet Osa Hall. Osa is retired from the Texas Forest Service and knows plants in the woods like few people I've known. He first found the stand of Silky Camellia, Stewartia malocodendron, over twenty years ago. While working for the Forest Service, he happened to walk into the colony. While Osa knew plants, this was one he had never seen. After securing a limb and flowers and chasing down the right people, Osa was able to identify the small tree.



Stewartia malocodendron

From: Nixon, Elray. 1985. Trees, Shrubs, and Woody Vines of East Texas. Bruce Lyndon Cunningham Productions

The colony lies near the banks of Little Cow Creek but not directly on the bank. Instead, the trees have chosen as their home a thin stretch of sandy soil in the pine forest on a slope about one hundred feet from the creek. After traversing many miles of timber company logging roads, taking a right and a left and a left and a right, and after a thirty minute hike when logging trails become impassable, I now understand why so many who have seen this colony can't tell you exactly how to get there. I read in a native plants book that Osa often

blindfolded his eyes
the plants, his way of protecting the stand. I
asked about this and shrugged it off as academic. I
brighten a story but assured me that it wasn't
necessary. Soil on the gentle dry slope that approaches
creek is very sandy and heavily mulched with pine and
forest litter. On the slope above the silky camellia
there is evidence of past erosion, with five feet deep
now healed over. The hillside has been clearcut several
and heavy rains have scarred the face of the hill. Osa
these gullies for taking away rains too fast and making
springs dry up in the area. There aren't more than a few
silky camellia specimens over five to six feet tall.
tallest tree is no more than ten feet. Of course, the
did suffer a major set back about a decade ago when the
company, on whose land this colony rests, accidentally
and then bulldozed the site. Osa discovered the disaster
after the timber company realized what they had done
quickly jumped to make the rescue. The trees had not
been bulldozed but a large pile of brush had been pushed
their home. After carefully unstacking the brush, a
fence was built around the area and the trees are back in
form. The area was set to young pine trees and the
camellia now resides in a rather dark home. The tree
indication of distress and are making excellent growth.
set was poor and seeds were still immature at the time
visit, July 27, 1987.

Stewartias are members of the Theaceae family and
species are known. Most are recognized as strong
candidates with interesting bark, form, leaves, and
Durr states that the plant is a southeastern native
principally in the Coastal Plain. Commonly found on
of streams, it is sometimes found in drier areas. Habit
of a large shrub or small tree, up to fifteen
according to Durr, the plant was vigorous at the Uni
Georgia Arboretum. Indeed, at Little Cow Creek,
camellia grows in a somewhat irregular fashion and
want to topple. Side branches often greatly exceed
of the tree, reaching horizontally and then down in
swoop. At Little Cow Creek, low branches often
ground, and I noticed that some had initiated roots
mulch. While I couldn't find any that had anchored
well, the presence of a few small roots via layer
encouraging sign. The silky camellia behaves more
than as a tree and when cloaked with white flow
thought to be an outstanding accent piece for any garden.
leaves are dark green and white-petaled, purple-
blue-anthered flowers reach three inches in diameter.
helped me collect a few cuttings and we made our way
the truck. Osa has set a few of the plants on a site
behind his home near Burkeville and, while they are
do not appear to be quite as green or as healthy as

in a few stands in Louisiana and eastward in Mississippi, Alabama, Georgia, and Florida and in the north, in Virginia and Arkansas. The tree has been rated as a Zone 7b and should perform well in Zones 7 to 9. The tree is known to appreciate loamy, well drained soils with high organic matter content. They make a nice companion plant to Illicium and Gordonia and can blend quietly into azalea beds. They are reported to be somewhat difficult to root. Late summer cuttings treated with hormone and placed under mist often result in success. Lynn Lowrey stuck hardwood cuttings, treated with Hormodin #3, in mid-winter in one gallon cans in the shade and rooted most of them. This was just a matter of timing, perhaps. Dirr reports that summer cuttings of Stewartia ovata, Mountain Stewartia, can be rooted at good percentages using peat:perlite, 1 to 2% IBA levels, and mist. The cuttings should not be moved after rooting but should be allowed to go through a dormancy period. In fact, most of the difficulty in propagating Stewartias appears to be in the overwintering process. Extra light in the fall period apparently encourages new growth. Without a flush of good growth after rooting, overwintering is almost impossible. When new growth is initiated, they can be repotted.

