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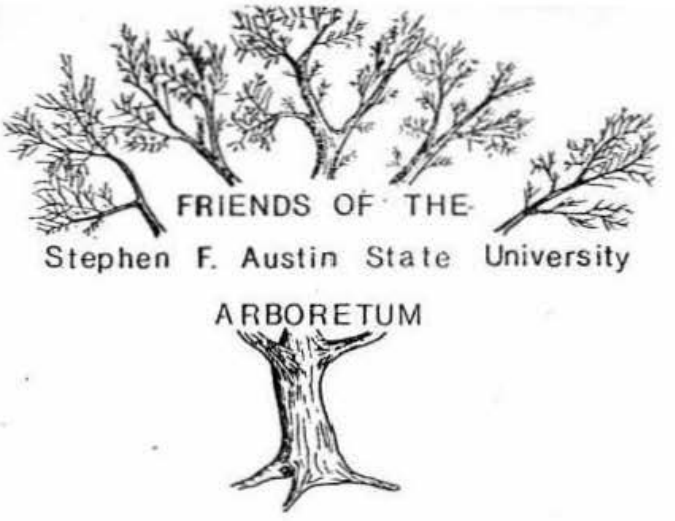
SFA Gardens Newsletter, Dec 1986

SFA Gardens, Stephen F. Austin State University



Friends of the Stephen F. Austin State University Arboretum Newsletter No. 3, David Creech, Department of Agriculture, PO Box 13000, SFA State University, Nacogdoches, Texas 75962, December, 1986.

So many wonderful developments have occurred to promote the growth of our arboretum. As our second winter approaches, we have a clearer vision of where expansion opportunities may carry our effort. To all of the "Friends", let me express some gratitude for your support. It's encouraging to know that there are some died-in-the-wool arboretum fans out there! We all know that if SFASU makes the jump at a campus wide tree arboretum, we will become a very special Texas university. Time is a wonderful friend to a forest.

ARBORETUM HAPPENINGS

What has happened since the last newsletter? Too much. The August, 1986 California collection of plant material is settled into place. The Japanese maples from Berkeley Horticultural Nursery shuddered after the long hot trip in the back of my little truck; some even lost most of their leaves. But a healthy repotting and Osmocote application encouraged the return of vigorous new leaves. Most of the English Holly (Ilex aquifolium) cuttings from Strybing Arboretum, San Francisco, have rooted and been transplanted into one gallon containers. Many of the plant specimens collected this last summer have found a happy home in the Phase 1 and 2 garden areas this fall. Some have been planted to that area just to the east of the Horticulture facility. As our development project expands, additional acquisitions will be placed.

Several nurseries are due a note of gratitude. Hines Nursery, Houston, Texas generously donated approximately 140 new woody plants to the arboretum. Mike Gaffney, one of my students, and I picked up the van load in mid-October. Many of these are already in place and some have been repotted into larger containers. Thanks to Taylor Moore, Customer Service,

for making this initial gesture of support. SFA will soon be testing new materials for Hines from the California branches; new plants that may have a place in our East Texas landscapes. For example, a Milletia reticulata vine promises to be an "evergreen wisteria". The inflorescences are reported to be as long as 8 inches and the individual flowers as long as 1/2 inch with a pinkish-purple hue. The question of hardiness remains unanswered (although Bailey reports this Burmese species as a Zone 8 twining, woody vine); the winter will be a good test. We have given this specimen a home at the south east corner of the deck and arbor/phase 2 area; to set the plant there the class had to do a little chain saw "reconstruction" on the deck that provides the vine with about 2 feet of protection. There are so many other plants that deserve mentioning. The Pistache chinensis, Chinese Pistache tree is now set on the north side of the shade house. This is a trouble-free tree from China, Taiwan and the Phillipine islands that reminds one of our popular native, the pecan. This tree can reach 60 feet. At our site, I suspect that it will do somewhat less. Thirty feet to the east of this specimen we have set an 'Aristocrat' pear, Pyrus calleryana; this cultivar is much more columnar than the 'Bradford' set in the Phase 2 area. Another plant that caught the students eye was Elaeagnus X Sunset. This variegated Hines release has a very bright yellow margin on the leaves that contrast strongly with the foundation green midportion. Take a look at the interesting group of Hines plants listed at the end of this letter in the Plant Acquisition section.

Thanks to Lee Alexander, Dallas, Texas for donating funds to purchase about 50 quality arboretum labels. These 3" X 5" aluminum plates are labeled via a photographic technique and are reported to last almost forever. We have chosen about 50 specimens in the Phase 1 area that will soon be marked by a cadillac of arboretum labels. Mr. Alexander's interesting gift will underline just how classy a first-rate arboretum can look. Each label will contain three lines: the genus species, the common name and the area of origin. I have attempted to select candidates for these labels to be those plant types most adapted to our area. In that way, we can insure that these expensive labels will always be in use.

A really big surprise was the arrival of two boxes of plants via UPS from Dr. J.C. Raulston at the North Carolina State University Arboretum. Approximately 80 uncommon plants were received about 5:00 p.m. one Friday. I quickly snared a student, Alan Ware, and Dr. Walter (the SFA Agronomist) and in less than an hour we had them all resting in one and two gallon containers in the shade house. So far we haven't lost a one. One of the interesting plants in this collection is a Franklinia altamaha. This is a small tree with blooms similar to that of the camellia. Its only problem appears to be a vascular wilt disease associated with poor drainage. This species was originally found growing wild in southeastern Georgia by John Bartram. He transplanted it to his Philadelphia nursery and sent plants to England. Named in honor of Ben Franklin, this plant was seen in the wild for the last time in

1790 and has been preserved through cultivation. We have a flat of Franklinia seed started in the greenhouse. A brief look through the plant acquisition list will reveal a number of other interesting plants. Some of the Ilex numbered grouping are selections from the National Arboretum; this organization has aggressively retrieved plant species from Japan and Korea. A recent botanical exploration involved several coastal peninsulas and offshore mountainous islands. The preliminary report of T.R. Dudley describes the team's work on the islands of Taehuksan, Sohuksan, Wando, Chindo as well as coastal regions. The report makes for fascinating reading and underlines the dedicated commitment the botanical community has made to retrieve and document native plants in their native habitat. The heavy pressures of man and his beasts in so many areas of the world is eliminating plant species at an ever-increasing rate which underlines the urgent need for work at this time. This was a trip that Dr. Raulston made via some generous North Carolina nurserymen. Some of the islands had never been documented botanically and may yield many surprises as the plants are tested in this country.

Ms. Sandi Elsik, who you may remember as Sandi Coufal, made a brief mid-October visit to our community. She was a former member of the Bluebonnet Garden Club, a native plants nut, and now a curatorial assistant working at the Arnold Arboretum of Harvard University in Boston, Massachusetts. She is one lady who turned her love of plants into an SFA Biology Master's and a job at one of the finest old arboretums in this country. She handcarried an interesting group of cuttings to me and two small container plants, a Heptacodium jasminoides and a Sinojackia xylocarpa. The Heptacodium is a small tree, often multi-stemmed with interesting flaking bark. The white fragrant flowers should appear here in September or October. The seed for this rare Chinese plant was first sown in this country in 1981. The seed was collected by Dr. Dudley on the Sino-American Botanical Expeditions and established at the U.S. National Arboretum and the Arnold Arboretum. Sandi assured me that the plant would be hardy here and we carefully chipped it up to a one gallon container, double labelled the container and pine barked it in. The Sinojackia is a member of the Styracaceae family, one of three species in this genus, and I extrapolate that it is similar to Styrax and Halesia. It should be well adapted here. Sandi also donated a grouping of woody plant cuttings; this included a collection of Viburnums (generally easy to root). While this is a poor time of year to take most woody cuttings, we can always try. Sandi was kind enough to lead me around our own Nacogdoches area to several gardens that utilize natives as a foundation. The strawberry bush, Euonymus americanus, was in full show and the interesting orange fruit and red seed are quite a contrast to the lacey foliage of the shrubby plant. This plant deserves greater recognition by landscapers. We made a cutting collection of about twenty plants before calling it an afternoon. Thanks, Sandi.

Thanks to Tom Wild of Wildwood Nursery for his generous gift of approximately 160 garden mums to brighten our Fall

garden. The Landscape Plant Materials class chose to develop in the entrance bed a white wave in the midst of a sea of two purple flowered varieties. Alan Ware, Jon Mitchella, and Melissa Beatty managed the planting and pine bark mulching of this important entrance area. Sixteen other varieties were given a home amongst the growing shrubs and may be a permanent part of the Phase 1 area. They would make an excellent source of cuttings for future Hort Club efforts. Garden mums make an interesting ground cover in our area; they require frequent shearing to remove spent flowers and encourage new growth. They spread rapidly, once established, and can do a reasonable job of choking out weeds. By carefully timing your pruning program, you can "create" your own spring and fall flower display. The most common complaint against garden mums as perennial plants is they often appear unkempt and sparse. Timely shearing encourages lateral shoot development and a tighter appearance. Most horticulturists agree that garden mums, if to be used as a returning perennial, should be mixed quietly into an existing shrub row. Developing small colonies scatters the color and allows the foundation of woody shrubs to remain dominant.