ARBORETUM HAPPENINGS

This summer went by smoother than last. Four Y.O.U. camp youngsters helped keep the arboretum fairly free of weeds, helped with bark mulching, and worked in keeping the weeds out of our container collection. In addition, these four young men did the seeding on thousands of bedding plants to be planted in the fall. We will have flats of flowering cabbage, kale, snapdragon, and pansy varieties going into the arboretum this September and I'm looking forward to that display. The Y.O.U. program is administered by Dr. Duke Brannen in Secondary Education and stands for Youth Opportunities Unlimited. The program involved approximately ninety fourteen and fifteen year old youngsters who spent the summer at SFA in a work/educational experience. As our arboretum grows, this avenue of landscape maintenance may allow us to make it through the difficult summer-time period.

By now, most of you have noticed the new building just finished on the south side of the Phase 1 and 2 gardens. The present location of this restroom/concession stand/storage building doesn't interfere with our development and, in fact, adds a touch I'm glad to see. While some of my students grumbled a bit when news of the construction first hit the department, we are already making plans for a design we intend to call the "fragrant path"! When the Arboretum matures and reaches a size that requires two to four hours to stroll and inspect, I suspect that a cold drink and rest stop might just be appreciated!

Nearly all of our landscape plants made it through the summer. A large limb fell from the aged water oak and badly scarred a small Mexican oak tree. A sugar maple was enjoyed by our resident rabbits and will not survive. Several of our

ornamental grasses were accidentally mowed, my fault for not planting them to a bed or flagging them heavily. Mr. Sherman's lawn mowing crew kept the grounds neat and clean and respected our trees by not chipping the bark with mowers, a major problem in many landscapes. The round ring of bark mulch followed up with an occasional Roundup spray removes the need for crews to get too close to the trunk.

In our container yard, I learned just how difficult it is to grow so many different species side by side. Some have high water requirements, some have low, some like fertilizer, some do not. All of this made for busy reshuffling to try to place plants into groups with similar needs. Our spruces and firs, many that I expected would suffer, did suffer. The heavy rains of June were oppressive. July and August heat proved too much to bear for several species. While many are still alive, I have been disappointed with the growth. I'm now convinced that our mix needs more sand and less frequent watering. Some of the losses came as quite a surprise. A Monkey Puzzle tree, a gift from North Carolina State University, appeared to survive a late freeze, initiated some growth and died suddenly in the heavy rains of June. While it's discouraging to lose even one plant, I take some encouragement from the fact that 95% remain healthy and vigorous.

I have not attached a list of plants acquired since the last newsletter (May, 1987). That list will be included in the next newsletter (December, 1987 or January, 1988). We have added some interesting plants. From Del's Japanese Maples, 4691 River Road, Eugene, Oregon 97404 (503-688-5587), we received a collection of Japanese maples, Acer palmatum. Because of the past history of the variety "Bloodgood", I secured twenty five grafted liners and then chose twenty-five different varieties to test. The varieties included Orida Nishiki, Oshio Beni, Okushimo, Sango Kaku, Scolopendrifolium, Seiryu, Shindeshojo, Suminagashi, Superbum, Tana, Trompenberg, Butterfly, Akaji Mishike, Atrolineare, Butterfly, Higasayama, Hogyoku, Kingsville Variegated, Hoshimino, Burgundy Lace, Moonfire, Nomura, Novum, Nuresagi, Ogon Sarasa, Omurayama. Most have five-pointed leaves and make small trees. We have also added an excellent group of plants from the Mexico trip that includes specimens from west Texas. In the container yard we have developed several nice groups that include 75 one-gallon Phelodendron amurense trees, seed provided by Arnold Arboretum. We have a good number of seedlings of Cryptomeria japonica, Akita strain, that should make a promising uncommon tree for our area. Seed for this Japanese Cedar was provided by the Western North Carolina Arboretum and represents a new and promising strain. A group of fifty Mayhaw trees, Crataegus opaca, are looking healthy and will soon be growing near the drainage ditch on the south side of the arboretum.

Lynn Lowrey visited the arboretum in early August and assured me that the approach we are taking has great promise. With most of our budget tied up in developing plant diversity via container-growing, we can quickly build an impressive inventory of specimens with low dollar investment. When one

considers that the Mercer Arboretum entrance gate probably cost more than our entire effort has cost to date, then our future appears particularly bright. Time is a great friend to the value of a plant and a garden. Lynn and I spent a good portion of the day exploring the Hayter property just to the west of Nacogdoches. The site is blessed with heavy flowing springs and deep upland sands underlain by bedrock. The plant community is diverse and site specific. In the upstream portions of the springs, large stands of Sweet Bay magnolia, Magnolia virginiana, provide the dominant overstory. With beautiful pockets of Cinnamon fern, native azaleas, Vaccinium species, and dogwoods, the land offers a variety of special plant life worth seeing. One particular group of plants caught Lynn's eye, a colony of ten or twelve Carolina Hollies, Ilex ambigua, had found a home at the top of a slope in and amongst some American Holly trees. This uncommon native is multistemmed with dull green leaves and deserves further recognition.

CABBAGE, KALE, BROCCOLI, and CAULIFLOWER

Now that fall has nearly arrived, it's time to think about a crop to provide color and food this fall and winter. For years, I have been encouraging East Texans to take a hard look at Flowering Cabbage and Kale as a showy, eye-catching quick bedding plant. Five years of fall Broccoli and Cauliflower variety trials has resulted in some fairly solid optimism with these very popular vegetable crops. The Horticulture Club has a greenhouse full and I encourage you to come by and try some of our many varieties.

We have had good luck with this plant by seeding in late July to early August and setting the plants into the landscape in September. There are several keys to success. Keep in mind that, like pansies and snapdragons, this crop can survive a "normal" winter. By late October, flowering cabbage and kale will have filled their allotted space and should remain showy throughout the winter and spring. There are numerous varieties and colors available now. Some varieties sport frilly leaf margins, others are smooth. Colors range from red to purple to pink and white with quite distinct variegations. The plants are striking and I've noticed that many people on seeing this plant for the first time say, "What's that!". How late into the spring an ornamental cabbage/kale bed can stay attractive depends on heat units. Spring heat stimulates bolting, which destroys the effect of the planting. The flower stalks turn the plant into what my students describe as "ugly coneheads", and the spent flowers are quite dismal. So, as soon as the planting bolts it's best to remove the plants and set typical summer annuals.

Cole crops demand a fertile, well-drained soil and appreciate a neutral pH. They are heavy feeders of calcium, magnesium, and boron. This plant grows best when well mulched and appreciates some organic matter incorporation into the soil. We typically fertilize our plants frequently and lightly. With a heavy preplant incorporation of a complete fertilizer

and two or three light applications in October and the plants should be twelve to eighteen inches in the time winter arrives. The plants do have a crown immediately after planting. It is important to not anchor the plant. The root system must be kept moist until it anchors itself and begins to grow new leaves. Cabbages are occasionally a problem but can be eliminated with timely sprays of readily available garden center chemicals. In our area, broccolli and cauliflower are most susceptible to buildups of the cabbage maggot.

Growing Hints

1. Cole crops need excellent drainage, use raised beds when possible.
2. Plant transplants September 1st to September 15th and set them deep enough to bury any leggy stem. Cauliflower, cabbage and kale planted 18" apart; broccolli planted 12" apart.
3. Use two lbs of 12-12-12 or any complete fertilizer per 100 sq. ft. Side dress after plants are to 8 inches tall with nitrogen (33-0-0) 1lb/100 sq. ft. Limestone additions if pH is less than 6.0.
4. Watch for Cabbage loopers and cutworms. Control with Dipel, Thuricide, or other sources of Bacillus thuringiensis. Diazinon and malathion are effective. Watch for Cabbage maggots, below ground in-the-stem larva that burrow into the main stem and root system. Diazinon pellets pre-plant or drench later.
5. Plants appreciate mulch and careful attention in the first few weeks. The key to success is the establishment phase. Once the plant is well-anchored and growing, they are tough.
6. Green Comet and Snow Crown are two popular varieties of broccolli and cauliflower varieties. Many varieties of ornamental cabbage and kale are available, most not tested in our area. "Dynasty" and "Emperor" cabbage and kale varieties performed well last year.
7. Use red, pink, and white forms of cabbage and kale in mass designs or as an edging plant. The plant is very striking.

BOOK REVIEWS

An excellent native plants book by Jill Nokes, Native Plants of Texas and the Southwest, Texas Monthly Press, Austin, Texas, has been a very useful resource with its west Texas and Mexico collection. With fifty pages dedicated to gathering and storing seeds, seed

planting, vegetative propagation, and transplanting of natives followed by over three hundred pages dedicated to individual species. Each species is covered by a general description, flower and fruit characteristics, natural habitat, range, preferred site, collection and storage of seeds, propagation, and general remarks. Even though some of the propagation data and adaptation data is scant on many species, this book makes an excellent starting point.