The Plant Materials Class Project:

The class of 19 students faced a veritable wall of weeds and spent annuals at the start of the fall semester. A rigged sprinkler irrigation system kept the area in good moisture this past summer but I have vowed to have a permanent system in place by next summer. After assigning the students their "curator" areas, it didn't take long to clean out the beds (we won't talk about the snake), lay down a 2" layer of bark mulch and prune up the woodies. The box garden in the center of the Phase 1 area was solarized in August (by covering soil with clear polyethylene in a Texas August and leaving in place for 3-4 weeks you can "sterilize" soil) and then planted into a design utilizing red Floral Carpet snapdragons and pink Magic Charm Dianthus. A line of flowering cabbage and kale (alternating red, pink, and white) provides the center accent. Designed by Monte Bales, Jay Casada, and Gregg Lide, this floral display has a reasonable chance to make it through the winter and provide a bright early spring accent to the Phase 1 area. Some of the small open areas in Phase 1 were set to Swiss Giant pansies. They have grown slowly. We probably should have gone with Majestic Giants; they are generally more vigorous than most varieties.

Take a look at the "bridge" at the back of the horticultural facility; it ties in a slope directly to the east of the shadehouse to the parking lot. Designed by the Fall class and constructed in November, it makes an interesting and rustic landscape accent. The "cap" for this structure required metal plate bracing to insure the strength for the upswept wings that duplicate the angle of the bridge floors. Thanks to Dr. Bill Long, the Agricultural Mechanics professor, for helping me with the bracing and providing us with advice. This was an attempt to create a mirror-image effect and a Japanese

flavor to the area. Wrestling the 6" X 6" wolmanized timbers pnto place and constantly checking to see if our construction wps "plumb". This provided the students with a good learning experience and a callus or two. While more than a few design changes took place during construction, the final product remains as artistic testimony to the Fall class. It is certainly sturdy and will enjoy many years of service. The stairs up the remainder of the slope involved considerable digging, aligning, and sand sweeping. A heavy planting and bark mulching will make this area a showpiece in two to three years when vines and foundation plants gain size and stature. We are making plans for plant placement in the shade that this new garden structure creates. We haven't chosen the vine that will one day cover the bridge arbor, but a red flowered cross vine, Bignonia capreolata, in the collection looks like an excellent candidate.

We have finally finished the carpentry work in the Phase 2 area. The deck and arbor were strengthened and some benches for the garden are almost ready to be placed. A border of Cleyeras interspersed with different Juniperus species and Nandina varieties was set in place around the base of the deck and arbor. Steve Alexander and Gregg Lide worked out the plant placements; trying to tie together a diverse group of plants with usually only one container per variety is a tough chore!

A 1" X 6" cap was hammered onto the Phase 2 box beds. The Phase 2 area faces the intramural field and our boxed bench gardens made a handy place for softball fans to sit this summer. Of the six beds that rest on this south facing slope, five will soon be home to a collection of daylilies. Only the Dawn Redwood bed next to the Wilson Drive sidewalk will be excluded; the other beds contain trees that are small in ultimate stature. They should provide a light shade on this exposed hillside.

The daylilies will be provided by a truly wonderful "Friend", Ms. Jean Barnhart who lives in Central Heights. Every time I visit "Barney's Garden" I realize I'm in front of a truly plant-possessed gardener. Her incredible daylily collection occupies about 1 acre and specializes in truly high value specimens. Her breeding efforts have been substantiated by the American Hemerocallis Society. She recently purchased the collection of another daylily breeder for a pretty penny; Jean will use some of his germplasm to develop a daylily bloom that stands up to summertime thunderstorms and to develop blooms that remain attractive more than a "day". While I could have collected some of the material this fall, we decided that March would be a better time. That way, we can get the beds "Roundupped" a couple of times this Fall and bark mulched. That will also give us time to make sure that we have the beds properly mapped to insure variety identity retrieval. We intend to plant the daylilies 2' X 2' and label each with a plant stake. Jean also added a new "twist" to the arboretum by donating 67 varieties of minature rose. These were brought in as cuttings and set into the mist propagation bed. Thanks, Jean.

We acquired a collection of Groundcovers from Classic Groundcovers in Georgia (see acquisition list) and we now have a containerized grouping of many liriope, hosta, english ivy, sedum, pachysandra (difficult here, at best), ajuga, and Euonymus varieties. Take a look at these interesting groundcovers in the shadehouse. We intend to place these plants in mid-spring after they have filled out the container.

Another interesting group of plants was a number of tree and shrub specimens from ForestFarm Nurseries, 990 Tetherow Road, Williams, Oregon 97544. This was a November acquisition I couldn't resist. The nursery sells mail order hundreds of different woody species that are often hard to locate. They also fit in with our limited budget by selling tubelings at a low cost ($2 to $4). The two boxes arrived via UPS in excellent shape. Ruth Kubacka, Teresa Rash, Nancy Miles, Billy Brown and Gregg Lide were responsible for giving the plants acquisition numbers, two labels, and being potted into 2-gallon containers. They are all resting happily in the shade house, barked in for additional protection. I have talked with Peg Prag and look forward to acquiring some of their other goodies in the early spring. The plants are developed in 2" X 2" X 6" plant bands that transplant well and allow us to grow into a healthy specimen collection. I couldn't help myself and bought 6 species of Eucalyptus that <u>might</u> have some sort of chance here if we get the site just right. Take a look at the 80 new Forest Farm plants in the shade house.

What about that Arboretum map I promised? I guess just saying that we are working on it is getting old. It will be available soon and you will be able to pick it up at the new entrance Kiosk (in our case, this will be a cedar box with hinged lid mounted on a post). Inside this rustic box will be the plastic enclosed maps of the Phase 1 and 2 areas. You can take one of the copies and find your way through the plant collection. You will also notice that we have started to use zinc labels on our specimens. We hope to have all of the plants labelled by May, 1987. While difficult to read from a distance, they are there to keep plants located. The maps provided will be the easiest way to locate particular plants. By looking at the cover map you can quickly find any bed in the Phase 1 and 2 area; the "bed" maps are labelled A through L and were drawn to scale by the students in this class. A blank set of bed maps will be used as a "Master" and copies filled with plant location numbers. The Master set will make it easy to make changes as plantings continue and some plants die. Keep in mind that this particular arboretum is understaffed and on a shoestring budget. At times, the maps will obviously contain plants that are not listed or may not contain a plant (recently removed) which may then be confusing; we will try to be as current as possible.

Another aspect of keeping up with plant inventory (which I now realize must drive most Arboretum Directors crazy!) is computerization. While we have now adopted an acquisition number approach, we are not loading our new plants into a database. I have assigned a student, Stuart Cureton, a problems

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Arboretum brings biological diversity

By Jeffrey Jones
Staff Reporter

The "University among the Pines," has long been a source of cultural diversity for East Texas. An associate professor of agriculture has begun a project to make SFA a source of biological diversity by spicing those pines with a wide variety of exotic plants.

The SFA Arboretum is already more than just a gleam in the eye of its creator. Dr. David Creech. The seeds of the future arboretum have already been sown in the SFA Horticultural Gardens located south of the Agriculture building. The gardens were begun a year and a half ago, Dr. Creech said.

Dr. Creech hopes to eventually spread the arboretum to the entire campus by setting out the hardier trees and shrubs in those areas now deficient in greenery. Such reforestation of the campus is needed, Dr. Creech said, to replace recent losses of trees due to construction and lightning.

"So many students come to SFA because . . . it's beautiful. Any horticulturist, any forester who looks at this campus can see that there are major changes going on in the forest eco-system on the campus.

"We're losing a lot of the beautiful old pine trees, a lot of the larger oaks. They're under a lot of pressure, and we really need to start an effort right now to make plans for the future. If we don't, in 10 or 15 years . . . we may go from 'University among the Pines' to 'University among the Smaller Trees.'"

Another major benefit of the arboretum Dr. Creech sees is the educational value of having so many varieties of plants nearby for comparison.

"Wouldn't it be nice to be able to make side-by-side comparisons right here on campus? It's typical for us (now) to get in a van, drive thirty minutes and look at a tree species."

Already the Horticultural Gardens are an important educational resource.

"The educational benefits are fantastic. Our students in the last year have been exposed to more species of plants than students on any other campus in the state.

"Such an arboretum on a university campus would be remarkable in Texas, although they are not uncommon in the South.

"No state monies will be used to fund the arboretum," Dr. Creech said. "All work so far has been the result of donations of money, plants and materials, and labor supplied by the students and faculty."

The university has recently started a fund to collect contributions to the arboretum.

Friends of the SFA State University Arboretum association has been created to encourage support in the arboretum. For $15, members receive a newsletter and information on plant give-aways, plant exchanges and lectures on horticultural topics.

The arboretum has wide support among local people, who have always expressed an interest in SFA's gardening, Dr. Creech said. The project is popular with people in the forestry and biology departments, as well as in agriculture, he said. Also, encouragement has come from horticulturists around the state as well as the faculty of Texas A&M, which does not have an arboretum of its own.

The collection should be ready to distribute on campus in about three years, Dr. Creech said.

"If we don't (reforest the campus), we may go from 'University among the Pines' to 'University among the Smaller Trees.'" -Dr. David Creech

course this coming spring to put our inventory onto a data base that allows retrieval from several angles. The acquisition number will be in chronological order; i.e., the number SFA 386-86 stands for the 386th plant acquired in 1986. A database (in this case, a Profile type software program) will allow us to pull the plants into alphabetical order and determine exact location. A database could also be used to develop a list of all trees, shrubs, vines, ground covers and herbaceous perennials. A data base can quickly tell whether a plant in question is in the collection and its status. With less than 1000 different Taxa acquired, I can assure you my memory has met its match. A database can iron out a lot of the mapping and ledger headaches.

ARBORETUM EXPANSION

A proposal to develop 3000 containerized tree specimens has been approved. Five to eight foot tall trees will be taken to the campus in 1989 and 1990. This fascinating project is already underway. What Bob Rogers, Grounds, and I have embarked on with the support of the "Friends" group is a project to develop a diverse collection of native and exotic tree species for the campus. This is a long term project that involves some committment of time and money. Three thousand 5 gallon containerized trees could be easily "swallowed" on the campus proper. It is no secret that the SFASU campus is suffering from a tree understory deficiency. The problem was outlined in an interview that appeared in The Pine Log, our campus newspaper (see attachment). While I think the large boxed in by-line is a somewhat poor selection from an hour interview, the article was favorably received on campus. The large "climax" pines on campus are indicating stress via sparse heads and heavy pine cone sets. There has not been a substantial reforestion effort made in years. Past attempts to reforest with pines has used a tree seedling approach; heavy student traffic has resulted in poor plant survival percentages. Those pockets that have survived are in low traffic areas. For example, notice the pines on the east side of the tennis courts, across from the intramural fields. In spite of the rather strong slope and imperfect soil type, the trees are well established. To tackle this university reforestation problem takes a plan. My contention is that a five to eight foot tree specimen is large enough to be noticed and respected - particularly if a good education program is made via The Pine Log. I'm convinced that the vast majority of students would get behind an effort of this type if it is known. Large, well-prepared planting holes, inexpensive tree guards and good training of the lawn mowing crew would insure success. A decent bark-mulching program will be built into the project. I envision a well-publicized tree planting day in two or three years that will increase student and community awareness.

The space necessary for this "containerized arboretum" is already in place. The square footage needed is less than 5000 square feet and the components for the irrigation system are in

my inventory. Grounds has an excellent chain link fabric [illegible] includes a quonset shade house. Bob Rogers is bringing to that area a time clock controlled overhead sprinkler system. The bottom line is that we do have plenty of space. I have a large inventory of donated five-gallon containers stored under the Agriculture Building. The media will be comprised of pine bark at $10.00 per cubic yard, peat moss at $36 per cubic yard, and sand at $3.50 per cubic yard. I am still playing with the cost per container by varying the media ratios, but all combinations that I like come in under 50 cents each. The plants set into this program will come from seed, rooted cuttings via Horticulture labs and plant and cutting acquisitions. They will be double labelled and the container yard mapped. My goal is to make the collection as diverse as possible (with as few as two to ten specimens per taxa). I will be working with Dr. Alhashimi's Introductory Horticulture and Nursery Management course to build lab projects that can feed this program. My own Landscape Plant Materials and Plant Propagation classes will assist with related laboratory projects. I am hoping that Forestry laboratory seeding and rooting efforts can tie into and feed this project.

I have always wrestled with the concept that, as Horticulture professors, we should be looking at our student product and our plant product. Propagating endless numbers of common landscape plants just because they are common and easy teaches very little. What we need to do is expose students to some of the truly difficult species. Seed with double dormancies, scarification requirements, and seedling development problems are exposures that benefit students. I agree with the premise that students (particularly since so many have never really gardened or studied a plant) should first learn to love the subject via hands-on-work, then and only then does study become a motivated compulsion. I am sure that I am not alone among Horticulture professors everywhere when I wonder just what it takes to develop in students a passion for their work and their life? The students that jump in and tackle projects outside of structured class times are students that keep this prof charged up. SFASU is blessed with an excellent core of students that believe in this project and they tolerate most of my scattered too-much-to-do/ too-much-to-see approaches to work! I am particularly pleased that some students not in the Horticuluture program are getting involved; they are students that believe in the idea. One of my 1987 goals is better organization (of course, that was my goal in 1986 . . . and 1985 and . . .).

Other arboretum related developments have occurred. I was asked by the SFASU Forestry Honors Fraternity to present a program at their annual banquet, November 19th. This was a good opportunity to lay out some arboretum approaches to a logical group of students and professors that find the idea of a campus wide "tree walk" particularly appealing. This was a crowd that didn't need to be sold on the "idea". The slide presentation is essentially an "SFA Arboretum - Why and How" program and is comprised of three parts: Who benefits from an arboretum, a

slide tour of 5 arboretums that allows me to cover arboretum themes and approaches to plant acquisition and development, and what the SFA Arboretum is doing. The article in The Pine Log has made the School of Forestry very much aware of our long range goals and, I think, will assure further cooperation. Several Forestry students have sat down with me and let me lay out the directions that we are taking. Several have brought me seedling trees and seeds for stratification. The more active involvement and moral support this project can garner, the more likely are our chances of success.

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NATIVES VS EXOTICS

I have mentioned my intention of introducing a diverse collection of tree types to the SFASU arboretum and campus. An arboretum "implies" diversity but that diversity can be approached in several different ways. For instance, we could select only those tree types that are "native" to the east Texas area. We could expand that concept to taking on only those that are native to the South and Southeastern U.S. That would greatly increase our acquisition numbers. We could then expand on that idea and tackle plants that are native to the U.S. The arboretum could display and test plants that are native to any part of the world where climate and soils are similar and there appears to be a good chance for "adaptation". An arboretum can also include species that are probably poorly adapted but an attempt can be made to fit those plants to microclimates and altered soils to enhance their plant performance. In plain words, an arboretum approach must address what it chooses to display. The following discourse attempts to focus on considerations that might influence the ultimate product we have in mind: a Stephen F. Austin State University Arboretum.

My approach is to concentrate on building a collection of well-adapted native and exotic trees. There is already an impressive list of plants that are not in the collection but should be because their behavior locally is proven. There are several Cunninghamias in our town that are doing well. There are numerous oak, maple, and pine species that will grow easily on our campus. Some may not grow at "timber production" rates, but they will add a touch of class to any landscape. Informal grouping of pine species in the many campus pockets that are now open strikes me as a strong priority. There are 50 oaks that I have on my wish list. There are numerous small trees and shrubs (understory species) that could find a happy home in our many azalea groupings. The azalea plantings on our campus are always applauded by students and visitors. While they do "make" our spring color burst - the time of color display could be greatly enhanced by incorporating and quietly mixing in other Rhododendron types that bloom later. The contrast would be harmonious if plant colonies were created in existing beds. I am exploring the idea of purchasing grafted liners from a liner

nursery in Alabama that carries a wonderful range of grafted dogwood cultivars and varieties of Redbud. I have purchased a supply of Acer palmatum seed to start a nursery that will one day be a grafting opportunity for our growing Japanese maple specimens. I have purchased with "Friends" monies a collection of tree seed. While I have concentrated on seeds with easy germination and seedling development characteristics, I have also included some that take a good deal of technical skill. All of the tree seed purchased are uncommon in our area.

The point of a natives vs. exotic argument will never be made. All plants are native to somewhere. An arboretum can limit itself via concentration on certain plant types. After all, the SFA Arboretum could focus only on herbaceous perennials, which opens a huge group of fascinating plants to study. The nursery and containerized tree program will necessarily take most of our time and effort in the next few years and is an approach that will have a heavy impact on the "look" of this deep East Texas university landscape for decades to come. It is important to appreciate that there are always evolutionary steps in plant diversity even in native habitats. Forest climaxes are reached and new forest diversities entertained. The study of this phenomenon leaves me with the vague feeling that "natural" developments are conceptual and influenced by seed and seedling establishment and environmental influences. The hand of man has an awesome impact. My experiences in Pakistan and Guatemala only underline the fragile nature of many plant habitats.

The fact that we have a university campus to work with insures compaction constraints far greater than in a lightly trod woodland grove. Small tree colonies can be given ample compaction protection by simply laying logs in an encircling effort and then bark and leaf mulching heavily in the bed zone; that effectively channels students and professors away from root zone compaction. Other methods can be used to minimize close traffic pressures but the encircled tree colony in a bed technique is often utilized when traffic pressures are high. Obvious paths are improved and undesirable paths planted and screened. There are additional stresses. Drainage problems exist where ever plants grow. Too much or too little water and temporary waterloggings that drive the oxygen out of the soil can eliminate many species. Some species are tolerant to abuse and others are not. By a careful study of our campus in the next three years we can arrive at a "best bet" site for the species to be displayed.