The Gardener's Illustrated Encyclopedia of Trees and Shrubs by Brian Davis is a delightful guide to over two thousand varieties. Published by Rodale Press, Emmaus, Pennsylvania in 1987, each species and main horticultural varieties are rather extensively described. The small print allows for a lot of information in two hundred fifty pages. Each species description includes a high quality color photograph and then runs through the following format: species, common name, family name, special features of the plant, origin, landscape use, description of flowers, foliage, stem, and fruit, hardiness, soil requirements, sun/shade needs, pruning, propagation and nursery production, problems, varieties of interest, and average height and spread at five, ten, and twenty years. I found this book impressive and it should be useful to the growth of our arboretum. Brian Davis is director of Sherrards Garden Centre, Newbury, England, and has been associated with the nursery retail trade for many years. While geared to the south of England and covering many cultivars not easily available, the reasonable price (less than \$25.00) and wide range of tree and shrub species covered makes the publication a worth-while investment.

FALL PLANTING OF TREES AND SHRUBS

In our area of East Texas, it is generally best to set container-grown trees and shrubs in the Fall. While most homeowners begin to think of adding a few woody plants to the landscape at the first sign of spring, there are a number of good reasons to think about fall planting. First, plants set in the fall have ample opportunity to take advantage of accumulated soil heat by initiating new roots and to become well-anchored before spring bud break. Everyone knows that the first year of a tree or shrub is often its most difficult challenge. Lack of an extensive root system during the first summer can spell disaster. By planting in the fall when soil heat and moisture are usually adequate, an extensive root system can be developed. In fact, many trees and shrubs will continue to grow roots throughout the winter. When spring arrives, fall-set plants are that much further ahead than spring-set plants. Another reason that fall planting makes sense is that nurseries often are willing to greatly discount their inventories before cold weather hits. Nurserymen are eager to reduce the costs and risks of carrying container plants through the difficult winter period.

Whether a homeowner plants in the fall or spring, it is important to set plants correctly. Unfortunately, even "how-to"

than it solves. One might think that after all of this time planting, observing and evaluating, horticulturists would have reached a consensus on "how to plant". Not true. Dr. Carl Whitcomb, formerly of Oklahoma State University and a wonderfully outspoken horticulturist, has preached for years on the dangers of two common practices. In many soils, digging a wide, deep hole often creates what is called the "bathtub effect". That is, by digging a deep, loose hole we often encourage a mini-lake to develop around our new plant. Brief heavy rains run off more compacted soils, find numerous entry points into our "hole" and quickly saturate the area. Plants set high above this "bathtub" often settle several inches, further aggravating a wet-foot environment. Adding excessive amounts of organic matter (pine bark, compost, leaf mold, etc.) can make the root environment excessively "droughty". Planting holes deeper than the plant container, then backfilled, are prime candidates for settling and, because the soil is loose, can quickly become water-holding "bathtubs". This is especially common if subsoils are tight with slow drainage. Dr. Whitcomb recommends a wide, shallow planting hole with a depth no deeper than the depth of the container. Too much organic matter, particularly pine bark, in an around the root system can lead to drought problems the first year even if homeowners water frequently. That's because the mix is excessively porous. Water applied to the surface quickly runs through the root ball and then enters the native soil where it moves rather slowly. It's very possible to have a wet soil only a foot from the root system and, yet, the root ball can be dry. The goal, according to current thinking, is to get the plant's root system into contact with the native soil as quickly as possible. Homeowners would be better off, in most cases, if they applied organic matter as a deep mulch. Keep in mind, however, that organic matter additions to the soil can benefit plant growth and development, particularly if it improves soil pH, drainage and water-holding capacity, and if it is applied over the entire potential root zone of the plant. A large bed to be planted to azaleas should be checked first for drainage. If water moves rapidly through the soil and if the pH is below 5.2, the site is probably sufficient.

What about breaking up the root ball of the container-grown plant? On this point the data is mixed and depends on species. In general, if a root-bound condition exists, with roots circling the container, the root ball should be broken to allow root spreading. In some cases, it may be necessary to prune away misshapen roots. Some horticulturists recommend that the root ball be "scored". That is, a knife is used to cut vertical trenches into the root ball. Rabbiteye blueberry growers in East Texas commonly break up the root ball completely by shaking all of the media free. That fine, fibrous root system, similar to azaleas, is then spread in a shallow circle three inches or so below the surface of the soil. Plants appear to appreciate this greatly.