A first priority is to build the tree collection for the aboretum expansion. Carl Bauman and James Meeker, two Forestry students who remain "true believers" in this project, have put together a three-page list of "native" types they feel would fit somewhere on our campus. I have a visit planned to the Durio Nursery at Quitman, Louisiana. They have a fantastic collection of tree species for sale that includes over 100 Magnolia grandiflora cultivars. I'm convinced they would perform beautifully along LaNana creek. I want some of their variegated cultivars as well as the variety with bright yellow

6 to 8 inch blooms. That trip is planned for mid-February and will result in a wonderful future tree foundation for any university landscape. There are a number of maple species that would find our area hospitable and they are now growing in the containerized collection.

Let me interject a personal experience that might underline the importance of including exotics into our project. I enjoyed three consultancies to Pakistan several years ago that dealt with fruit and vegetable development projects. The project area was located in the Northwestern Frontier Province in that high friction area adjacent to Afghanistan and China. It is characterized by rather diverse ecosystems. My work involved extensive jeep travels and treks into the country side around Peshawar, Swat, Abbotobad, Bodkella, Dir, and other valley floor cities. I was fortunate enough to enjoy a fascinating trip to Quetta in the Baluchistan province; this more southern province is characterized by scant rainfall and a history of nomadic sheep and goat herding. Days of poring over climatological data (in an attempt to fix fruit and vegetable production "windows") revealed an incredible diversity of climactic constraints. In some valleys, oranges could grow successfully interplanted into apples! Apples require considerable chilling (1000+ hours greater than 45 degrees fahrenheit during the winter rest period) and oranges are sensitive to temperatures less than 32. In most valleys, only a pocket or two would allow this unique combination successfully. In some cases, one would travel just a mile or two, turn a corner to run up a side valley and find such a combination impossible. In other words, much of the lower foothills and Himilayan mountain valleys enjoy climactic diversity in short distances. This, of course, confuses any fruit or vegetable mapping study but does underline just how discriminating a plant ecology can be. So many of the Himilayan plants that have found a widespread home in other lands were isolated in these micropockets and evolved there to fit that "niche". The sad side of this coin is that this area of the world has already endured an awesome denuding. Heavy population increase pressures have precipitated firewood shortages. The population heats their home and cooks their meals with firewood. A heavy reliance on beasts of burden (burros, camels, cattle, and buffalo) place an unbearable burden on the flora of that region. And now, the Afghan refugee problem with 3 million more mouths for this area to support and their herds has almost thrown the environment into a no-win situation. Many mountainous slopes are characterized by very few species. The thorny olive, an inedible-to-man-or-beast palm, and several woody shrubs dominate. Attempts to reforest the mountains by airplane seeding and human crews have generally failed. The delicate mountain slopes now worn clean of an "organic" leaf and litter layer can no longer germinate the seed nor support the tree seedling that once was "native". Until the causes of the original problem are eliminated, little can be done to reclaim this once pristine habitat. Most of the slopes are denuded of temperate tree species. The upper elevations once

supported magnificent [illegible]
bare. Lush semi-tropical valley floors have given way to food production efforts. The valley floors are characterized by deep and fertile soils and crude but effective stream channel/irrigation canals provide water to the new crops. The new rice, soybean, and wheat varieties developed since the 1960's have made this area grain heavy. While carbohydrate sufficieny is prevalent, protein deficiency is endemic. Attempts by AID and other-country development projects often address this issue via animal industry and proteinaceous crop introductions.

After my first visit to Pakistan, I made plans to make some germplasm collection efforts on my next trip. What to collect? I settled on Juglans regia, the Persian walnut because of its accepted use as a "roadside" tree in much of the NWFP. This "native" is often spared the axe because it is appreciated as a beautiful large food tree. It is often used as the perimeter to different fields and because farms are very small, there are great numbers of these large trees in certain valleys. They are almost all seedlings and, thus, I assumed that a tremendous amount of variability was probably present. Contacts with Dr. Loy Shreve, Texas Agricultural Extension Service, Uvalde, Texas, helped set up my collection effort. He operates as a USDA plant quarantine center for walnuts. After being briefed on just what to look for, I incorporated my own "selection" approach into the fruit and vegetable work. On entering a village, I asked the locals if there was a particularly productive tree, one that had established a reputation as a heavy producer, free of blight, and adapted to summertime heat. Someone would always pipe up, "Oh yes, I know of such a tree!" Many times, I found myself bouncing down a rocky mountain road (I called my driver "A.J. Mohammed") to get to the farm of some grower whose dooryard tree was well known. Seed and cuttings were collected and labelled. Prior to departure, I repacked it all and gave the box a USDA APHIS (American Plant Health Inspection Service) sticker. Eventually, the box was handed over to the APHIS team at New York City. They mailed the plant material onto the correct quarantine station. Prunus seed and cuttings forwarded to Dick Okie, Byron, Georgia, and Walnut seed and cuttings to Loy Shreve at Uvalde, Texas. Dr. Shreve reports several of the cultivars grafted took and two of my selections look very promising; they have made rapid growth, appear to be free of blight and endure heat well. I am going to secure several small grafted trees from him this winter and they will become an interesting plant in the arboretum. If it succeeds it will add a personal touch and strong evidence that "exotics" can make our plant world a little more interesting. Arboretums can serve as nurturing "stations" for promising new plants - plants that can add to our food production needs and enhance our landscapes. It was Thomas Jefferson that said, "The greatest service which can be rendered to any country is to add a useful plant to its culture."

Another aspect of the native/exotic concept is that many people automatically think native equals good and exotic equals bad. That stereotyping creates arguments between the two

"camps". Some native plant "purists" feel that an entire garden landscape is somehow defiled by the inclusion of a single exotic species. Thus, a crepe myrtle, Lagerstroemia indica (a China plant) would be banned from demonstrating its summertime color explosion. There's little doubt that our east Texas natives put on a good show, but few can rival the crepe in this regard. Native plant enthusiasts are correct in advocating adapted plant materials, plants that can withstand our torturous climate. Xerophytic landscaping is a concept that should come to east Texas gardeners. Many gardeners and even some horticulturists feel that the terms "xerophytic" and "native" are essentially related - that the best plant to place in a dryland landscape would be a west Texas native. This interpretation may be based on the fact that many of those enthusiasts that have spearheaded "Xerophytic" landscapes were often passionate "native plant" students. The fact remains that many exotics can perform admirably alongside drought tolerant natives. Growing plants adapted to dryland conditions and grouping them in garden colonies based on that characteristic is an intelligent approach. But so often landscapers and homeowners scatter these types into existing gardens with their higher water requiring plants as nearby neighbors. Grouping plants with similar needs into specific garden areas allows maximum performance. The inclusion of exotics into a native landscape or the inclusion of natives into a bed of exotics only disturbs those that have set up rigid landscape definitions. Grouping plants with dissimilar cultural requirements into the same bed disturbs all horticulturists!

The inclusion of exotics into a campus arboretum effort often creates a discussion of "escapes". The possibility of releasing to the environment a woodland invasive pest is a topic of concern among biologists, foresters, and horticulturists. Privet and the tallow tree are examples of "oversuccessful" invasive species. While the history of this type of problem is rarely traced to arboretum acquisitions, the issue must be considered important. In actuality, an arboretum is the logical place to test a species for that potential. Most of the plant material for this arboretum is easily acquired by any homeowner who has chased down a source through a specialty nursery mail order outfit. That means, of course, that the plant has already "escaped". Most of the plant material selected for this arboretum has already been tested in our area of the South and has been accepted as adapted under proper cultivation. Some of the Mexico and west Texas species are new to our area but are planted in a few local nurseries and gardens. An arboretum can provide valuable documentation on the invasiveness of plants new to the east Texas area. An arboretum, armed with this knowledge, can effectively limit further introduction of a potential pest plant.

Native habitat is a poorly defined term at best. Many species in the world once enjoyed wide habitats. The Dawn Redwood, Metasequoia glyptostroboides, is well adapted here. This single species was identified from the fossil record after being discovered in 1941 at Szechwan, China. The first living

plants were brought to the attention of botanists in 1948. Interestingly enough, this attractive large conifer propagates easily by seed or cuttings and is well adapted to a wide range of climates and soil types. While it appreciates most the moist soil conditions associated with water courses, it does well under drier conditions. Why this adaptable plant went through a habitat restriction (one valley in China!) remains a matter of conjecture.

It is also difficult to predict habitat preferences by known habitat. For instance, many plants native to wet stream bank conditions (and rarely found elsewhere) adapt well to upland drier conditions if given just a little attention in the establishment phase. The impressive cypresses, Taxodium distichum (Bald cypress), Taxodium distichum var. nutans (Pond cypress), and Taxodium mucronatum (Montezuma cypress) all perform satisfactorily in our landscapes if kept well watered the first few years. They are planted on the western edge of the Phase 2 area and will ultimately be a part of the arboretum's mixed tree and shrub screen alongside Wilson Drive. They appear to have the ability to tap deep soil water sources that might not be enjoyed by other plants. That is, once the root system can get sufficient depth, the tree behaves in a rather drought resistant manner. Thus, these species, often thought of as swamp loving, can enjoy a happy home very different from their original habitat.

Plant hardiness cannot be predicted easily from known habitats. Some southern plants that are "native" perform admirably in more northern climes. Many northern plants perform well here or can be positioned to perform well. Some northern trees and shrubs have no problem with our lack of winter cold but find the summer heat particularly troublesome. That is, a northern tree might be a full sun plant in Virginia but find in east Texas some need for afternoon sun protection. It might appreciate a dappled shade environ. The beauty of a large campus like SFASU is that there are a multitude of charming micropocket habitats. Multi-storied buildings create wind and temperature channels that result in surprising diversities. The side of a large western exposure building can be a "heat box" well appreciated by some of our dryland heat loving Texas species from western parts of the state. The northeastern side of buildings often makes a happy home for camellia and azalea groupings. The numerous tree groupings on campus that do not endure heavy traffic problems are excellent candidates for understory species plantings. Some species that endure much lower temperatures further north find problems in east Texas with early bloom or early Fall freezes that would be no problem in their native environment. Tree types that insist on maintaining vigorous new growth (in many cases, due to our long day length in October and November) are often subject to damage. Some species deal poorly with our characteristic warm spells that occur between mid-winter cold blasts. The heating of the cambium encourages activity - activity that results in phloem damage when freezing temperatures arrive in precipitous drops. After all, any east Texas gardener can remember sweating

in their garden in January with 70, even 80 degree temperatures, and greeting the very next day in the teens. Such is Texas weather. Plants that evolve where winter truly arrives and settles in, have no need for selecting types able to endure alternating warm/cold winter temperatures. Forsythia, Chaenomeles (flowering quince) and Spiraea species are often caught early in the spring with their bloom showing and lose their brilliance after our usual March frosts. But they are common and much appreciated "exotics" whose harbinger of spring is well marked in our city.

In conclusion, it is my opinion that landscape enthusiasts not restrict themselves to just the beauty of local plants but open the door to plant experiences that can be equally rewarding and certainly educational. We must keep in mind that "paradise is an ancient Persian word - still found in our dictionaries - meaning garden or park" (The Lore of Flowers, N. Ewart).

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GARDENING BY MAIL

One aspect of the Friends group that I am eager to encourage is mail order gardening. Early this semester I received a rare plants nursery listing from Dr. Raulston at North Carolina State University and after feeding all of the addresses into a mail list computer file, generated about 200 letters to nurseries and seed companies in the U.S. and Europe that specialize in difficult-to-find plants. Most of the catalogs carry a charge of one to five dollars (usually refunded on first purchase). We were able to secure many free by explaining this aspect of the arboretum function and that the catalogs would be made available to the "Friends" group. While some of the firms require volume shipments, others are satisfied to deal with homeowners on a one-plant-at-a-time basis. The few shipments we have secured via mail-order have worked out fine. By using small plants one can easily acquire an incredible array of plant materials. All that is needed is a little more time to grow the plant to reasonable planting size. Members are encouraged to come by the Agriculture Building, Room 116A and browse through the nursery catalogs. I assure you that the most difficult thing is eliminating plants on your initial "wish list"; I find myself running up large bills. That room is serving as a sort of Horticulture magazine library. Different periodicals are stacked on the bookshelves and organized by titles. Feel free to enjoy these.

The new Tusker Press 1986 book, Gardening by Mail, by Barbara J. Barton, is an excellent directory of mail-order resources that includes seed companies, nurseries, suppliers of all garden necessities and ornaments, horticultural and plant societies, magazines, libraries, and a list of useful books on plants and gardening. In plain words, this book can lead you to sources of everything for the garden and gardener. More than 1200 nurseries are described and indexed by plant specialty and

also by location. The directory should make a wonderful starting point for any serious gardener in our area. The book can be obtained by writing Tusker Press, PO Box 597004, San Francisco, California 94159. Barbara Barton served as the reference librarian at the Strybing Arboretum and saw a need for a "directory" of this sort. A computer generated softbound book, it will be updated every few years. Barbara also describes in her own eloquent way just what the nursery is offering, with price estimates. The book is worth the investment.

The seed catalog of Chiltern Seeds, Rortree Stile, Ulverston, Cumbria, LA 12 7PB, England provides homeowners and nurserymen with seed sources for many difficult-to-find plants. It is interesting, and the small print dictionary is refreshing and often humorous. It is spiked with flavorful Cockney colloquialisms and while the catalog fails to conform to my old fashioned "What Zone is it!" attitude, it does offer a tremendous seed listing at reasonable prices. (Payment is as simple as buying from a U.S. nursery and Visa card holders will have the easiest time. I have been timid in approaching the SFA Purchasing agent about that!). While prices are in pence, the current exchange rates put most seed packets in the less-than-one-dollar range. Chiltern's provides germinating recommendations that can be easily supplemented with information from other sources. Some, of course, are quite easy. Other seed requires a little more attention. Chiltern's offers 70 species of Eucalyptus for sale and the catalog makes an interesting attempt at categorizing the species into possible hardiness zones. The six zones in England are well described but one is left wondering how to extrapolate their information into our zones. All the zone system says for our zone 8 is that we commonly endure midwinter lows of 10 to 20 degrees fahrenheit. The 1983 plummet to five to seven degrees fahrenheit and its three week persistence certainly tested many species. In their native habitat, some Eucalyptus species can endure temperatures as low as -12 degrees fahrenheit. This huge genus is "native" to Australia, Tasmania, and New Guinea. Those Eucalyptus species that have managed to adapt to very cold winters are often sited in dry zones. Most horticulturists feel that Eucalyptus suffers from our winters because it fails to go dormant, continues to grow in the late fall, and is caught by the first freezes. This behavior may be related to our generally moist soil conditions in the fall. The persistence of Dr. Victor Bilan's Eucalyptus in front of the Forestry Building is interesting. While it has been killed to the ground several times, it has managed to regenerate healthy regrowth. It is probably less than optimumly placed; the tree is in close proximity to a wet, seepy area. I think there's a good chance that several Eucalyptus species could find a happy compromise with our climate if properly located. We need to find a warm, dry, Southwestern exposure pocket on our campus. I have six species started in the polyethylene house that should find a home in a year or so!

The catalog of Girard's Nursery, PO Box 428, Geneva, Ohio

44041 is illustrated beautifully and appears to be an excellent source for many diverse plants not commonly found in our area. They offer plants in many sizes, from 3" pot plants to one gallon and larger. They offer some interesting "money saving specials" including pines, broadleaf evergreens, deciduous trees, assorted evergreens, and evergreens and shrubs. They also offer seed of a small but interesting group of conifers, deciduous tree and shrubs. They have a solid grouping of Rhododendrons and certainly promote their own line of Rhododendron releases. I am tempted to buy the dwarf false cypress collection that involves 14 three-inch pot plants, 7 varieties, two in each variety for $15. Numerous other collections strike me as reasonably priced. My first reading of the catalog ran up a $300 bill so I have retrenched and am culling the original list!

F. W. Schumacher Co., Inc., 36 Spring Hill Rd., Sandwich, Mass. 02563-1023 (617-888-0659) is an excellent domestic source of reasonably priced seed for nurserymen and foresters. Schumacher provides a fact sheet, "How to Grow Seedlings of Trees and Shrubs", if an order is over $20. Schumacher attempts to indicate provenance of seed collections when available, allowing the selection of seed with the knowledge of where it was collected. The catalog carries an impressive list of many woody plants that deserve additional testing in our area. Keep in mind that seed collected from many cultivars (that were propagated from cuttings, grafting, or budding) will not "come true" from seed. I am using Schumacher's as a source of seedlings that can be culled to superior selections or used as understock for known cultivars in our collection as they develop. Cultivars of dogwood, redbud, maple and magnolia are difficult to root and often grafted. The expense of grafted cultivars ($4.50 for a grafted dogwood liner is from my least costly source) suggests that small 100 seedling nurseries are needed.

John Rochester's Dogwood Hills Azalea Nursery at Rt 3 Box 181, Franklinton, Louisiana agreed to help us in building a collection of Azaleas for the arboretum. His collection numbers over 2000 varieties. John is constantly testing new "groups" for adaptation to the South. We visited on the phone about the hardiness issue in our area and feel that our two areas are very similar. After all, Franklinton (north of New Orleans) suffered a plunge to 4 degrees fahrenheit in December, 1982. The low in Nacogdoches was 7 degrees. This looks like a wonderful place to start our collection, and we agreed to a late February "pick-up" at his nursery. I am looking forward to collecting the various Rhododendron "groups" most likely adapted to our environment. The Nacogdoches area can grow numerous members of this botanically confusing group and John Rochester has agreed to help me sort through the confusion by laying out a reasonable best-bet collection for our area. Most of the azaleas in our area of east Texas are Kurume or Southern Indica types but others are adapted. We have a number of native southern azaleas containerized and are developing them for planting in several years. The transplants are available from

this nursery for $1.50 each (small rooted plants in 3" pots) and are a logical way to develop a collection. John Rochester even agreed to include a few of the John-Creech-recent-Japanese introductions, two of which appear very promising.

Thomasville Nurseries, PO Box 7, Thomasville, Georgia 31799 focuses on roses, azaleas, daylilies and liriopes. It is an excellent source of difficult-to-find rose varieties and offers them in good sizes. It carries an interesting line of native southern azaleas for those of you who find this group irresistible.

Ecotones Nursery, Kirbyville, Texas was mentioned as a promising new nursery in my last newsletter. It will be closing in the near future as both owners have decided to pursue other interests. I made one last "raid" November 24, so that I could capture some of their interesting specimens for our arboretum. Eric and I wandered through the collection and picked out 74 containerized trees and shrubs that might be difficult to locate through other sources. For instance, I acquired several species of Quercus dwarfs that came from the plant explorations of Lynn Lowrey into Mexico. One type appears to spread into a low mounding shrub via rhizomes. The "Cloud Forest" area in Mexico has never been documented completely and may yield many surprises. Its elevation, and subsequently lower winter temperatures, and its rainfall patterns suggest that this area may yeild many worthwhile plants to our landscapes. I also chose one vigorous holly specimen in a batch of one gallon containers. This plant came from Lowrey collections of an Ilex opaca X Ilex rotunda spontaneous seedling bed. A pure yellow flowered trumpet creeper vine was acquired and should add to our inventory of unusual vines. Eric Lautzenheiser is a delight to talk to and has, in the past year, gained a wealth of knowledge dealing with propagating unusual woody plants. Eric will be returning to his home near San Antonio and hopes to get a position with the San Antonio Botanical Garden. Best of Luck, Eric!

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BOOK REVIEWS

Hortus Third, 1976 edition, Macmillan Publishing Co., New York, was compiled by the staff of the Liberty Hyde Bailey Hortorium, a unit of the New York State College of Agriculture and Life Sciences, a statutory college of Cornell University. While it is a cumbersome hardbound monster of 1290 pages (certainly not a field handbook!), it is an essential reference book for any arboretum development. It is a concise dictionary of plants cultivated in the United States and Canada. While it misses so many of the post-1976 introductions, it does a wonderful job of tieing species and varieties together. I only wish that the next edition would include just a few more lines on soil and climate preferences and perhaps a bit on propagation technique preferences! Picky, picky. At $125 per copy, it is certainly a bookshelf item only for the serious

gardener!

ARBORETUM ANNOUNCEMENTS

By now, the 1st annual SFA Hort Club shrub sale has passed and I am sure that many of you have made a home for your new Christmas time acquisitions. The small one gallon plants can be planted as soon as possible and mulched in. They should make good root growth this winter and be well set for spring shoot development. Remember to break up the root ball and not plant too deep; it is best to plant high and mulch heavily with bark. This year's sale centered on a number of common, woody landscape plants and featured crepe myrtle varieties, kurume and southern indica azaleas, a few cleyeras, and three gardenia species. Some of you may have gotten some small four inch pots with rooted cuttings of what I suspect are old seedling gardenias. These may have white fly resistance as I have observed them at their abandoned "homes" for several years. One is labelled Shelbyville and represents cuttings taken from a particularly showy plant that endured very well the 1983 freeze, subsequent droughts (no irrigation at the site), and other hardships. While the bloom is a little less showy than the common "August Beauty", its sensitivity to freezes and constant foliage problems demands that we look for something else. The second gardenia was located on the farm of Herbert K. Durand, Buna, Texas. This site involved heavier soil, shade pressures, and high humidities. The foliage remains vigorous but I must say that I have never seen the blooms? A good way to handle these small rooted plants is to heel them into a special "high care" section of your garden, develop them a few years and leave them in place or move them. By concentrating them in a small zone you can give them adequate attention, which is much better than running around in an established garden giving this little plant attention and then on to the next to do the same. It is better to tend a small garden correctly than a large one poorly.

The first annual fall plant sale was designed to coordinate with Horticulture Club and SFASU lab projects and is an indication that the idea is workable. Major changes will occur by next year's sale. We intend to switch from the very common landscape plants and concentrate on developing small numbers of many different and unusual plant specimens. Many of these are in the pipeline and next spring's propagation class will have their work cut out for them! Without the ever present assistance of the Horticulture Club, very little of this project could succeed. Monies generated in this first sale were allocated to the SFA Horticulture Club, and then earmarked for future arboretum related projects. This compatible relationship is something that needs fine-tuning. The Horticulture Club at SFA has historically taken on aggressive, greenhouse-plant-growing projects: bedding plants, easter lilies, tropical foliage, poinsettias, etc. This years "woody project" effort points out a need to create a heavier student involvement with the growing of woody ornamental plants.

As a result of local interest and conversations at some of the Nacogdoches ladies' garden clubs, we have decided that the time is ripe for a Men's Garden Club to come to our fair city. With George Rice and Sonny Arnold, past and present county extension agents, we will be announcing a meeting for all men interested in east Texas gardening. As George Rice so eloquently put it, "With this project, you already have something in place that a man could sink his teeth into". While I'm not so sure about that, I'm sure that there are enough men gardeners and plant enthusiasts in our area to make a viable club work. The tremendous Nacogdoches council of Ladies Garden Clubs has tackled numerous civic projects, reports on its activities in the local paper, and has supported the arboretum development. The local garden clubs have advocated the return of the annual flowering display (cut out in 1985 in the budget cut) and it appears that SFASU may enjoy a colorful spring! The garden clubs have provided my students with some paid "fun" down at the local library on Main street. The bedding plant display is a Horticulture Club/Council of Garden Clubs cooperative effort. While I find myself all too often telling a student to "run on down to the library and pull a few weeds!", the cooperation is well worth it. The students are looking forward to building a really bright display in the spring. I am convinced that a men's garden club could also enhance our university and our community. Don Freeman, the president of the Texas Men's Garden Club Association, will be coming to the first meeting in late January, 1987 (I will send out a flier to each "Friend" announcing the exact date; twist the arm of someone who loves gardening to come to this important first meeting!). Don Freeman will lay out the how's and why's and should be an interesting speaker. The Austin Men's Garden Club has tackled some very sizeable projects at Zelker Park (visited in November) that includes a Japanese Garden, a visitor's center, a rose garden, a xerophytic garden display, and is currently working on a Zelker Park Arboretum. Don't miss the Zelker Park Gardens the next time you are in that area.

Don't forget that the annual SFA bedding plant sale will be taking place in early March. The club and I have already selected seed of varieties that performed well in 1986 and are adding to the list varieties and types not previously displayed. I will send out a flier to the "Friends" announcing that sale.

INTERESTING QUOTES

> I remember seeing in your greenhouse a plant of a couple feet height in a pot the fragrance of which was peculiarly agreeable to me, and you were so kind as to remark that it required only a greenhouse - Thomas Jefferson to William Hamilton, July, 1806

> Give fools their gold, and knaves their power, Let fortune's bubbles rise and fall; Who sows

a field, or trains a flower, or plants a tree, is more than all. - Whittier

. . . more precious still to the gardener are the most fragile of all woody things that garland bush and tree with beautiful forms and blossoms, like Clematis, Jasmine, and Honeysuckle, and the many lace-workers of the woods and brakes. - Robinson

The gentle earth spreads man's walk with flowers, and his table with plenty; returning with interest every good committed to her care - Pliny

To know someone here or there with whom you can feel there is understanding in spite of distances or thoughts unexpressed can make of this earth a garden - Goethe

We have lived with forest trees for millions of years, yet how little we understand them. - The Klamath Knot, D.R. Wallace

The United States are singularly blessed in their tree birthright. No other land is so richly dowered and no other land boasts such variety of useful and ornamental trees as does this country. - E.H. Wilson

In some places we fynd chestnuts, whose wild fruict I maie well saie equalize that best in France, Spaine, Germany, Italy or those so commended in the Black Seas by Constantinople, all of which I have eaten - History of Travaile into Virginia

To get maximum attention, it's really hard to beat a bad mistake - Pat Hall

The shed blood of disagreeing enthusiasts is the seed of the garden, and the hostilities of gardeners seem only equalled in righteous acrimony by those Patriarchs, and Popes, Anglican Bishops and other persons of professions presumably holy - Reginald Farrer

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I have attached application blanks for you to give to any of your gardening friends. With your support we can build a truly first class arboretum.

NEW PLANTS IN THE ARBORETUM - September 1, 1986 - January 1, 1987

SFA NO. PLANT

Dr. J.C. Raulston, NCSU Oct, 1986

183-86 Ilex NA 28211 (perneyi x latifolia)
184-86 Magnolia stellata 'Waterlily'
185-86 Aphananthe aspera 38C
186-86 Franklinia alatamaha 'Hoyt 84' X
187-86 Magnolia grandiflora 'Raspberry Ice' X
188-86 Thuja plicata 'Hogan'
189-86 Cornus sericea 'aurea'
190-86 Cornus bretschneideriana
191-86 Gleditsia japonica 'Korajensis'
192-86 Spiraea japonica 'Fastigata'
193-86 Ilex NA 28214
194-86 Rhamnella franguloides 3356
195-86 Chionanthus retusus
196-86 Ligustrum lucidum 'Davidson Hardy'
197-86 Maackia amurensis
198-86 Magnolia denudata #2 Beijing
199-86 Spiraea japonica 3710
200-86 Ilex x 'aquipernyi x cornuta)
201-86 Scilla scilloides 3683
202-86 Milletia japonica
203-86 Magnolia spectrum
204-86 Patrinia scabiosifolia 3842
205-86 Enkianthus serrulatus
206-86 Juniperus 'Blue Chip'
207-86 Cragana brevispina 123 U.W.
208-86 Pinus pinaster X
209-86 Chionanthus nitens X
210-86 Hosta minor 3610
211-86 Magnolia x soulangiana 'Coates' X
212-86 Cupressus bakeri
213-86 Ilex NA 28338
214-86 Ilex NA 28221 (perneyi x altaclarensis)
215-86 Juniperus horizontalis 'Blue Chip #3'
216-86 Ilex aquifolium angustifolia
217-87 Magnolia stellata 'Kobus borealis'
218-86 Cupressocyparis x 'Leylandi'
219-86 Ilex NA 28274 (integra x aquifolium)
220-86 Prunus Okame
221-86 Vinca minor 'LaCrave'
222-86 Juniperus horizontalis 'Blue Horizon' #3
223-86 Juniperus horizontalis 'Blue Chip'
224-86 Magnolia x kewensis 'Wada's Memory'
225-86 Iris havigata
226-86 Ilex NA 28231
227-86 Disanthus cercidifolius X
228-86 Juniperus horizontalis 'Blue Horizon'
229-86 Caladrastis platycarpa
230-86 Callicarpa japonica
231-86 Celtis choseniana Nor 346
232-86 'Leonard Messel' (M. Kobus x M. stellata 'Rosea')

233-86 Mag 'orchid'
234-86 Betula jacquemontii
235-86 Malus baccata 3699
236-86 Vitex rotundifolia NA55280
237-86 Juniperus horizontalis 'Blue Horizon'
238-86 Juniperus horizontalis 'silver sheen' VTA
239-86 Cunninghamia lancelota 'glauca'
240-86 Phellodendron amurensis
241-86 Magnolia grandiflora 'Bracken's Brown Beauty'
242-86 Araucaria araucana X
243-86 Ilex NA 28297 (aquifolium x cornuta) x integra)
244-86 Sophora vicifolia
245-86 Quercus lobata
246-86 Cornus controversa
247-86 Cunninghamia 'Konishi'
248-86 Prunus rhiofolia
249-86 Callicarpa dichotama
250-86 Helianthus angustifolia
251-86 Ilex NA 28269 (integra x aquifolium)
252-86 Bignonia capreolata (red flowered cross vine)
253-86 Acer ginnala 3694
254-86 Rhamnus koraiensis 3731
255-86 Akebia trifoliata
256-86 Delosperma nubigenia X
257-86 Ilex NA 28255
258-86 Juni media 'Blue n Gold'
259-86 Viburnum hitchiuense 'Morris 317'
260-86 Picea pungens 'Foxtails'
261-86 X Alangium platanifolium microphylla 3383
262-86 Picea pungens 'Fat Albert'
263-86 Prunus persica (dwf red flower)

Classic Ground Covers, Georgia Oct. 1986

264-86 Liriope muscari 'Monroe White'
265-86 Hosta sieboldiana 'Elegans'
267-86 Hosta sieboldiana 'Variegata'
268-86 Hedera helix 'Glacier'
269-86 Ajuga reptans
270-86 Lonicera japonica 'Purpurea'
271-86 Hosta undulata 'Erromena'
272-86 Hypericum calycinum
273-86 Euonymus fortunei 'Longwood'
274-86 Ajuga reptans 'Bronze'
275-86 Liriope muscari 'Variegata'
276-86 Lonicera japonica 'Halliana'
277-86 Liriope muscari 'Big Blue'
278-86 Liriope muscari 'Densiflora'
279-86 Trachelospermum jasminoides
280-86 Euonymus fortunei 'Vegeta'
281-86 Liriope muscari 'Evergreen Giant'
282-86 Pachysandra terminalis 'Green Carpet'

283-86 Hedera helix 'Baltica'
284-86 Liriope muscari 'Majestic'
285-86 Hosta plantaginea 'Royal Suite'
286-86 Euonymus fortunei 'Acuta'
287-86 Hedera helix 'Needlepoint'
288-86 Pachysandra terminalis 'Variegata'
289-86 Hedera helix
290-86 Euonymus fortunei 'Gracilis'
291-86 Hedera helix 'California'
292-86 Cotoneaster dammeri
293-86 Liriope muscari 'Webster's Wide Leaf'
294-86 Liriope muscari 'Original Big Blue'
295-86 Hosta sieboldiana
296-86 Vinca minor 'Bowles'
297-86 Liriope muscari 'Sunproof'
298-86 Sedum sappa planca
299-86 Sedum sarmentosum
300-86 Cotoneaster salicifolius
301-86 Hedera helix 'Hahn's'
302-86 Liriope spicata
303-86 Vinca major
304-86 Ophiopogon japonicus
305-86 Cotoneaster dammeri 'Coral Beauty'
306-86 Pachysandra terminalis
307-86 Trachelospermum jasminoides
308-86 Trachelospermum asiaticium 'Variegatum'
309-86 Hedera helix 'Wilsonii'
310-86 Hosta fortunei 'auro-marginata'
311-86 Euonymus fortunei 'Colorata'
312-86 Ajuga reptans 'Silver Beauty'
313-86 Liriope muscari 'Green'
314-86 Ophiopogon japonicus 'nana'
315-86 Hosta fortunei 'albo-marginata'

Hines Nursery, Houston, Texas Oct. 1986

316-86 Juniperus sabina 'Broadmoor' (Hines 3500)
317-86 Ilex aquifolium x Ilex cornuta 'Nellie R. Steven
318-86 Ilex dinorphylla (Hines 3011)
319-86 Ilex cornuta 'needle leaf' (Hines 3078)
320-86 Nandina domestica compacta nana (Hines 4300)
321-86 Nandina domestica compacta (Hines 4310)
322-86 Lantana 'New Gold' (Hines 3821)
323-86 Lantana 'Irene' (Hines 3803)
324-86 Nandina domestica 'Harbor Dwarf' (Hines 4307)
325-86 Euonymus patens 'Manhattan' (Hines 1710)
326-86 Lantana 'Dwarf Pink Frolic' (Hines 3816)
327-86 Hypericum patulum (Hines 2674)
328-86 Pennisetum ruppeli (Hines 4597)
329-86 Juniperus chinensis 'Blue Point' (Hines 3255)
330-86 Hosta 'Gold Crown' (Hines 2578)
331-86 Juniperus chinensis 'Old Gold' (Hines 3330)

331-86 Juniperus chinensis 'Old Gold' (Hines 3330)
332-86 Stokesia laevis (Hines 3408)
333-86 Juniperus chinensis 'Torulosa' (Hines 3415)
334-86 Juniperus horizontalis 'Plumosa compacta-Youngstown' (Hines 3460)
335-86 Azalea indica 'Pink Ruffles' (Hines 8181)
336-86 Azalea indica 'Red Ruffle' (Hines 8192)
337-86 Azalea obtusum 'Christmas Cheer' (Hines 8154)
338-86 Azalea indica 'Formosa-magenta' (Hines 8262)
339-86 Raphiolepis indica 'Pinkie' (Hines 5197)
340-86 Cupressus sempervirens 'Glauca' (Hines 1240)
341-86 Azalea Gumpo White Chuggai (Hines 8191)
342-86 Azalea obtusum 'Coral Bells' (Hines 8155)
343-86 Juniperus sabina tamariscifolia (Hines 3520)
344-86 Juniperus conferata 'Blue Pacific' (Hines 3440)
345-86 Cotoneaster glaucophyla (Hines 1100)
346-86 Lantana Dwf Radiation (Hines 3817)
347-86 Lonicera japonica 'Halliana' (Hines 4025)
348-86 Selaginella putescens #5320 (Hines 5378)
349-86 Juniperus chinensis 'Pfitzeriana aurea' (Hines 3340)
350-86 Elaegnus pungens 'Fruitlandii' (Hines 1420)
351-86 Buxus microphylla japonica 'Green Beauty' (Hines 0612)
352-86 Raphiolepis indica 'Ballerina' (Hines 5153)
353-86 Lantana sellowiana (Hines 3802)
354-86 Ilex vomitoria 'Pride of Houston' (Hines 3173)
355-86 Juniperus chinensis 'Pfitzeriana Blue' (Hines 3350)
356-86 Ilex vomitoria 'Straugho's (Hines 3171)
357-86 Juniperus horizontalis 'Wilsonii' (Hines 3465)
358-86 Raphiolepis indica 'Harbinger of Spring' (Hines 5175)
359-86 Sedum 'Ruby Glow' (Hines 5329)
360-86 Azalea Gumpo Pink Chugai (Hines 8178)
361-86 Dryopteris erythrosora fern (Hines 1860)
362-86 Camellia japonica 'Tom Knudsen' (Hines 7872)
363-86 Budbeckia hirta 'Goldstream' (Hines 5260)
364-86 Camellia japonica 'Pope Pius IX' (Hines 7860)
365-86 Sedum kamtschalicum middendoff (Hines 5315)
366-86 Rhynchospermum manglanum (Hines 5232)
367-86 Ilex cornuta 'rotunda' (Hines 3080)
368-86 Ilex cornuta 'rotunda' (Hines 4305)
369-86 Salvia x superba 'Blue Queen' (Hines 5283)
370-86 Ilex crenata compacta
371-86 Camellia japonica 'Dai Kagura-PB' (Hines 7927)
372-86 Juniperus chinensis 'Robusta Green' (Hines 3394)
373-86 Camellia japonica 'Col. Fiery' (Hines 7825)
374-86 Lagerstroemia indica 'Bourbon Street' (Hines 3705)
375-86 Ligustrum texanum compactum (Hines 3959)
376-86 Juniperus chinensis prostrata variegata Hines 3392)
377-86 Hosta fortunei 'Albo Marginata' (Hines 2579)
378-86 Raphiolepis indica 'Clara' (Hines 5165)
379-86 Lagerstroemia indica 'New Orleans' (Hines 3738)
380-86 Camellia japonica 'White Daikagura' (Hines 7905)
381-86 Camellia japonica 'Margie' White (Hines 7887)
382-86 Camellia japonica 'Ava maria' (Hines 7720)
383-86 Camellia japonica 'Mabel Bryan' (Hines 7945)
384-86 Camellia japonica 'Nuccio's Gem' (Hines 78881
385-86 Camellia japonica 'Chandleri elegans' (Hines 7925)
386-86 Lonicera japonica 'Purpurea' (Hines 4031)
387-86 Camellia japonica 'Tingley' (Hines 7793)
388-86 Camellia japonica 'Covina' (Hines 7830)
389-86 Camellia japonica 'Julia Drayton' (Hines 7845)
390-86 Raphiolepis indica 'Jack Evans' (Hines 5170)
391-86 Camptis x taliabuana 'Madame Galen' (Hines 0717)
400-86 Ilex vomitoria 'Stokes' (Hines 3175)
401-86 Lagerstroemia indica 'Dwarf Red' (Hines 3696)
402-86 Pyracantha 'Chevri Berri' (Hines 5080)
403-86 Camellia japonica 'Laurel Leaf' (Hines 7770)
404-86 Camellia sasanqua 'Hana Jinao' (Hines 7965)
405-86 Camellia japonica 'Pearl Maxwell' (Hines 7795)
406-86 Camellia japonica 'Mathotiana supreme' (Hines 7850)
407-86 Lagerstroemia indica 'Dwarf Pink' (Hines 3746)
408-86 Hydrangea 'Sister Teresa' (Hines 2650)
409-86 Liriope muscari, 'Silver Dragon' (Hines 3340)
410-86 Yucca pendula 'glauca' (Hines 5845)
411-86 Nandina domestica 'Gulf Stream' (Hines 4298)
412-86 Camellia japonica 'Marie Bracey' (Hines 7773)
413-86 Passiflora x incense (Hines 4585)
414-86 Miscanthus sinensis (Hines 4209)
415-86 Dryopteris normalis (Hines 1862)
416-86 Milletia reticulata
417-86 Miscanthus sinensis 'gracillimus' (Hines 4207)
418-86 Hedraneza 'Merritta Pride'
419-86 Camellia japonica 'Debutante' (Hines 7730)
420-86 Prunus caroliniana compacta (Hines 4895)
421-86 Euonymus japonica aurea marginata (Hines 167
422-86 Elaeagnus x Sunset (Hines 1422)
423-86 Miscanthus sinensis purpurascens (Hines 4208)
424-86 Juniperis chinensis prostrata (Hines 3390)
425-86 Viburnum odoratissimum (Hines 5695)
426-86 Lagerstromia indica 'Baton Rouge' (Hines 3692)
427-86 Spiraea reevesiana (Hines 5380)
428-86 Pennisetum setaceum (Hines 4596)
429-86 Lagerstroemia indica 'Cordon Bleu' (Hines 3735)
430-86 Lagerstroemia indica 'Delta Blush' (Hines 3740)
431-86 Lagerstroemia indica 'Lafayette' (Hines 3700)
432-86 Heteropterys glabra-'Redwing' (Hines 2333)
433-86 Pyrus calleryana 'Aristocrat' (Hines 5111)
434-86 Pistachia chinensis (Hines 4755)

Forest Farm Nursery, Oregon Nov. 1986

435-86 Acer campestre
436-86 Acer macrophyllum
437-86 Acer tegmentosum
438-86 Acer distylum
439-86 Acer davidii
440-86 Alnus cordata
441-86 Eucalypptus neglecta
442-86 Eucalyptus cinera
443-86 Aronia melanocarpa
444-86 Salix sachalinensis 'Sekka'
445-86 Pterostyrax hispidus (Epaulette Tree)
446-86 Salix matsudana 'Golden Curls'
447-86 Arbutus unedo 'Compacta'
448-86 Eucalyptus niphophila
449-86 Quercus acutissima
450-86 Campothera acuminata
451-86 Salix melanostachys'
452-86 Punica granatum 'Nana'
453-86 Alnus oregona (rubra)
454-86 Cesanthus glorious
455-86 Angelopsis breripedunculata
456-86 Eucalyptus cordata
457-86 Eucalyptus gunii
458-86 Eucalyptus johnstonii
459-86 Salix caprea
460-86 Rhododendron calendulaceum
461-86 Aesculus octandra
462-86 Akebia quinata
463-86 Acer circinatum
465-86 Pseudolaria kaempferi
466-86 Acer ginnala
467-86 Ptelea trifoliata
468-86 Catalpa fargesii 'Duclouxii'
469-86 Chaenomeles japonica 'Cameo'
470-86 Cercis occidentalis
471-86 Polygonum aubertii
472-86 Chaenomeles 'Jet Trail"
473-86 Calycanthus floridus
474-86 Cryptomeria japonica 'Lobii Nana'
475-86 Cladrastis platycarpa
476-86 Cryptomeria japonica
477-86 Cupressus bakeri
478-86 Cupressus duclouxiana
479-86 Cryptomeria japonica 'Jindai-sugi'
480-86 Cercidiphyllum japonicum
481-86 Cupressocyparis x leylandii 'Silver Dust'
482-86 Caryopteris x clandonensis 'Blue Mist'
483-86 Cryptomeria japonica 'Tansu'
484-86 Berberis thunbergii 'Gold Ring'
485-86 Chimonanthus praecox

Phlox divaricata, Louisiana Phlox or Wild Blue Phlox, is native to East Texas to western Florida and north to South Dakota. Flower colors range from white to lavender to purple. The plant combines well with spring blooming bulbs. The small, dark, ground-hugging leaves make low attractive clumps and provide an interesting border to any bed. Drought tolerant, the plant should be in every garden. Propagate by seed, division of clumps, or cuttings in early summer.

Phlox drummondii, Drummond's Phlox, grows to six inches and is a fairly common garden plant in our area. The plant self-sows easily in sand so be sure to recognize the young seedlings in the spring. They will quickly provide a blanket of white, pink, red, and purple flowers. The plant dies soon after flowering and going to seed, so plant below lantana or Pavonia to fill the space from June to frost.

Phlox paniculata, Perennial Phlox, is an old-fashioned favorite. If the old blossoms are removed, the plant will flower from late spring to frost. The plants need staking for best display and are most effective when massed. While numerous colors are available in the trade, the only ones that seem to persist in old gardens are the magenta pink and occasionally white forms, according to Welch.

Phlox subulata, Thrift or Moss Pink, is a long-blooming showy plant less than one foot tall. It is useful in rock gardens or tucked in the front of a border. Propagate by division and cuttings taken in the fall. It is best to divide and reset every few years or the planting will degrade.

Physostegia praemorsa, Lionheart, False Dragon-Head, or Obedient Plant, is another popular Bed B herbaceous perennial. Native to our area and Louisiana, the plant reaches two feet tall. It is the shortest of the Physostegias and most drought tolerant. Our clump has a very pale lavender bloom in September and October. The variety "Summer Snow" is white-flowered and blooms earlier than the species, P. virginica. The individual flower stalks protude four to six inches above the leaves to make a striking statement if massed in groups of five or more. The blooms make excellent, long-lasting cut flowers and can be arranged easily. The individual flowers can be gently pushed to a new position that they hold in; thus the name "Obedient plant". Best propagated by seed or division of the clump. P. pulchella and P. angustifolia, and P. digitalis are East Texas natives with similar landscape value. The plants grow naturally in swampy places but are remarkably drought-tolerant if a mulch is utilized.

Plumbago auriculata, Blue Plumbago, is probably best suited to areas south of Nacogdoches but the plant is worth a try. Our colony in Bed C has survived two years but has yet to make an impressive show, inspite of mulch and waterings. The plant is reported to grow up to three feet tall; ours has only reached a sparse one foot and blooms weakly. Considered to be a very drought-tolerant species, the plant is popular in the San Antonio region. Propagate by seed or division.